

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2022

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____
Commission file number: 001-38147

CONSOL Energy Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of incorporation or organization)

82-1954058
(I.R.S. Employer Identification No.)

275 Technology Drive Suite 101
Canonsburg, PA 15317-9565
(724) 416-8300

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class
Common Stock (\$0.01 par value)

Trading Symbol(s)
CEIX

Name of each exchange on which registered
New York Stock Exchange

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer Accelerated filer Non-accelerated filer Smaller Reporting Company Emerging Growth Company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. Yes No

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The aggregate value of common stock held by non-affiliates of the registrant (treating all executive officers and directors of the registrant, for this purpose, as if they may be affiliates of the registrant) was approximately \$1,682,099,918 as of June 30, 2022, the last business day of the registrant's

most recently completed second fiscal quarter, based on the reported closing price of the common stock as reported on The New York Stock Exchange on such date.

The number of shares outstanding of the registrant's common stock as of January 27, 2023 was 34,746,904 shares.

DOCUMENTS INCORPORATED BY REFERENCE:

Portions of CONSOL Energy Inc.'s Proxy Statement for the 2023 Annual Meeting of Stockholders to be filed within 120 days of the end of the registrant's fiscal year are incorporated by reference in Items 10, 11, 12, 13 and 14 of Part III.

TABLE OF CONTENTS

	Page
PART I	
ITEM 1. Business	6
ITEM 1A. Risk Factors	30
ITEM 1B. Unresolved Staff Comments	52
ITEM 2. Properties	52
ITEM 3. Legal Proceedings	52
ITEM 4. Mine Safety Disclosures	52
PART II	
ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	53
ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	55
ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk	75
ITEM 8. Financial Statements and Supplementary Data	76
ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosures	126
ITEM 9A. Controls and Procedures	126
ITEM 9B. Other Information	128
ITEM 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections	128
PART III	
ITEM 10. Directors, Executive Officers and Corporate Governance	128
ITEM 11. Executive Compensation	128
ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	128
ITEM 13. Certain Relationships and Related Transactions and Director Independence	128
ITEM 14. Principal Accountant Fees and Services	129
PART IV	
ITEM 15. Exhibits and Financial Statement Schedules	129
SIGNATURES	135

PART I

Important Definitions Referenced in this Annual Report

- “CONSOL Energy,” “we,” “our,” “us,” “our Company” and “the Company” refer to CONSOL Energy Inc. and its subsidiaries;
- “Btu” means one British Thermal unit;
- “CCR Merger” refers to the merger under that certain Agreement and Plan of Merger, dated as of October 22, 2020, among the Company, Transformer LP Holdings Inc., a wholly-owned subsidiary of the Company (“Holdings”), Transformer Merger Sub LLC, a wholly-owned subsidiary of Holdings (“Merger Sub”), the Partnership and the General Partner, pursuant to which Merger Sub merged with and into the Partnership, with the Partnership surviving as an indirect, wholly-owned subsidiary of the Company, which merger closed on December 30, 2020;
- “coal reserves” refer to the Company’s proven and probable coal reserves as defined by Section 1300 *et. seq.* of Regulation S-K that could be economically mineable, after taking into account modifying factors, including mining recovery and preparation plant yield;
- “CONSOL Marine Terminal” refers to the Company’s terminal operations located at the Port of Baltimore;
- “former parent” refers to CNX Resources Corporation and its consolidated subsidiaries;
- “General Partner” refers to PA Mining Complex GP LLC (formerly known as CONSOL Coal Resources GP LLC), a Delaware limited liability company and the general partner of the Partnership;
- “Greenfield Reserves and Resources” means those undeveloped reserves and resources owned by the Company in the Northern Appalachian, Central Appalachian and Illinois basins that are not associated with the Pennsylvania Mining Complex or the Itmann Mining Complex;
- “Itmann Mining Complex” refers to the Company’s Itmann No. 5 metallurgical coal mine and coal preparation plant located in Wyoming County, West Virginia, and surrounding reserves to be processed and sold through the Itmann Mining Complex coal preparation plant;
- “mmBtu” means one million British Thermal units;
- “Partnership” refers to PA Mining Complex LP (formerly known as CONSOL Coal Resources LP), a Delaware limited partnership that is a wholly-owned subsidiary of the Company and holds an undivided interest in, and is the sole operator of, the Pennsylvania Mining Complex; and
- “Pennsylvania Mining Complex” or “PAMC” refers to the Bailey, Enlow Fork and Harvey coal mines, the Central Preparation Plant, coal reserves and related assets and operations located in southwestern Pennsylvania and northern West Virginia.

FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report on Form 10-K are “forward-looking statements” within the meaning of the federal securities laws. With the exception of historical matters, the matters discussed in this Annual Report on Form 10-K are forward-looking statements (as defined in Section 21E of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) that involve risks and uncertainties that could cause actual results and outcomes to differ materially from results expressed in or implied by our forward-looking statements. Accordingly, investors should not place undue reliance on forward-looking statements as a prediction of actual results. The forward-looking statements may include projections and estimates concerning the timing and success of specific projects and our future production, revenues, income and capital spending. When we use the words “anticipate,” “believe,” “could,” “continue,” “estimate,” “expect,” “intend,” “may,” “plan,” “predict,” “project,” “should,” “will,” “would,” or their negatives, or other similar expressions, the statements which include those words are usually forward-looking statements. When we describe strategy that involves risks or uncertainties, we are making forward-looking statements. The forward-looking statements in this Annual Report on Form 10-K speak only as of the date of this Annual Report on Form 10-K; we disclaim any obligation to update these statements unless required by securities law, and we caution you not to rely on them unduly. We have based these forward-looking statements on our current expectations and assumptions about future events. While our management considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond our control. These risks, contingencies and uncertainties relate to, among other matters, the following:

- deterioration in economic conditions or changes in consumption patterns of our customers may decrease demand for our products, impair our ability to collect customer receivables and impair our ability to access capital;
- volatility and wide fluctuation in coal prices based upon a number of factors beyond our control;
- the effects the COVID-19 pandemic has on our business and results of operations and on the global economy;
- an extended decline in the prices we receive for our coal affecting our operating results and cash flows;
- significant downtime of our equipment or inability to obtain equipment, parts or raw materials;
- decreases in the availability of, or increases in the price of, commodities or capital equipment used in our coal mining operations;
- our reliance on major customers, our ability to collect payment from our customers and uncertainty in connection with our customer contracts;
- our inability to acquire additional coal reserves or resources that are economically recoverable;
- the availability and reliability of transportation facilities and other systems that deliver our coal to market and fluctuations in transportation costs;
- a loss of our competitive position;
- foreign currency fluctuations that could adversely affect the competitiveness of our coal abroad;
- the risks related to the fact that a significant portion of our production is sold in international markets and our compliance with export control and anti-corruption laws;
- coal users switching to other fuels in order to comply with various environmental standards related to coal combustion emissions;
- the impact of current and future regulations to address climate change, the discharge, disposal and clean-up of hazardous substances and wastes and employee health and safety on our operating costs as well as on the market for coal;
- the risks inherent in coal operations, including being subject to unexpected disruptions caused by adverse geological conditions, equipment failure, delays in moving out longwall equipment, railroad derailments, security breaches or terroristic acts and other hazards, delays in the completion of significant construction or repair of equipment, fires, explosions, seismic activities, accidents and weather conditions;
- failure to obtain or renew surety bonds or insurance coverages on acceptable terms;
- the effects of coordinating our operations with oil and natural gas drillers and distributors operating on our land;
- our inability to obtain financing for capital expenditures on satisfactory terms;
- the effect of new or existing tariffs and other trade measures;
- our inability to find suitable acquisition targets or integrating the operations of future acquisitions into our operations;
- obtaining, maintaining and renewing governmental permits and approvals for our coal operations;
- the effects of asset retirement obligations, employee-related long-term liabilities and certain other liabilities;
- uncertainties in estimating our economically recoverable coal reserves;
- the outcomes of various legal proceedings, including those which are more fully described herein;
- defects in our chain of title for our undeveloped reserves or failure to acquire additional property to perfect our title to coal rights;
- the risk of our debt agreements, our debt and changes in interest rates affecting our operating results and cash flows;

- information theft, data corruption, operational disruption and/or financial loss resulting from a terrorist attack or cyber incident;
- the potential failure to retain and attract qualified personnel of the Company;
- failure to maintain effective internal controls over financial reporting;
- uncertainty with respect to the Company's common stock, potential stock price volatility and future dilution;
- uncertainty regarding the timing and value of any dividends we may declare;
- uncertainty as to whether we will repurchase shares of our common stock or outstanding debt securities;
- inability of stockholders to bring legal action against us in any forum other than the state courts of Delaware; and
- other unforeseen factors.

The above list of factors is not exhaustive or necessarily in order of importance. Additional information concerning factors that could cause actual results to differ materially from those in forward-looking statements include those discussed under "*Risk Factors*" elsewhere in this report. The Company disclaims any intention or obligation to update publicly any forward-looking statements, whether in response to new information, future events, or otherwise, except as required by applicable law.

ITEM 1. Business

General

We and our predecessors have been mining coal, primarily in the Appalachian Basin, since 1864. The Company was incorporated in Delaware on June 21, 2017 and became an independent, publicly-traded company on November 28, 2017 when our former parent separated its coal business and natural gas business into two independently traded public companies. As part of the separation, our former parent transferred to the Company substantially all of its coal-related assets, including its Pennsylvania Mining Complex, all of its interest in PA Mining Complex LP (which was then a publicly-traded partnership), the CONSOL Marine Terminal, the Itmann Mining Complex and all of its Greenfield Reserves and Resources located in the Northern Appalachian Basin (“NAPP”), the Central Appalachian Basin (“CAPP”) and the Illinois Basin (“ILB”). On December 30, 2020, we acquired by merger the portion of PA Mining Complex LP that was not originally transferred to us in the separation.

The address of our principal executive offices is 275 Technology Drive Suite 101, Canonsburg, Pennsylvania 15317. We maintain a website at <http://www.consolenergy.com/>. The information contained in or connected to the website will not be deemed to be incorporated in this document, and you should not rely on any such information in making an investment decision.

All dollar amounts discussed in this section are in millions of U.S. dollars, except for per share amounts, and unless otherwise indicated.

Our Company

We are a leading, low-cost producer of high-quality bituminous coal, focused on the extraction and preparation of coal in the Appalachian Basin due to our ability to efficiently produce and deliver large volumes of high-quality coal at competitive prices, the strategic location of our mines and the industry experience of our management team.

Our most significant tangible assets are the PAMC and CONSOL Marine Terminal. Coal from the PAMC is valued because of its high energy content (as measured in Btu per pound), relatively low levels of sulfur and other impurities, and strong thermoplastic properties that enable it to be used in metallurgical, industrial and power generation applications. We take advantage of these desirable quality characteristics and our extensive logistical network, which is directly served by both the Norfolk Southern Corporation (“Norfolk Southern”) and CSX Transportation Inc. (“CSX”) railroads, to aggressively market our product to a broad base of strategically selected, top-performing power plant customers in the eastern United States. We also capitalize on the operational synergies afforded by the CONSOL Marine Terminal to export our coal to industrial, power generation and metallurgical end-users globally.

We are continuing to expand our presence in the metallurgical coal market through our Itmann Mining Complex in West Virginia. The Itmann Preparation Plant was constructed in 2022, began processing coal in late September 2022 and shipped its first train in October 2022. The plant includes a train loadout located on the Guyandotte Class I rail line, which can be served by both Norfolk Southern and CSX.

Our operations, including the PAMC and the CONSOL Marine Terminal, have consistently generated strong cash flows, even throughout the COVID-19 pandemic. As of December 31, 2022, the PAMC controls 622.1 million tons of high-quality Pittsburgh seam reserves, enough to allow for more than 20 years of full-capacity production. In addition, we own or control approximately 1.4 billion tons of Greenfield Reserves and Resources located in NAPP, CAPP and ILB. Our vision is to maximize cash flow generation through the safe, compliant and efficient operation of this core asset base, while strategically reducing debt, returning capital through share buybacks and/or dividends, and, when prudent, allocating capital toward compelling growth and diversification opportunities.

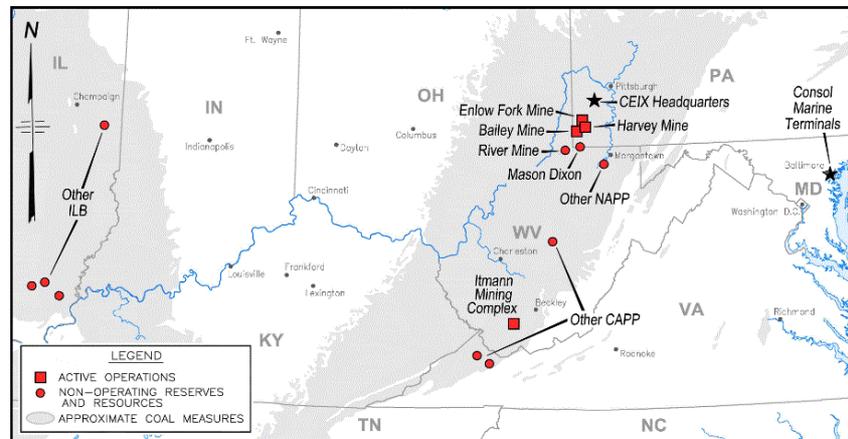
Our core businesses consist of our:

- **Pennsylvania Mining Complex:** The PAMC, which includes the Bailey Mine, the Enlow Fork Mine, the Harvey Mine and the Central Preparation Plant, has extensive high-quality coal reserves. We mine our reserves from the Pittsburgh No. 8 Coal Seam, which is a large contiguous formation of high-Btu coal that is ideal for high productivity, low-cost longwall operations. The design of the PAMC is optimized to produce large quantities of coal on a cost-efficient basis. We can sustain high production volumes at comparatively low operating costs due to, among other things, our technologically advanced longwall mining systems, logistics infrastructure and safety. All of our mines at the PAMC utilize longwall mining, which is a highly automated underground mining technique that produces large volumes of coal at lower costs compared to other underground mining methods.
- **CONSOL Marine Terminal:** Through our subsidiary CONSOL Marine Terminals LLC, we provide coal export terminal services through the Port of Baltimore. The terminal can either store coal or load coal directly into

vessels from rail cars. It is also the only major east coast United States coal terminal served by two railroads, Norfolk Southern and CSX.

- Itmann Mining Complex: Construction of the Itmann No. 5 Mine, located in Wyoming County, West Virginia, began in the second half of 2019; development mining began in April 2020, but the pace of the project was intentionally slowed to minimal capital spending due to the uncertainties surrounding the COVID-19 pandemic. The coal preparation plant was commissioned during the third quarter of 2022. The Company anticipates approximately 900 thousand tons per year of high-quality, low-vol coking coal production from the Itmann No. 5 Mine once it achieves its full run rate, with an anticipated mine life of 25+ years. The preparation plant also includes a rail loadout and the capability for processing up to an additional 750 thousand to 1 million saleable tons annually from third-parties and mining of our surrounding reserves. This additional processing revenue is expected to provide an avenue of growth for the Company.

A map showing the location of our significant properties is below:



The Company's mission is to improve lives and communities by safely and compliantly producing affordable, reliable energy and profitably growing through innovative technology and perseverance. Our core values of safety, compliance, and continuous improvement are the foundation of the Company's identity and are the basis for how management defines continued success. We believe the Company's rich resource base, coupled with these core values, will allow management to create value for the long-term. We believe that the use of coal as a fuel source for electricity and use in industrial applications, including but not limited to the steel-making process, will continue for many years. Furthermore, our Itmann Mining Complex is expected to benefit from the demand related to global infrastructure needs.

Our Strategy

The Company remains focused on increasing stockholder value by safely and compliantly operating our business, growing our metallurgical coal business, and, over time, diversifying into other business opportunities. The Company's existing coal assets align with these objectives. Our current production from the Bailey, Enlow Fork and Harvey mines can be sold domestically or abroad into the power generation, industrial or metallurgical coal markets. These low-cost mines, with up to five operating longwalls, produce a high-Btu Pittsburgh-seam coal that is lower in sulfur than many Northern Appalachian coals. Our onsite logistics infrastructure at the Central Preparation Plant includes a dual-batch train loadout facility capable of loading up to 9,000 tons of coal per hour and 19.3 miles of track linked to separate Class I rail lines owned by Norfolk Southern and CSX, which significantly increases our efficiency in meeting our customers' transportation needs. These mines and their logistics infrastructure, along with our 100%-owned CONSOL Marine Terminal, which is served by both Norfolk Southern and CSX, will allow us to continue to participate competitively in the world's power generation, industrial and metallurgical coal markets. The ability to serve both domestic and international markets with premium thermal and crossover metallurgical coal provides tremendous optionality. We have also begun production from our Itmann No. 5 Mine, which produces high quality low-vol metallurgical coal primarily used in steel making applications, and are starting to explore and invest in some innovative and more sustainable uses for coal, including through joint ventures and other opportunities. Over the mid- to long-term, the Company is planning to diversify its

revenue stream to increase relative contributions from its CONSOL Marine Terminal, metallurgical coal sales and other carbon products, resulting in a reduced exposure to thermal coal.

In order to continue to carry out our strategy, we will continue to adhere to and pursue the following strategic objectives:

Selectively grow our business to maximize stockholder value by capitalizing on synergies with our assets and expertise

We plan to judiciously direct the cash generated by our operations toward those opportunities that present the greatest potential for value creation to our stockholders, particularly those that take advantage of synergies with our asset base and/or the expertise of our management team. To that end, we plan to regularly and rigorously evaluate opportunities both for organic growth and for acquisitions, joint ventures and other business arrangements that complement our operations. The PAMC, the Itmann Mining Complex and our Greenfield Reserves and Resources present the potential for organic growth projects if long-term market conditions are favorable. For example, we are actively engaged in continuous improvement or research and development projects to improve the productivity of our Central Preparation Plant and our mining operations through the use of technology, automation, data visualization and analytics.

We regularly evaluate our Greenfield Reserves and Resources to identify organic growth opportunities that we believe can add value to our business. As such, we announced the commencement of our Itmann No. 5 Mine project in May 2019, began development mining in April 2020, and commissioned a coal preparation plant and began operations during the third quarter of 2022. The Itmann No. 5 Mine adds a new metallurgical coal product stream to our mix of products. Our Greenfield Reserves and Resources associated with certain NAPP and CAPP properties provide additional potential organic growth opportunities in the metallurgical coal space, and our Greenfield Resources associated with the Mason Dixon and River Mine projects present potential organic growth opportunities in NAPP. Our management team has extensive experience in developing, operating and marketing a wide variety of coal assets and, we believe, is well qualified to evaluate organic and external growth opportunities. We plan to carefully weigh any capital investment decisions against alternate uses of the cash to help ensure we are delivering the most value to our stockholders.

We are also pursuing a variety of alternative and innovative uses of coal to diversify our business. For example, in 2022, we acquired the remaining equity stake in CFOAM Corp. (“CFOAM”), which manufactures high-performance carbon foam products from coal that can be used in the industrial, aerospace, military and commercial product markets. The CFOAM acquisition represents our first investment in the coal-to-products space. We are also partnering with Ohio University and certain other industry partners on several U.S. Department of Energy-funded projects to develop coal-derived materials that can potentially be used in applications such as engineered composite decking, energy storage and 3D printing. Another initiative, our 21st Century Power Plant project, is also receiving funding from the Department of Energy to evaluate a next-generation power plant that would be fueled by waste coal and biomass and equipped with carbon dioxide (CO₂) capture and storage to achieve net neutral or negative CO₂ emissions. In addition, our Department of Energy-sponsored REMEDY project seeks to develop an ultra-efficient, safe and cost-effective technology for mitigation of mine ventilation air methane and if successful, could have applicability in other markets.

From time to time, we also evaluate investments in industries and sectors that are not related to coal but may provide long-term business opportunities that develop due to the potential energy transition efforts of various local, federal and international governments.

Preserve our share of coal sales to top-performing rail-served power plants in our core market areas, while opportunistically growing our presence in the industrial and metallurgical markets

We plan to minimize our market risk and maximize realizations by continuing to focus on selling coal to strategically selected, top-performing, rail-served power plants located in our core market areas in the eastern United States. We believe we can continue to grow our volumes by displacing less competitive and reliable supply from NAPP, CAPP and other basins. We also continue to work on optimizing our portfolio of top customer plants and identifying and penetrating new plants that we believe are aligned with our strategic objectives and would be a good fit for our coal.

Historically, the majority of our production was directed toward our established base of domestic power plant customers, many of which were secured through spot, annual or multi-year contracts. We have continued to diversify our portfolio by placing a growing portion of our production in the export markets, where we sell to power generation, industrial, and crossover metallurgical end-users. These markets provide us with pricing upside when markets are strong and with volume stability when markets are weak. In 2022, we placed 10.7 million tons of coal, or 44% of our total tons sold, into the export market. Also in 2022, 35% of our revenues derived from contracts with customers related to non-power generation applications. Comparatively, in 2017, we placed 8.3 million tons of coal, or 32% of our total tons sold, into the export market, and 18% of our revenues derived from contracts with customers related to non-power generation applications.

As of February 7, 2023, we have 23.9 million tons contracted for 2023 and have 12.5 million tons contracted for 2024. We believe our committed and contracted position is well-balanced and provides diversification benefits.

Drive operational excellence through safety, compliance, and continuous improvement

We intend to continue focusing on our core values of safety, compliance and continuous improvement. We operate some of the most productive, lowest-cost underground mines in the coal industry, while simultaneously setting some of the industry's highest standards for safety and compliance. Over the past five years, our PAMC Mine Safety and Health Administration ("MSHA") total reportable incident rate was approximately 53% lower than the national average underground bituminous coal mine incident rate. Furthermore, our PAMC MSHA significant and substantial ("S&S") citation rate per 100 inspection hours was approximately 73% lower than the industry's average MSHA S&S citation rate over the twelve-month period ended December 31, 2022. We believe that our focus on safety and compliance promotes greater reliability in our operations, which fosters long-term customer relationships and lower operating costs that support higher margins. Consistent with our core value of continuous improvement, we have improved our productivity at the PAMC from 6.27 tons per employee hour to 7.62 tons per employee hour since 2015. We intend to continue to grow the economic competitiveness of our operations by proactively identifying, pursuing and implementing efficiency improvements and new technologies that can drive down unit costs without compromising safety or compliance.

Maintain Ability to Access Capital Markets

We have generated significant cash from operations since becoming a publicly-traded company, which has allowed us to opportunistically refinance and pay down our debt. The reduced indebtedness on our balance sheet and improved liquidity allows us to pursue attractive organic growth opportunities and acquisitions. We constantly seek to improve our capital market capacity to provide additional funds, if needed, to grow our business. We believe that CONSOL Energy can access capital markets to raise debt and equity financing from time to time depending on the market conditions. In this connection, we filed a shelf registration statement on Form S-3 with the Securities and Exchange Commission ("SEC") in February 2022 that allows us to issue an indeterminate amount of securities, including common stock, preferred stock, debt securities and warrants. This shelf registration statement is intended to provide us with increased financial flexibility and more efficient access to the capital markets.

Furthermore, we successfully accessed the municipal bond market in 2021 and borrowed the proceeds received from the sale of tax-exempt bonds issued by the Pennsylvania Economic Development Financing Authority in an aggregate principal amount of \$75 million. During 2022, we amended and extended our revolving credit facility and accounts receivable securitization facility. With respect to the revolving credit facility, the amendment extended the facility by securing borrowing commitments of \$260 million, which includes more than \$100 million of commitments from new lenders to the facility and nearly \$40 million of increased commitments from certain extending lenders.

Our Competitive Strengths

We believe we are well-positioned to successfully execute our business strategies because of the following competitive strengths:

Focus on free cash flow generation supported by strong margins and optimized production levels

We intend to continue our focus on maintaining high margins by optimizing production from our high-quality reserves and leveraging our extensive logistics infrastructure and broad market reach. The PAMC's low-cost structure, high-quality product, favorable access to rail and port infrastructure and diverse base of end-use customers allow it to move large volumes of coal at positive cash margins throughout a variety of market conditions. Through our recent capital investment program, we have improved our mining operations and logistics infrastructure to sustainably drive down our cash operating costs. Furthermore, our ability to enter into multi-year contracts with our longstanding customer base will enhance our ability to generate high margins in varied commodity price environments. We believe that these factors will help enable us to maintain higher margins per ton on average than our competitors and better position us to maintain profitability throughout commodity price cycles.

Extensive, High-Quality Reserve Base

The PAMC has extensive high-quality reserves of bituminous coal. We mine our reserves from the Pittsburgh No. 8 Coal Seam, which is a large contiguous formation of high-Btu coal that is ideal for high-productivity, low-cost longwall operations. As of December 31, 2022, the PAMC included 622.1 million tons of recoverable coal reserves that are sufficient to support more than 20 years of full-capacity production. The advantageous qualities of our coal enable us to compete for demand from a broader range of coal-fired power plants compared to mining operations in basins that typically

produce coal with a comparatively lower heat content (ILB and the Powder River Basin (“PRB”)), higher sulfur content (ILB and most areas in NAPP) and higher chlorine content (certain areas of ILB). Our remaining reserves have an average as-received gross heat content of 12,972 Btu/lb, while production from the PRB, ILB, CAPP and the rest of NAPP averages approximately 8,700 Btu/lb, 11,200 Btu/lb, 12,100 Btu/lb and 12,300 Btu/lb, respectively (based on the average quality reported by the United States Energy Information Administration (the “EIA”) for U.S. power plant deliveries for the three years ended June 30, 2022). Moreover, our remaining reserves have an average sulfur content of 2.33%, while production from the ILB averages 2.93% sulfur and production from the rest of NAPP averages 3.34% sulfur (again, based on EIA power plant delivery data for the three years ended June 30, 2022). With our high Btu content and low-cost structure, our 2022 total cost per ton sold averaged \$1.63 per mmBtu, which is lower than any monthly average Louisiana Henry Hub natural gas spot price during the past 25 years, and provides a strong foundation for competing against natural gas even after accounting for differences in delivered costs and power plant efficiencies. In addition to the substantial reserve base associated with the PAMC, our Itmann Mining Complex includes 28.7 million tons of recoverable coal reserves that are sufficient to support more than 25 years of full-capacity production, and our 1.4 billion tons of Greenfield Reserves and Resources in NAPP, CAPP and ILB feature both thermal and metallurgical reserves and resources and provide additional optionality for organic growth or monetization as market conditions allow.

World-Class, Well-Capitalized, Low-Cost Longwall Mining Complex

Based on production per employee, the PAMC is a productive and efficient coal mining complex in NAPP, averaging 7.88 tons of coal production per employee hour for the past two years. We believe our substantial capital investment in the PAMC will enable us to maintain high production volumes, low operating costs and a strong safety and environmental compliance record, which we believe are key to supporting stable financial performance and cash flows throughout business and commodity price cycles.

Strategically Located Mining Operations with Advanced Distribution Capabilities and Excellent Access to Key Logistics Infrastructure

Our logistics infrastructure and proximity to coal-fired power plants in the eastern United States provides us with operational and marketing flexibility, reduces the cost to deliver coal to our core markets and allows us to realize higher free-on-board (“FOB”) mine prices. We believe that we have a significant transportation cost advantage compared to many of our competitors, particularly producers in the ILB and PRB, for deliveries to customers in our core markets and to East Coast ports for international shipping. For example, based on publicly available data and internal estimates, we believe that the transportation cost advantage from our mines compared to ILB mines (not accounting for Btu differences) is approximately \$5 to \$8 per ton for coal delivered to foreign consumers in Europe and India, up to \$3 per ton for coal delivered to domestic customers in the Carolinas, and an even more pronounced cost advantage for coal delivered to domestic customers in the mid-Atlantic states. Our ability to accommodate multiple unit trains from both Norfolk Southern and CSX at the Central Preparation Plant, which includes a dual-batch loadout facility capable of loading up to 9,000 tons of clean coal per hour and 19.3 miles of track with three sidings, allows for the seamless transition of locomotives from empty inbound trains to fully loaded outbound trains at our facility. Furthermore, the PAMC has exceptional access to export infrastructure in the United States. Through our 100%-owned CONSOL Marine Terminal, served by both the Norfolk Southern and CSX railroads, the PAMC and the Itmann Mining Complex have a competitive advantage in the world’s seaborne coal markets.

Strong, Well-Established Customer Base Supporting Contractual Volumes

We have a well-established and diverse customer base, comprised primarily of domestic electric-power-producing companies located in the eastern United States. We have had success entering into multi-year coal sales agreements with our customers due to our longstanding relationships, reliability of production and delivery, competitive pricing and high coal quality. Approximately 90% of our sales in 2022 were to customer companies that were in our 2021 portfolio, and ten of our top domestic power plant customers in 2022 (which are included in the twelve plants to which we shipped approximately 500,000 tons or more of PAMC coal in 2022) have been in our portfolio for at least five consecutive years. In addition, to mitigate our exposure to coal-fired power plant retirements, we have strategically developed our customer base to include power plants that are economically positioned to continue operating for the foreseeable future and that are equipped with state-of-the-art environmental controls.

In addition to our robust domestic customer base, we also have favorable access to seaborne coal markets through our commercial relationships with leading coal trading, brokering and international coal customers. We have grown our exports of coal to the seaborne markets from 8.3 million tons (or approximately 32% of our annual sales volume) in 2017 to 10.7 million tons (or approximately 44% of our annual sales volume) in 2022, including sales from both the PAMC and the Itmann Mining Complex.

Highly Experienced Management Team and Operating Team

Our management and operating teams have (i) significant expertise owning, developing and managing complex thermal and metallurgical coal mining operations, (ii) valuable relationships with customers, railroads and other participants across the coal industry, (iii) technical wherewithal and demonstrated success in developing new applications and customers for our coal products in industrial, metallurgical and power generation markets, and (iv) a proven track record of successfully financing, building, enhancing and managing coal assets in a reliable and cost-effective manner throughout all parts of the commodity cycle. We intend to leverage these qualities to continue to successfully develop our coal mining assets while efficiently and flexibly managing our operations to maximize operating cash flow.

CONSOL Energy's Capital Expenditure Budget

In 2023, CONSOL Energy expects to invest \$160 - \$185 million in capital expenditures. The Company continually evaluates potential acquisitions and dispositions of reserves and other assets that could increase or reduce capital expenditures.

Mining Properties

Information concerning our mining properties in this Annual Report on Form 10-K has been prepared in accordance with the requirements of subpart 1300 of Regulation S-K. Subpart 1300 of Regulation S-K requires us to disclose our mineral resources and our mineral reserves as of the end of our most recently completed fiscal year both in the aggregate and for each of our individually material mining properties.

As used in this Annual Report on Form 10-K, the terms "mineral resource," "measured mineral resource," "indicated mineral resource," "inferred mineral resource," "mineral reserve," "proven mineral reserve" and "probable mineral reserve" are defined and used in accordance with subpart 1300 of Regulation S-K. Under subpart 1300 of Regulation S-K, mineral resources may not be classified as "mineral reserves" unless the determination has been made by a qualified person that the mineral resources can be the basis of an economically viable project. As such, you are cautioned that, except for that portion of mineral resources classified as mineral reserves, mineral resources do not have demonstrated economic value. Likewise, you are cautioned not to assume that all or any part of measured or indicated mineral resources will ever be converted to mineral reserves. We have used the term "coal" as in "coal reserves" and "coal resources" interchangeably with "mineral".

The Company's estimates of recoverable coal reserves and coal resources are estimated internally by professionals whom we believe to be competent, including engineers and geologists. These estimates are based on geologic data, coal ownership information and current and/or proposed operating plans. CONSOL's recoverable coal reserves are proven and probable reserves that could be economically and legally extracted or produced at the time of the reserve determination, considering all material modifying factors. These estimates are periodically updated to reflect past coal production, updated mine plans, new exploration information, and other geologic or mining data. Acquisitions or dispositions of coal properties will also change these estimates. Changes in mining methods or preparation plant processes may increase or decrease the recovery basis for the estimates. The ability to update or modify the estimates of the Company's recoverable coal reserves is restricted to geologists and mining engineers whom we believe to be competent and material modifications are documented. The Company's estimates of recoverable coal reserves and coal resources, and supporting information, have been assessed by the John T. Boyd Company, a qualified person firm, which conforms to our requirements under subpart 1300 of Regulation S-K for qualified persons.

The information that follows relating to our individually material properties – PAMC, Itmann Mining Complex, Mason Dixon Mine, and River Mine – is derived, for the most part, from, and in some instances is an extract from, the technical report summaries ("TRSs") relating to such properties prepared in compliance with Item 601(b)(96) and subpart 1300 of Regulation S-K by the John T. Boyd Company. Portions of the following information are based on assumptions, qualifications and procedures that are not fully described herein. Reference should be made to the full text of the TRSs, incorporated herein by reference, made a part of our 2021 Annual Report on Form 10-K, and, in part, updated as a part of this Annual Report on Form 10-K.

The Company assigns coal reserves to mining complexes, and the amount of coal we assign to each mine is generally sufficient to support mining through the extent of our current mining permits. These permits were issued on various dates and each are required to be renewed under federal law every five years. All assigned reserves have their required permits or governmental approvals, or there is a high probability that these approvals will be secured. In addition, our mines and mining complexes may have access to additional reserves that have not yet been assigned.

Some reserves may be accessible by more than one mine because of the proximity of many of our mines to one another. In the following tables, the reserves and resources indicated for a mine are based on our review of current mining

plans and reflect our best judgment as to which mine is most likely to utilize the reserve. Recoverable coal reserves and coal resources are either owned or leased. The leases generally provide for renewal through the anticipated life of the associated mine. These renewals are exercisable by the payment of minimum royalties. Under current mining plans, reserves and resources reported will be mined out within the period of existing leases or within the time period of probable lease renewal periods.

The following tables provide a summary of all the Company's coal reserves and resources as determined by the John T. Boyd Company as of the end of the fiscal year ended December 31, 2022:

**SUMMARY COAL RESERVES AT END OF THE
FISCAL YEAR ENDED DECEMBER 31, 2022**

	Coal Reserves (tons in millions)		
	Proven	Probable	Total
PAMC:			
Bailey	71.9	80.6	152.5
Enlow Fork	223.4	38.1	261.5
Harvey	104.3	103.8	208.1
Total PAMC	399.6	222.5	622.1
Itmann Mining Complex	16.4	12.3	28.7
Other NAPP	3.6	19.7	23.3
Other CAPP	51.9	16.1	68.0
Total	471.5	270.6	742.1

**SUMMARY COAL RESOURCES AT END OF THE
FISCAL YEAR ENDED DECEMBER 31, 2022**

	Coal Resources (ton in millions)				Total
	Measured	Indicated	Measured + Indicated	Inferred	
Mason Dixon Mine	106.6	158.4	265.0	8.9	273.9
River Mine	46.2	498.3	544.5	66.1	610.6
Other CAPP	52.9	67.7	120.6	1.2	121.8
Other ILB	113.5	201.5	315.0	0.9	315.9
Total	319.2	925.9	1,245.1	77.1	1,322.2

The following table classifies the Company's coal by type (thermal versus metallurgical). The table also classifies metallurgical coal as high, medium and low volatile, which is based on volatile matter content.

**CONSOL Energy Recoverable Coal Reserves and Coal Resources
by Product (in Millions of Tons) as of December 31, 2022**

Metallurgical	<1.0% Sulfur	>1.0% <1.5% Sulfur	>1.5% Sulfur	Total	Percent By Product
By Rank:					
High Vol Bituminous	68.0	61.1	23.3	152.4	7.4 %
Med Vol Bituminous	5.8	—	—	5.8	0.3 %
Low Vol Bituminous	59.6	23.9	—	83.5	4.1 %
Total Metallurgical	133.4	85.0	23.3	241.7	11.8 %
Thermal	< 1.20 lbs. SO₂/MMBtu	> 1.20 < 2.50 lbs. SO₂/MMBtu	> 2.50 lbs. SO₂/MMBtu	Total	Percent By Product
By Region:					
NAPP	—	—	1,506.7	1,506.7	72.9 %
ILB	—	81.7	234.2	315.9	15.3 %
Total Thermal	—	81.7	1,740.9	1,822.6	88.2 %
Total	133.4	166.7	1,764.2	2,064.3	100.0 %
Percent of Total	6.5 %	8.1 %	85.4 %	100.0 %	

Internal Controls Disclosure

The modeling and analysis of the Company's reserves and resources has been developed by Company engineering and geology personnel and reviewed by several levels of internal management. This section summarizes the internal control considerations for the Company's development of estimations, including assumptions, used in reserve and resource analysis and modeling.

Records from exploration drilling completed on the mining properties comprise the primary data used in the evaluation of the coal resources for each property. The Company maintains written field and exploration guidelines that cover standard procedures, including site safety, mapping, and how to select proper drilling equipment, record accurate and detailed geological logs, perform coal sampling, supervise geophysical logging, and plug drill holes once work was complete.

The Company maintains all control of coal core samples, up to the point that samples are handed over to the lab performing testing. Once logging and sampling is complete, the sampled coal core intervals are transported to the Company's headquarters by exploration personnel, at which time they are handed over to quality personnel. The quality personnel arrange pick up by the selected independent lab that will perform the required analyses. All analytical work is conducted to International Organization for Standardization or ASTM International standards.

Management also assesses risks inherent in coal reserve and resource estimates, such as the accuracy of geophysical data that are used to support mine planning, identify hazards and inform operations of the presence of mineable deposits. Also, management is aware of risks associated with potential gaps in assessing the completeness of mineral extraction licenses, entitlements or rights, or changes in laws or regulations that could directly impact the ability to assess coal reserves and resources or could impact production levels. The over- or underestimation of reserves can have certain impacts on financial performance, such as changes in amortizations that are based on life-of-mine estimates.

Pennsylvania Mining Complex

Pennsylvania Mining Complex. The Pennsylvania Mining Complex is located approximately 26 miles southwest of Pittsburgh, near the city of Washington and the borough of Waynesburg, all in Pennsylvania, and consists of three deep longwall mining operations - the Bailey Mine, the Enlow Fork Mine and the Harvey Mine - as well as a centralized preparation plant located at approximately 39°58'23.7" N latitude and 80°24'43.6" W longitude. The Company controls approximately 178,394 acres of mineral and/or surface rights as a complex collection of owned and/or leased tracts that range from less than an acre to several hundred acres in size covered by various coal deeds and coal lease agreements. Lease terms generally extend until all the coal is removed from the subject tract. Where applicable, royalty rates typically range from 3% to 8% of the gross sales price of the coal. The Company maintains the right to mine and remove almost all of the Pittsburgh Seam within the PAMC boundaries. As part of the PAMC, CONSOL controls surface rights to

approximately 16,593 acres through fee simple ownership. This includes ownership of the property upon which the surface facilities for mine access, processing, storing, and shipping are located, as well as 3,509 permitted acres for coarse and fine refuse disposal facilities. Despite a lengthy ownership history dating back to the 1920s with the acquisition of certain coal leases by the Company's predecessor, commercial operations at the PAMC did not begin until 1984. The total book value of the PAMC and its associated plant and equipment as of December 31, 2022 is approximately \$1.4 billion.

The design of the PAMC is optimized to produce large quantities of coal on a cost-efficient basis. The PAMC is able to sustain high production volumes at comparatively low operating costs due to, among other things, its technologically advanced longwall mining systems, logistics infrastructure and safety. All of the PAMC's mines utilize longwall mining, which is a highly automated underground mining technique that produces large volumes of coal at lower costs compared to other underground mining methods. The PAMC typically operates 4-5 longwalls with 15-17 continuous mining sections. The full annual production capacity of the PAMC is up to 28.5 million tons of coal. The central preparation plant is connected via conveyor belts to each of the PAMC's mines and cleans and processes up to 8,200 raw tons of coal per hour. The PAMC's on-site logistics infrastructure at the central preparation plant includes a dual-batch train loadout facility capable of loading up to 9,000 clean tons of coal per hour and 19.3 miles of track linked to separate Class I rail lines owned by Norfolk Southern and CSX, which significantly increases the PAMC's efficiency in meeting its customers' transportation needs. Sources of electrical power, water, supplies, and materials are readily available. Electrical power is provided to the mines and facilities by regional utility companies. Water is supplied by public water services, surface impoundments, or water wells.

Numerous permits are required by federal and state law for underground mining, coal preparation and related facilities, and other incidental activities. Permits generally require that the Company post a performance bond in an amount established by the regulatory program to: (1) provide assurance that any disturbance or liability created during mining operation is properly mitigated, and (2) assure that all regulation requirements of the permit are fully satisfied. As of December 31, 2022, the Company held more than \$370 million in surety bonds to cover its obligations relating to mining and reclamation, mine subsidence, stream restoration, water loss, and dam safety with respect to the PAMC.

Bailey Mine. As of December 31, 2022, the Bailey Mine's assigned and accessible reserve base contained an aggregate of 152.5 million tons of clean recoverable coal with an average as-received gross heat content of approximately 12,934 Btu per pound and an approximate average pounds of sulfur dioxide per mmBtu of 3.93. The Bailey Mine is the first mine developed at the Pennsylvania Mining Complex. Construction of the slope and initial air shaft began in 1982. The slope development reached the coal seam at a depth of approximately 600 feet and, following development of the slope bottom, commercial coal production began in 1984. Longwall mining production commenced in 1985, and the second longwall was placed into operation in 1987. In 2010, a new slope and overland belt system was commissioned, which allowed a large percentage of the Bailey Mine to be sealed off. For the years ended December 31, 2022, 2021 and 2020, the Bailey Mine produced 11.6, 11.8 and 8.7 million tons of coal, respectively.

Enlow Fork Mine. As of December 31, 2022, the Enlow Fork Mine's assigned and accessible reserve base contained an aggregate of 261.5 million tons of clean recoverable coal with an average as-received gross heat content of approximately 13,021 Btu per pound and an approximate average pounds of sulfur dioxide per mmBtu of 3.03. The Enlow Fork Mine is located directly north of the Bailey Mine. Initial underground development was started from the Bailey Mine while the Enlow Fork slope was being constructed. Once the slope bottom was developed and the slope belt became operational, seals were constructed to separate the two mines. Following development of the slope bottom, commercial coal production began in 1989. Longwall mining production commenced in 1991, and the second longwall came online in 1992. In 2014, a new slope and overland belt system was commissioned and a substantial portion of the Enlow Fork Mine was sealed. On April 14, 2020, the Company announced the temporary idling of the Enlow Fork Mine due to the weakness in coal demand and economic slowdown related to the COVID-19 pandemic, and only one of its longwalls was restarted during the third quarter of 2020. During the fourth quarter of 2022, the Enlow Fork's second longwall was restarted. For the years ended December 31, 2022, 2021 and 2020, the Enlow Fork Mine produced 6.3, 6.8 and 5.7 million tons of coal, respectively.

Harvey Mine. As of December 31, 2022, the Harvey Mine's assigned and accessible reserve base contained an aggregate of 208.1 million tons of clean recoverable coal with an average as-received gross heat content of approximately 12,940 Btu per pound and an approximate average pounds of sulfur dioxide per mmBtu of 4.05. The Harvey Mine is located directly east of the Bailey and Enlow Fork Mines. Similar to the Enlow Fork Mine, the Harvey Mine was developed off of the Bailey Mine's slope bottom. In order to separate the Harvey Mine from the existing Bailey Mine, seals were built around the original Bailey slope bottom to separate the two mines, and the original slope was dedicated solely to the Harvey Mine. This transfer of infrastructure eliminated the need to make significant capital expenditures to develop, among other things, a new slope, airshaft and portal facility at the Harvey Mine. Development of the Harvey Mine began in 2009, and construction of the supporting surface facilities commenced in 2011. Longwall mining production commenced in

March 2014. For the years ended December 31, 2022, 2021 and 2020, the Harvey Mine produced 6.1, 5.3 and 4.4 million tons of coal, respectively.

The following table sets forth additional information regarding the recoverable coal reserves at the Pennsylvania Mining Complex.

CONSOL ENERGY PENNSYLVANIA MINING COMPLEX
Recoverable Coal Reserves as of December 31, 2022 and 2021

Mine/Reserve	Reserve Class	As Received Heat Value	Owned	Leased	Recoverable Coal Reserves (As-Received)			
		(Btu/lb)			(%)	(%)	Proven	Probable
		Range						
PA Mining Operations								
Bailey	Permitted	12,600 – 13,180	64 %	36 %	59.1	20.5	79.6	50.9
	Unpermitted	12,800 – 13,130	78 %	22 %	12.8	60.1	72.9	33.9
Enlow Fork	Permitted	12,670 – 13,340	100 %	— %	75.3	5.0	80.3	60.5
	Unpermitted	12,650 – 13,250	98 %	2 %	148.1	33.1	181.2	254.3
Harvey	Permitted	12,910 – 13,230	100 %	— %	21.9	2.7	24.6	21.5
	Unpermitted	12,720 – 13,110	93 %	7 %	82.4	101.1	183.5	191.0
Total Recoverable Coal Reserves					399.6	222.5	622.1	612.1

Itmann Mining Complex

Itmann No. 5 Mine. The Itmann No. 5 Mine is located in Wyoming County, West Virginia, approximately 2.5 miles northwest of the town of Itmann at approximately 37°35'23.65" N latitude and 81°27'14.43" W longitude. The Company controls approximately 20,224 contiguous acres of mining rights (comprising 270 tracts), by ownership or lease, to the Pocahontas 3 seam (P3) and the Pocahontas 4 seam (P4). The majority (95%) of the acreage is held under coal leases with lengthy terms that are subject to industry standard royalties. The total book value of the Itmann Mining Complex and its associated plant and equipment as of December 31, 2022 is approximately \$102.0 million.

The first Itmann mine was opened in 1916 by the Pocahontas Fuel Company. In 1956, the Pittsburgh Consolidation Coal Company, the Company's predecessor, acquired the Pocahontas Fuel Company. During the 1970s, the Itmann mine complex was the Company's largest operation in CAPP; however, operations were ceased in 1986 due to increasing mining costs and decreasing metallurgical coal prices. In 2019, the Company commenced development of the new Itmann No. 5 Mine, including excavation of the box cut to access the P3 seam.

The mine accesses the P3 and P4 seams using a box cut drift entrance near an outcrop along Still Run Hollow. The P3 and P4 seams have been and continue to be mined extensively within the Appalachian coalfields of southern West Virginia and western Virginia, including the areas immediately surrounding the Itmann No. 5 reserves. As of December 31, 2022, the Itmann No. 5 Mine's assigned and accessible reserve base contained an aggregate of 28.3 million tons of clean recoverable coal, enough to allow for more than 25 years of full-capacity production. These reserves contain an approximate average quality on a dry basis of 0.98% sulfur, 7.2% ash, and 19.3% volatile matter. Development mining at the Itmann No. 5 Mine began in 2020. Coal from the Itmann No. 5 Mine is currently extracted by underground methods using 4-6 continuous miner units to achieve expected capacity of approximately 900 thousand clean tons per year. For the years ended December 31, 2022, 2021 and 2020, the Itmann No. 5 Mine produced 164 thousand, 101 thousand and 25 thousand tons of coal, respectively. Through July 2022, production from the Itmann No. 5 Mine was toll washed at a third-party preparation plant. The Itmann Mining Complex started up its own preparation plant and rail loadout during the third quarter of 2022, and the remainder of 2022 production was washed at this new facility and shipped via rail from the newly built loadout.

General access to the Itmann No. 5 Mine is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are typically open year-round. Primary vehicular access to the property is via State Route 10/16, which follows the north bank of the Guyandotte River. The Guyandotte Class I rail line runs along the south bank of the Guyandotte River. Sources of electrical power, water, supplies and materials are readily available. Electrical power is provided to the mines and facilities

by a regional utility company. Water is recycled from the abandoned underground Itmann No. 1 and No. 2 Mines or supplied by water wells.

The Itmann Preparation Plant was constructed in 2022 and began processing coal in late September 2022. Coal is shipped from the Itmann No. 5 Mine via tandem trucks to the 600 raw TPH processing facility, which is located approximately 2.5 miles west of the mine along WV State Route 10/16. The plant includes clean coal material handling systems capable of handling up to 3,500 TPH of product along with a 3,500 TPH unit train loadout located on the Guyandotte Class I rail line, which can be served by both Norfolk Southern and CSX. Third-party coal is also trucked into the facility for processing, blending and shipment via rail or truck. CONSOL also controls an additional 0.4 million tons of Sewell Seam reserves in McDowell County, WV (Tug Fork), which have the potential to be economically mined and then transported to, processed and shipped via the Itmann preparation plant facility.

As of December 31, 2022, the Company held less than \$1 million in surety bonds to cover its current obligations relating to mining and reclamation, mine subsidence, stream restoration, and water loss with respect to the Itmann No. 5 Mine, preparation plant facility and refuse area.

The following table sets forth additional information regarding the recoverable coal reserves at the Itmann Mining Complex.

CONSOL ENERGY ITMANN MINING COMPLEX
Recoverable Coal Reserves as of December 31, 2022 and 2021

Mine/Reserve	Reserve Class	Moisture Free Quality (%)			Recoverable Coal Reserves (As-Received)					
					Owned (%)		Leased%		Tons in Millions	
Sulfur	Ash	Vol	Owned (%)	Leased%	Proven	Probable				
Itmann Mining Complex										
Itmann No. 5	Permitted	0.97	8.4	18.5	— %	100 %	3.7	0.9	4.6	5.4
Itmann No. 5	Unpermitted	0.98	7.0	19.4	9 %	91 %	12.2	11.5	23.7	15.1
Tug Fork ¹	Permitted	0.84	5.3	20.2	— %	100 %	0.4	—	0.4	—
Total Recoverable Coal Reserves							16.3	12.4	28.7	20.5

¹ Tug Fork is located approximately 35 miles southwest of the Itmann preparation plant and raw tons are accessible to the Itmann preparation plant via truck haul.

Non-Operating Reserves and Resources

Mason Dixon and River Mine

The Company's Mason Dixon and River Mine properties are greenfield sites located in Greene County, Pennsylvania and Marshall, Monongalia, and Wetzel counties, West Virginia. Geographically, the center of the Mason Dixon and River Mine properties is located at approximately 39°40'02.77" N latitude and 80°34'20.61" W longitude. The properties comprise over 220 square miles within the NAPP coal-producing region of the eastern United States; as such, they are among the largest undeveloped Pittsburgh Seam properties. On December 31, 2022, the Company's estimated potentially underground minable thermal coal resources for Mason Dixon and River Mine were 273.9 million tons and 610.6 million tons, respectively. The total book value of the Mason Dixon and River Mine properties as of December 31, 2022 is approximately \$57.4 million.

The Mason Dixon and River Mine Properties comprise over 141,000 acres of coal mineral and/or surface rights. The Company controls approximately 90% (on an active basis) of the mineral rights to the Pittsburgh Seam within the Mason Dixon and River Mine properties. The Company also owns approximately 5,151 surface acres within the property area. These surface rights were acquired for siting various mining, processing, and related facilities. The region is supported by a well-developed network of primary and secondary roads serviced by state and local governments. Roadways that traverse the property's surface include State Routes 7, 18, 69, 89, and 250. This road network would offer direct access to the property site and is generally open year-round. Sources of electrical power, water, supplies and materials are readily

available. Electrical power would be provided to the mines and facilities by regional utility companies while water would be supplied by public water services, surface impoundments, or water wells.

The Company holds and maintains four mining permits with the state of West Virginia covering a deep mine, preparation plant, refuse disposal area, and fresh water impoundment for the Mason Dixon property. Four associated National Pollutant Discharge Elimination System permits are also held and maintained for these sites.

Other Properties

The Company also holds other greenfield recoverable coal reserves and coal resources located in NAPP, CAPP and ILB, which are not deemed individually material and had an estimated 528.9 million tons of recoverable coal reserves and coal resources. The Company's estimate includes recoverable high-vol, mid-vol or low-vol metallurgical coal reserves and resources of 91.3 million tons and 121.8 million tons, respectively. Additionally, worldwide demand for metallurgical coal allows some of our recoverable coal reserves and resources, currently classified as thermal coal but that possess certain qualities, to be sold as metallurgical coal. The extent to which we can sell thermal coal as crossover metallurgical coal depends upon a number of factors, including the quality characteristics of the reserve, the specific quality requirements and constraints of the end-use customer and market conditions (which affect whether customers are compelled to substitute lower-quality crossover coal for higher-quality metallurgical coal in their blends to realize economic benefits).

The following tables set forth our non-operating recoverable coal reserves and coal resources by region.

CONSOL Energy Non-Operating Recoverable Coal Reserves and Coal Resources as of December 31, 2022 and 2021

Property	As Received Heat Value (Btu/lb)	Owned (%)	Leased (%)	Recoverable Coal Reserves (As-Received)			
				Proven	Probable	12/31/2022	12/31/2021
NAPP	11,400 – 13,400	100 %	— %	3.6	19.7	23.3	23.3
CAPP	12,400 – 14,100	98 %	2 %	51.9	16.1	68.0	68.0
Total Non-Operating Reserves				55.5	35.8	91.3	91.3

Property	As Received Heat Value (Btu/lb)	Owned (%)	Leased (%)	Recoverable Coal Resources (As-Received)				
				Measured	Indicated	Inferred	12/31/2022	12/31/2021
Mason Dixon Mine	12,245 – 13,061	96 %	4 %	106.6	158.4	8.9	273.9	273.9
River Mine	12,794 – 13,100	100 %	— %	46.2	498.3	66.1	610.6	610.6
CAPP	12,400 – 14,100	67 %	33 %	52.9	67.7	1.2	121.8	121.8
ILB	11,600 – 12,000	75 %	25 %	113.5	201.5	0.9	315.9	320.8
Total Non-Operating Resources				319.2	925.9	77.1	1,322.2	1,327.1

Title to coal properties that we lease or purchase and the boundaries of these properties are verified by law firms retained by us at the time we lease or acquire the properties. Consistent with industry practice, abstracts and title reports are reviewed and updated approximately five years prior to planned development or mining of the property. If defects in title or boundaries of undeveloped reserves are discovered in the future, control of and the right to mine reserves could be adversely affected.

The following table sets forth the total royalty tonnage and the amount of income (net of related expenses) we received from royalty payments for the years ended December 31, 2022, 2021 and 2020.

<u>Year</u>	<u>Total Royalty Tonnage (in thousands)</u>	<u>Total Royalty Income * (in thousands)</u>
2022	1,030	\$ 9,877
2021	1,675	\$ 8,186
2020	4,076	\$ 10,834

* Excludes advanced mining royalty payments received of \$381, \$475 and \$1,198 during the years ended December 31, 2022, 2021 and 2020, respectively.

Royalty tonnage leased to third parties is not included in the amounts of produced tons that we report, nor is it included in our reported recoverable reserves and resources.

Production

In the year ended December 31, 2022, 99.3% of the Company's production came from underground mines equipped with longwall mining systems. The Company employs longwall mining techniques in its underground mines where the geology is favorable and reserves are sufficient, namely, in the three mines located at the PAMC. Underground longwall mining uses continuous mining units to develop the mains and gate roads for longwall panels. The longwall systems are highly mechanized, capital-intensive operations to efficiently extract coal within the longwall panels. Mines using longwall systems have a low variable cost structure compared with other types of mines and can achieve high productivity levels compared with those of other underground mining methods. Because the Company has substantial reserves readily suitable to these operations, the Company believes that these longwall mines can increase production volumes at a low incremental cost.

The following table shows the production, in millions of tons, for the Company's mines for the years ended December 31, 2022, 2021 and 2020, the location of each mine, the type of mine, the type of equipment used at each mine, method of transportation and the year each mine was established or acquired by us.

<u>Mine</u>	<u>Loadout Facility Location</u>	<u>Mine Type</u>	<u>Mining Equipment</u>	<u>Transportation</u>	<u>Tons Produced (in millions)</u>			<u>Year Established or Acquired</u>
					2022	2021	2020	
<u>PA Mining Operations</u>								
Bailey	Enon, PA	U	LW/CM	R R/B	11.6	11.8	8.7	1984
Enlow Fork	Enon, PA	U	LW/CM	R R/B	6.3	6.8	5.7	1989
Harvey	Enon, PA	U	LW/CM	R R/B	6.1	5.3	4.4	2014
<u>Total</u>					<u>23.9</u>	<u>23.9</u>	<u>18.8</u>	
<u>Itmann Mining Complex</u>								
Itmann No. 5 Mine ⁽¹⁾	Itmann, WV	U	CM	T/R	0.2	0.1	—	2020
Total Company					<u>24.1</u>	<u>24.0</u>	<u>18.8</u>	

Table may not sum due to rounding.

U	—	Underground
LW	—	Longwall
CM	—	Continuous Miner
R	—	Rail
R/B	—	Rail to Barge or Vessel
T/R	—	Truck to Rail

(1) The Itmann No. 5 Mine produced 25 thousand tons of coal during the year ended December 31, 2020.

Coal Marketing and Sales

The following table sets forth tons sold and average realized coal revenue per ton sold for the periods indicated:

	Years Ended December 31,		
	2022	2021	2020
PA Mining Operations Tons Sold (in millions)	24.1	23.7	18.7
Average Realized Coal Revenue per Ton Sold – PA Mining Operations	\$ 69.89	\$ 45.75	\$ 41.31
Itmann Mining Complex Tons Sold (in millions) *	0.2	0.1	—
Average Realized Coal Revenue per Ton Sold – Itmann Mining Complex	\$ 219.44	\$ 70.40	\$ 51.47

* The Itmann No. 5 Mine sold 25 thousand tons of coal during the year ended December 31, 2020.

We sell coal produced by our mines and additional coal that is purchased by us from other producers. Approximately 45% of our 2022 coal revenue was from U.S. electric generators, 53% of our 2022 coal revenue was from export markets and 2% of our 2022 coal revenue was from other domestic customers. Approximately 50% of our 2021 coal revenue was from U.S. electric generators, 46% of our 2021 coal revenue was from export markets and 4% of our 2021 coal revenue was from other domestic customers. Approximately 60% of our 2020 coal revenue was from U.S. electric generators, 38% of our 2020 coal revenue was from export markets and 2% of our 2020 coal revenue was from other domestic customers.

We had sales to less than 40 customers from our coal operations during the past two years. During 2022, two customers each comprised over 10% of our total sales, aggregating approximately 30% of our total sales. During 2021, three customers each comprised over 10% of our total sales, aggregating approximately 40% of our total sales.

Coal Contracts and Pricing

We sell coal to an established customer base through opportunities as a result of strong business relationships, or through a formalized bidding process. Contract volumes range from a single shipment to multi-year agreements for millions of tons of coal. In the ordinary course of business, we make efforts to renew or extend contracts scheduled to expire. Although there are no guarantees, we generally have been successful in renewing or extending contracts in the past.

We expect total consolidated Pennsylvania Mining Complex annual sales to be approximately 25-27 million tons for 2023. Domestic coal revenue tends to be derived from contracts that typically have a term of one year or longer and the pricing is typically fixed. Historically, export coal revenue tended to be derived from spot or shorter-term contracts with pricing determined closer to the time of shipment or based on a market index; however, the Company has recently begun to secure several long-term export contracts with varying pricing arrangements. Some of the Company's domestic and export contracts span multiple years and have annual pricing modifications, based upon market-driven or inflationary adjustments, where no additional value is exchanged.

The volume of coal to be delivered is specified in each of our coal contracts. Although the volume to be delivered under the coal contracts is stipulated, the parties may vary the timing of the deliveries within specified limits. Coal contracts typically contain force majeure provisions allowing for the suspension of performance by either party for the duration of certain force majeure events. Force majeure events include, but are not limited to, unexpected significant geological conditions or natural disasters. Depending on the language of the contract, some contracts may terminate upon continuance of an event of force majeure that extends for a period greater than three to twelve months.

Of our 2022 sales tons, approximately 56% were sold to domestic customers and 44% were sold to export markets. Of our 2022 sales tons, 7% were sold in the metallurgical market, 21% were sold in the industrial market and 72% were sold in the electric power generation market.

During the past two years, on total coal revenue of \$1.1 billion in 2021 and \$2.0 billion in 2022, our average realized coal revenue per ton sold, a non-GAAP financial measure, for coal produced from the PAMC was \$45.75/ton in 2021 and \$69.89/ton in 2022. Please see the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations - How We Evaluate Our Operations" for a reconciliation of average realized coal revenue per ton sold to total coal revenue, the most directly comparable measure calculated in accordance with GAAP. Pricing for our product depends strongly on conditions in the domestic and international thermal and metallurgical coal markets.

The prices we are able to achieve in the domestic thermal market depend on a number of factors, including: (i) the supply-demand balance for Northern Appalachian coal, (ii) prices for other competing sources of energy used for electricity generation, such as natural gas, (iii) power prices in the regions we serve, (iv) prices for coals from other basins (including CAPP, ILB, and PRB) that compete in these same regions, and (v) pricing under our longer-term contracts, which may have been entered into under different market conditions. Natural gas prices, coupled with increased capacity from new natural gas combined-cycle power plants and renewable energy sources, put pressure on power prices and on the demand for coal-fired electric power generation. These factors can affect the prices that we are able to achieve in the domestic thermal markets. Similarly, imbalances in global supply and demand for energy fuels can cause substantial variability in pricing in the export markets we serve, which include industrial, metallurgical and power generation applications.

Terminal Services

In 2022, approximately 13.7 million tons of coal were shipped through the CONSOL Marine Terminal owned by our subsidiary, CONSOL Marine Terminals LLC. Approximately 77% of the tonnage shipped was produced by the Pennsylvania Mining Complex. The terminal can either store coal or load coal directly into vessels from rail cars. It is also the only major coal terminal located on the east coast of the United States served by two railroads, Norfolk Southern and CSX. The CONSOL Marine Terminal has storage capacity of 1.1 million tons with more than thirty acres of capacity for stockpiles. The facility possesses blending capabilities, and it has transloaded approximately 12.5 million tons of coal per year on average over the past five years, with a throughput capacity of approximately 15 million tons.

Non-Core Coal Assets and Surface Properties

We own significant coal assets and surface properties that are not in our short or medium-term development plans. We continually explore the monetization of these non-core assets by means of sale, lease, contribution to joint ventures, or a combination of the foregoing in order to bring the value of these assets forward for the benefit of our stockholders.

Distribution

Coal is transported from the Company's mining operations to customers predominantly by railroad cars, vessels or a combination of these means of transportation. Most customers negotiate their own transportation rates, while our sales and logistics specialists negotiate freight and equipment agreements with various transportation suppliers, including railroads, barge lines, terminal operators, ocean vessel brokers and trucking companies for the remaining customers.

Seasonality

Our business has historically experienced limited variability in its results due to the effect of seasonal changes. Demand for coal-fired power can increase due to unusually hot or cold weather as power consumers use more air conditioning or heating, respectively. Conversely, mild weather can result in weaker demand for our coal. Adverse weather conditions, such as blizzards or floods, can impact our ability to transport coal over our overland conveyor systems and to transport our coal by rail.

Competition

The coal industry is highly competitive, with numerous producers selling into all markets that use coal. There are numerous large and small producers in all coal-producing basins of the United States, and we compete with many of these producers, including those who export coal abroad. Potential changes to international trade agreements, trade concessions and tariffs or other political and economic arrangements may benefit coal producers operating in countries other than the United States. We may be adversely impacted on the basis of price or other factors compared to companies that in the future may benefit from favorable foreign trade policies or other arrangements. In addition, coal is sold internationally in U.S. dollars and, as a result, general economic conditions in foreign markets and changes in foreign currency exchange rates may provide our international competitors with a competitive advantage. If our competitors' currencies decline against the U.S. dollar or against our international customers' local currencies, those competitors may be able to offer lower prices for coal to our customers. Furthermore, if the currencies of our overseas customers were to significantly decline in value in comparison to the U.S. dollar, those customers may seek decreased prices for the coal we sell to them. Consequently, currency fluctuations could adversely affect the competitiveness of our coal in international markets, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

The most important factors on which we compete are coal price, coal quality and characteristics, transportation costs and reliability of supply. Demand for coal and the prices that we will be able to obtain for our coal are closely linked to coal consumption patterns of the domestic electric generation industry and international coal consumers. These coal consumption patterns are influenced by many factors that are beyond our control, including demand for electricity, which is

significantly dependent upon economic activity and summer and winter temperatures, government regulation, technological developments and the location, quality, price and availability of competing fuel sources.

Indirect competition from natural gas-fired plants that are relatively more efficient, less expensive to construct and less difficult to permit than coal-fired plants has the most potential to displace a significant amount of coal-fired electric power generation in the near term, particularly older, less efficient coal-fired powered generators. Federal and state mandates for increased use of electricity derived from renewable energy sources could also affect demand for our coal. Such mandates, combined with other incentives to use renewable energy sources, such as tax credits, could make alternative fuel sources more competitive with coal.

Human Capital Management

As of December 31, 2022, we had 1,860 employees, of which 36 CONSOL Marine Terminal employees were represented by a collective bargaining agreement. We believe our efforts in managing our workforce have been effective, evidenced by a strong culture and a good relationship between the Company and our employees.

Health and Safety. The success of our business is fundamentally connected to the well-being of our people. Accordingly, we are committed to the health, safety and wellness of our employees. We provide our employees and their families with access to health and welfare programs, including benefits that support their physical and mental health by providing tools and resources to help them improve or maintain their health status. In response to the COVID-19 pandemic, we implemented significant operating environment changes that we determined were in the best interest of our employees, as well as the communities in which we operate, and which comply with government regulations and CDC guidelines. We plan to keep these procedures in place and continually evaluate further enhancements for as long as necessary.

Talent. Through our long operating history and experience with technological innovation, we appreciate the importance of retention, growth and development of our employees. Our approach to talent is to both develop talent from within and supplement with external hires. We believe this method has yielded loyalty and commitment in our employee base, which in turn grows our business, while at the same time, adding new employees and external ideas supports a continuous improvement mindset and contributes to our goals of having a diverse and inclusive workforce. We believe that having approximately 42% of the Company's workforce with at least 10 years of company service coupled with our average voluntary retention rate of 92% as of the end of fiscal year 2022 reflects the engagement of our employees.

Total Rewards. Our employees are critical to the success of our company. As such, we offer market competitive total rewards programs for our employees in order to attract and retain superior talent. In addition to competitive base wages, the Company has additional programs, which include bonus opportunities, a Company-matched 401(k) plan, healthcare and insurance benefits, health savings spending accounts, paid time off, family leave, flexible work schedules, employee wellness programs and employee assistance programs.

Laws and Regulations

Overview

Our coal mining operations are subject to various federal, state and local environmental, health and safety regulations. Regulations relating to our operations require us to obtain permits and other licenses; reclaim and restore our properties after mining operations have been completed; store, transport and dispose of materials used or generated by our operations; manage surface subsidence from underground mining; control water and air emissions; protect wetlands and endangered plants and wildlife; and ensure employee health and safety. Furthermore, the electric power generation industry and other users of our coal are subject to extensive regulation regarding the environmental impact of their activities, which could affect demand for our coal.

We seek to conduct our operations in compliance with applicable laws and regulations. However, from time to time, violations occur during operations, and we cannot assure that we have been or will be at all times in compliance with such laws and regulations. Compliance with these laws has substantially increased the cost of coal mining, and the possibility exists that new legislation or regulations may be adopted which would have a significant impact on our coal mining operations or our customers' ability to use our coal and may require us or our customers to significantly modify operations or incur substantial costs. Additionally, these laws are subject to revision and may become increasingly stringent. The ultimate effect of implementation may not be predictable, as associated regulations may still be in development or subject to public notice, extensive comment or judicial review.

The following is a summary of the more significant existing environmental and worker health and safety laws and regulations to which we or our customers' business operations are subject and for which compliance may have a material

adverse impact on our capital expenditures, results of operations and financial condition, and/or demand for our coal product by our customers.

In recent years, multiple regulations impacting our operations, or our customers' operations, have been subject to revision, repeal and judicial challenge. However, the extent to which these regulations will take effect or survive future presidential administrations is uncertain. In addition, presidential administrations, including the Biden Administration, could, independent of the regulatory process, issue Executive Orders or other Presidential Directives having the force of law that could immediately impact our business or our customers' business. For example, pursuant to the Executive Order on Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis ("Environment Executive Order"), which was issued on January 20, 2021, President Biden directed the heads of all federal agencies to review "all existing regulations, orders, guidance documents, policies, and any other similar agency actions promulgated, issued, or adopted" during the Trump Administration for consistency with the policies established in the new Biden Administration order. Implementation of the Environment Executive Order is ongoing, with multiple rulemakings expected in 2023 and 2024. Reversal or reinstatement of earlier regulations, or other presidential executive action, could impact our ability to obtain, maintain or renew permits, could reduce fossil fuels' share of power generating capacity, could expedite the retirements of fossil fuel-fired electric generating units, or could reduce the demand for our product in metallurgical and industrial markets, which could have a material adverse effect on our business, financial condition and results of operations.

Environmental Laws

Clean Air Act. The federal Clean Air Act ("CAA") and corresponding state and local laws and regulations affect all aspects of coal mining operations, both directly and indirectly. The CAA directly impacts our coal mining operations through permitting and emission control requirements for the construction, modification or expansion of certain facilities. Indirectly, the CAA affects the U.S. coal industry by extensively regulating the air emissions of coal-fired electric power generating plants or other industrial facilities operated by our customers.

Coal impurities are released into the air when coal is burned and the CAA regulates specific emissions, such as sulfur, nitrogen oxides, particulate matter, mercury and other substances. In addition, CAA programs such as Maximum Achievable Control Technology ("MACT") emission limits for Hazardous Air Pollutants, the Regional Haze Program, New Source Review permitting requirements and other federal rulemakings may directly or indirectly affect our operations. Such regulations restricting emissions from coal-fired electric generating plants or other industrial facilities could increase the costs of operating and affect demand for coal as a fuel source, therefore potentially affecting the volume of our sales. Moreover, additional environmental regulations increase the likelihood that existing coal-fired electric generating plants will be decommissioned or replaced with alternative sources of fuel and reduce the likelihood that new coal-fired plants will be built in the future.

Mercury and Air Toxics Standards Rule. In 2012, the United States Environmental Protection Agency ("EPA") promulgated or finalized several rules for National Emission Standards for Hazardous Air Pollutants ("NESHAPs") for new and existing coal-fueled and oil-fueled electric generating plants. The EPA's 2012 Mercury and Air Toxics Standards rule ("MATS Rule") imposed MACT emissions limitations on Hazardous Air Pollutants ("HAPs"), such as mercury, acid gas HAPs, HAP metals and organic HAPs, for applicable facilities. The rule was challenged, and ultimately rejected by the U.S. Supreme Court on June 29, 2015, for failing to consider the costs imposed by the MATS Rule. Nevertheless, many coal-fired electric power generators have already taken steps to comply with the MATS Rule, as such required control and operational modifications can take significant time to install and/or implement. On December 27, 2018, the EPA proposed to revise the 2016 supplemental cost finding ("SCF") for the MATS Rule, as well as the related risk and technology review ("RTR") required by the CAA. On April 16, 2020, the EPA completed its reconsideration of the MATS Rule, finalizing its "appropriate and necessary" conclusion while retaining coal- and oil-fired power plants on the list of affected source categories and maintaining existing emission limits for mercury and other HAPs. The final rule became effective on May 22, 2020 and is currently subject to legal challenge in multiple cases before the D.C. Circuit. In February 2022, the EPA published its proposed rule revoking the 2020 reconsideration rule and affirming the "appropriate and necessary" supplemental finding, with a final rule expected to follow in March 2023. Separately, the EPA is expected to publish a notice of proposed rulemaking ("NPRM") suspending, revising, or rescinding the rule's RTR in 2023, with a final rulemaking expected in 2024. Any emissions limitations in the final rule or similar future rulemakings could require customers to incur significant capital costs associated with installation of emissions control technologies, which could negatively affect the demand and prices for our coal, our business and results of operations.

National Ambient Air Quality Standards. The CAA requires the EPA to set National Ambient Air Quality Standards ("NAAQS") for six pollutants considered harmful to public health and the environment ("criteria pollutants") and to review these standards every five years. Areas that are not in compliance with these standards are considered "non-attainment areas." In recent years, the EPA has adopted more stringent NAAQS, including those for particulate matter ("PM"), nitrogen oxides ("NO_x"), ozone, and sulfur dioxide ("SO₂"). The designation of new non-attainment areas could prompt

local changes to permitting or emissions control requirements, as prescribed by federally mandated state implementation plans (“SIPs”) that require emission source identification and emission reduction plans. In 2020, the EPA finalized decisions to retain the NAAQS for ozone and PM. Both decisions were subject to legal challenge. Related to the ozone NAAQS, court filings indicate that the EPA plans to issue a proposed rule reconsidering the 70 parts per billion standard, with a final rulemaking expected in 2023. Separately, on January 6, 2023, the EPA announced its proposed decision to revise and restrict the primary (health-based) standard for fine particulate matter with a final rule expected later in 2023. Final rules may require significant investment in emissions control technologies by our electric power generation or industrial customers, and could adversely affect the demand for our coal.

Cross-State Air Pollution Rule. The Cross-State Air Pollution Rule (“CSAPR”) regulates cross-border emissions of criteria air pollutants such as SO₂, NO_x, fine particulate matter (“PM_{2.5}”) and ozone crossing state lines and affecting air quality in downwind states. The CSAPR requires states to limit emissions from sources that “contribute significantly” to noncompliance with air quality standards, including electric power generating facilities. If the ambient levels of criteria air pollutants are above the thresholds set by the EPA, a region is considered to be in “non-attainment” for that pollutant and the EPA applies more stringent control standards for sources of air emissions located in the region. Following litigation in the D.C. Circuit and U.S. Supreme Court, as well as promulgation of multiple rulemakings, revisions and a phased implementation plan in 2018, the EPA issued the CSAPR “Close-Out” Rule, a final determination that the CSAPR achieved requirements with respect to the 2008 ground-level ozone NAAQS in 20 states, and no further reduction was required. The Close-Out Rule was subject to judicial challenge and was ultimately vacated. On October 30, 2020, the EPA published proposed revisions to the CSAPR Update Rule that would establish new or amend existing Federal Implementation Plans (FIPs) in 12 states to revise emission budgets to reflect additional emissions reductions from electricity generating units (“EGUs”) beginning with the 2021 ozone season and also require power plants in these states to participate in a newly established NO_x emission trading program. The final Revised CSAPR Update Rule was published on April 30, 2021, and became effective on June 29, 2021. Coal units located in the 12 states were immediately required to use and upgrade previously installed NO_x emissions controls, as applicable. The EPA followed that action in 2022 with a proposed rule that would apply the CSAPR trading program to fossil fuel-fired power plants in 25 states, requiring them to participate in an allowance-based ozone season trading program beginning in 2023 to address the 2015 ozone NAAQS. The proposed rule would also apply to sources in six other industrial sectors in 23 states beginning in 2026. A final rule is expected in the spring of 2023. For those facilities that have not yet installed pollution controls for NO_x, the EPA is likely to require additional NO_x reductions in the future. Such requirements could require our customers to incur significant compliance costs and could lead to accelerated plant closures or fuel switching, which could adversely affect the demand for our coal.

Emission Guidelines for Greenhouse Gas Emissions from Existing Fossil Fuel-Fired Electricity Utility Generating Units under CAA Section 111(d). On October 23, 2015, the EPA published a final rule known as the Clean Power Plan (“CPP”), which required states to create systems that reduce carbon dioxide (“CO₂”) emissions from existing coal-fired EGUs by 28% in 2025 and 32% in 2030, compared to 2005 levels under section 111(d) of the CAA. The CPP was subject to numerous legal challenges and was stayed by the U.S. Supreme Court, pending the D.C. Circuit’s review of the rule. Before the D.C. Circuit issued its opinion, the Trump administration announced it would reconsider the CPP. In August 2018, the EPA published a proposed rule, the Affordable Clean Energy (“ACE”) rule, that repealed and replaced the CPP.

The final ACE rule was published on July 8, 2019. The ACE rule established greenhouse gas (“GHG”) guidelines for states to use when developing plans to limit CO₂ emissions from coal-fired EGUs. The ACE rule provided that heat rate efficiency improvements are the Best System of Emission Reduction (“BSER”) for coal-fired electric utility sources under the CAA, directed states to develop specific SIPs to implement the rule, and revised CAA section 111(d) regulations to give states greater authority regarding these plans. States could also consider the remaining useful life of the EGUs, as provided by the CAA, in applying the guidelines. Several states and public interest groups petitioned for review of the ACE rule. In addition, several public health petitioners, environmental petitioners and states filed administrative petitions with the EPA seeking reconsideration of the rule. In a March 5, 2021 ruling, the D.C. Circuit issued its partial mandate vacating the ACE rule but leaving the CPP Repeal intact to allow time for the EPA to issue a new rule under section 111(d). Separately, the Supreme Court agreed to hear four consolidated legal appeals to the D.C. Circuit decision striking down the ACE rule. On June 30, 2022, the Supreme Court issued its decision reversing the D.C. Circuit’s ruling and limiting expansive interpretations of the EPA’s authority under Section 111 of the CAA, but generally upholding the EPA’s authority to regulate GHGs as air pollutants. The case was remanded for further proceedings and the EPA is expected to publish notice of a replacement rulemaking in 2023, with a final rule to follow in 2024. In order to comply with regulations limiting CO₂ emissions from coal-fired EGUs, utilities may be required to make substantial capital investment in technologies such as Carbon Capture and Storage (“CCS”), or alternatively, accelerate the phase out or closure of existing power plants. Such actions could negatively affect the demand and prices for our coal, thereby having a material adverse impact on our business and results of operations.

New Source Performance Standards (“NSPS”) for Greenhouse Gas Emissions from New, Modified, or Reconstructed Fossil Fuel-Fired EGUs Under CAA Section 111(b). On October 23, 2015, the EPA published a final rule to limit CO₂ emissions from new, modified and reconstructed fossil fuel-fired EGUs under section 111(b) of the CAA. Pursuant to the rule, newly constructed coal-fired steam EGUs cannot emit more than 1,400 lb CO₂/MWh (gross) based on a “best system of emission reduction” that was identified as partial CCS. The rule was subject to numerous legal challenges in the D.C. Circuit, which were consolidated under *State of North Dakota v. Environmental Protection Agency*. The case has been held in abeyance since August 10, 2017, pending the EPA’s review of the rule. On December 20, 2018, the EPA published a proposed rule proposing to change its best system of emission reduction determination from partial CCS to use of a supercritical boiler, with a change in the emission limits of 1,900 lb CO₂/MWh (gross) or 2,000 lb CO₂/MWh (gross), depending on the size of the unit. The EPA did not take final action on the 2018 Proposed Rule. On January 7, 2021, the EPA finalized its “Pollutant Specific Significant Contribution Finding (“SCF”) for Greenhouse Gas Emissions from New, Modified and Reconstructed Electric Utility Generating Units” rule, concluding that the EGU source category GHG emissions are significant and warrant regulation. The SCF rule was subsequently challenged in court, and on April 5, 2021, the D.C. Circuit vacated and remanded the rule. The EPA is comprehensively reviewing NSPS for GHG emissions from EGUs, and is expected to release a NPRM in 2023, with a final rule to follow in 2024. While no new coal-fired power stations are currently under construction in the U.S., promulgation of rules limiting CO₂ emissions or requiring deployment of advanced technologies such as CCS will promote continuation of this trend. A lack of investment in construction, modification or reconstruction of coal-fired EGUs could negatively affect the demand and prices for our coal, thereby having a material adverse impact on our business and results of operations.

Global Climate Change

Our customers’ consumption of the coal we produce results in the emission of greenhouse gases, particularly CO₂. During operations, our coal mines release methane, a GHG, to promote a safe working environment for our miners underground. GHGs are believed to contribute to warming of the earth’s atmosphere and other climatic changes. As a result, global climate change initiatives, including imposition of taxes or fees and promulgation of regulations intended to reduce GHG emissions, have and are expected to continue to result in (i) the decreased utilization or accelerated closure of existing coal-fired EGUs, (ii) the increased utilization of alternative fuels or generating systems, (iii) a reduction or elimination of new coal-fired power plant construction in certain countries, or (iv) the advancement of technologies aimed toward replacing or minimizing the use of coal in industrial or metallurgical processes. Additionally, regulations intended to limit or reduce emissions of methane from coal mines (discussed below) could have a direct impact on our results of operations.

To date in the U.S., no legislation to comprehensively regulate global climate issues and GHG emissions has been signed into law. While it is possible that the U.S. will adopt legislation in the future, the timing and specific requirements are uncertain. In the United States, findings published by the EPA in 2009 concluded that GHG emissions pose an endangerment to public health and the environment, and as a result, the EPA has the authority to adopt and implement regulations restricting GHG emissions under existing provisions of the CAA.

In addition, the U.S. Global Climate Change Research Program, a consortium of governmental departments and agencies, issued the Fourth National Climate Assessment (“NCA”) on November 23, 2018. The NCA is a congressionally mandated report, to be completed every four years as mandated under the Global Change Research Act of 1990. The report summarizes observed effects of increasing GHG concentrations on U.S. weather and climate, while identifying certain measures that could reduce climate-related risks. Separately, the U.S. House Select Committee on the Climate Crisis released its report, known as The Climate Crisis Action Plan, in June 2020, followed by the Senate Democrats’ Special Committee on the Climate Crisis’s report, “The Case for Climate Action”, in August 2020. Both reports call for the U.S. to achieve net-zero emissions no later than 2050. While no regulatory actions have been issued as a result, the NCA, legislative committee or similar reports could be relied upon to justify policy or executive action in the future.

For example, since assuming office, President Biden has signed multiple Executive Orders (EO) aimed at utilizing a whole-of-government approach to address climate change. EO 14008: Tackling the Climate Crisis at Home and Abroad, signed on January 27, 2021, includes provisions supporting an end to international financing of fossil fuel-based energy and seeks a reduction in climate pollution from every sector of the economy. EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, signed on December 8, 2021, emphasizes federal actions to support a carbon pollution free electricity sector by 2035 and seeks to achieve net zero emissions economy wide no later than 2050. Regulations, policies and uncertainty regarding the future course of these actions could immediately impact our business or our customers’ businesses and could eventually reduce the overall demand for our coal.

Since 2011, the EPA has required active underground coal mines and certain support facilities exceeding a minimum GHG emission threshold, including our operations, to report annual emissions to the EPA under the Mandatory GHG Reporting Rule. These emissions are not currently regulated by the EPA. Previous petitions and judicial challenges seeking to compel the EPA to classify coal mines as stationary sources appropriate for regulation have been unsuccessful to date. If

the EPA were to regulate coal mine methane emissions in the future, we may be required to install additional pollution control devices, pay fees or taxes for our emissions, or incur expenses associated with the purchase of emissions credits in order to continue operation. Alternatively, we may need to curtail coal production. The magnitude of impact on our operations, capital expenditures, financial condition or cash flows would be dependent on the structure of any proposed regulation and the degree of emission reduction prescribed. In June 2022, the EPA published a proposed rulemaking amending certain provisions of the Mandatory GHG Reporting Rule, with supplemental and final rulemakings expected to follow in 2023.

Separately, in April 2022, the SEC published a proposed rulemaking that would require registrants to disclose certain climate-related information in their registration statements and annual reports. The proposed rule prescribes disclosure of climate-related risks that are reasonably likely to have a material impact on a business, results of operations or financial condition, including, but not limited to, certain climate-related financial metrics, an accounting of direct and indirect greenhouse gas emissions and details of climate change targets and goals. The SEC is expected to publish a final rule in April 2023. In addition to challenges related to compliance burden and a lack of standardized quantification methods, the proposed rule could proliferate investment bias and practices by investors and financial institutions to exclude our securities from investment portfolios or increase our cost of capital, regardless of the Company's results, strategy or financial performance.

In the absence of sweeping federal legislation on GHG emissions in the United States, a number of states, governors, mayors and businesses have committed to broad goals for GHG reductions or requirements to deploy carbon-free or renewable sources of electricity. Such goals include those announced by multiple domestic utilities, including some of our customers, pledging to substantially reduce or to achieve net zero GHG emissions, to accelerate closure of existing coal-fired power generating stations, or to increase generating capacity from natural gas or renewable sources. These goals could ultimately affect the demand and prices for our coal, as these customers seek to achieve such goals over time. At the state level, on October 3, 2019, Pennsylvania Governor Tom Wolf issued an Executive Order, "Commonwealth Leadership in Addressing Climate Change through Electric Sector Emissions Reductions," directing the state's Department of Environmental Protection to begin a rulemaking process that will allow Pennsylvania to join the Regional Greenhouse Gas Initiative ("RGGI"). RGGI is a mandatory cap-and-trade program among 11 northeastern states to reduce CO₂ emissions from the power sector. In 2020, Virginia joined RGGI; however, multiple executive, legislative and regulatory actions intended to terminate Virginia's participation in RGGI are ongoing. Similar to other mandatory cap-and-trade initiatives, such as California's cap-and-trade program, RGGI seeks to limit CO₂ emissions annually, in order to achieve a prescribed long-term emissions reduction target. In cap-and-trade scenarios, power generators or other GHG emitters are required to purchase allowances, available through auction or a secondary market, that are equal to one ton of CO₂ emissions, thereby increasing the cost of electric power generation.

In response to the Governor's Order, the Pennsylvania Environmental Quality Board ("PAEQB") published a proposed rulemaking on November 7, 2020 to establish the Commonwealth's participation in RGGI and to institute a CO₂ budget trading program limiting emissions from fossil fuel-fired EGUs with a minimum nameplate capacity of 25 megawatts ("MWe"). In 2021, the PAEQB and the PA Independent Regulatory Review Commission ("IRRC") subsequently voted to adopt the regulation. Additionally, the PA Attorney General's Office determined that RGGI participation does not conflict with state law, based on its limited review under the Commonwealth Attorneys Act. Prior to the RGGI rule's approval, in 2020, the Pennsylvania General Assembly introduced and passed House Bill ("HB") 2025 requiring legislative approval from both chambers of the General Assembly for any action imposing a revenue-generating tax or fee intended to reduce CO₂ emissions, but HB 2025 was subsequently vetoed by Governor Wolf. After the PA IRRC voted to adopt the RGGI rule, the Pennsylvania Senate and House passed Senate Concurrent Regulatory Review Resolution 1 disapproving of the regulation on October 27 and December 15, 2021, respectively. However, the resolution was subsequently vetoed by Governor Wolf. Absent an override, the RGGI rule was published as final on April 23, 2022 and was subject to immediate legal challenge. In July 2022, the Pennsylvania Commonwealth Court issued a preliminary injunction enjoining the administration and enforcement of RGGI until further order. If allowed to proceed, the proposed Pennsylvania CO₂ Budget Trading Program regulation could result in decreased demand or decreased prices for our domestic coal in the Commonwealth of Pennsylvania. Similarly, in 2021, North Carolina Governor Ray Cooper signed House Bill 951 into law, codifying the state's primary climate change plan. The law endeavors to reduce CO₂ emissions by 70% by 2030, compared to 2005 baseline levels and to achieve carbon neutrality by 2050. The law is expected to speed the retirement of coal-fired units in the state and could result in decreased demand or decreased prices for our coal. Additional CO₂ cap and trade programs, carbon taxes, or other regulatory and policy regimes, whether state, federal or international in nature, or similar business or customer-focused voluntary climate and GHG emission reduction goals could affect the future market for coal and lower overall coal demand.

At both the state and federal levels, environmental organizations, third parties and regulators have challenged permitting actions associated with new fossil fuel infrastructure, power plants and pipelines, citing GHG emissions, the uncertainty surrounding the economic viability of these projects under future laws limiting CO₂ emissions, or the failure to

account for their climate change impacts. Challenges such as these could result in litigation and delays to permit approval, which could reduce production, cash flow and results of operations.

Foreign governments, including the European Union and member countries, have adopted regulations governing GHG emissions. Independent of regulation, the Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change (“UNFCCC”) became effective in 2005 and established a binding GHG emission reduction requirement for developed countries. The Kyoto Protocol has never been ratified by the U.S. Senate. Similarly, in December 2015, the U.S. and approximately 200 nations signed the international Paris Agreement, making voluntary commitments to limit or reduce GHG emissions in order to limit global warming below 2 degrees Celsius from temperatures in the pre-industrial era by 2100. On June 1, 2017, the Trump Administration announced the United States’ withdrawal from the agreement, which became effective on November 4, 2020. On January 20, 2021, President Biden signed an Executive Order bringing the United States back into the Paris Agreement as an official party. The UNFCCC convened its 26th Conference of the Parties (“COP26”) in November 2021, and ultimately enacted the Glasgow Climate Pact to operationalize Article 6 of the Paris Agreement. Article 6 establishes a framework for the voluntary international cooperation of countries to reduce GHG emissions and meet nationally determined contributions (“NDCs”) to the Paris Agreement’s goals. The Pact also calls on governments to accelerate the dissemination of technologies, and the adoption of policies, to transition toward a low-emission energy system, including by accelerating the phasedown of unabated coal power and phase-out of fossil fuel subsidies. The Pact was reaffirmed during the UNFCCC’s 27th Conference of the Parties in November 2022. As a result, nations will likely come forward with revised NDCs in the future, including accelerated targets aligned with the Paris Agreement’s temperature goals.

Federal, state and international GHG and climate change initiatives, associated regulations or other voluntary commitments to reduce GHG emissions could significantly increase the cost of coal production and consumption, increase costs as a result of regulations requiring the installation of emissions control technologies, increase expenses associated with the purchase of emissions reduction credits to comply with future emissions trading programs, increase expenses associated with any future carbon tax, or significantly reduce coal consumption through implementation of a future clean energy standard. Such initiatives and regulations could further reduce demand or prices for our coal in both domestic and international markets, could adversely affect our ability to produce coal and to develop our reserves, could reduce the value of our coal and coal reserves, and may have a material adverse effect on our business, financial condition and results of operations.

Clean Water Act

The federal Clean Water Act (“CWA”) and corresponding state laws affect our coal operations by regulating discharges into certain waters. CWA permits - issued either by the EPA or an analogous state agency - typically require regular monitoring and compliance with limitations on defined pollutants and reporting requirements. Specific to the Company’s operations, CWA permits and corresponding state laws at times include, among other requirements, (i) treatment of discharges from coal mining properties for non-traditional pollutants, such as chlorides, sulfates, selenium and dissolved solids and (ii) mandates to dispose of wastes at approved disposal facilities.

Under the CWA, citizens may sue permit holders for alleged discharges of pollutants not explicitly limited by permits issued pursuant to the National Pollutant Discharge Elimination System (“NPDES”). Citizens may also sue to enforce NPDES permit requirements. Since 2012, multiple citizen suits have been filed, alleging violations of numeric and narrative water quality standards that broadly prohibit effects to aquatic life. The suits seek penalties and injunctive relief that could limit future discharges or require installation of expensive treatment technologies. While the outcome of these suits cannot be predicted, court rulings could result in additional treatment expenses that could affect our operations. Additional CWA requirements that could directly or indirectly affect our operations are summarized below.

Dredge and Fill Permits Under CWA Sections 401 and 404. In order to obtain a permit for certain coal mining activities, such as the construction of coal refuse areas and slurry impoundments that may result in impacts to waters of the United States, an operator may need to obtain a permit for the discharge of fill material from the Army Corps of Engineers (“ACOE”) under Section 404 of the CWA. Alternatively, for specific categories of activities determined to have minimal effects, the Company may be required to comply with Nationwide Permits from the ACOE. Subject to minimum thresholds, all permits associated with the placement of dredge or fill material require appropriate mitigation. Through the CWA Section 401 Certification Program, state regulators have approval authority over federal permits authorizing discharges in state waters or impacts to aquatic resources and must certify that the activity will comply with water quality standards or other applicable requirements. In 2020, the EPA issued the 2020 CWA Section 401 Certification Rule, intending to clarify the scope of state regulatory authority and, under certain circumstances, allowing the EPA to certify projects regardless of state objection. The rule was vacated by the U.S. District Court for the Northern District of California on October 21, 2021. In June 2022, the EPA published a proposed revised section 401 certification rule expanding the role of states and Tribes in the certification process, with a final rule expected in 2023. As a result of the requirement to receive explicit authorization from the ACOE and the corresponding state regulatory authority before proceeding with mining

activities, our operations could experience permitting approval timeframe delays, which could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Definition of Waters of the United States. In June 2015, the EPA issued a rule to clarify which waterways are subject to federal jurisdiction under the CWA, known as the Clean Water Rule. The rule was ultimately blocked by a federal appeals court and in 2019, the EPA and the ACOE promulgated a final rule (i) repealing the 2015 definition of “Waters of the United States” (“WOTUS”) and (ii) redefining which waterbodies are subject to federal jurisdiction. On April 21, 2020, the EPA and ACOE published the Navigable Waters Protection Rule (“NWPR”), revising the previously codified definition of WOTUS. The NWPR became effective on June 22, 2020. However, in 2021, the NWPR was vacated by the U.S. District Court for the District of Arizona and separately vacated and remanded by the U.S. District Court for the District of New Mexico. As a result of these decisions and consistent with the Environment Executive Order, in December 2022, the EPA and the ACOE released a pre-publication version of the final rule redefining WOTUS and expanding the scope of federal jurisdiction over land and water features. Additionally, related rulemakings are expected to be released in 2023. By increasing the number of waterbodies subject to CWA permitting and other regulations, revisions to the definition of WOTUS could impose additional permitting obligations or restrictions, require enhanced mitigation, or cause the Company to modify its operations, any of which could result in delayed permit approval timeframes or increased costs, which could have a material adverse effect on our business, results of operations, financial condition and cash flows.

Water Discharge Permits. Additionally, the Company must obtain National Pollution Discharge Elimination System (“NPDES”) permits from the appropriate state or federal permitting authority under Section 402 of the CWA. These permits establish effluent limitations for discharges to receiving waters that are protective of water quality standards. For discharges to receiving waters that are classified as either high-quality or impaired, stringent restrictions are established to ensure anti-degradation and compliance with water quality standards. Permitting such discharges under NPDES could increase the cost, time and difficulty of complying with permit requirements, and may warrant costly treatment that could affect our operations.

Effluent Limitations Guidelines for the Steam Electric Power Generating Industry. The 2015 Effluent Limitations Guidelines and Standards (“ELG”) rule revised the regulations for the Steam Electric Power Generating category. The rule established the first federal limits on the levels of toxic metals in various power plant wastewater discharges and set zero-discharge requirements for certain waste streams. The rule was subject to legal challenge, with the U.S. Court of Appeals for the Fifth Circuit ultimately vacating in 2019 portions of the rule regulating legacy wastewater and residual combustion leachate. Revisions to the 2015 ELG rule were published on October 13, 2020 and established a voluntary incentive program which provides power plants until December 31, 2028 to (i) retire or (ii) implement changes required to achieve compliance with stringent effluent limits and standards. The rule is expected to significantly increase compliance costs for many coal-fired power plants and as a result, could accelerate facility closures. Certain domestic utilities, including some of our current customers, have announced plans to retire certain coal-fired power plants by 2028 as a result of the ELG rule. In accordance with the Environment Executive Order, on August 3, 2021, the EPA announced its decision to implement the 2020 ELG Reconsideration Rule and to simultaneously conduct a rulemaking that could strengthen ELGs for waste streams addressed, as well as waste streams excluded, in the 2020 final rule. The draft ELG reconsideration rule, which will also address claims in current litigation pending in the Fourth Circuit Court of Appeals, is expected to be published in 2023.

Other Environmental Laws and Regulations

Surface Mining Control and Reclamation Act. The federal Surface Mining Control and Reclamation Act (“SMCRA”) establishes minimum extraction, environmental, reclamation, and closure standards for mining activities. While SMCRA is a comprehensive statute, it does not supersede other major statutes, such as the Clean Air Act, Clean Water Act, Endangered Species Act and other statutes discussed herein. Operators must obtain SMCRA permits and permit renewals from the U.S. Office of Surface Mining (“OSM”) or from the applicable state agency, where states have been granted regulatory primacy by demonstrating that the state’s regulatory program is at least as stringent as the federal program. Our active operations are located in states that have primary jurisdiction for enforcement of SMCRA, with oversight from OSM. The timing of SMCRA permit issuance is largely at the discretion of the regulatory authorities and is often related to the size and complexity of the operation for which approval is sought. In addition, numerous other permits from applicable state, federal or local authorities are required to conduct mining operations. Timing of permit issuance can also be influenced by public engagement in the permitting process, such as through comment, hearings, or legal interventions which could affect our operations. Permits can also be delayed, refused, or revoked if any entity under common ownership or control has unabated permit violations, including the mining and compliance history of officers, directors, and principal owners of the entity seeking permit approval. Under the laws applicable to our operations, substantial fines and penalties, including suspension or revocation of permits, and in severe cases, criminal sanctions, may be imposed for failure to comply.

Under federal and state laws, including SMCRA, we are required to obtain surety bonds or other acceptable security to secure payment of our long-term obligations, including mine closure and reclamation, mine water treatment, federal and

state workers' compensation costs, coal leases, or other miscellaneous obligations. Surety bonds are typically renewable on a yearly basis, and it is possible that surety bond issuers may refuse to renew bonds or may demand additional collateral therefor. Over the past few years, the surety markets have been increasingly challenging, particularly for coal companies. We have experienced rising premiums, reduced coverage and/or fewer providers willing to underwrite policies and surety bonds. Terms have generally become unfavorable, including increases in the amount of collateral required to secure surety bonds. However, more recently, we have seen insurance rates stabilize and even decrease on certain lines of coverage, as new insurance carriers have entered the market, although there is no assurance that this stabilization or decrease will be sustained or continued. Any failure to maintain, or our inability to acquire, surety bonds required by state and federal laws or the related collateral required by bond issuers, could have a material adverse effect on our ability to produce coal, adversely affecting our business, financial condition, liquidity, results of operations and cash flows. As of December 31, 2022, we posted an aggregated \$518 million in surety bonds for reclamation purposes, as well as approximately \$289 million in surety bonds, cash, and letters of credit to secure other obligations including workers compensation, coal lease and other obligations.

In addition, SMCRA imposes a reclamation fee on all current mining operations, the proceeds of which are deposited in the Abandoned Mine Reclamation Fund, which is used to restore mine lands mined, closed or abandoned before SMCRA's adoption in 1977, and to pay health care benefit costs of orphan beneficiaries of the Combined Fund created by the Coal Industry Retiree Health Benefit Act of 1992. The fee of \$0.12 per ton for underground mined coal expired on September 30, 2021. The current fee, effective on October 1, 2021, is \$0.096 per ton for underground mined coal. We recognized expense related to Abandoned Mine Reclamation Fund fees of \$2 million for the year ended December 31, 2022.

Endangered Species Act. The federal Endangered Species Act ("ESA") and other related federal and state statutes protect species that have been classified as endangered or threatened with possible extinction, or other protective designations. Protection of these species could prohibit or delay authorization of mining activities or may place additional restrictions on our operations related to timbering, construction, vegetation, or water discharges. A number of species indigenous to our operating areas are protected under the ESA or other related laws and regulations. Rules that were intended to update the ESA as it relates to: (i) factors for the listing, delisting, or reclassifying of species, and the designation of critical habitat, and (ii) the blanket extension of prohibitions for endangered species to threatened species became effective in 2019, and were subject to challenge from several states and environmental groups. Additional rules regarding noncritical habitat were promulgated in December 2020 and were also subject to judicial challenge. Throughout 2022, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service published, or announced plans to publish, separate rules to rescind and revise the ESA critical habitat regulations and definitions finalized under the previous administration, with final rules expected to be promulgated in 2023. If more stringent or protective measures were required, or if additional critical habitat areas were designated, our operations could be exposed to additional requirements, increased operating costs or delayed approval timeframes.

National Environmental Policy Act. The National Environmental Policy Act ("NEPA") requires federal agencies to assess the environmental effects of their proposed actions prior to taking a "major Federal action," which encompasses agencies' decisions on certain permitting applications that fall under federal jurisdiction. NEPA reviews require federal agencies to review the environmental impacts of their decisions, including those associated with GHG emissions and the effects of climate change. Agencies generally must issue either an Environmental Impact Statement ("EIS") or an Environmental Assessment ("EA"), which may create delays in project review and authorization timeframes or increase the cost of compliance. In July 2020, the White House Council on Environmental Quality ("CEQ") promulgated the NEPA Update Rule, seeking to streamline the NEPA process and minimize unnecessary litigation, cost, and delay for project proponents; however, the rule was subject to legal challenge. On April 20, 2022, the CEQ published its "Phase 1" final rule, amending certain provisions of its regulations for implementing NEPA, addressing, in particular, the definition of "effects," and restoring provisions that were in effect before being modified in the July 2020 NEPA Update Rule. A "Phase 2" rulemaking to address a broader range of issues raised in the 2020 rulemaking is expected to be proposed in the summer of 2023. It is unclear at this time what issues the proposal will cover. Separately, in 2020, the CEQ published a "Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions" to replace guidance previously issued in 2016. The draft guidance sought to clarify the scope of review federal agencies should undertake when considering the effects of GHG emissions under NEPA and was never published in final form. Certain Federal courts have held that GHGs must be considered under NEPA prior to a federal agency taking a "major Federal action." In January 2023, the CEQ issued interim guidance regarding consideration of GHG emissions under NEPA, directing agencies to quantify all reasonably foreseeable emissions associated with a proposed action and reasonable alternatives, both direct and indirect.

Comprehensive Environmental Response, Compensation, and Liability Act. The Comprehensive Environmental Response Compensation and Liability Act ("CERCLA") imposes remediation requirements related to actual or threatened releases of hazardous substances into the environment. Under CERCLA or related state laws, joint and several liability may be imposed on generators of hazardous waste, site owners, waste transporters or others regardless of fault associated with

the original disposal activity. Although the EPA excludes most wastes generated during coal mining and processing from hazardous waste laws, such wastes may contain hazardous substances that are governed by CERCLA if released into the environment. Our current operations, operations of our predecessors, or facilities to which we have sent waste materials could be subject to liability under CERCLA.

Resource Conservation and Recovery Act. The federal Resource Conservation and Recovery Act (“RCRA”) and corresponding state laws and regulations affect coal mining by imposing requirements for the treatment, storage, transportation and disposal of certain wastes created throughout the coal mining process. Facilities where certain regulated wastes have been treated, stored or disposed of are subject to RCRA and may receive corrective action orders for instances of non-compliance or release of a hazardous substance to the environment. Many waste streams created throughout the mining process are excluded from the regulatory definition of hazardous waste, and coal operations authorized under SMCRA are exempt from RCRA permitting requirements. Byproducts of coal combustion, or coal combustion residuals (“CCR”), are regulated under RCRA. In April 2015, the EPA published regulations for the disposal of CCR from electric utilities and independent power producers (the “CCR Rule”). Importantly, CCR are regulated under RCRA as “non-hazardous” waste and avoid the stricter, costlier regulations under RCRA’s “hazardous” waste rules. The CCR Rule was subject to legal challenge and was ultimately remanded to the EPA. On August 28, 2020, the EPA published a final revised rule mandating closure of unlined impoundments, with deadlines to initiate closures between 2021 and 2028, depending on site-specific circumstances. Certain provisions of the revised CCR Rule were vacated by the D.C. Circuit in 2018. The EPA is expected to finalize additional rules addressing those specific provisions in 2023. Meanwhile, the EPA continues to publish determinations for CCR facilities that sought approval to continue disposal of CCR and non-CCR waste streams, as opposed to the initial 2021 deadline for unlined impoundments prescribed by the current rule. To date, the EPA has issued few conditional approvals granting an extension and multiple denials requiring facilities to cease receipt of waste within 135 days of completion of public comment. The current determinations, future determinations of the same nature, or similar actions in expected future rulemakings could lead to accelerated, abrupt, or unplanned suspension of coal-fired boilers. Further, the Water Infrastructure Improvements for the Nation (“WIIN”) Act authorized the EPA to establish a federal permitting program for states and territories that do not have an approved permitting program for the disposal of CCR in surface impoundments and landfills under RCRA. Accordingly, the EPA published a proposed rule establishing a federal program on February 20, 2020. A final rule is expected in 2023. The CCR rules impose new requirements that would generally increase the cost of CCR management or require facility closure. The combined effect of the CCR rules and ELG regulations (discussed above) has compelled power-generating companies to close existing ash ponds and may force the closure of certain existing coal-burning power plants that cannot comply with the new standards. Such retirements may adversely affect the demand for our coal.

Other Environmental Regulations. We are required to comply with other state, federal and local environmental laws in addition to those discussed above. These laws include, for example, the Safe Drinking Water Act, the Emergency Planning and Community Right to Know Act, the Toxic Release Inventory, and the rules governing the use and storage of explosives regulated by the U.S. Bureau of Alcohol, Tobacco, and Firearms and the Department of Homeland Security.

Health and Safety Laws

Mine Safety. Legislative and regulatory changes have required us to purchase additional safety equipment, construct stronger seals to isolate mined-out areas, and engage in additional training. We have also experienced more aggressive inspection protocols and with new regulations, the volume of civil penalties has increased. Recent actions taken by federal and state governments include requiring:

- the caching of additional supplies of self-contained self-rescuer devices underground;
- the purchase and installation of electronic communication and personal tracking devices underground;
- the purchase and installation of proximity detection devices on continuous miner machines;
- the placement of refuge chambers, which are structures designed to provide refuge for groups of miners during a mine emergency when evacuation from the mine is not possible, which will provide breathable air for 96 hours;
- the purchase of new fire-resistant conveyor belting underground;
- additional training and testing that creates the need to hire additional employees;
- more stringent rock dusting requirements; and
- the purchase of personal dust monitors for collecting respirable dust samples from certain miners.

On September 2, 2015, MSHA published proposed rules for underground coal mining operations concerning proximity detection systems for coal hauling machines and scoops. The rulemaking record for this proposed rule was closed on December 15, 2016, but on January 9, 2017, MSHA published a notice reopening the record and extending the comment period for this proposed rule for 30 days. MSHA has not issued a final rule regarding these proposed rules.

Black Lung Legislation. Under federal black lung benefits legislation, each coal mine operator is required to make payments of black lung benefits or contributions to:

- current and former coal miners totally disabled from black lung disease;
- certain survivors of miners who have died from black lung disease; and
- a trust fund for the payment of benefits and medical expenses to claimants whose last mine employment was before January 1, 1970, where no responsible coal mine operator has been identified for claims (where a miner's last coal employment was after December 31, 1969), or where the responsible coal mine operator has defaulted on the payment of such benefits. The trust fund is funded by an excise tax on U.S. production of coal, at a rate of up to \$1.10 per ton for deep mined coal and up to \$0.55 per ton for surface-mined coal, neither amount to exceed 4.4% of the gross sales price. On January 1, 2022, these rates expired and reverted back to pre-2008 levels, at \$0.50 per ton for deep mined coal and \$0.25 per ton for surface-mined coal, neither amount to exceed 2.0% of the gross sales price. However, the Inflation Reduction Act of 2022 made the higher rates (of up to \$1.10 per ton for deep mined coal and up to \$0.55 per ton for surface-mined coal) permanent, effective October 1, 2022. The Company recognized expense related to the Black Lung Excise Tax of \$8.6 million, \$13.5 million, and \$12.5 million for the years ended December 31, 2022, 2021 and 2020, respectively.

On December 2, 2021, the Government Accountability Office (“GAO”) published a report entitled “Black Lung Benefits Program: Continued Inaction on Coal Operator Self-Insurance Increases Financial Risk to Trust Fund.” This report notes that the Department of Labor (“DOL”) took certain steps to improve its oversight of self-insured coal mine operators, but these efforts were complicated by the COVID-19 pandemic. The GAO states in the report that the DOL has not taken necessary action to prevent additional benefit liabilities from being transferred to the trust fund and recommends that the DOL act on recommendations made in 2020. On January 19, 2023, the Office of Workers' Compensation Programs (“OWCP”) issued a Notice of Proposed Rulemaking to update its regulations authorizing coal producers to self-insure and for determining appropriate security amounts, and that it plans to solicit public comments for that proposal. A change in requirements for security posted to self-insure black lung liabilities could result in the Company being required to post additional security for its obligations.

The Patient Protection and Affordable Care Act (“PPACA”) made two changes to the Federal Black Lung Benefits Act. First, it provided changes to the legal criteria used to assess and award claims by creating a legal presumption that miners are entitled to benefits if they have worked at least 15 years in underground coal mines, or in similar conditions, and suffer from a totally disabling lung disease. To rebut this presumption, a coal company would have to prove that a miner did not have black lung or that the disease was not caused by the miner's work. Second, it changed the law so black lung benefits will continue to be paid to dependent survivors when the miner passes away, regardless of the cause of the miner's death. The changes have increased the cost to us of complying with the Federal Black Lung Benefits Act. In addition to the federal legislation, we are also liable under various state statutes for our portion of black lung claims.

Other State and Local Laws Related to Our Coal Business

Ownership of Coal Rights. The Company acquires ownership or leasehold rights to coal properties prior to conducting operations on those properties. As is customary in the coal industry, we have generally conducted only a summary review of the title to coal rights that are not in our development plans, but which we believe we control. This summary review is conducted at the time of acquisition or as part of a review of our land records to determine control of coal rights. Given our experience as a coal producer, we believe we have a well-developed ownership position relating to our coal control. Prior to the commencement of development operations on coal properties, we conduct a thorough title examination and perform curative work with respect to significant defects. We generally will not commence operations on a property until we have cured any material title defects on such property. We are typically responsible for the cost of curing any title defects. We have completed title work on substantially all of our coal producing properties and believe that we have satisfactory title to our producing properties in accordance with standards generally accepted in the industry.

Available Information

We maintain a website at www.consolenergy.com. We will make available, free of charge, on this website our future annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after such reports are available, electronically filed with, or furnished to the SEC, and are also available at the SEC's website, www.sec.gov. Apart from SEC filings, we also use our website to publish information which may be important to investors, such as presentations to analysts.

ITEM 1A. Risk Factors

You should carefully consider the following risks and other information in this Annual Report on Form 10-K in evaluating us and our common stock. The risk factors generally have been separated into two groups: risks related to our business and risks related to our common stock and the securities market.

Any of the following risks could materially and adversely affect our financial condition, results of operations or cash flows. Our operations could be affected by various risks, many of which are beyond our control. Based on current information, we believe that the following list identifies the most significant risk factors (not necessarily in order of importance or probability of occurrence) that could affect our financial condition, results of operations or cash flows. There may be additional risks and uncertainties that adversely affect our financial condition, results of operations or cash flows in the future that are not presently known, are not currently believed to be material, or are not identified below because they are common to all businesses. Past financial performance may not be a reliable indicator of future performance and historical trends should not be used to anticipate results or trends in future periods. For more information, see “Forward-Looking Statements.”

Risk Factors Summary

The following is a summary of the principal risks that could adversely affect our business, operations and financial results:

Risks Related to Our Business

- deterioration in economic conditions in any of the industries in which our customers operate may decrease demand for our products, impair our ability to collect customer receivables and impair our ability to access capital;
- volatility and wide fluctuation in coal prices based upon a number of factors beyond our control including future plans to eliminate coal-fired generation facilities, oversupply relative to the demand available for our products, weather and the price and availability of alternative fuels;
- the effects the COVID-19 pandemic has on our business and results of operations and on the global economy;
- an extended decline in the prices we receive for our coal affecting our operating results and cash flows;
- our customers extending existing contracts or not entering into new long-term contracts for coal on favorable terms;
- our reliance on major customers;
- decreases in demand and changes in coal consumption patterns of electric power generators, industrial end users and metallurgical coal users;
- the availability and reliability of transportation facilities and other systems, disruption of rail, barge, processing and transportation facilities and other systems that deliver our coal to market and fluctuations in transportation costs;
- the impact of potential, as well as any adopted, regulations to address pollution and climate change, including any requirements relating to greenhouse gas emissions, on our operating costs as well as on the market for coal;
- the risks inherent in coal operations, including being subject to unexpected disruptions caused by adverse geological conditions, equipment failure, delays in moving out longwall equipment, railroad derailments, security breaches or terroristic acts and other hazards, delays in the completion of significant construction or repair of equipment, fires, explosions, seismic activities, accidents and weather conditions;
- the potential for liabilities arising from environmental contamination or alleged environmental contamination in connection with our past or current coal operations;
- uncertainties in estimating our economically recoverable coal reserves;
- failure to obtain or renew surety bonds or insurance coverage on acceptable terms;
- exposure to employee-related long-term liabilities; and
- the risk of our debt agreements, our debt, access to capital markets and changes in interest rates affecting our operating results and cash flows.

Risks Related to Our Capital Stock and the Securities Market

- uncertainty with respect to the Company's common stock, potential stock price volatility and future dilution;
- the consequences of a lack of, or negative, commentary about us published by securities analysts and media;
- uncertainty regarding the timing of any dividends we may declare;
- uncertainty as to whether we will repurchase shares of our common stock or outstanding debt securities;
- restrictions on the ability to acquire us in our certificate of incorporation, bylaws and Delaware law and the resulting effects on the trading price of our common stock; and
- inability of stockholders to bring legal action against us in any forum other than the state courts of Delaware.

Risks Related to Our Business

Deterioration in the global economic conditions in any of the industries in which our customers operate, or a worldwide financial downturn, or negative credit market conditions may have a materially adverse effect on our liquidity, results of operations, cash flows, business and financial condition that we cannot predict.

Weakness in the economic conditions of any of the industries we serve or are served by our customers could adversely affect our business, financial condition, results of operations, cash flows and liquidity in a number of ways. For example:

- demand for electricity in the United States is impacted by industrial production, which, if weakened, would negatively impact the revenues, margins and profitability of our coal business;
- demand for metallurgical coal depends on coke and steel demand in the United States and globally, which, if weakened, would negatively impact the revenues, margins and profitability of our metallurgical coal business including our ability to sell coal from the Itmann Mining Complex or our thermal coal as higher priced high volatile metallurgical coal;
- demand for coal used in industrial applications, such as cement and brick manufacturing processes, which, if weakened, would negatively impact the revenues, margins and profitability of our coal business;
- the tightening of credit or lack of credit availability to our customers could adversely affect our ability to collect our trade receivables;
- our ability to access the capital markets may be restricted at a time when we would like, or need, to raise capital for our business including for exploration and/or development of our coal reserves, or for strategic acquisitions of assets; and
- a decline in our creditworthiness, which may require us to post letters of credit, cash collateral, or surety bonds to secure certain obligations, all of which would have an adverse effect on our liquidity.

Prices for coal are volatile and can fluctuate widely based upon a number of factors beyond our control including oversupply relative to the demand available for our coal, weather, the price and availability of alternative fuels and plans by electricity generators to shut down or move away from coal-fired generation. A substantial or extended decline in the prices we receive for our coal will adversely affect our business, results of operations, financial condition and cash flows.

Our financial results are significantly affected by the prices we receive for our coal and depend, in part, on the margins that we receive on sales of our coal. Our margins reflect the price we receive for our coal over our cost of producing and transporting our coal. Prices and quantities under our multi-year sales contracts are generally based on expectations of future coal prices at the time the contract is entered into, renewed, extended or re-opened. The expectation of future prices for coal depends upon many factors. In addition, demand can fluctuate widely due to a number of matters beyond our control, including:

- the market price for coal;
- changes in the consumption pattern of industrial consumers, electricity generators and residential end-users of electricity;
- weather conditions in our markets which affect the demand for thermal coal;
- competition from other coal suppliers;
- the price and availability of alternative fuels and sources for electricity generation, especially natural gas and renewable energy sources;
- with respect to thermal coal, the price and availability of natural gas and the price and supply of imported liquefied natural gas;
- technological advances affecting energy consumption;
- with respect to metallurgical coal, the overall demand for steel;
- the costs, availability and capacity of transportation infrastructure;
- overall domestic and global economic conditions, including the supply of and demand for domestic and foreign coal;
- international developments impacting supply of thermal and metallurgical coal, including supply side reforms promulgated in China, and continued expected growth in demand for seaborne metallurgical coal in India; and
- the impact of domestic and foreign governmental laws and regulations, including environmental and climate change regulations and regulations affecting the coal mining industry and coal-fired power plants, and delays in the receipt of, failure to receive, failure to maintain or revocation of necessary governmental permits.

Our business, results of operations and financial condition may be adversely affected by the novel coronavirus (COVID-19) pandemic.

The COVID-19 pandemic had a severe adverse impact on our business and operations, resulting in an unprecedented decline in demand for our coal during a portion of 2020, driven by widespread government-imposed lockdowns. While most government-imposed shut-downs in the United States and abroad have been phased out, there is a possibility that such shut-downs may be reinstated if the pandemic were to again become an acute, severe risk. This could cause a sustained decrease in demand for our coal and the failure of our customers to purchase coal from us that they are obligated to purchase pursuant to existing contracts, which would have a material adverse effect on our operations and financial condition. COVID-19 and various governmental and private responses to the virus also led to widespread, global supply chain disruptions. During the 2021 and 2022 fiscal years and continuing into 2023, we encountered multiple delays as a result of the disruption of the global supply chain and the logistics infrastructure. These supply chain disruptions have

previously caused and may continue to or again cause some of our suppliers to fail to deliver the quantities of supplies we need or fail to deliver such supplies in a timely manner.

The extent to which COVID-19 may adversely impact our results of operations, cash flows and financial condition depends on future developments, which are highly uncertain and unpredictable. The Company will continue to take the appropriate steps to mitigate the impact on the Company's operations, liquidity and financial condition.

Any significant downtime of our major pieces of equipment at our strategic operations, or any inability to obtain equipment, parts and raw materials in a timely manner, in sufficient quantities or at reasonable costs, could impair our ability to satisfy our customer obligations and materially and adversely affect our results of operations.

We depend on several major pieces of mining equipment to produce, transport and prepare our coal for our customers, including, but not limited to, longwall mining systems, continuous mining units, our preparation plants and related facilities, conveyors and transloading facilities. If any of these pieces of equipment or facilities suffered major damage or were destroyed by fire, abnormal wear, flooding, incorrect operation or otherwise, we may be unable to replace or repair them in a timely manner or at a reasonable cost, which would impact our ability to produce and transport coal and materially and adversely affect our business, results of operations, financial condition and cash flows. We procure this equipment from a concentrated group of suppliers, and obtaining this equipment often involves long lead times. Occasionally, demand for such equipment by mining companies can be high and some types of equipment may be in short supply. Delays in receiving or shortages of this equipment or the cancellation of our supply contracts under which we obtain equipment could limit our ability to obtain these supplies or equipment. Disruptions in supply chains, increased demand and other factors have recently led to increases in these lead times and delays, which could reduce our production and therefore adversely affect our results of operations, financial condition and cash flows.

Additionally, coal production, transportation and preparation consumes large quantities of commodities including steel, copper, rubber products and liquid fuels and requires the use of capital equipment. Some commodities, such as steel, are needed to comply with roof control plans required by regulation. The prices we pay for commodities and capital equipment are strongly impacted by the global market. A rapid or significant increase in the costs of commodities or capital equipment we use in our operations, whether as a result of increased demand, shortages caused by supply chain disruptions or general inflationary pressures, could impact our mining operating costs because we may have a limited ability to negotiate lower prices, and, in some cases, may not have a ready substitute. In addition, if any of our suppliers experiences an adverse event, or decides to no longer do business with us, we may be unable to obtain sufficient equipment and raw materials in a timely manner or at a reasonable price to allow us to meet our production goals and our revenues may be adversely impacted. We use considerable quantities of steel in the mining process. If the price of steel or other materials increases substantially, the risk of which is currently elevated due to economy-wide high inflation, or if the value of the U.S. dollar declines relative to foreign currencies with respect to certain imported supplies or other products, our operating expenses could increase. Any of the foregoing events could materially and adversely impact our business, financial condition, results of operations and cash flows.

If our coal customers do not extend existing contracts or do not enter into new multi-year coal sales contracts on favorable terms, profitability of our operations could be adversely affected.

During the year ended December 31, 2022, approximately 41% of the coal the Company produced was sold under multi-year sales contracts. If a substantial portion of our multi-year sales contracts are modified or terminated, if force majeure is exercised, or if we are unable to replace or extend the contracts or new contracts are priced at lower levels, our profitability would be adversely affected. In addition, if customers refuse to accept shipments of our coal for which they have existing contractual obligations, our revenues will decrease and we may have to reduce production at our mines until such customers honor their contractual obligations and begin accepting shipments of our coal again.

The profitability of our multi-year sales coal supply contracts depends on a variety of factors, which vary from contract to contract and fluctuate during the contract term, including our production costs and other factors. Price changes, if any, provided in long-term supply contracts may not reflect our cost increases, and therefore, increases in our costs may reduce our profit margins. In addition, during periods of declining market prices, provisions in our long-term coal contracts for adjustment or renegotiation of prices and other provisions may increase our exposure to short-term coal price and electric power price volatility. As a result, we may not be able to obtain long-term agreements at favorable prices compared to either market conditions, as they may change from time to time, or our cost structure, which may reduce our profitability.

We have customer concentration, so the loss of, or significant reduction in, purchases by our largest coal customers could adversely affect our business, financial condition, results of operations and cash flows.

Although we have recently begun selling a significant portion of our coal in the export market, we remain somewhat exposed to risks associated with a concentrated customer base both domestically and globally. We derive a significant

portion of our revenues from two customers, each of which accounted for over 10% of our total sales and aggregated approximately 30% of our total sales in fiscal year 2022.

There are inherent risks whenever a significant percentage of total revenues are concentrated with a limited number of customers. Revenues from our largest customers may fluctuate from time to time based on numerous factors, including market conditions, which may be outside of our control. If any of our largest customers experience declining revenues due to market, economic or competitive conditions, we could be pressured to reduce the prices that we charge for our coal, which could have an adverse effect on our margins, profitability, cash flows and financial position. If any customers were to significantly reduce their purchases of coal from us, including by failing to buy and pay for coal they committed to purchase in sales contracts, our business, financial condition, results of operations and cash flows could be adversely affected.

Our ability to collect payments from our customers could be impaired if their creditworthiness deteriorates.

Our ability to collect payments from our customers for coal sold and delivered could be impaired if their creditworthiness declines or if they fail to honor their contracts. Because a significant portion of our sales are concentrated to a few material customers, if the creditworthiness of a significant customer declines or the customer significantly delays payments to us, our business, cash flows and financial condition could be materially and adversely affected. Furthermore, if customers refuse to accept shipments of our coal for which they have an existing contractual obligation or if we terminate a relationship with a significant customer due to credit risks, our revenue could decrease materially and we may have to reduce production at our mines until our customers' contractual obligations are honored or we are able to replace a significant customer. In addition, our borrowing capacity under our receivables financing arrangement could be reduced if we experience prolonged and significant delays in payments by one or more material customers.

Our inability to acquire or develop additional coal reserves that are economically recoverable may have a material adverse effect on our future profitability.

Our profitability depends substantially on our ability to mine, in a cost-effective manner, coal reserves that possess the quality characteristics that our customers desire. Because our reserves decline as we mine our coal, our future profitability depends upon our ability to acquire additional coal reserves and surface land needed to ensure the reserves are economically recoverable to replace the reserves we produce. If we fail to acquire, gain access to or develop sufficient additional reserves over the long term to replace the reserves depleted by our production, our existing reserves will eventually be depleted, which may have a material adverse effect on our business, financial condition, results of operations, and cash flows.

Decreases in coal consumption patterns for steel production, electricity generation and industrial applications could adversely affect our business.

Our business is closely linked to demand for electricity, and any changes in coal consumption by U.S. or international electric power generators would likely impact our business over the long term. According to the EIA, in 2022, the domestic electric power sector accounted for approximately 92% of total U.S. coal consumption. In 2022, the Pennsylvania Mining Complex sold approximately 54% of its coal to U.S. electric power generators, and we have annual or multi-year contracts in place with many of these electric power generators for a significant portion of our future production. The amount of coal consumed by the electric power generation industry is affected by, among other things:

- general economic conditions, particularly those affecting industrial electric power demand, such as a downturn in the U.S. or international economy and financial markets;
- overall demand for electricity;
- indirect competition from alternative fuel sources for power generation, such as natural gas, fuel oil, nuclear, hydroelectric, wind and solar power, and the location, availability, quality and price of those alternative fuel sources;
- environmental and other governmental regulations, including those impacting coal-fired power plants;
- energy conservation efforts and related governmental policies; and
- other corporate environmental, social or governance initiatives to reduce dependency on and/or consumption of fossil fuels.

Changes in the coal industry that affect our customers, such as those caused by decreased electricity demand and increased competition, could also adversely affect our business. Indirect competition from natural gas-fired plants that are relatively more efficient, less expensive to construct and less difficult to permit than coal-fired plants has displaced a significant amount of coal-fired electric power generation and may continue to do so in the near term, particularly older, less efficient coal-fired power generators. Federal and state mandates for increased use of electricity derived from renewable energy sources could also affect demand for our coal. Such mandates, combined with other incentives to use renewable energy

sources, such as tax credits, could make alternative fuel sources more competitive with coal. A decrease in coal consumption by the electric power generation industry could adversely affect the price of coal, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Other factors, such as efficiency improvements associated with new appliance standards in the buildings sectors and overall improvement in the efficiency of technologies powered by electricity, have slowed electricity demand growth and may contribute to slower growth in the future. Further decreases in the demand for electricity, such as decreases that could be caused by a worsening of current economic conditions, a prolonged economic recession, government-imposed lockdowns designed to slow or contain the spread of contagious diseases or other similar events, could have a material adverse effect on the demand for coal and on our business over the long term.

Coal sold into the industrial markets is used in the cement and brick manufacturing process. Any deterioration in the U.S. or foreign cement and brick industries, including a decrease in demand for such products or concerns regarding the continued financial viability of these industries, could reduce the demand for our coal sold into those markets and could adversely impact the creditworthiness of our U.S. or foreign industrial customers and our ability to receive timely payments from these customers. In addition, we compete heavily against the price of petroleum coke into these industries and as the price of petroleum coke changes, that could positively or negatively affect our financial condition, results of operations and cash flows.

The metallurgical coal that we produce from the PAMC and the Itmann Mining Complex is sold to domestic and export customers involved in the production of steel. Any deterioration in conditions in the U.S. or foreign steel industries, including a decrease in demand for steel or concerns regarding the continued financial viability of the industry, could reduce the demand for our metallurgical coal and could adversely impact the creditworthiness of our U.S. or foreign metallurgical coal customers and our ability to receive timely payments from these customers. In addition, the steel industry's demand for coal is affected by a number of factors, including the variable nature of that industry's business, technological developments in the steel-making process and the availability of substitutes for steel, such as aluminum, composites or plastics. When steel prices are lower, the prices that we charge steel industry customers for our metallurgical coal may decline, which could adversely affect our financial condition, results of operations and cash flows.

The availability and reliability of rail transportation and transportation facilities and fluctuations in transportation costs could affect the demand for our coal, and any significant damage to the CONSOL Marine Terminal that impacts its use could impair our ability to supply coal to our customers.

Transportation logistics play an important role in allowing us to supply coal to our customers. Any significant delays, interruptions or other limitations on the ability to transport our coal could negatively affect our operations. Our coal is transported from our mines primarily by rail, which has experienced significant disruptions resulting from increased demand, labor shortages, labor disputes and the COVID-19 pandemic. To reach markets and end customers, our coal may also be transported by barge or by ocean vessels loaded at terminals, including our CONSOL Marine Terminal. Disruption of transportation services because of weather-related problems, strikes, lock-outs, terrorism, governmental regulation, third-party action or other events could temporarily impair our ability to supply coal to customers and adversely affect our profitability. In addition, transportation costs represent a significant portion of the delivered cost of coal and, as a result, the cost of delivery is a critical factor in a customer's purchasing decision. Increases in transportation costs, including increases resulting from emission control requirements and fluctuation in the price of diesel fuel and demurrage, could make our coal less competitive. Any disruption of the transportation services we use or increase in transportation costs could have a materially adverse effect on our business, financial condition, results of operations and cash flows. Disruption in shipment levels over longer periods of time at the CONSOL Marine Terminal could cause our customers to look to other sources for their coal needs, negatively affecting our revenues and results of operations.

Competition within the coal industry may adversely affect our ability to sell coal. Increased competition or a loss of our competitive position could adversely affect our sales of, or prices for, our coal, which could impair our profitability. In addition, foreign currency fluctuations could adversely affect the competitiveness of our coal abroad.

We compete with other producers primarily on the basis of price, coal quality, transportation costs and reliability of delivery. We compete with coal producers in various regions of the United States and with some foreign coal producers for domestic sales primarily to electric power generators. We also compete with both domestic and foreign coal producers for sales in international markets. Demand for our coal by our principal customers is affected by the delivered price of competing coals, other fuel supplies such as natural gas and petcoke, and alternative generating sources, including nuclear, natural gas, oil and renewable energy sources, such as hydroelectric, wind and solar power.

We sell coal to foreign electricity generators, industrial end-users and to the more specialized metallurgical coal market, which are significantly affected by international demand and competition. The coal industry has experienced consolidation in recent years, including consolidation among some of our major competitors. As a result, a substantial portion of coal

production is from companies that have significantly greater resources than we do. Current or further consolidation in the coal industry or current or future bankruptcy proceedings of coal competitors may adversely affect us. In addition, increases in coal prices could encourage existing producers to expand capacity or could encourage new producers to enter the market. If overcapacity results, the prices of and demand for our coal could significantly decline, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

In addition, we face competition from foreign producers that sell their coal in the export market. Potential changes to international trade agreements, trade concessions or other political and economic arrangements may benefit coal producers operating in countries other than the United States. We may be adversely impacted on the basis of price or other factors with companies that in the future may benefit from favorable foreign trade policies or other arrangements. In addition, coal is sold internationally in U.S. dollars and, as a result, general economic conditions in foreign markets and changes in foreign currency exchange rates may provide our foreign competitors with a competitive advantage. If our competitors' currencies decline against the U.S. dollar or against our foreign customers' local currencies, those competitors may be able to offer lower prices for coal to our customers. Furthermore, if the currencies of our overseas customers were to significantly decline in value in comparison to the U.S. dollar, those customers may seek decreased prices for the coal we sell to them. Consequently, currency fluctuations could adversely affect the competitiveness of our coal in international markets, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Inflation could result in higher costs and decreased profitability.

The United States, European Union and other large economies have recently experienced inflation at a rate significantly higher than recent years. Current and future inflationary effects may be driven by, among other things, governmental stimulus and monetary policies, supply chain disruptions and geopolitical instability, including the ongoing military conflict between Ukraine and Russia. This recent inflation has resulted in rising prices, including increases in freight rates, prices for energy and other costs, and has adversely impacted us and may further impact us negatively in the future. Sustained inflation could result in higher costs for transportation, energy, materials, supplies and labor. Our efforts to recover inflation-based cost increases from our customers may be hampered as a result of the structure of our contracts and the contract bidding process as well as competitive pressure in the industry, economic conditions and the countries to which we sell our export coal. Accordingly, substantial inflation may have an adverse impact on our business, financial position, results of operations and cash flows. Inflation has also resulted in higher interest rates in the U.S., which could increase our cost of debt borrowing in the future.

A significant portion of our production is sold in international markets, which exposes us to additional risks and uncertainties.

For the fiscal years ended December 31, 2022, 2021 and 2020, approximately 53%, 46% and 35%, respectively, of our annual coal revenue was derived from customers who exported our coal outside of the United States. We believe that international markets will continue to account for a significant percentage of our revenue as we seek international expansion opportunities. The international markets are subject to a number of material risks, including, but not limited to:

- changes in a specific country's or region's political, economic or other conditions;
- changes in U.S. government policy with respect to these foreign countries may inhibit export of our products and limit potential customers' access to U.S. dollars in a country or region in which those potential customers are located;
- we may experience difficulties in enforcing our legal contracts or the collecting of foreign accounts receivable in a timely manner and we may be forced to write off these receivables;
- tariffs and other barriers may make our products less cost competitive;
- potentially adverse tax consequences to our customers may damage our cost competitiveness;
- customs, import/export and other regulations of the countries in which our international customers are located may adversely affect our business;
- currency fluctuations may make our coal less cost competitive, affecting overseas demand for our coal, or may indirectly expose us to currency fluctuation risk; and
- geopolitical uncertainty or turmoil, including terrorism, war and natural disasters.

Our sales are also affected by general economic conditions in our international markets. A prolonged economic downturn in international markets could have a material adverse effect on our business. Negative developments in one or more countries or regions in which our coal is exported could result in a reduction in demand for our coal, the cancellation or delay of orders already placed, difficulties in delivering our products, difficulty in collecting receivables or a higher cost of doing business, any of which could negatively impact our business, financial condition, cash flows and results of operations. In addition, we may be exposed to legal risks under the laws of the countries outside the U.S. in which we do

business, as well as the laws of the U.S. governing our business activities in those other countries, such as the U.S. Foreign Corrupt Practices Act.

The Company intends, if possible, to offset any potential adverse impact from various international risks (for example, tariffs) that may be imposed by governments in the countries in which one or more of the Company's end users are located by reallocating its customer base to other countries or to the domestic U.S. markets.

Compliance with import and export requirements, the Foreign Corrupt Practices Act and other applicable anti-corruption laws may increase the cost of doing business.

Because we sell a significant portion of our production in international markets, our operations and activities inside and outside the U.S., as well as the shipment of our products across international borders, require us to comply with a number of federal, state, local and foreign laws and regulations, which are complex and increase our cost of doing business. These laws and regulations include import and export requirements, economic sanction laws, customs laws, tax laws and anti-corruption laws, such as the U.S. Foreign Corrupt Practices Act and the U.K. Bribery Act. We cannot predict how these laws or their interpretation, administration and enforcement will change over time. There can be no assurance that our employees, contractors, agents, distributors, customers, payment parties or third parties working on our behalf will not take actions in violation of these laws. Any such violation could result in substantial fines, sanctions, civil and/or criminal penalties and curtailment of operations in certain jurisdictions, and might adversely affect our business, financial condition, results of operations and cash flows. In addition, actual or alleged violations could damage our reputation and ability to do business. Furthermore, detecting, investigating, and resolving actual or alleged violations is expensive and can consume significant time and attention of our senior management.

The characteristics of coal may make it costly for electric power generators and other coal users to comply with various environmental standards regarding the emissions of impurities released when coal is burned, which could cause our customers to replace coal with alternative fuels.

Coal contains impurities, including sulfur, mercury, chlorine and other elements or compounds, many of which are released into the air along with fine particulate matter, nitrogen oxides and carbon dioxide when it is burned. Complying with regulations on these emissions can be costly for our customers, including those in the power generation, metallurgical and industrial markets. In order to comply with emissions standards promulgated under the federal Clean Air Act or similar state regulations seeking to limit the emissions that are generated as a result of coal combustion, coal users could be required to install costly emissions control devices, use or purchase emission credits or allowances, curtail operations or switch to other fuels, each of which has limitations. Because thermal coal currently accounts for a significant portion of our sales, our results could be materially affected by the extent to which our customers incur costs associated with controlling or limiting emissions from the use of coal or switch to alternative fuels. Rulemakings such as the Cross State Air Pollution Rule ("CSAPR"), the National Ambient Air Quality Standards ("NAAQS"), or the New Source Performance Standards ("NSPS") and other Clean Air Act regulations may decrease the demand for our coal in electric power generation, metallurgical or industrial markets in the future. For more information, please see "Laws and Regulations" under Item 1 above.

Regulation to address climate change (or emissions of greenhouse gases including carbon dioxide and methane) and uncertainty regarding such regulation may affect us directly or indirectly by increasing our operating costs, reducing the value of our coal assets and adversely impacting the market for coal.

The issue of global climate change continues to attract considerable public and scientific attention with widespread concern about the impacts of human activity (especially the emissions of GHGs such as carbon dioxide and methane). Combustion of fossil fuels, such as the coal we produce, results in the emission of carbon dioxide into the atmosphere by coal end-users, such as coal-fired electric power plants. Additionally, our coal mines release methane to the atmosphere during operations, in order to promote a safe working environment for our miners underground.

Numerous proposals have been made and are likely to continue to be made at the international, national, regional and state levels of government that are intended to limit emissions of GHGs. Additionally, the United States is a signatory to the United Nations-sponsored "Paris Agreement," which requires nations party to the agreement to submit non-binding GHG emissions reduction goals every five years after 2020. President Biden further announced in April 2021 a new, more rigorous nationally determined emissions reduction level of 50-52% reduction from 2005 levels in economy-wide net GHG emissions by 2030. The international community gathered again in Glasgow in November 2021 at the 26th United Nations Climate Change Conference, during which multiple announcements were made, including a call for parties to eliminate certain fossil fuel subsidies and pursue further action on GHGs other than carbon dioxide. The Pact was reaffirmed during the UNFCCC's 27th Conference of the Parties (COP27) in November 2022. In addition, several individual U.S. states have already adopted measures requiring GHG emission reductions within their boundaries. Other states have elected to participate in regional cap-and-trade programs like the RGGI in the northeastern U.S. Any significant legislative changes at

the international, national, state or local levels designed to reduce GHG emissions could significantly affect our ability to produce and sell our coal and develop our reserves, could increase the cost of the production and sale of coal and could materially reduce the value of our coal and coal reserves.

These potential legislative changes, as well as concerted conservation and efficiency efforts that result in reduced electricity consumption, and consumer and corporate preferences for non-coal fuel sources, including natural gas and/or alternative energy sources, could cause coal prices and sales of our coal to materially decline and could cause our costs to increase. Further, climate change itself may cause more extreme weather conditions such as more intense hurricanes, thunderstorms, tornadoes and snow or ice storms, as well as rising sea levels and increased volatility in seasonal temperatures. Extreme weather conditions can interfere with our services and increase our costs, and damage resulting from extreme weather may not be fully insured. However, at this time, we are unable to determine the extent to which climate change may lead to increased storm or weather hazards affecting our operations.

Furthermore, adoption of comprehensive legislation or regulation focusing on climate change or GHG emission reductions for the United States or other countries where we sell coal, or the inability of utilities to obtain financing in connection with coal-fired plants, may make it more costly to operate coal-fired electric power generation plants and make coal less attractive for electric utility power plants in the future. Depending on the nature of the regulation or legislation, natural gas and/or alternative energy sources could gain added economic benefits versus coal-fueled power generation, especially if such regulation or legislation makes our coal more expensive as a result of increased compliance, operating and maintenance costs. Apart from actual regulation, uncertainty over the extent of regulation of GHG emissions may inhibit utilities from investing in the building of new coal-fired plants to replace older plants or investing in the upgrading of existing coal-fired plants. Any reduction in the amount of coal consumed by electric power generators as a result of actual or potential regulation of greenhouse gas emissions could decrease demand for our fossil fuels, thereby reducing our revenues and materially and adversely affecting our business and results of operations. Our customers may also have to invest in carbon dioxide capture and storage technologies in order to burn coal and comply with future GHG emission standards. Although we cannot predict the ultimate impact of any legislation or regulation, it is likely that any future laws, regulations or other policies aimed at reducing GHG emissions will negatively impact demand for our coal and could also negatively affect the value of our reserves and other assets.

Additionally, if emissions of methane from coal mines are regulated in the future, we would likely be required to install additional pollution control devices, pay fees or taxes for our emissions or incur expenses associated with the purchase of emissions credits, in order to continue operation. Alternatively, we may need to curtail coal production. The magnitude of impact on our operations, capital expenditures, financial condition or cash flows would be dependent on the structure of any proposed regulation and the degree of emission reduction prescribed.

We are subject to litigation seeking to hold energy companies accountable for the effects of climate change and may be subject to additional such litigation in the future.

Increasing attention to climate change risk has also resulted in a recent trend of governmental investigations and private litigation by local and state governmental agencies as well as private plaintiffs in an effort to hold energy companies accountable for the effects of climate change. Other public nuisance lawsuits have been brought in the past against power, coal, oil and gas companies alleging that their operations are contributing to climate change. The plaintiffs in these suits sought various remedies, including punitive and compensatory damages and injunctive relief. While the U.S. Supreme Court held that any federal common law had been displaced by the CAA and thus dismissed the public nuisance claims against the defendants in those cases, tort-type liabilities remain a possibility and a source of concern. For instance, we have been named as a defendant in multiple lawsuits brought by the City of Baltimore, the State of Delaware, the City of Annapolis, and Anne Arundel County, Maryland seeking to hold us and other energy companies liable for the effects of climate change caused by the release of GHGs. The outcome of this litigation is uncertain, and we could incur substantial legal costs associated with defending these and similar lawsuits in the future. Government entities in other states (including California and New York) have brought similar claims seeking to hold a wide variety of companies that produce fossil fuels liable for the alleged impacts of the GHG emissions attributable to those fuels or for other grounds related to climate change, such as improper disclosure of climate change risks. Those lawsuits allege damages as a result of climate change and the plaintiffs are seeking unspecified damages and abatement under various tort theories. We have not been made a party to these other suits, but it is possible that we could be included in similar future lawsuits initiated by state and local governments as well as private claimants.

Existing and future government laws, regulations and other legal requirements relating to protection of the environment and other laws that govern our business may increase our costs of doing business and may restrict our coal operations.

We are subject to laws, regulations and other legal requirements enacted or adopted by federal, state and local authorities, as well as foreign authorities, relating to the protection of the environment. These include legal requirements that govern

discharges of substances into the air and water, the management and disposal of hazardous substances and wastes, the cleanup of contaminated sites, groundwater quality and availability, threatened and endangered plant and wildlife protection, reclamation and restoration of mining properties after mining is completed, the installation of various safety equipment in our mines, remediation of impacts of surface subsidence from underground mining, and work practices related to employee health and safety. Complying with these requirements, including the terms of our permits, has had, and will continue to have, a significant effect on our costs of operations and competitive position.

In addition, there is the possibility that we could incur substantial costs as a result of violations under environmental laws. Any additional laws, regulations and other legal requirements enacted or adopted by federal, state and local authorities, as well as foreign authorities, or new interpretations of existing legal requirements by regulatory bodies relating to the protection of the environment could further affect our costs of operations and competitive position.

Our business involves many hazards and operating risks, some of which may not be fully covered by insurance. The occurrence of a significant accident or other event that is not fully insured could curtail our operations and have a material adverse effect on our results of operations, financial condition and cash flows.

Our coal mining operations are underground mines. Underground mining and related processing activities present inherent risks of injury or death to persons, damage to property and equipment and other potential legal or other liabilities. Our mines are subject to a number of operating risks that could disrupt operations, decrease production and increase the cost of mining at particular mines for varying lengths of time, thereby adversely affecting our operating results. In addition, if an operating risk occurs in our mining operations, we may not be able to produce sufficient amounts of coal to deliver under our multi-year coal contracts. Our inability to satisfy contractual obligations could result in our customers initiating claims against us or canceling their contracts. The operating risks that may have a significant impact on our coal operations include:

- variations in thickness of the layer, or seam, of coal;
- adverse geological conditions, including amounts of rock and other natural materials intruding into the coal seam that could affect the stability of the roof and the side walls of the mine;
- environmental hazards;
- equipment failures or unexpected maintenance problems;
- fires or explosions, including as a result of methane, coal, coal dust or other explosive materials and/or other accidents;
- inclement or hazardous weather conditions and natural disasters or other force majeure events;
- seismic activities, ground failures, rock bursts or structural cave-ins or slides;
- delays in moving our longwall equipment;
- railroad derailments and mandated delays;
- security breaches or terroristic acts; and
- other hazards that could also result in personal injury and loss of life, pollution and suspension of operations.

The occurrence of any of these risks at our coal mining operations could adversely affect our ability to conduct our operations or result in substantial loss to us, either of which could materially and adversely affect our business, financial condition, results of operations and cash flows. In addition, the occurrence of any of these events in our coal mining operations which prevents our delivery of coal to a customer and which is not excusable as a force majeure event under our coal sales agreement could result in economic penalties, suspension or cancellation of shipments or ultimately termination of the coal sales agreement, any of which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Although we maintain insurance for a number of risks and hazards, we may not be insured or fully insured against the losses or liabilities that could arise from a significant accident in our coal operations. We may elect not to obtain insurance for any or all of these risks if we believe that the cost of available insurance is excessive relative to the risks presented. In addition, pollution and environmental risks generally are not fully insurable. Moreover, a significant mine accident could potentially cause a mine shutdown. The occurrence of an event that is not fully covered by insurance could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Failure to obtain or renew surety bonds on acceptable terms could affect our ability to secure reclamation and coal lease obligations and failure to obtain adequate insurance coverages could both have a material adverse effect on our business and results of operations.

Federal and state laws require us to obtain surety bonds or post letters of credit to secure performance or payment of certain long-term obligations, such as mine closure or reclamation costs, federal and state workers' compensation costs, coal leases and other obligations. Over the past few years, the insurance and surety markets have been increasingly challenging, particularly for coal companies. We have experienced rising premiums, reduced coverage and/or fewer providers willing to

underwrite policies and surety bonds. Terms have generally become more unfavorable, including increases in the amount of collateral required to secure surety bonds. However, more recently, we have seen insurance rates stabilize and even decrease on certain lines of coverage, as new insurance carriers have entered the market, although there is no assurance that this stabilization or decrease will be sustained or continued. In addition, federal and state regulators are considering making financial assurance requirements more stringent and costly with respect to self-insured CWP, mine closure and reclamation security amounts. Because we are required by federal and state law to have these bonds in place before mining can commence or continue, our failure to maintain surety bonds, letters of credit or other guarantees or security arrangements would materially and adversely affect our ability to mine or lease coal, and incurring additional rising costs to obtain and maintain such arrangements could have a material adverse effect on our business, financial condition, results of operations and cash flows. Additionally, coal and other mining companies are increasingly struggling to obtain adequate insurance coverage for their business and operations. Our failure to obtain adequate insurance coverages could have a material adverse effect on our business and results of operations. Further cost burdens on our ability to maintain adequate insurance and bond coverage may adversely impact our operations, financial position and liquidity.

The majority of our operating mines are part of a single mining complex in the Northern Appalachian Basin, making us vulnerable to risks associated with operating in a single geographic area.

Although we began production at the Itmann No. 5 Mine, located in CAPP in Wyoming County, West Virginia in 2020, a majority of our mining operations are conducted at our mining complex located in NAPP in southwestern Pennsylvania and northern West Virginia. The geographic concentration of most of our operations at the Pennsylvania Mining Complex may disproportionately expose us to disruptions in our operations if the region experiences adverse conditions or events, including severe weather, transportation capacity constraints, constraints on the availability of required equipment, facilities, personnel or services, significant governmental regulation or natural disasters. If any of these factors were to impact NAPP more than other coal producing regions, our business, financial condition, results of operations and cash flows will be adversely affected relative to other mining companies that have a more geographically diversified asset portfolio.

Our mines are located in areas containing oil and natural gas shale plays and we may have conflicts with competing holders of mineral rights and rights to use adjacent, overlying or underlying lands.

Substantially all of our coal reserves are in areas containing shale oil and natural gas plays, including the Marcellus Shale, which are currently the subject of substantial exploration for oil and natural gas, particularly by horizontal drilling. If we have received a permit for our mining activities, then while we may have to coordinate our mining with such oil and natural gas drillers and transporters, our mining activities will have priority over any oil and natural gas drillers and transporters with respect to the land covered by our permit. Oil and natural gas drillers and transporters may be subject to law and regulations that are enforced by regulators that do not have jurisdiction over our activities. Any conflict between our rights and the enforcement actions by any regulator of oil or natural gas-specific rights that conflict with our rights to mine could result in additional costs and possible delays to mining.

For reserves outside of our permits, we engage in discussions with drilling and transport companies on potential areas on which they can drill that may have a minimal effect on our mine plan. If a well is in the path of our mining for coal on land that has not yet been permitted for our mining activities, we may not be able to mine through the well unless we purchase it. Although we have purchased vertical wells in the past, the cost of purchasing a producing horizontal well could be substantially greater than that of a vertical well. Horizontal wells with multiple laterals extending from the well pad may access larger oil and natural gas reserves than a vertical well, which would typically result in a higher cost to acquire. The cost associated with purchasing oil and natural gas wells that are in the path of our coal mining activities could likewise make mining through those wells uneconomical, thereby effectively causing a loss of significant portions of our coal reserves, which could materially and adversely affect our business, financial condition, results of operations and cash flows.

Our operations may also face potential conflicts with holders of other mineral interests such as coalbed methane, natural gas and oil reserves. Some of these minerals are located on, or are adjacent to, some of our coal reserves and active operations, potentially creating conflicting interests between us and the holders of those interests. From time to time we acquire these minerals ourselves to prevent conflicting interests from arising. If, however, conflicting interests arise and we do not acquire the competing mineral rights, we may be required to negotiate our ability to mine with the holder of the competing mineral rights. If we are unable to reach an agreement with the holders of such rights, or to do so on a cost-effective basis, we may incur increased costs, and our ability to mine could be impaired, which could materially and adversely affect our business, results of operations, financial condition and cash flows.

In order to maintain, grow and diversify our business, we will be required to make substantial capital expenditures. If we are unable to obtain needed capital or financing on satisfactory terms, our financial leverage could increase.

In order to maintain, grow and diversify our business, we will need to make substantial capital expenditures to fund our share of capital expenditures associated with our mines, acquisitions or other business development initiatives. Maintaining and expanding mines and infrastructure is capital intensive. Specifically, the exploration, permitting and development of coal reserves, mining costs, the maintenance of machinery and equipment and compliance with applicable laws and regulations requires substantial capital expenditures. While a significant amount of the capital expenditures required to build out our mining infrastructure has been spent, we must continue to invest capital to maintain or to increase our production. Decisions to increase our production levels could also affect our capital needs. Our production levels may decrease or may not be able to generate sufficient cash flow, or we may not have access to sufficient financing to continue our production, exploration, permitting and development activities at or above our present levels, and we may be required to defer all or a portion of our capital expenditures. If we do not make sufficient or effective capital expenditures, we will be unable to maintain and grow our business. To fund our capital expenditures, we will be required to use cash from our operations, incur debt or sell additional equity securities. Our ability to obtain bank financing or our ability to access the capital markets for future equity or debt offerings may be limited by our financial condition at the time of any such financing or offering and the covenants in our existing debt agreements, as well as by general economic conditions, contingencies and uncertainties that are beyond our control, such as financial institutions and investors abandoning the thermal coal sector. In addition, incurring additional debt may significantly increase our interest expense and financial leverage, and issuing additional equity securities may result in significant stockholder dilution.

As a result of increased consideration of ESG practices, our securities may be excluded from consideration by certain investment funds and certain investors may have a negative perception of us due to being a coal producer.

Certain organizations that provide corporate governance and other corporate risk information to investors and stockholders have developed scores and ratings to evaluate companies and investment funds based upon ESG or “sustainability” metrics. Currently, there are no universal standards for such scores or ratings, but companies in the energy industry, and in particular those focused on coal, natural gas or petroleum extraction and refining, often perform less well under ESG assessments compared to companies in other industries. The importance of sustainability evaluations is becoming more broadly accepted by investors and stockholders. Indeed, many investment funds focus on positive ESG business practices and sustainability scores when making investments. In addition, investors, particularly institutional investors, use these scores to benchmark companies against their peers and if a company is perceived as lagging, these investors may engage with companies to require improved ESG disclosure or performance. Moreover, certain members of the broader investment community may consider a company’s sustainability score as a reputational or other factor in making an investment decision. Consequently, a low ESG or sustainability score could result in our securities, both debt and equity, being excluded from the portfolios of certain investment funds and investors. Additionally, many investment funds and investors are beginning to avoid securities issued by any company in the coal, natural gas or petroleum extraction or refining business, regardless of their particular ESG or sustainability score. There have also been efforts in recent years affecting the investment community, including investment advisers, sovereign wealth funds, public pension funds, universities and other groups, promoting the divestment of fossil fuel equities, encouraging the consideration of ESG practices of companies in a manner that negatively affects coal companies, and also pressuring lenders to limit funding to companies engaged in the extraction of fossil fuel reserves. Relatedly, banks and investment banks based both domestically and internationally have announced that they have adopted climate change guidelines for lenders. The guidelines require the evaluation of carbon risks in the financing of electric power generation plants which may make it more difficult for utilities to obtain financing for coal-fired plants. The impact of such efforts may adversely affect the demand for and price of securities issued by us, and impact our access to the capital and financial markets. As such, our access to capital to fund our continuing operations and growth and diversification opportunities could become more restricted.

On October 13, 2021, we announced our Forward Progress sustainability initiative, which included targets to reduce our direct operating GHG emissions. Our interim goal is to reduce our direct operating GHG emissions (referred to as scope 1 and scope 2 emissions) on an absolute basis by 50% over a five-year period (or by the end of 2026), compared to 2019 baseline levels and measured as the rate of carbon dioxide equivalents (CO₂e) emitted. In addition, we announced our long-term efforts to achieve net zero direct operating GHG emissions by 2040 or sooner if feasible. However, achieving these goals may prove more difficult or costly than expected, and we may not succeed in reaching our targeted reductions on the announced timetable, or at all. Although we are not legally bound by these goals, our failure to achieve our GHG emission reduction targets could damage our reputation with customers, investors, financial media and regulators and could cause investors that focus on positive ESG business practices and sustainability scores to disfavor purchasing our securities, which could result in a decline in the market price of our stock and further restrict our access to capital. Additionally, if we expend more funds than anticipated to achieve our GHG emission reduction targets, it could have a material adverse effect on our financial condition, results of operations and cash flows.

Finally, a part of our business plan is to regularly and rigorously evaluate opportunities for acquisitions, joint ventures and other business arrangements in the coal industry and related industries that complement our core operations. We may face greater difficulties in finding partners for such acquisitions, joint ventures or other business arrangements if these potential partners are less willing or unwilling to enter into transactions with companies that have a low ESG or sustainability score or companies that engage in fossil fuel activities, which could have a material adverse effect on our ability to expand our business, and therefore, our financial condition, results of operations and cash flows could be negatively impacted.

The Russia-Ukraine war, and sanctions brought by the United States and other countries against Russia, have caused significant market disruptions that may lead to increased volatility in the price of certain commodities, including oil, natural gas, coal and other sources of energy.

February 24, 2022 marked a significant escalation in the Russia-Ukraine war. The extent and duration of the military conflict involving Russia and Ukraine, resulting sanctions and future market or supply disruptions in the region are impossible to predict, but could be significant and may have a severe adverse effect on the region. Globally, various governments have banned imports from Russia including commodities such as oil, natural gas and coal. These events have caused volatility in the aforementioned commodity markets. Although the Company has not experienced any material adverse effect on its results of operations, financial condition or cash flows as a result of the war or the resulting volatility as of the date of this report, such volatility, including market expectations of potential changes in coal prices and inflationary pressures on steel products, may significantly affect prices for our coal or the cost of supplies and equipment, as well as the prices of competing sources of energy for our electric power plant customers, like natural gas.

The war, trade and monetary sanctions, as well as any escalation of the conflict and future developments, could significantly affect worldwide market prices and demand for our coal and cause turmoil in the capital markets and generally in the global financial system. This could have a material adverse effect on our business, financial condition and results of operations, along with our operating costs, making it difficult to execute our planned capital expenditure program. Additionally, the geopolitical and macroeconomic consequences of the war and associated sanctions cannot be predicted, but could severely impact the world economy. If any of these events occur, the resulting political instability and societal disruption could reduce overall demand for coal-fired electricity, steel made through the use of metallurgical coal or our coal generally, causing a reduction in our revenues or an increase in our costs and thereby materially and adversely affecting our results of operations, financial condition and cash flows.

New or existing tariffs and other trade measures could adversely affect our results of operations, financial position and cash flows.

New or existing tariffs and other trade measures could adversely affect our results of operations, financial position and cash flows, either directly or indirectly through various adverse impacts on our significant customers. During the last several years, the U.S. Government imposed tariffs on steel and aluminum and a broad range of other products imported into the U.S. In response to the tariffs imposed by the U.S., the European Union, Canada, Mexico and China have announced tariffs on U.S. goods and services. Although some of these tariffs have been rescinded or suspended, these tariffs, along with any additional tariffs or trade restrictions that may be implemented by the U.S. or retaliatory trade measures or tariffs implemented by other countries, could result in reduced economic activity, increased costs in operating our business, reduced demand and changes in purchasing behaviors for thermal and metallurgical coal, limits on trade with the United States or other potentially adverse economic outcomes. Additionally, we sell coal into the export thermal market and the export metallurgical market. Accordingly, our international sales may also be impacted by the tariffs and other restrictions on trade between the U.S. and other countries. While tariffs and other retaliatory trade measures imposed by other countries on U.S. goods have not yet had a significant impact on our business or results of operations, we cannot predict further developments, and such existing or future tariffs could have a material adverse effect on our results of operations, financial position and cash flows.

We may be unsuccessful in finding suitable joint venture partners or acquisition targets or in integrating the operations of any future acquisitions, including acquisitions involving new lines of business, with our existing operations, and in realizing all or any part of the anticipated benefits of any such acquisitions.

From time to time, we may evaluate and acquire assets and businesses that we believe complement our existing assets and business. However, our ability to grow our business through acquisitions or the entry into joint ventures may be limited by both our ability to identify appropriate acquisition or partner candidates and our financial resources, including our available cash and borrowing capacity. Additionally, the assets and businesses we acquire or in which we take an ownership stake through a joint venture may be dissimilar from our existing lines of business. Acquisitions and joint venture operations may require substantial capital or the incurrence of substantial indebtedness, and potentially may not be on favorable terms. Our capitalization and results of operations may change significantly as a result of future acquisitions and joint ventures. Acquisitions, joint ventures and business expansions involve numerous risks, including the following:

- difficulties in the integration of the assets and operations of the acquired businesses;
- inefficiencies and difficulties that arise because of unfamiliarity with new assets and the businesses associated with them and new geographic areas;
- the possibility that we have insufficient expertise to engage in such activities profitably or without incurring inappropriate amounts of risk;
- potential lack of control over a joint venture's business decisions and operations; and
- the diversion of management's attention from other operating issues.

Further, unexpected costs and challenges may arise whenever businesses with different operations or management are combined, and we may experience unanticipated delays in realizing the benefits of an acquisition. Entry into certain lines of business may subject us to new laws and regulations with which we are not familiar, and may lead to increased litigation and regulatory risk. Also, following an acquisition, we may discover previously unknown liabilities associated with the acquired business or assets for which we have no recourse under applicable indemnification provisions. If a new business generates insufficient revenue or if we are unable to efficiently manage our expanded operations, our results of operations may be adversely affected.

Additionally, our participation in joint venture arrangements necessarily involves risk. Whether or not we hold majority interests or maintain operational control in our joint ventures, our partners may, among other things, (1) have economic or business interests or goals that are inconsistent with, or opposed to, ours; (2) seek to block actions that we believe are in our or the joint venture's best interests; or (3) be unable or unwilling to fulfill their obligations under the joint venture or other agreements, such as contributing capital, each of which may adversely impact our results of operations, financial condition, cash flows or impair our ability to recover our investment in the joint venture. Where our joint ventures are jointly controlled or not managed by us, we may provide expertise and advice but have limited control over compliance with our operational and other standards. Failure by non-controlled joint venture partners to adhere to operational standards that are equivalent to ours could unfavorably affect safety results, operating costs and productivity and accordingly, adversely impact our results of operations, financial condition and cash flows.

We must obtain, maintain and renew governmental permits and approvals which, if we cannot obtain in a timely manner, would reduce our production, cash flow and results of operations.

Our coal production is dependent on our ability to obtain various federal and state permits and approvals to mine our coal reserves. The permitting rules, and the interpretations of these rules, are complex, change frequently and are often subject to discretionary interpretations by regulators. For example, under Section 404 of the Clean Water Act, the Army Corps of Engineers ("Corps") issues permits for the discharge of dredged or fill material into regulated waters and wetlands, and under Section 401 of the Clean Water Act, affected states must certify that proposed activity under Section 404 will comply with water quality standards or other applicable requirements. Corps permits and state certifications are required for construction of slurry ponds, refuse areas, impoundments, and for various other mining activities. The Section 404/401 permitting process has become subject to increasingly stringent regulatory requirements and challenges by environmental organizations. Where authorization by a federal agency is required, the federal agency may be required under the National Environmental Policy Act to consider the GHG emissions associated with the proposed project, both directly and indirectly, and may incorporate such considerations in its approval or denial. In addition, the public, including non-governmental organizations and individuals, has certain statutory rights to comment upon and otherwise impact the permitting process, including through court intervention. It is possible that all permits required to commence new operations, or to expand or continue operations at existing facilities, may not be issued or renewed in a timely manner, or may not be approved at all. Furthermore, permits could be issued with operating requirements or special conditions that increase the cost of operations. Any of these circumstances could have significant negative effects and could materially and adversely affect our results of operations and cash flows.

Our mines are subject to stringent federal and state safety regulations that increase our cost of doing business at active operations and may place restrictions on our methods of operation. In addition, government inspectors, under certain circumstances, have the ability to order our operations to be shut down based on safety considerations.

The Federal Coal Mine Safety and Health Act and Mine Improvement and New Emergency Response Act impose stringent health and safety standards on mining operations. Regulations that have been adopted are comprehensive and affect numerous aspects of mining operations, including training of mine personnel, mining procedures, the equipment used in mine emergency procedures and other matters. States in which we operate have programs for mine safety and health regulation and enforcement. The various requirements mandated by law or regulation can place restrictions on our methods of operations, and potentially lead to penalties for the violation of such requirements, creating a significant effect on operating costs and productivity. In addition, government inspectors, under certain circumstances, have the ability to order our operation to be shut down based on safety considerations. If an incident were to occur at one of our coal mines, it could be shut down for an extended period of time and our reputation with our customers could be materially damaged.

Our operations may impact the environment or cause exposure to hazardous substances, and our properties may have environmental contamination, which could result in liabilities to us. In addition, government inspectors, under certain circumstances, have the ability to order our operations to be shut down based on environmental considerations.

Our operations currently use hazardous materials and generate limited quantities of hazardous wastes from time to time. Drainage flowing from or caused by mining activities can be acidic with elevated levels of dissolved metals, a condition referred to as “acid mine drainage.” We could become subject to claims for toxic torts, natural resource damages and other damages, as well as for the investigation and clean-up of soil, surface water, groundwater and other media. Such claims may arise, for example, out of conditions at sites that we currently own or operate, as well as at sites that we previously owned or operated, or may acquire. Our liability for such claims may be joint and several, so that we may be held responsible for more than our share of the contamination or other damages, or for the entire share. In addition, government inspectors, under certain circumstances, may have the ability to order our operations to be shut down based on a perceived or actual violation of regulations concerning hazardous substances and other matters related to environmental protection.

These and other similar unforeseen impacts that our operations may have on the environment, as well as exposures to hazardous substances or wastes associated with our operations, could result in costs and liabilities that could adversely affect us.

Our operations include coal refuse disposal areas, slurry impoundments and other water retaining or dam structures classified as “high” or “significant” hazards, depending on the extent of damage or loss of life that could occur in the event of a failure. A failure of these structures would result in liabilities that could have a material impact on our business.

We maintain coal refuse disposal areas (“CRDAs”), slurry impoundments and other water retaining or dam structures that are active or in various stages of reclamation at the Pennsylvania Mining Complex and at certain legacy properties. Such areas and impoundments are subject to extensive regulation and are designed, constructed, operated and maintained according to stringent environmental, structural and safety standards. In addition to routine inspections conducted by multiple regulatory authorities, these facilities are also inspected by qualified third-party inspectors and are separately certified by an independent professional engineer. Structural failure of a CRDA, slurry impoundment or other dam structure classified as a high or significant hazard could result in extensive damage to the environment and natural resources, such as bodies of water that the coal slurry reaches, as well as liability for related personal injuries, property damages, injuries to wildlife or loss of life. Some of our impoundments overlie mined out areas, which can pose a heightened risk of failure and of damages arising out of failure. If one of these structures were to fail, we could be subject to claims for the resulting environmental contamination and associated liability, claims for personal injury or loss of life, and claims for physical property damage, as well as fines and penalties. These events could materially and adversely impact our business, financial condition, results of operations and cash flows.

We depend on the services of key executives and any inability to attract and retain key management personnel could have a material adverse effect on our business.

Our future success depends upon the continued services of our executive officers, including our Chief Executive Officer and Chief Financial Officer, who have critical experience and relationships in the coal industry that we rely on to implement our business plan and growth strategy. Our ability to retain senior management has in the past been, and may in the future be, impacted by volatility in commodity prices and uneven business performance, which have negatively impacted our stock price, and therefore, our ability to use equity compensation as a retention tool. Additionally, the recent efforts of certain members of the investment community, including investment advisors, sovereign wealth funds, public pension funds, universities and other groups, to promote divestment of fossil fuel equities, to encourage the consideration of ESG practices of companies in a manner that negatively affects coal companies and to pressure lenders to limit funding to companies engaged in the extraction of fossil fuel reserves may also negatively impact our ability to attract and retain key management personnel. Accordingly, we have entered into, and may need to enter into additional, retention or other arrangements that could be costly to maintain. While we have an employment agreement in place with our chief executive officer and change-in-control agreements with our senior executives, there can be no assurance we will continue to retain their services and we may become subject to significant severance payments if our relationship with these executives is terminated under certain circumstances. Further, turnover, planned or otherwise, in these or other key leadership positions may materially adversely affect our ability to manage our business efficiently and effectively, and such turnover can be disruptive and distracting to management, may lead to additional departures of existing personnel and could have a material adverse effect on our operations and future profitability. Our ability to retain our key management personnel or to identify and attract additional management personnel or suitable replacements should any members of the management team leave or be terminated is dependent on a number of factors, including the competitive nature of the employment market and our industry. Any failure to retain key management personnel or to attract additional or suitable replacement personnel could cause uncertainty among investors, employees, customers and others concerning our future direction and performance and could have a material adverse effect on our business, financial condition and results of operations.

We have asset retirement obligations and obligations for long-term employee benefits. If the assumptions underlying our accruals are inaccurate, we could be required to expend greater amounts than anticipated.

The Surface Mining Control and Reclamation Act (“SMCRA”) and various state laws establish operational, reclamation and closure standards for all our coal mining operations and require us, under certain circumstances, to plug natural gas wells. We accrue for the costs of current mine disturbance, gas well plugging and of final mine closure, including the cost of treating mine water discharge where necessary. Estimates of our total asset retirement obligations, which are based upon permit requirements and our experience, were approximately \$252 million at December 31, 2022. The amounts recorded are dependent upon a number of variables, including the estimated future expenditures, estimated mine lives, assumptions involving profit margins, inflation rates, and the assumed credit-adjusted risk-free interest rates. If these accruals are insufficient, our future operating results could be adversely affected.

We also provide various long-term employee benefits to inactive and retired employees, and we accrue amounts for these obligations. At December 31, 2022, the current and non-current portions of these obligations included:

- postretirement medical and life insurance (\$255 million);
- coal workers’ pneumoconiosis benefits (\$161 million);
- pension benefits (\$23 million);
- workers’ compensation (\$50 million); and
- long-term disability (\$7 million).

However, if our assumptions are inaccurate, we could be required to expend greater amounts than anticipated. Salary retirement benefits are funded in accordance with Employer Retirement Income Security Act of 1974 (“ERISA”) regulations. The other obligations are unfunded. In addition, the federal government and several states in which we operate consider changes in workers’ compensation and black lung laws from time to time. Such changes, if enacted, could increase our benefit expense and our collateral requirements. Additionally, former miners and their family members asserting claims for pneumoconiosis benefits have generally been more successful asserting such claims in recent years as a result of the presumption within the PPACA of 2010 that a coal miner with 15 or more years of underground coal mining experience (or the equivalent) who develops a respiratory condition and meets the requirements for total disability under the Federal Act is presumed to be disabled due to coal dust exposure, thereby shifting the burden of proof from the employee to the employer/insurer to establish that this disability is not due to coal dust. The increasing success rate of such claims based upon the PPACA changed presumption and, as a result, the increasing expense incurred by us to insure against such claims could increase our expenses for long-term employee benefit obligations.

We face uncertainties in estimating our economically recoverable coal reserves, and inaccuracies in our estimates could result in lower-than-expected revenues, higher-than-expected costs and decreased profitability.

Coal reserves are economically recoverable when the price at which they are expected to be sold exceeds their expected cost of production and selling. Forecasts of our future performance are based on, among other things, estimates of our recoverable coal reserves. We base our coal reserve information on geologic data, coal ownership information and current and proposed mine plans. These estimates are periodically updated to reflect past coal production, new drilling information and other geologic or mining data. There are numerous uncertainties inherent in estimating quantities and qualities of economically recoverable coal reserves, including many factors beyond our control. As a result, estimates of economically recoverable coal reserves are by their nature uncertain. Information about our reserves consists of estimates based on engineering, economic and geological data assembled and analyzed by our staff and external consultants. Some of the factors and assumptions which impact economically recoverable coal reserve estimates include:

- geologic and mining conditions;
- historical production from the area compared with production from other producing areas;
- the assumed effects of regulations and taxes by governmental agencies;
- our ability to obtain, maintain and renew all required permits;
- future improvements in mining technology;
- assumptions governing future prices; and
- future operating costs, including the cost of materials and capital expenditures.

In addition, we hold substantial coal reserves in areas containing Marcellus Shale and other shales. These areas are currently the subject of substantial exploration for oil and natural gas, particularly by horizontal drilling. If a natural gas well is in the path of our mining for coal, we may not be able to mine through the well unless we purchase it. Although we have purchased vertical wells in the past, the cost of purchasing a producing horizontal well could be substantially greater. Horizontal wells with multiple laterals extending from the well pad may access larger natural gas reserves than a vertical well which could result in higher costs. In future years, the cost associated with purchasing natural gas wells which are in

the path of our coal mining may make mining through those wells uneconomical, thereby effectively causing a loss of significant portions of our coal reserves.

Each of the factors which impacts reserve estimation may vary considerably from the assumptions used in estimating the reserves. For these reasons, estimates of coal reserves may vary substantially. Actual production, revenues and expenditures with respect to our coal reserves will likely vary from estimates, and these variances may be material. As a result, our estimates may not accurately reflect our actual coal reserves.

Defects may exist in our chain of title for our undeveloped coal reserves where we have not done a thorough chain of title examination of our undeveloped coal reserves. We may incur additional costs and delays to mine coal because we have to acquire additional property rights to perfect our title to coal rights. If we fail to acquire additional property rights to perfect our title to coal rights, we may have to reduce our estimated reserves.

Title to most of our owned or leased properties and mineral rights is not usually verified until we make a commitment to mine a property, which may not occur until after we have obtained necessary permits and completed exploration of the property. In some cases, we rely on title information or representations and warranties provided by our lessors or grantors. Our right to mine certain of our reserves has in the past been, and may again in the future be, adversely affected if defects in title, boundaries or other rights necessary for mining exist or if a lease expires. Any challenge to our title or leasehold interests could delay the mining of the property and could ultimately result in the loss of some or all of our interest in the property. From time to time, we also may be in default with respect to leases for properties on which we have mining operations. In such events, we may have to close down or significantly alter the sequence of such mining operations which may adversely affect our future coal production and future revenues. If we mine on property that we do not own or lease, we could incur liability for such mining and be subject to regulatory sanction and penalties.

In order to obtain, maintain or renew leases or mining contracts to conduct our mining operations on property where these defects exist, we may in the future have to incur unanticipated costs. In addition, we may not be able to successfully negotiate new leases or mining contracts for properties containing additional reserves, or maintain our leasehold interests in properties where we have not commenced mining operations during the term of the lease. As a result, our results of operations, business and financial condition may be materially adversely affected.

As a result of the Murray Energy bankruptcy, the Company could be required to pay for certain liabilities previously held by Murray in a 2013 transaction between Murray and our former parent.

In 2013, Murray Energy and its subsidiaries (“Murray”) entered into a stock purchase agreement (the “Murray sale agreement”) with our former parent pursuant to which Murray acquired the stock of Consolidation Coal Company (“CCC”) and certain subsidiaries and certain other assets and liabilities. At the time of sale, the liabilities included certain retiree medical liabilities under the Coal Industry Retiree Health Benefit Act of 1992 (“Coal Act”) and certain federal black lung liabilities under the Black Lung Benefits Act (“BLBA”). Based upon information available to the Company, we estimate that the annual servicing costs of these liabilities are approximately \$10 million to \$20 million per year for the next ten years. The annual servicing cost would decline each year since the beneficiaries of the Coal Act consist principally of miners who retired prior to 1994.

Murray filed for Chapter 11 bankruptcy in October 2019. As part of the bankruptcy proceedings, Murray unilaterally entered into a settlement with the United Mine Workers of America 1992 Benefit Plan (the “1992 Benefit Plan”) to transfer retirees in the Murray Energy Section 9711 Plan to the 1992 Benefit Plan. This was approved by the bankruptcy court on April 30, 2020. On May 2, 2020, the 1992 Benefit Plan filed an action in the United States District Court for the District of Columbia asking the court to make a determination whether the Company’s former parent or the Company has any continuing retiree medical liabilities under the Coal Act (the “1992 Plan Lawsuit”). The Murray sale agreement includes indemnification by Murray with respect to the Coal Act and BLBA liabilities. In addition, the Company had agreed to indemnify its former parent relative to certain pre-separation liabilities. As of September 16, 2020, the Company entered into a settlement agreement with Murray and withdrew its claims in bankruptcy. On September 11, 2020, the Defendants in the 1992 Plan Lawsuit filed a Motion to Dismiss Plaintiffs’ Second Amended Complaint which was denied by the Court on March 29, 2022. The Company will continue to vigorously defend any claims that attempt to transfer any of such liabilities directly or indirectly to the Company, including raising all applicable defenses against the 1992 Benefit Plan’s suit; however, the outcome of these proceedings is uncertain.

The provisions of our debt agreements and the risks associated with our debt could adversely affect our business, financial condition, liquidity and results of operations.

As of December 31, 2022, our total long-term indebtedness was approximately \$388 million, consisting of:

- \$103 million under our Maryland Economic Development Corporation Port Facilities Refunding Revenue Bonds (“MEDCO”) 5.75% revenue bonds due September 2025;
- \$99 million under our 11.00% senior secured second lien notes due November 2025;
- \$75 million under our Pennsylvania Economic Development Financing Authority (“PEDFA”) 9.00% Solid Waste Disposal Revenue Bonds due April 2028;
- \$64 million under our Term Loan B Facility;
- \$37 million associated with finance leases due through 2027; and
- \$10 million of miscellaneous debt.

If December 31, 2022, no borrowings were outstanding under our revolving credit facility or our \$100 million accounts receivable securitization facility. The degree to which we are leveraged could have important consequences, including, but not limited to:

- increasing our vulnerability to general adverse economic and industry conditions;
- requiring us to dedicate a substantial portion of our cash flow from operations to the payment of interest and principal due under our outstanding debt, which will limit our ability to obtain additional financing to fund future working capital, capital expenditures, share buy-back programs, acquisitions, pay dividends, development of our coal reserves or other general corporate requirements;
- limiting our flexibility in planning for, or reacting to, changes in our business and in the coal industry;
- placing us at a competitive disadvantage compared to our competitors with lower leverage and better access to capital resources; and
- limiting our ability to implement our business strategy.

Our senior secured credit agreement and the indenture governing our 11.00% senior secured notes limit the incurrence of additional indebtedness unless specified tests or exceptions are met. In addition, our senior secured credit agreement and the indenture governing our 11.00% senior secured notes subject us to financial and/or other restrictive covenants. Under our senior secured credit agreement, we must comply with certain financial covenants on a quarterly basis, including a maximum first lien gross leverage ratio, a maximum total net leverage ratio and a minimum fixed charge coverage ratio, as defined therein. Our senior secured credit agreement and the indenture governing our 11.00% senior secured notes impose a number of restrictions upon us, such as restrictions on us granting liens on our assets, making investments, paying dividends, stock repurchases, selling assets and engaging in acquisitions. Failure by us to comply with these covenants could result in an event of default that, if not cured or waived, could have a material adverse effect on us.

If our cash flows and capital resources are insufficient to fund our debt service obligations, we may be forced to sell assets, seek additional capital or seek to restructure or refinance our indebtedness. These alternative measures may not be successful and may not permit us to meet our scheduled debt service obligations. In the absence of such operating results and resources, we could face substantial liquidity problems and might be required to sell material assets or operations to attempt to meet our debt service and other obligations. Our senior secured credit agreement and the indenture governing our 11.00% senior secured notes restrict our ability to sell assets and use the proceeds from the sales. We may not be able to consummate those sales or to obtain the proceeds which we could realize from them and these proceeds may not be adequate to meet any debt service obligations then due.

Increases in interest rates could adversely affect our business.

The Federal Reserve raised the federal funds interest rate throughout 2022 in its effort to take action against domestic inflation, and is expected to continue to raise these rates in 2023. We have exposure to these past increases in interest rates, and may be affected further in the future. Based on our current variable debt level of \$63 million as of December 31, 2022, comprised of funds drawn on our Term Loan B Facility, an increase of one percentage point in the interest rate will result in an increase in annual interest expense of less than \$1 million. Any indebtedness we incur in the future may also expose us to increased interest rates, whether as a result of higher fixed rates at the time such a new facility is entered into or because such new indebtedness accrues interest at a variable rate. As a result, our results of operations, cash flows and financial condition could be materially adversely affected by significant increases in interest rates.

Hedging transactions have led to mark-to-market losses for us, and may limit our potential gains or cause us to lose money in the future.

We previously entered into hedging arrangements in an effort to limit our exposure to volatility in interest rates and coal prices, and may do so again in the future. These hedging arrangements may be intended to reduce, but not eliminate, the potential effects of changing interest rates and coal prices on our cash flow from operations for the periods covered by these arrangements. These arrangements can expose us to risks of financial loss in a variety of circumstances, including when:

- a counterparty is unable to satisfy its obligations; or
- there is an adverse change in the expected differential between the underlying interest rate or coal price in the derivative instrument and actual interest rates or coal prices, respectively.

However, it is not always possible for us to engage in a derivative transaction that completely mitigates our exposure to changes in interest rates and/or coal prices. Furthermore, our price hedging strategy and future hedging transactions will be determined at the discretion of management. Our financial statements may reflect a gain or loss arising from an exposure to interest rates or coal prices for which we are unable to enter into a completely effective hedge transaction. During prior fiscal periods, our past hedging strategy resulted in us reporting mark-to-market losses, which ultimately settled against rising coal prices included in the underlying contracts. There can be no assurance that should we again enter into hedging arrangements to limit our exposure to volatility in interest rates, coal prices or other categories that expose us to market risk, we will not incur similar or greater losses in the future as a result of our use of these hedging transactions.

Terrorist attacks or cyber incidents could result in information theft, data corruption, operational disruption and/or financial loss.

We have become increasingly dependent upon digital technologies, including information systems, infrastructure and cloud applications and services, to operate our businesses, process and record financial and operating data, communicate with our employees and business partners, and estimate quantities of coal reserves, as well as other activities related to our businesses. Strategic targets, such as energy-related assets, may be at greater risk of future terrorist or cyber attacks than other targets in the United States. Deliberate attacks on our assets, or security breaches in our systems or infrastructure or cloud-based applications could lead to corruption or loss of our proprietary data and potentially sensitive data, delays in production or delivery, difficulty in completing and settling transactions, challenges in maintaining our books and records, environmental damage, communication interruptions, other operational disruptions and third-party liability. Similarly, our vendors or service providers could be the subject of such attacks or breaches that result in the risks of corruption or loss of our proprietary and sensitive data and/or the other disruptions as described above. In addition to the existing risks, the adoption of new technologies may also increase our exposure to data breaches or our ability to detect and remediate effects of a breach. Our insurance may not protect us against such occurrences. Consequently, it is possible that any of these occurrences, or a combination of them, could have a material adverse effect on our business, financial condition, results of operations and cash flows. Further, as cyber incidents continue to evolve, we may be required to expend additional resources to continue to modify or enhance our protective measures or to investigate and remediate any vulnerability to cyber incidents.

Certain provisions in our multi-year fixed-price coal sales contracts may provide limited protection during adverse economic conditions, may result in economic penalties to us or permit the customer to terminate the contract.

Price adjustment, "price reopener" and other similar provisions in our multi-year coal sales contracts may reduce the protection from coal price volatility traditionally provided by coal supply contracts. Price reopener provisions are present in several of our multi-year coal sales contracts. These price reopener provisions may automatically set a new price based on prevailing market price or, in some instances, require the parties to agree on a new price, sometimes within a specified range of prices. In a limited number of agreements, failure of the parties to agree on a price under a price reopener provision can lead to termination of the contract. Any adjustment or renegotiations leading to a significantly lower contract price could adversely affect our profitability.

Most of our coal sales agreements contain provisions requiring us to deliver coal within certain ranges for specific coal quality characteristics such as heat content, sulfur, ash, moisture, volatile matter, grindability, ash fusion temperature, size consistency, and certain metallurgical coal properties. Failure to meet these conditions could result in penalties or rejection of the coal at the election of the customer. Our coal sales contracts also typically contain force majeure provisions allowing for the suspension of performance by either party for the duration of specified events. Force majeure events include, but are not limited to, floods, earthquakes, storms, fire, faults in the coal seam or other geologic conditions, other natural catastrophes, wars, terrorist acts, civil disturbances or disobedience, strikes, railroad transportation delays caused by a force majeure event and actions or restraints by court order and governmental authority or arbitration award. Depending on the language of the contract, some contracts may terminate upon continuance of an event of force majeure that extends for a

period greater than three to twelve months and some contracts may obligate us to perform notwithstanding what would typically be a force majeure event.

Our ability to operate our business effectively could be impaired if we fail to attract and retain qualified personnel, or if a meaningful segment of our employees become unionized.

Our ability to operate our business and implement our strategies depends, in part, on our continued ability to attract and retain the qualified personnel necessary to conduct our business. Efficient coal mining using modern techniques and equipment requires skilled employees in multiple disciplines such as electricians, equipment operators, mechanics, engineers and welders, among others. Although we have not historically encountered shortages for these types of skilled employees, competition in the future may increase for such positions, especially as it relates to needs of other industries with respect to these positions, including oil and gas. If we experience shortages of skilled employees in the future, our labor and overall productivity or costs could be materially adversely affected. In the future, we may utilize a greater number of external contractors for portions of our operations. The costs of these contractors have historically been higher than that of our employees. If our labor and contractor prices increase, or if we experience materially increased health and benefit costs with respect to our employees, our results of operations could be materially adversely affected.

Except for 36 of our employees at the CONSOL Marine Terminal who unionized in 2018, none of our employees are currently represented by a labor union or covered under a collective bargaining agreement, although many employers in our industry have employees who belong to a union. It is possible that employees at our other locations may join or seek recognition to form a labor union, or we may be required to become a labor agreement signatory. If some or all of our current non-union operations were to become unionized, we could incur an increased risk of work stoppages, reduced productivity and higher labor costs. Also, if we fail to maintain good relations with our employees at the CONSOL Marine Terminal, we could potentially experience labor disputes, work stoppages or other disruptions in the business of the CONSOL Marine Terminal, which could negatively impact the profitability of the CONSOL Marine Terminal, and accordingly, have a material adverse effect on our business, results of operations and financial condition.

If we do not maintain effective internal controls over financial reporting, we could fail to accurately report our financial results.

During the course of the preparation of our financial statements, we evaluate our internal controls to identify and correct deficiencies in our internal controls over financial reporting. If we fail to maintain an effective system of disclosure controls or internal control over financial reporting, including satisfaction of the requirements of the Sarbanes-Oxley Act, we may not be able to accurately or timely report on our financial results or adequately identify and reduce fraud. As a result, the financial condition of our business could be adversely affected, current and potential future stockholders could lose confidence in us and/or our reported financial results, which may cause a negative effect on the trading price of our common stock, and we could be exposed to litigation or regulatory proceedings, which may be costly or divert management attention.

Risks Related to Our Common Stock and the Securities Market

Our stock price may fluctuate significantly.

The market price of our common stock may fluctuate significantly due to a number of factors, some of which may be beyond our control, including:

- our quarterly or annual earnings, or those of other companies in our industry;
- actual or anticipated fluctuations in our operating results;
- changes in earnings estimates by securities analysts or our ability to meet those estimates or our earnings guidance;
- the operating and stock price performance of other comparable companies;
- overall market fluctuations and domestic and worldwide economic conditions;
- volatility resulting from geopolitical events, inflation, changes in interest rates and other macroeconomic events; and
- other factors described in these “Risk Factors” and elsewhere in this Annual Report on Form 10-K.

Stock markets in general have experienced volatility that has often been unrelated to the operating performance of a particular company. These broad market fluctuations may adversely affect the trading price of our common stock. As a result of these factors, holders of our common stock or other securities may not be able to resell their shares at or above the market price at which they purchased their shares or may not be able to resell them at all. In addition, price volatility with our common stock may be greater if trading volume is low.

Furthermore, shares of our common stock are freely tradeable without restriction or further registration under the U.S. Securities Act of 1933, as amended (the “Securities Act”), unless the shares are owned by one of our “affiliates,” as that term is defined in Rule 405 under the Securities Act. As a result, a sale of a substantial amount of our common stock, or the perception that such a sale may take place, could cause our stock price to decline.

If securities analysts do not publish research or reports about our Company, or issue unfavorable commentary about us or downgrade our shares, the price of our shares could decline.

The trading market for our shares depends in part on the research and reports that third-party securities analysts publish about our Company and our industry. We may be unable or slow to attract research coverage and if one or more analysts cease coverage of our Company, we could lose visibility in the market. The impact of the revised EU Markets in Financial Instruments Directive (“MiFID”), which requires that investment managers and investment advisors located in the EU “unbundle” research costs from commissions, may result in fewer securities analysts covering our Company. This is because investment firms subject to MiFID are no longer permitted to pay for research using client commissions or “soft dollars” and instead must pay such costs directly or through a research payment account funded by clients and governed by a budget that is agreed by the client, thereby raising their costs of providing research coverage. In addition, one or more analysts providing research coverage of our Company could use estimation or valuation methods that we do not agree with, downgrade our shares or issue other negative commentary about our company or our industry. As a result of one or more of these factors, the trading price of our shares could decline.

We cannot guarantee the timing, amount, or payment of dividends on our common stock in the future or that we will continue to repurchase shares of our common stock or outstanding debt securities.

During 2022, we initiated the payment of quarterly dividends on our common stock. However, the payment and amount of any future dividend will be subject to the sole discretion of our board of directors and will depend upon many factors, including our financial condition and prospects, our capital requirements and access to capital markets, covenants associated with certain of our debt obligations, legal requirements and other factors that our board of directors may deem relevant, and there can be no assurance that we will pay dividends in the future in the amounts we have recently declared, or at all. We also have in place a program to repurchase, from time to time, the Company's outstanding shares of common stock or its 11.00% Senior Secured Second Lien Notes due 2025, in an aggregate amount of up to \$600 million until December 31, 2024, subject to certain limitations in the Company's credit agreement, of which \$373 million in capacity remains. Our repurchase program does not obligate us to repurchase any specific number of debt securities or shares of common stock and may be suspended from time to time or terminated at any time prior to its expiration. There can be no assurance that we will repurchase shares or debt securities under the repurchase program in the future in any particular amounts or at all. A reduction in, or elimination of, share repurchases could have a negative effect on the trading price of our common stock.

Your percentage of ownership in the Company may be diluted in the future.

Your percentage of ownership in us may be diluted because of equity issuances for acquisitions, capital market transactions or otherwise, including, without limitation, equity awards that we may be granting to our directors, officers and employees. The Company filed an automatically effective shelf registration statement on Form S-3 with the SEC on February 11, 2022 that allows us to issue an indeterminate amount of securities including common stock, preferred stock, debt securities and warrants. The shelf registration statement is intended to provide the Company with increased financial flexibility and more efficient access to the capital markets. We cannot predict the effect, if any, that market sales of these securities or the availability of the securities will have on the prevailing market price of our common stock. Substantial sales of shares of our common stock or other securities into the public market, or the perception that those sales could occur, may cause the market price of our common stock to decline. Future issuances of our common stock, or other securities convertible into our common stock, may result in significant dilution to the proportionate ownership and voting power of our existing stockholders and could have a dilutive effect on our earnings per share, which could adversely affect the market price of our common stock.

It is anticipated that the compensation committee of the board of directors of the Company will continue to grant additional equity awards to Company employees and directors, from time to time, under the Company's compensation and employee benefit plans. These additional awards will have a dilutive effect on the Company's earnings per share, which could adversely affect the market price of the Company's common stock.

In addition, our amended and restated certificate of incorporation authorizes us to issue, without the approval of our stockholders, one or more classes or series of preferred stock, often called “blank check preferred stock,” having such designation, powers, preferences and relative, participating, optional and other special rights, including preferences over our common stock with respect to dividends and distributions, as our board of directors generally may determine. The terms of one or more classes or series of preferred stock could dilute the voting power or reduce the value of our common

stock. For example, we could grant the holders of preferred stock the right to elect some number of our directors in all events or on the happening of specified events or to veto specified transactions. Similarly, the repurchase or redemption rights or liquidation preferences we could assign to holders of preferred stock could affect the residual value of our common stock.

Certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws, and of Delaware law, may prevent or delay an acquisition of us, which could decrease the trading price of our common stock.

The Company's amended and restated certificate of incorporation and amended and restated by-laws and Delaware law contain provisions that are intended to deter coercive takeover practices and inadequate takeover bids by making such practices or bids unacceptably expensive to the bidder and to encourage prospective acquirers to negotiate with the Company's board of directors rather than to attempt a hostile takeover. These provisions include, among others:

- the inability of our stockholders to act by written consent unless such written consent is unanimous;
- the inability of our stockholders to call special meetings;
- rules regarding how stockholders may present proposals or nominate directors for election at stockholder meetings;
- the right of our board of directors to issue preferred stock without stockholder approval; and
- the ability of our directors, and not stockholders, to fill vacancies (including those resulting from an enlargement of our board of directors) on our board of directors.

In addition, we are subject to Section 203 of the Delaware General Corporation Law ("DGCL"). Section 203 provides that, subject to limited exceptions, persons that (without prior board approval) acquire, or are affiliated with a person that acquires, more than 15% of the outstanding voting stock of a Delaware corporation shall not engage in any business combination with that corporation, including by merger, consolidation or acquisitions of additional shares, for a three-year period following the date on which that person or its affiliate becomes the holder of more than 15% of the corporation's outstanding voting stock.

We believe these provisions will protect our stockholders from coercive or otherwise unfair takeover tactics by requiring potential acquirers to negotiate with our board of directors and by providing our board of directors with more time to assess any acquisition proposal. These provisions are not intended to make us immune from takeovers. However, these provisions could have the effect of delaying, deferring or preventing a change in control or the removal of the existing board of directors and/or management, of deterring potential acquirers from making an offer to our stockholders and of limiting any opportunity to realize premiums over prevailing market prices for our common stock in connection therewith. This could be the case notwithstanding that a majority of our stockholders might benefit from such a change in control or offer.

Our certificate of incorporation designates the State Courts of the State of Delaware as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain an alternative judicial forum for disputes with us or our directors, officers, employees or agents.

Our certificate of incorporation provides that unless we consent in writing to the selection of an alternative forum, a state court sitting in the State of Delaware (or, if no state court located within the State of Delaware has jurisdiction, the federal court for the District of Delaware) will, to the fullest extent permitted by applicable law, be the sole and exclusive forum for:

- any derivative action or proceeding brought on our behalf;
- any action asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the DGCL, our amended and restated certificate of incorporation or our bylaws;
- any action asserting a claim that is governed by the internal affairs doctrine, in each such case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein; or
- any action asserting an internal corporate claim as defined in Section 115 of the DGCL.

Any person or entity purchasing or otherwise holding any interest in shares of our capital stock will be deemed to have notice of, and consented to, the provisions of our certificate of incorporation described in the preceding sentence. This choice of forum provision may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers, employees or agents, which may discourage such lawsuits against us and such persons. Alternatively, if a court were to find these provisions of our amended and restated certificate of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

See “Mining Properties” in Item 1 of this Annual Report on Form 10-K for a description of our mining properties, incorporated herein by this reference. In addition to our mining properties referenced in the prior sentence, through our CONSOL Marine Terminal located in the Port of Baltimore, we provide coal and export terminal services. Our principal executive offices are located at 275 Technology Drive, Suite 101, Canonsburg, Pennsylvania 15317-9565. See the map under “Our Company” in Item 1 of this Annual Report on Form 10-K for the location of the Company’s material properties.

ITEM 3. Legal Proceedings

Our operations are subject to a variety of risks and disputes normally incidental to our business. As a result, we may, at any given time, be a defendant in various legal proceedings and litigation arising in the ordinary course of business. However, we are not currently subject to any material litigation, other than those described in Note 23, “Commitments and Contingent Liabilities,” in the Notes to the Audited Consolidated Financial Statements in Item 8 of this Form 10-K, which descriptions are incorporated herein by this reference.

ITEM 4. Mine Safety Disclosures

Information concerning mine safety violations or other regulatory matters required by Section 1503(a) of the Dodd-Frank Wall Street Reform and Consumer Protection Act and Item 104 of Regulation S-K is included in Exhibit 95 to this annual report.

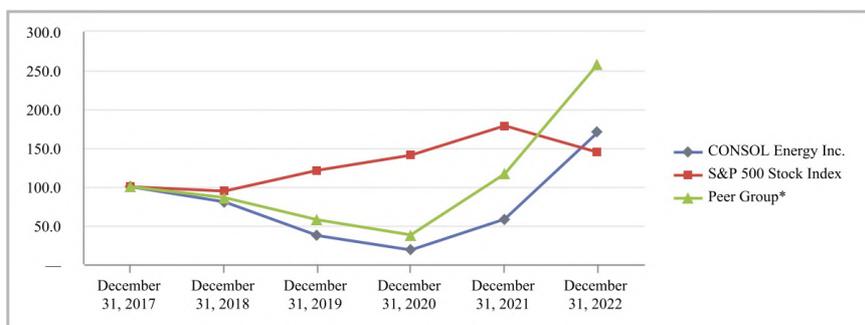
PART II

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Shares of the Company's common stock are listed on the New York Stock Exchange and trade under the symbol "CEIX". Trading of the Company's common stock began as "when-issued" trading on November 3, 2017 and began as "regular-way" trading on November 29, 2017.

As of February 1, 2023, there were 73 holders of record of our common stock. A substantially greater number of holders of our common stock are "street name" or beneficial holders, whose shares of record are held by banks, brokers and other financial institutions.

The following performance graph compares CONSOL Energy's cumulative total shareholder return to that of the Company's peer group and the Standard & Poor's 500 Stock Index. The peer group, for the purposes of the information presented below, is comprised of Alliance Resource Partners LP, Arch Resources, Inc., Alpha Metallurgical Resources, Inc. (formerly known as Contura Energy, Inc.), Hallador Energy Company, Peabody Energy Corporation, Ramaco Resources, Inc., and Warrior Met Coal, Inc.



The graph above tracks the performance of an initial investment of \$100 in CONSOL Energy's common stock and each member of the peer group and the Standard & Poor's 500 Stock Index, including the reinvestment of any dividends, from December 31, 2017 through December 31, 2022.

	December 31, 2017	December 31, 2018	December 31, 2019	December 31, 2020	December 31, 2021	December 31, 2022
CONSOL Energy Inc.	100.0	80.3	36.8	18.3	57.6	170.0
S&P 500 Stock Index	100.0	93.8	120.9	140.6	178.4	143.8
Peer Group	100.0	85.5	56.7	37.2	116.2	257.5

The above information is being furnished pursuant to Regulation S-K, Item 201 (e) (Performance Graph).

Repurchases of Equity Securities

The following table sets forth repurchases of the Company's common stock during the three months ended December 31, 2022:

Period	(a) Total Number of Shares Purchased ⁽¹⁾	(b) Average Price Paid per Share	(c) Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	(d) Maximum Number (or Approximate Dollar Value) of Shares that May Yet be Purchased Under the Plans or Programs (000s omitted) ⁽²⁾
October 1, 2022 - October 31, 2022	—	\$ —	—	\$ 380,557 ⁽³⁾
November 1, 2022 - November 30, 2022	—	\$ —	—	\$ 380,557 ⁽³⁾
December 1, 2022 - December 31, 2022	124,454	\$ 64.18	124,454	\$ 372,569 ⁽³⁾

(1) In December 2017, CONSOL Energy's Board of Directors approved a program to repurchase, from time to time, the Company's outstanding shares of common stock or its 11.00% Senior Secured Second Lien Notes due 2025. Since the inception of the program, CONSOL Energy Inc.'s Board of Directors has amended the program on several separate occasions. As a result of such amendments, the Company may now repurchase up to \$600 million of its stock and debt until December 31, 2024. As of February 10, 2023, approximately \$373 million remained available under the stock and debt repurchase program. The repurchases will be effected from time to time on the open market or in privately negotiated transactions or under a Rule 10b5-1 plan. The program does not obligate CONSOL Energy to acquire any particular amount of its common stock or notes, and the program can be modified or suspended at any time at the Company's discretion.

(2) Management cannot estimate the number of shares that will be repurchased because purchases are made based upon the Company's stock price, the Company's financial outlook and alternative investment options.

(3) In December 2022, CONSOL Energy utilized approximately \$7.988 million to repurchase its common stock.

Dividends

In the third quarter of the fiscal year ended December 31, 2022, the Company initiated an enhanced shareholder capital return program. The Company currently intends, subject to the discretion of the Company's Board of Directors, to return a planned aggregate range of approximately 35% to 50% of the Company's quarterly free cash flow in the form of dividends and/or repurchases of shares of common stock. However, the declaration and payment of dividends by CONSOL Energy is subject to the discretion of CONSOL Energy's Board of Directors, and no assurance can be given that CONSOL Energy will continue to pay dividends in the future. The determination to pay dividends in the future will depend upon, among other things, general business conditions, CONSOL Energy's financial results, contractual and legal restrictions regarding the payment of dividends by CONSOL Energy, planned investments by CONSOL Energy and such other factors as the Board of Directors deems relevant. The Company's Senior Secured Credit Facilities and the Indenture to the Second Lien Notes limit CONSOL Energy's ability to pay dividends based on certain covenants.

See Part III, Item 12. "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" for information relating to CONSOL Energy's equity compensation plans.

ITEM 6. [Reserved.]

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The Company's discussion and analysis includes a comparison of the year ended December 31, 2022 to the year ended December 31, 2021. A similar discussion and analysis that compares year ended December 31, 2021 to the fiscal year ended December 31, 2020 may be found in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," of our Form 10-K for the year ended December 31, 2021, which is incorporated herein by reference.

All amounts discussed are in millions of U.S. dollars, unless otherwise indicated. All tons discussed are on a clean coal equivalent basis.

Recent Developments

Russia-Ukraine War

On February 24, 2022, the armed forces of the Russian Federation launched a large-scale invasion of Ukraine. This conflict has continued at a high level of intensity since then. The extent and duration of the military conflict involving Russia and Ukraine, resulting sanctions and future market or supply disruptions in the region, are impossible to predict, but could be significant and may have a severe adverse effect on the region. Globally, various governments, including the United States, have banned certain imports from Russia including commodities such as oil, natural gas and coal, while governments in the member states of the European Union have committed to significantly reducing, and ultimately phasing out, imports of these commodities from Russia. These events have caused volatility in the aforementioned commodity markets. This volatility, including market expectations of potential changes in coal prices and inflationary pressures on steel products, may significantly affect market prices and overall demand for our coal and the cost of supplies and equipment, as well as the prices of, and demand for, competing sources of energy for our customers, like natural gas. Additionally, the war and resulting market disruption and sanctions have intensified preexisting inflationary pressures in the United States and elsewhere. Although we have not experienced a material negative impact from the war and the resulting sanctions as of the date of this report, we are closely monitoring the potential effects.

COVID-19 Update

The Company is monitoring the impact of the COVID-19 pandemic ("COVID-19") and has taken, and will continue to take, steps to mitigate the potential risks and impact on the Company and its employees. The health and safety of our employees is paramount. To date, the Company has experienced a few localized outbreaks, but due, in part, to the health and safety procedures put in place by the Company, we have been able to continue operating. The Company continues to monitor the health and safety of its employees closely in order to limit potential risks to our employees, contractors, family members and the community.

COVID-19 led to an unprecedented decline in coal demand that began in the first half of 2020, largely driven by government-imposed shutdowns of non-essential businesses. Since then, the business environment has improved, resulting in higher demand for our product as government-imposed shutdowns and other COVID-19-related restrictions have been eased or lifted. However, imbalances in the global supply chain coupled with inflationary pressures have had both positive and negative impacts to our operations. The extent to which COVID-19 may impact our business depends on future developments that could arise if the pandemic were to again become an acute, severe risk. We expect that such developments could impact our results of operations, cash flows and financial condition. The Company will continue to take steps it believes are appropriate to mitigate the negative impacts of COVID-19 on its operations, liquidity and financial condition.

2022 Highlights:

- Coal shipments of 24.1 million tons.
- Debt repayments of \$292.3 million – payments on Term Loan B, Second Lien Notes, Term Loan A and equipment-financed debt of \$175.7 million, \$50.0 million, \$41.3 million and \$25.3 million, respectively.
- Initiated enhanced shareholder return program in the third quarter, returning nearly \$80.0 million to shareholders through dividends and share repurchases.
- Commissioned Itmann Preparation Plant in late September; the first train shipped on October 12, 2022.

Outlook for 2023:

Based on our current contracted position, estimated prices and production plans, we are providing the following financial and operating performance guidance for full fiscal year 2023:

- PAMC coal sales volume of 25.0-27.0 million tons
- PAMC average realized coal revenue per ton sold ⁽¹⁾ of \$78.00 - \$84.00
- PAMC average cash cost of coal sold per ton ⁽¹⁾ of \$34.00-\$36.00
- Itmann Mining Complex production volume of 0.4 million - 0.6 million tons
- Capital expenditures of \$160 million to \$185 million

(1) Average realized coal revenue per ton sold and average cash cost of coal sold per ton are operating ratios derived from non-GAAP financial measures. CONSOL Energy is unable to provide a reconciliation of this guidance to any measures calculated in accordance with GAAP due to the unknown effect, timing and potential significance of certain income statement items.

How We Evaluate Our Operations

Our management team uses a variety of financial and operating metrics to analyze our performance. These metrics are significant factors in assessing our operating results and profitability. The metrics include: (i) coal production and sales volumes; (ii) realized coal revenue, a non-GAAP financial measure; (iii) cost of coal sold, a non-GAAP financial measure; (iv) cash cost of coal sold, a non-GAAP financial measure; (v) average realized coal revenue per ton sold, an operating ratio derived from non-GAAP financial measures; (vi) average cash cost of coal sold per ton, an operating ratio derived from non-GAAP financial measures; (vii) average margin per ton sold, an operating ratio derived from non-GAAP financial measures; (viii) average cash margin per ton sold, an operating ratio derived from non-GAAP financial measures; and (ix) adjusted EBITDA, a non-GAAP financial measure.

Realized coal revenue, average realized coal revenue per ton sold, cost of coal sold, cash cost of coal sold, average cash cost of coal sold per ton, average margin per ton sold and average cash margin per ton sold normalize the volatility contained within comparable GAAP measures by adjusting for certain non-operating or non-cash transactions. We believe that adjusted EBITDA provides a helpful measure of comparing our operating performance with the performance of other companies that have different financing, capital structures and tax rates than ours. We believe realized coal revenue and average realized coal revenue per ton sold provide useful information to investors because they better reflect our earnings by including the settled costs (or gains) of our commodity derivatives for the period. Each of these non-GAAP metrics are used as supplemental financial measures by management and by external users of our financial statements, such as investors, industry analysts, lenders and ratings agencies, to assess:

- our operating performance as compared to the operating performance of other companies in the coal industry, without regard to financing methods, historical cost basis, tax rates or capital structure;
- the ability of our assets to generate sufficient cash flow;
- our ability to incur and service debt and fund capital expenditures;
- the viability of acquisitions and other capital expenditure projects and the returns on investment of various investment opportunities; and
- the attractiveness of capital projects and acquisitions and the overall rates of return on alternative investment opportunities.

These non-GAAP financial measures should not be considered an alternative to total costs, total coal revenue, net income, or any other measure of financial performance presented in accordance with GAAP. These measures exclude some, but not all, items that affect measures presented in accordance with GAAP, and these measures and the way we calculate them may vary from those of other companies. As a result, the items presented below may not be comparable to similarly titled measures of other companies.

Reconciliation of Non-GAAP Financial Measures

We evaluate our cost of coal sold and cash cost of coal sold on an aggregate basis by segment, and our average cash cost of coal sold per ton on a per-ton basis. Cost of coal sold includes items such as direct operating costs, royalty and production taxes, direct administration costs, and depreciation, depletion and amortization costs on production assets. Cost of coal sold excludes any indirect costs, such as general and administrative costs, freight expenses, (loss) gain on debt extinguishment, interest expenses, depreciation, depletion and amortization costs on non-production assets and other costs not directly attributable to the production of coal. The cash cost of coal sold includes cost of coal sold less depreciation, depletion and amortization costs on production assets. We define average cash cost of coal sold per ton as cash cost of coal sold divided by tons sold. The GAAP measure most directly comparable to cost of coal sold, cash cost of coal sold and average cash cost of coal sold per ton is total costs and expenses.

The following table presents a reconciliation for the PAMC segment of cost of coal sold, cash cost of coal sold and average cash cost of coal sold per ton to total costs and expenses, the most directly comparable GAAP financial measure, on a historical basis, for each of the periods indicated (in thousands, except per ton information).

	Years Ended December 31,	
	2022	2021
Total Costs and Expenses	\$ 1,533,500	\$ 1,223,540
Less: Freight Expense	(182,441)	(103,819)
Less: General and Administrative Costs	(116,696)	(87,161)
Less: (Loss) Gain on Debt Extinguishment	(5,623)	657
Less: Interest Expense	(52,640)	(63,342)
Less: Other Costs (Non-Production and non-PAMC)	(114,817)	(76,480)
Less: Depreciation, Depletion and Amortization (Non-Production and non-PAMC)	(37,021)	(29,355)
Cost of Coal Sold	\$ 1,024,262	\$ 864,040
Less: Depreciation, Depletion and Amortization (PAMC Production)	(189,857)	(195,228)
Cash Cost of Coal Sold	\$ 834,405	\$ 668,812
Total Tons Sold (in millions)	24.1	23.7
Average Cost of Coal Sold per Ton	\$ 42.49	\$ 36.43
Less: Depreciation, Depletion and Amortization Costs per Ton Sold	7.93	8.18
Average Cash Cost of Coal Sold per Ton	\$ 34.56	\$ 28.25

We evaluate our average realized coal revenue per ton sold, average margin per ton sold and average cash margin per ton sold on a per-ton basis. We define realized coal revenue as total coal revenue, net of settlements of commodity derivatives. We define average realized coal revenue per ton sold as total coal revenue, net of settlements of commodity derivatives divided by tons sold. We define average margin per ton sold as average realized coal revenue per ton sold, net of average cost of coal sold per ton. We define average cash margin per ton sold as average realized coal revenue per ton sold, net of average cash cost of coal sold per ton. The GAAP measure most directly comparable to realized coal revenue, average realized coal revenue per ton sold, average margin per ton sold and average cash margin per ton sold is total coal revenue.

The following table presents a reconciliation for the PAMC segment of realized coal revenue, average realized coal revenue per ton sold, average margin per ton sold and average cash margin per ton sold to total coal revenue, the most directly comparable GAAP financial measure, on a historical basis, for each of the periods indicated (in thousands, except per ton information).

	Years Ended December 31,	
	2022	2021
Total Coal Revenue (PAMC Segment)	\$ 1,973,884	\$ 1,085,080
Less: Settlements of Commodity Derivatives	(289,228)	—
Total Realized Coal Revenue	1,684,656	1,085,080
Operating and Other Costs	949,222	745,292
Less: Other Costs (Non-Production and non-PAMC)	(114,817)	(76,480)
Total Cash Cost of Coal Sold	834,405	668,812
Add: Depreciation, Depletion and Amortization	226,878	224,583
Less: Depreciation, Depletion and Amortization (Non-Production and non-PAMC)	(37,021)	(29,355)
Total Cost of Coal Sold	\$ 1,024,262	\$ 864,040
Total Tons Sold (in millions)	24.1	23.7
Average Realized Coal Revenue per Ton Sold	\$ 69.89	\$ 45.75
Average Cash Cost of Coal Sold per Ton	34.56	28.25
Depreciation, Depletion and Amortization Costs per Ton Sold	7.93	8.18
Average Cost of Coal Sold per Ton	42.49	36.43
Average Margin per Ton Sold	27.40	9.32
Add: Depreciation, Depletion and Amortization Costs per Ton Sold	7.93	8.18
Average Cash Margin per Ton Sold	\$ 35.33	\$ 17.50

We define adjusted EBITDA as (i) net income (loss) plus income taxes, interest expense and depreciation, depletion and amortization, as adjusted for (ii) certain non-cash items, such as stock-based compensation and fair value adjustments of commodity derivative instruments. The GAAP measure most directly comparable to adjusted EBITDA is net income (loss).

Results of Operations: Year Ended December 31, 2022 Compared with the Year Ended December 31, 2021
Net Income

CONSOL Energy reported net income of \$467 million for the year ended December 31, 2022, compared to net income of \$34 million for the year ended December 31, 2021. CONSOL Energy reported adjusted EBITDA of \$807 million for the year ended December 31, 2022, compared to adjusted EBITDA of \$378 million for the year ended December 31, 2021. Net income increased \$433 million in the period-to-period comparison primarily as a result of increased profitability at our mining operations directly related to rising coal prices, which was partially offset by increased costs due to inflationary pressures, fair value adjustments of commodity derivative instruments and an increase in income tax expense as a result of an improvement in pre-tax earnings. These changes are discussed in more detail below.

CONSOL Energy's business consists of the Pennsylvania Mining Complex and the CONSOL Marine Terminal segments, as well as various corporate and other business activities that are not allocated to the PAMC or the CONSOL Marine Terminal segments. The other business activities include the Itmann Mining Complex, the Greenfield Reserves and Resources, closed mine activities, general and administrative activities, interest expense and income taxes, as well as various other non-coal mining activities.

PAMC ANALYSIS:

The PAMC segment's principal activities consist of mining, preparation and marketing of bituminous coal, sold primarily to power generators, industrial end-users and metallurgical end-users. The segment also includes general and administrative costs, as well as various other activities assigned to the PAMC segment, but not included in the cost components on a per unit basis.

The PAMC segment had net income of \$620 million for the year ended December 31, 2022, compared to net income of \$94 million for the year ended December 31, 2021. The PAMC segment had adjusted EBITDA of \$773 million for the year ended December 31, 2022, compared to adjusted EBITDA of \$360 million for the year ended December 31, 2021. Included in 2022 net income and adjusted EBITDA were settlements of commodity derivative instruments at a loss of \$289 million (see Note 21 - Derivatives in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for additional information). Variances are discussed below.

<i>(in millions)</i>	For the Years Ended December 31,		
	2022	2021	Variance
Realized Coal Revenue:			
Coal Revenue	\$ 1,974	\$ 1,085	\$ 889
Settlements of Commodity Derivative Instruments	(289)	—	(289)
Total Realized Coal Revenue	1,685	1,085	600
Freight Revenue	178	104	74
Miscellaneous Income	—	22	(22)
Gain on Sale of Assets	27	1	26
<i>Less:</i>			
Cash Cost of Coal Sold	834	669	165
Other Costs	19	14	5
Freight Expense	178	104	74
General and Administrative Costs	86	65	21
Adjusted EBITDA	\$ 773	\$ 360	\$ 413

Coal Production

The table below presents total tons produced (in thousands) from the Pennsylvania Mining Complex for the periods indicated:

Mine	For the Years Ended December 31,		
	2022	2021	Variance
Bailey	11,568	11,753	(185)
Enlow	6,292	6,809	(517)
Harvey	6,075	5,300	775
Total	23,935	23,862	73

The PAMC's coal production increased slightly in the period-to-period comparison due to improved demand for its coal, despite operational and geological issues and a challenged transportation environment, which weighed on the Company's production, particularly during the third quarter of 2022. The Company completed the development of its fifth longwall at the PAMC toward the end of the fourth quarter of 2022, and it is now fully operational.

Coal Operations

The PAMC segment's realized coal revenue and cost components on a per unit basis for these periods were as follows:

	For the Years Ended December 31,		
	2022	2021	Variance
Total Tons Sold (in millions)	24.1	23.7	0.4
Average Realized Coal Revenue per Ton Sold ⁽¹⁾	\$ 69.89	\$ 45.75	\$ 24.14
Average Cash Cost of Coal Sold per Ton ⁽¹⁾	\$ 34.56	\$ 28.25	\$ 6.31
Depreciation, Depletion and Amortization Costs per Ton Sold (Non-Cash Cost)	7.93	8.18	(0.25)
Average Cost of Coal Sold per Ton ⁽¹⁾	\$ 42.49	\$ 36.43	\$ 6.06
Average Margin per Ton Sold ⁽¹⁾	\$ 27.40	\$ 9.32	\$ 18.08
Add: Depreciation, Depletion and Amortization Costs per Ton Sold	7.93	8.18	(0.25)
Average Cash Margin per Ton Sold ⁽¹⁾	\$ 35.33	\$ 17.50	\$ 17.83

(1) Average cash cost of coal sold per ton and average cost of coal sold per ton are non-GAAP measures, and average realized coal revenue per ton sold, average margin per ton sold and average cash margin per ton sold are operating ratios derived from non-GAAP measures. See "How We Evaluate Our Operations - Reconciliation of Non-GAAP Financial Measures" for a reconciliation of non-GAAP measures to the most directly comparable GAAP measures.

Coal Revenue and Realized Coal Revenue

Coal revenue and realized coal revenue were \$1,974 million and \$1,685 million for the year ended December 31, 2022, respectively, compared to \$1,085 million and \$1,085 million for the year ended December 31, 2021, respectively. As a result of continued global tightness of coal supply and higher electric power prices, coupled with higher prices for natural gas, which is a competitor to the Company's coal product, the Company realized higher pricing on its contracts, including domestic contracts, export contracts, and contracts that contain positive electric power price adjustments, during the year ended December 31, 2022. This higher pricing was partially offset by the settlement of certain commodity derivatives during the year, whereas during the prior year period, the Company did not settle any commodity derivatives.

Freight Revenue and Freight Expense

Freight revenue is the amount billed to customers for transportation costs incurred. This revenue is based on the weight of coal shipped, negotiated freight rates and method of transportation, primarily rail, used by the customers to which the Company contractually provides transportation services to move its coal from the mine to the ultimate sales point. Freight revenue is completely offset by freight expense. Freight revenue and freight expense were both \$178 million for the year ended December 31, 2022, compared to \$104 million for the year ended December 31, 2021. The \$74 million increase was primarily related to increased transportation costs, as well as an increase in fuel surcharges.

Miscellaneous Income

Miscellaneous income decreased \$22 million in the period-to-period comparison due to the sale of certain mining rights during the year ended December 31, 2021, none of which occurred during the year ended December 31, 2022.

Gain on Sale of Assets

Gain on sale of assets increased \$26 million in the year ended December 31, 2022, compared to the year ended December 31, 2021, primarily due to the sale of certain coal assets.

Cash Cost of Coal Sold

Cash cost of coal sold includes items such as direct operating costs, royalties and production taxes, and direct administration costs. Total cash cost of coal sold was \$834 million for the year ended December 31, 2022, or \$165 million higher than the \$669 million for the year ended December 31, 2021. Average cash cost of coal sold per ton was \$34.56 for the year ended December 31, 2022, compared to \$28.25 for the year ended December 31, 2021. The increase in the total cash cost of coal sold and average cash cost of coal sold per ton was primarily due to ongoing inflationary pressures on supplies, maintenance and contract labor, as well as multiple equipment failures and increased power costs due to elevated power prices. Additionally, the total cash cost of coal sold and average cash cost of coal sold per ton were impacted by the development work associated with the fifth longwall at the PAMC.

Other Costs

Other costs include items that are assigned to the PAMC segment but are not included in unit costs. Total other costs increased \$5 million in the year ended December 31, 2022, compared to the year ended December 31, 2021. The increase was attributable to an increase in demurrage charges as well as other current year costs, none of which were individually significant.

General and Administrative Costs

The amount of general and administrative costs related to the PAMC segment were \$86 million for the year ended December 31, 2022, compared to \$65 million for the year ended December 31, 2021. The \$21 million increase in the period-to-period comparison was primarily related to increased expense under the long-term incentive compensation plan incurred in the year ended December 31, 2022, due to the Company achieving certain financial metrics and a substantial increase in the Company's share price compared to the year ended December 31, 2021.

CONSOL MARINE TERMINAL ANALYSIS:

The CONSOL Marine Terminal segment provides coal export terminal services through the Port of Baltimore. The segment also includes general and administrative activities and interest expense, as well as various other activities assigned to the CONSOL Marine Terminal segment.

The CONSOL Marine Terminal segment had net income of \$41 million for the year ended December 31, 2022, compared to net income of \$32 million for the year ended December 31, 2021. The CONSOL Marine Terminal segment had adjusted EBITDA of \$52 million for the year ended December 31, 2022, compared to adjusted EBITDA of \$43 million for the year ended December 31, 2021.

(in millions)	For the Years Ended December 31,		
	2022	2021	Variance
Terminal Revenue	\$ 79	\$ 65	\$ 14
Miscellaneous Income	4	4	—
<i>Less:</i>			
Operating and Other Costs	25	21	4
General and Administrative Costs	6	5	1
Adjusted EBITDA	<u>52</u>	<u>43</u>	<u>9</u>

Terminal revenue consists of fees charged for coal loaded at the CONSOL Marine Terminal, which is located in the Port of Baltimore, Maryland and provides access to international coal markets. Throughput volumes at the CONSOL Marine Terminal were 13.7 million tons in the year ended December 31, 2022, compared to 13.8 million tons in the year ended December 31, 2021. CONSOL Marine Terminal revenue was \$79 million for the year ended December 31, 2022,

compared to \$65 million for the year ended December 31, 2021, as a result of an increase in the rates charged to transload coal at the Terminal due to increased export demand and commodity pricing strength. CONSOL Marine Terminal operating and other costs were \$25 million for the year ended December 31, 2022, compared to \$21 million for the year ended December 31, 2021. The increase was primarily due to ongoing inflationary pressures on supplies and service costs, increased power costs due to elevated power prices, and increased project expense associated with shutdown maintenance.

OTHER ANALYSIS:

The other segment includes revenue and expenses from various corporate and diversified business activities that are not allocated to the PAMC or the CONSOL Marine Terminal segments. The diversified business activities include the Itmann Mining Complex, the Greenfield Reserves and Resources, closed mine activities, general and administrative activities, interest expense and income taxes, as well as various other non-coal mining activities.

Other business activities had a loss before income tax of \$93 million for the year ended December 31, 2022, compared to a loss before income tax of \$91 million for the year ended December 31, 2021. Variances are discussed below.

<i>(in millions)</i>	For the Years Ended December 31,		
	2022	2021	Variance
Revenue:			
Coal Revenue - Itmann Mining Complex	\$ 45	\$ 7	\$ 38
Freight Revenue - Itmann Mining Complex	4	—	4
Miscellaneous Income	18	12	6
Gain on Sale of Assets	8	11	(3)
Total Revenue and Other Income	75	30	45
Other Costs and Expenses:			
Operating and Other Costs	71	42	29
Depreciation, Depletion and Amortization	22	13	9
Freight Expense	4	—	4
General and Administrative Costs	18	12	6
Loss (Gain) on Debt Extinguishment	6	(1)	7
Interest Expense	47	55	(8)
Total Other Costs and Expenses	168	121	47
Loss Before Income Tax	\$ (93)	\$ (91)	\$ (2)

Coal Revenue - Itmann Mining Complex

Coal revenue consists of the sale of coal mined during the development and operation of the Itmann No. 5 Mine located in Wyoming County, West Virginia, as well as the sale of third-party metallurgical coal purchased to blend with Itmann coal. The improvement is due to an increase in tons sold in the period-to-period comparison of 105 thousand tons, as well as a significant increase in the price of metallurgical coal. During the year ended December 31, 2022, average revenue on a per-ton basis was \$219.44, compared to \$70.40 for the year ended December 31, 2021.

Freight Revenue and Freight Expense - Itmann Mining Complex

Freight revenue is the amount billed to customers for transportation costs incurred. This revenue is based on the weight of coal shipped, negotiated freight rates and method of transportation, primarily rail, used by the customers to which the Company contractually provides transportation services to move its coal from the mine to the ultimate sales point. Freight revenue is completely offset by freight expense. Freight revenue and freight expense were both \$4 million for the year ended December 31, 2022. For the year ended December 31, 2021, the Company was not contractually obligated to provide transportation services under any of its contracts.

Miscellaneous Income

Miscellaneous income was \$18 million for the year ended December 31, 2022, compared to \$12 million for the year ended December 31, 2021. The change is due to the following items:

(in millions)	For the Years Ended December 31,		
	2022	2021	Variance
Royalty Income - Non-Operated Coal	\$ 10	\$ 8	\$ 2
Interest Income	4	3	1
Other Income	4	1	3
Total Miscellaneous Income	\$ 18	\$ 12	\$ 6

Gain on Sale of Assets

Gain on sale of assets decreased \$3 million in the period-to-period comparison primarily due to a decrease in sales of various assets during the year ended December 31, 2022, compared to the year ended December 31, 2021.

Operating and Other Costs

Operating and other costs were \$71 million for the year ended December 31, 2022, compared to \$42 million for the year ended December 31, 2021. Operating and other costs increased in the period-to-period comparison due to the following items:

(in millions)	For the Years Ended December 31,		
	2022	2021	Variance
Cost of Coal Sold - Itmann Mining Complex	\$ 42	\$ 7	\$ 35
Employee-Related Legacy Liability Expense	7	9	(2)
Coal Reserve Holding Costs	6	9	(3)
Equity Affiliate Adjustments	4	—	4
Closed and Idle Mines	4	4	—
Other	8	13	(5)
Total Operating and Other Costs	\$ 71	\$ 42	\$ 29

The Itmann Mining Complex's cost of coal sold is comprised of costs related to produced tons sold, development costs absorbed by the coal revenue generated during development, and costs incurred to purchase third-party metallurgical coal to blend with Itmann coal. The costs of coal sold include items such as direct development and operating costs, royalties and production taxes, third-party processing and hauling of raw coal and direct administration costs. The increase in cost of coal sold of \$35 million is primarily due to the increased development costs absorbed by an increase in coal revenue and an increase in costs associated with interim third-party processing and hauling of raw coal.

Depreciation, Depletion and Amortization

Depreciation, depletion and amortization increased \$9 million in the period-to-period comparison primarily due to variances in the adjustments to the Company's asset retirement obligations in the current year, as compared to the prior year.

General and Administrative Costs

The amount of general and administrative costs related to the Other segment was \$18 million for the year ended December 31, 2022, compared to \$12 million for the year ended December 31, 2021. The \$6 million increase in the period-to-period comparison was primarily related to increased expense under the long-term incentive compensation plan incurred in the year ended December 31, 2022, due to the Company achieving certain financial metrics and a substantial increase in the Company's share price, compared to the year ended December 31, 2021.

Loss (Gain) on Debt Extinguishment

Loss on debt extinguishment of \$6 million was recognized in the year ended December 31, 2022, due to accelerated payments made on the Company's Term Loan A and Term Loan B Facilities, as well as the open market repurchases and partial redemption of the Company's Second Lien Notes. Gain on debt extinguishment of \$1 million was recognized in the year ended December 31, 2021, due to the open market repurchases of the Company's Second Lien Notes.

Interest Expense, net

Interest expense, net of amounts capitalized, decreased in the period-to-period comparison primarily due to the Company's continued de-leveraging efforts throughout the year ended December 31, 2022.

Critical Accounting Policies and Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make judgments, estimates and assumptions that affect reported amounts of assets and liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities in the Consolidated Financial Statements and at the date of the financial statements. See Note 1 - Significant Accounting Policies in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K for further discussion. CONSOL Energy bases its estimates on historical experience and on various other assumptions that it believes are reasonable under the circumstances, the results of which form the basis for making the judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The Company evaluates its estimates on an on-going basis. Actual results could differ from those estimates upon subsequent resolution of identified matters. Management believes that the estimates utilized are reasonable. The following critical accounting policies are materially impacted by judgments, assumptions and estimates used in the preparation of the Consolidated Financial Statements.

Asset Retirement Obligations

The Surface Mining Control and Reclamation Act established operational, reclamation and closure standards for all aspects of surface mining as well as most aspects of deep mining. CONSOL Energy accrues for the costs of current coal mine disturbance and final coal mine and gas well closure, including the cost of treating mine water discharge where necessary. Estimates of the Company's total asset retirement obligations, which are based upon permit requirements and CONSOL Energy engineering expertise related to these requirements, including the current portion, were approximately \$252 million at December 31, 2022. This liability is reviewed annually, or when events and circumstances indicate an adjustment is necessary, by CONSOL Energy management and engineers. The estimated liability can significantly change if actual costs vary from assumptions or if governmental regulations change significantly.

Accounting for asset retirement obligations requires that the fair value of an asset retirement obligation be recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. For active locations, the present value of the estimated asset retirement obligations is capitalized as part of the carrying amount of the long-lived asset. For locations that have been fully depleted or closed, the present value of a change in the estimated value of the obligation is recorded directly to the consolidated statements of income. Asset retirement obligations primarily relate to the reclamation of land upon mine closure, the treatment of mine water discharge where necessary, and the plugging of gas wells acquired for mining purposes. Changes in the assumptions used to calculate the liabilities can have a significant effect on the asset retirement obligations. The amounts of assets and liabilities recorded are dependent upon a number of variables, including the estimated future expenditures, estimated mine lives, assumptions involving inflation rates and the assumed credit-adjusted risk-free interest rate.

Accounting for asset retirement obligations also requires depreciation of the capitalized asset retirement obligation and accretion of the asset retirement obligation over time. The depreciation will generally be determined on a units-of-production basis, whereas accretion will be recognized until the reclamation obligations are satisfied.

The Company believes that the accounting estimates related to asset retirement obligations are "critical accounting estimates" because the Company must assess the expected amount and timing of asset retirement obligations. In addition, the Company must determine the estimated present value of future liabilities. Future results of operations for any particular quarterly or annual period could be materially affected by changes in the Company's assumptions.

Income Taxes

Deferred tax assets and liabilities are recognized using enacted tax rates for the estimated future tax effects of temporary differences between the book and tax basis of recorded assets and liabilities. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some portion of the deferred tax asset will not be realized. All available evidence, both positive and negative, must be considered in determining the need for a valuation allowance. At December 31, 2022, CONSOL Energy had deferred tax liabilities in excess of deferred tax assets of approximately \$22 million.

CONSOL Energy evaluates all tax positions taken on the state and federal tax filings to determine if the position is more likely than not to be sustained upon examination. For positions that meet the more likely than not to be sustained criteria, an evaluation to determine the largest amount of benefit, determined on a cumulative probability basis, that is more likely than not to be realized upon ultimate settlement is determined. A previously recognized tax position is reversed when it is subsequently determined that a tax position no longer meets the more likely than not threshold to be sustained. The evaluation of the sustainability of a tax position and the probable amount that is more likely than not is based on judgment, historical experience and on various other assumptions that CONSOL Energy believes are reasonable under the circumstances. The results of these estimates, that are not readily apparent from other sources, form the basis for recognizing an uncertain tax liability. Actual results could differ from those estimates upon subsequent resolution of identified matters. At December 31, 2022 and 2021, CONSOL Energy had liabilities for uncertain tax positions of \$2 million and \$4 million, respectively, recorded in Other Accrued Liabilities and Deferred Income Taxes.

The Company believes that accounting estimates related to income taxes are “critical accounting estimates” because the Company must assess the likelihood that deferred tax assets will be recovered from future taxable income and exercise judgment regarding the amount of financial statement benefit to record for uncertain tax positions. When evaluating whether or not a valuation allowance must be established on deferred tax assets, the Company exercises judgment in determining whether it is more likely than not (a likelihood of more than 50%) that some portion or all of the deferred tax assets will not be realized. The Company considers all available evidence, both positive and negative, to determine whether, based on the weight of the evidence, a valuation allowance is needed, including carrybacks, tax planning strategies, reversal of deferred tax assets and liabilities and forecasted future taxable income. In making the determination related to uncertain tax positions, the Company considers the amounts and probabilities of the outcomes that could be realized upon ultimate settlement of an uncertain tax position using the facts, circumstances and information available at the reporting date to establish the appropriate amount of financial statement benefit. To the extent that an uncertain tax position or valuation allowance is established or increased or decreased during a period, the Company must include an expense or benefit within tax expense in the income statement. Future results of operations for any particular quarterly or annual period could be materially affected by changes in the Company’s assumptions. At December 31, 2022, no valuation allowance has been recorded. At December 31, 2021, CONSOL had a valuation allowance related to net operating losses of \$1 million.

Impairment of Long-Lived Assets

CONSOL Energy reviews the carrying value of its long-lived assets whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. Long-lived assets are not reviewed for impairment unless an impairment indicator is noted. Examples of impairment indicators include:

- a significant decrease in the market price of a long-lived asset;
- a significant adverse change in the extent or manner in which a long-lived asset is being used or in its physical condition;
- a significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset, including an adverse action of assessment by a regulator;
- an accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset;
- a current period operating or cash flow loss combined with a history of operating or cash flow losses or a projection or forecast that demonstrates continuing losses associated with the use of a long-lived asset; or
- a current expectation that, more likely than not, a long-lived asset will be sold or otherwise disposed of significantly before the end of its previously estimated useful life. The term more likely than not refers to a level of likelihood that is more than 50 percent.

The above factors are not all inclusive, and management routinely evaluates whether impairment indicators are present. If one or more of the above events or changes in circumstances occur, CONSOL Energy performs a recoverability test, which compares the projected undiscounted cash flows from the use and eventual disposition of a long-lived asset or asset group to its carrying value. Individual assets are grouped for impairment review purposes based on the lowest level for which identifiable cash flows are largely independent of the cash flows of other groups of assets. If the carrying value

of a long-lived asset exceeds the future undiscounted cash flows expected from the asset, the amount of impairment recorded is measured as the difference between the asset's carrying value and the estimated fair value of the asset, determined using discounted future cash flows. The fair value of impaired assets is typically determined based on various factors, including the present values of expected future cash flows using a risk-adjusted discount rate, the marketability of coal properties and the estimated fair value of assets that could be sold or used at other operations.

Assumptions about sales, operating margins, capital expenditures and sales prices are based on the Company's forecasts, business plans, economic projections, and anticipated future cash flows. No indicators of impairment were present and, therefore, no impairment losses were recorded during the years ended December 31, 2022, 2021 and 2020.

Liquidity and Capital Resources

CONSOL Energy's potential sources of liquidity include cash generated from operations, cash on hand, borrowings under the revolving credit facility and securitization facility (which are discussed below), and, if necessary, the ability to issue additional equity or debt securities. The Company believes that cash generated from these sources will be sufficient to meet its short-term working capital requirements, long-term capital expenditure requirements, and debt servicing obligations, as well as to provide required letters of credit.

We expect demand for our coal to remain elevated in the near future as a result of an overall increase in global demand resulting from the impact of Europe's energy imbalance, continued economic and industrial growth in Asia and depressed supply of high-Btu coal. This increase in global demand has also resulted in higher prices for coal globally. These elevated prices are bolstering the Company's cash flows, which has allowed the Company to accelerate debt reduction. As a result, interest expense and debt servicing costs are declining, and the Company's liquidity is increasing. Additionally, the preparation plant at the Itmann Mining Complex was commissioned in the third quarter of 2022. Now that the Itmann No. 5 mine and preparation plant are both operational, the increased volume of coal sold from the Itmann Mining Complex will further enhance the Company's cash flows. These factors will allow the Company to continue to opportunistically reduce its debt levels and return capital to shareholders in the form of dividends and/or stock repurchases. During the year ended December 31, 2022, the Company generated cash flows from operating activities of approximately \$651 million and utilized a portion of operating cash flows to retire outstanding indebtedness. More specifically, the Company made debt repayments of \$176 million, \$50 million, \$41 million and \$25 million on its Term Loan B Facility, Second Lien Notes, Term Loan A Facility and equipment-financed debt, respectively. As of December 31, 2022, our total liquidity was \$572 million, which comprises \$273 million of cash and cash equivalents, the remaining capacity of \$297 million on our revolving credit facility and the remaining capacity of \$2 million on our securitization facility.

The Company is continuing to actively monitor the effects of the ongoing COVID-19 pandemic on its liquidity and capital resources. While many government-imposed shut-downs of non-essential businesses in the United States and abroad have been phased out, the reoccurrence of such restrictions could result in a decrease in demand for our coal, which could adversely affect our liquidity in future periods. Depressed demand for our coal may also result from a general recession or reduction in overall business activity, including a recession or business slow-down caused or exacerbated by significant increases in interest rates. A decrease in demand for our coal, the failure of our customers to purchase coal from us that they are obligated to purchase pursuant to existing contracts, or disruptions in the logistics chain preventing us from shipping our coal would have a material adverse effect on our results of operations and financial condition. During the 2021 and 2022 fiscal years, CONSOL Energy has encountered multiple transportation delays as a result of the disruption of the global supply chain and logistics infrastructure. However, our transportation partners are continuing to work through these issues and improve their staffing levels.

Events that negatively impact our overall financial condition and liquidity could result in our inability to comply with our credit facility's financial covenants. This could limit our access to our credit facilities if we are unable to obtain waivers from our lenders or amend the credit facilities. Additionally, access to capital continues to tighten for the Company's industry as a result of banking, institutional and investor environmental, social and governance (ESG) requirements and limitations, which tend to discourage investment in coal or other fossil fuel companies. However, the Company expects to maintain adequate liquidity through its operating cash flow and cash and cash equivalents on hand, as well as its revolving credit facility and securitization facility, to fund its working capital and capital expenditures in the short-term and long-term.

The Company started a capital construction project on the coarse refuse disposal area at the PAMC in 2017. The construction on the coarse refuse disposal area is now funded, in part, by the \$75 million of tax-exempt solid waste disposal revenue bonds, the proceeds of which were loaned to the Company and which the Company expects to expend as qualified work is completed. Through the year ended December 31, 2022, the Company utilized restricted cash held in escrow in the amount of \$39 million for qualified expenses. The Company has \$36 million remaining in restricted cash associated with this financing that will be used to fund future spending on the coarse refuse disposal area. The Company

also began construction of the Itmann No. 5 Mine in the second half of 2019; development mining began in April 2020, but the pace of the project was intentionally slowed to minimal capital spending due to the uncertainties surrounding the COVID-19 pandemic. The preparation plant was commissioned during the third quarter of 2022. The Company anticipates approximately 900 thousand tons per year of high-quality, low-vol coking coal production from the Itmann No. 5 Mine once it reaches its full run rate. The preparation plant also includes a rail loadout and the capability for processing up to an additional 750 thousand to 1 million third-party saleable tons annually. This potential third-party processing revenue is expected to provide an additional avenue of growth for the Company.

Uncertainty in the financial markets brings additional potential risks to CONSOL Energy. These risks include a reduction of our ability to raise capital in the equity markets, less availability and higher costs of additional credit and potential counterparty defaults. Overall market disruptions, similar to what was experienced in 2020, may impact the Company's collection of trade receivables. As a result, CONSOL Energy regularly monitors the creditworthiness of its customers and counterparties and manages credit exposure through payment terms, credit limits, prepayments and security.

Over the past few years, the insurance and surety markets have been increasingly challenging, particularly for coal companies. We have experienced rising premiums, reduced coverage and/or fewer providers willing to underwrite policies and surety bonds. Terms have generally become more unfavorable, including increases in the amount of collateral required to secure surety bonds. However, more recently, we have seen insurance rates stabilize and even decrease on certain lines of coverage, as new insurance carriers have entered the market. Further cost burdens on our ability to maintain adequate insurance and bond coverage may adversely impact our operations, financial position and liquidity.

CONSOL Energy participates in the United Mine Workers of America (the "UMWA") Combined Benefit Fund and the UMWA 1992 Benefit Plan for which benefits are reflected in the Company's consolidated financial statements when paid. These benefit arrangements may result in additional liabilities that are not recognized on the Consolidated Balance Sheet at December 31, 2022. The various multi-employer benefit plans are discussed in Note 17—Other Employee Benefit Plans in the Notes to the Consolidated Financial Statements in Item 8 of this Form 10-K. CONSOL Energy's total contributions under the Coal Industry Retiree Health Benefit Act of 1992 were \$4 million and \$5 million for the years ended December 31, 2022 and 2021, respectively. Based on available information at December 31, 2022, CONSOL Energy's aggregate obligation for the UMWA Combined Benefit Fund and 1992 Benefit Plan is estimated to be approximately \$39 million. CONSOL Energy also uses a combination of surety bonds, corporate guarantees and letters of credit to secure its financial obligations for employee-related, environmental, performance and various other items which are not reflected on the Consolidated Balance Sheet at December 31, 2022. Management believes these items will expire without being funded. See Note 23—Commitments and Contingent Liabilities in the Notes to the Consolidated Financial Statements included in Item 8 of this Form 10-K for additional details of the various financial guarantees that have been issued by CONSOL Energy.

Cash Flows (in millions)

	For the Years Ended For the Years Ended December 31,		
	2022	2021	Change
Cash Provided by Operating Activities	\$ 651	\$ 306	\$ 345
Cash Used in Investing Activities	\$ (142)	\$ (127)	\$ (15)
Cash Used in Financing Activities	\$ (380)	\$ (31)	\$ (349)

Cash provided by operating activities increased \$345 million in the period-to-period comparison, primarily due to a \$428 million increase in Adjusted EBITDA, a non-GAAP financial measure, offset by other working capital changes that occurred throughout both periods.

Cash used in investing activities increased \$15 million in the period-to-period comparison. Capital expenditures increased \$39 million primarily due to the acquisition of certain coal assets and the construction of a preparation plant near the Itmann No. 5 Mine. Further details regarding the Company's capital expenditures are set forth below. The remaining variance is due to asset sales and other investing activity.

	December 31,		
	2022	2021	Change
Building and Infrastructure	\$ 97	\$ 62	\$ 35
Equipment Purchases and Rebuilds	43	45	(2)
Solid Waste Disposal Project	15	18	(3)
IS&T Infrastructure	2	2	—
Other	15	6	9
Total Capital Expenditures	\$ 172	\$ 133	\$ 39

Cash flows used in financing activities increased \$349 million in the period-to-period comparison, primarily driven by a \$190 million increase in net payments on indebtedness due to the Company's ongoing de-leveraging efforts. During the year ended December 31, 2021, the Company received \$75 million in proceeds loaned to the Company from the issuance of Pennsylvania Economic Development Financing Authority tax-exempt solid waste disposal revenue bonds. No such proceeds were received during the year ended December 31, 2022, which contributed to the variance in the period-to-period comparison. Additionally, \$71 million in dividend payments were made during the year ended December 31, 2022. No such payments were made during the year ended December 31, 2021.

Senior Secured Credit Facilities

In November 2017, the Company entered into a revolving credit facility with PNC Bank, N.A. with commitments up to \$300 million (the "Revolving Credit Facility"), a Term Loan A Facility of up to \$100 million (the "TLA Facility") and a Term Loan B Facility of up to \$400 million (the "TLB Facility", and together with the Revolving Credit Facility and the TLA Facility, the "Senior Secured Credit Facilities"). On March 28, 2019, the Company amended the Senior Secured Credit Facilities to increase the borrowing commitment of the Revolving Credit Facility to \$400 million and reallocate the principal amounts outstanding under the TLA Facility and the TLB Facility. On June 5, 2020, the Company amended the Senior Secured Credit Facilities (the "2020 amendment") to provide eight quarters of financial covenant relaxation, effect an increase in the rate at which borrowings under the Revolving Credit Facility and the TLA Facility bear interest, and add an anti-cash hoarding provision. On March 29, 2021, the Company amended the Senior Secured Credit Facilities to revise the negative covenant with respect to other indebtedness to allow the Company to incur obligations under the tax-exempt solid waste disposal revenue bonds. The Revolving Credit Facility was further amended in July 2022 (the "2022 amendment") to, among other things, extend the maturity date of \$260 million of borrowing commitments from March 28, 2023 to July 18, 2026. The Company will maintain access to the current \$400 million available under the Revolving Credit Facility until its maturity in March 2023. At that point, the Company's borrowing limit under the Revolving Credit Facility will be reduced to \$260 million until the facility's maturity date in July 2026.

Borrowings under the Company's Senior Secured Credit Facilities bore interest at a floating rate which was, at the Company's option, either (i) LIBOR plus an applicable margin or (ii) an alternate base rate plus an applicable margin. The 2022 amendment provides that borrowings under the Senior Secured Credit Facilities will bear interest at a floating rate that is, at the Company's option, either (i) Secured Overnight Financing Rate ("SOFR") plus the applicable SOFR Adjustment (as defined therein) depending on the applicable interest period plus an applicable margin or (ii) an alternate base rate plus an applicable margin.

The applicable margin for the Revolving Credit Facility depends on the total net leverage ratio, whereas the applicable margin for the TLB Facility is fixed. The 2020 amendment increased the applicable margin by 50 basis points on both the Revolving Credit Facility and the TLA Facility. The maturity date of the Revolving Credit Facility is July 2026 and the maturity date of the TLA Facility was March 28, 2023. The TLA Facility was paid in full on June 30, 2022. The TLB Facility's maturity date is September 28, 2024. In June 2019, the TLA Facility began amortizing in equal quarterly installments of (i) 3.75% of the original principal amount thereof, for four consecutive quarterly installments commencing with the quarter ended June 30, 2019, (ii) 6.25% of the original principal amount thereof for the subsequent eight quarterly installments commencing with the quarter ended June 30, 2020 and (iii) 8.75% of the original principal amount thereof for the quarterly installments thereafter, and the remaining balance was to have been due at final maturity. In June 2019, the TLB Facility began amortizing in equal quarterly installments in an amount equal to 0.25% per annum of the amended principal amount thereof, with the remaining balance due at final maturity.

Obligations under the Senior Secured Credit Facilities are guaranteed by (i) all owners of the PAMC held by the Company, (ii) any other members of the Company's group that own any portion of the collateral securing the Revolving Credit Facility, and (iii) subject to certain customary exceptions and agreed materiality thresholds, all other existing or future direct or indirect wholly-owned restricted subsidiaries of the Company. The obligations are secured by, subject to certain exceptions (including a limitation of pledges of equity interests in certain subsidiaries and certain thresholds with respect to real property), a first-priority lien on (i) the Company's interest in the Pennsylvania Mining Complex, (ii) the equity interests in the Partnership held by the Company (iii) the CONSOL Marine Terminal, (iv) the Itmann Mining Complex, and (v) the 1.4 billion tons of Greenfield Reserves and Resources. The Senior Secured Credit Facilities contain a number of customary affirmative covenants. In addition, the Senior Secured Credit Facilities contain a number of negative covenants, including (subject to certain exceptions) limitations on (among other things): indebtedness, liens, investments, acquisitions, dispositions, restricted payments, and prepayments of junior indebtedness. The 2020 amendment added additional conditions to be met for the covenants relating to investments in joint ventures, general investments, share repurchases, dividends, and repurchases of the Second Lien Notes (as defined below). The additional conditions require that there be no outstanding borrowings and no more than \$200 million of outstanding letters of credit on the Revolving Credit Facility. Further restrictions apply to investments in joint ventures, share repurchases and dividends that require the total net leverage ratio shall not be greater than 2.00 to 1.00.

The Revolving Credit Facility also includes financial covenants, including (i) a maximum first lien gross leverage ratio, (ii) a maximum total net leverage ratio, and (iii) a minimum fixed charge coverage ratio. The maximum first lien gross leverage ratio is calculated as the ratio of Consolidated First Lien Debt to Consolidated EBITDA. Consolidated EBITDA, as used in the covenant calculation, excludes non-cash compensation expenses, non-recurring transaction expenses, extraordinary gains and losses, gains and losses on discontinued operations, non-cash charges related to legacy employee liabilities and gains and losses on debt extinguishment, and subtracts cash payments related to legacy employee liabilities. The maximum total net leverage ratio is calculated as the ratio of Consolidated Indebtedness, minus Cash on Hand, to Consolidated EBITDA. The minimum fixed charge coverage ratio is calculated as the ratio of Consolidated EBITDA to Consolidated Fixed Charges. Consolidated Fixed Charges, as used in the covenant calculation, include cash interest payments, cash payments for income taxes, scheduled debt repayments, dividends paid, and Maintenance Capital Expenditures. The 2022 amendment revised the financial covenants applicable to the Revolving Credit Facility relating to the maximum first lien gross leverage ratio, the maximum total net leverage ratio and the minimum fixed charge coverage ratio, so that among other things, for the fiscal quarters ending on or after June 30, 2022, the maximum first lien gross leverage ratio shall be 1.50 to 1.00, the maximum total net leverage ratio shall be 2.50 to 1.00 and the minimum fixed charge coverage ratio shall be 1.10 to 1.00.

The Company's first lien gross leverage ratio was 0.13 to 1.00 at December 31, 2022. The Company's total net leverage ratio was 0.14 to 1.00 at December 31, 2022. The Company's fixed charge coverage ratio was 2.43 to 1.00 at December 31, 2022. Accordingly, the Company was in compliance with all of its financial covenants under the Senior Secured Credit Facilities as of December 31, 2022.

The TLB Facility also includes a financial covenant that requires the Company to repay a certain amount of its borrowings under the TLB Facility within ten business days after the date it files its Annual Report on Form 10-K with the SEC if the Company has excess cash flow (as defined in the credit agreement for the Senior Secured Credit Facilities) during the year covered by the applicable Annual Report on Form 10-K. The required repayment is equal to a certain percentage of the Company's excess cash flow for such year, ranging from 0% to 75% depending on the Company's total net leverage ratio, less the amount of certain voluntary prepayments made by the Company, if any, under the TLB Facility during such fiscal year. During the year ended December 31, 2021, CONSOL Energy made the required repayment of \$5 million based on the amount of the Company's excess cash flow as of December 31, 2020. There was no repayment required with respect to the year ended December 31, 2021. As a result of achieving certain financial metrics, the Company is not required to make an excess cash flow payment with respect to the year ended December 31, 2022.

During the year ended December 31, 2019, the Company entered into interest rate swaps, which effectively converted \$150 million of the TLB Facility's floating interest rate to a fixed interest rate for the twelve months ending December 31, 2020 and 2021, and \$50 million of the TLB Facility's floating interest rate to a fixed interest rate for the twelve months ending December 31, 2022. The \$50 million interest rate swap was settled in August 2022 with the change in the floating rate on the TLB Facility to SOFR from LIBOR.

The Senior Secured Credit Facilities contain customary events of default, including with respect to a failure to make payments when due, cross-default and cross-judgment default and certain bankruptcy and insolvency events.

At December 31, 2022, there were no borrowings outstanding under the Revolving Credit Facility and the facility is currently only used for providing letters of credit, with \$103 million of letters of credit outstanding, leaving \$297 million of unused capacity. From time to time, CONSOL Energy is required to post financial assurances to satisfy contractual and other requirements generated in the normal course of business. Some of these assurances are posted to comply with federal, state or other government agencies' statutes and regulations. CONSOL Energy sometimes uses letters of credit to satisfy these requirements and these letters of credit reduce the Company's borrowing facility capacity.

Securitization Facility

On November 30, 2017, (1)(i) CONSOL Marine Terminals LLC, as an originator of receivables, (ii) CONSOL Pennsylvania Coal Company LLC ("CONSOL Pennsylvania"), as an originator of receivables and as initial servicer of the receivables for itself and the other originators (collectively, the "Originators"), each a wholly-owned subsidiary of CONSOL Energy, and (iii) CONSOL Funding LLC (the "SPV"), a Delaware special purpose entity and wholly-owned subsidiary of CONSOL Energy, as buyer, entered into a Purchase and Sale Agreement (the "Purchase and Sale Agreement") and (2)(i) CONSOL Thermal Holdings LLC, an indirect, wholly-owned subsidiary of the Partnership, as sub-originator (the "Sub-Originator"), and (ii) CONSOL Pennsylvania, as buyer and as initial servicer of the receivables for itself and the Sub-Originator, entered into a Sub-Originator Sale Agreement (the "Sub-Originator PSA"). In addition, on November 30, 2017, the SPV entered into a Receivables Financing Agreement (the "Receivables Financing Agreement") by and among (i) the SPV, as borrower, (ii) CONSOL Pennsylvania, as initial servicer, (iii) PNC Bank, as administrative agent, LC Bank and lender, and (iv) the additional persons from time to time party thereto as lenders. Together, the Purchase and Sale Agreement, the Sub-Originator PSA and the Receivables Financing Agreement establish the primary terms and conditions of an accounts receivable securitization program (the "Securitization"). In March 2020, the securitization facility was amended to, among other things, extend the maturity date from August 30, 2021 to March 27, 2023. In July 2022, the securitization facility was again amended to extend the maturity date to July 29, 2025.

Pursuant to the Securitization, (i) the Sub-Originator sells current and future trade receivables to CONSOL Pennsylvania and (ii) the Originators sell and/or contribute current and future trade receivables (including receivables sold to CONSOL Pennsylvania by the Sub-Originator) to the SPV and the SPV, in turn, pledges its interests in the receivables to PNC Bank, N.A., which either makes loans or issues letters of credit on behalf of the SPV. The maximum amount of advances and letters of credit outstanding under the Securitization may not exceed \$100 million.

Loans under the Securitization accrue interest at a reserve-adjusted market index rate equal to the applicable term SOFR rate. Loans and letters of credit under the Securitization also accrue a program fee and a letter of credit participation fee, respectively, ranging from 2.00% to 2.50% per annum depending on the total net leverage ratio of CONSOL Energy. In addition, the SPV paid certain structuring fees to PNC Capital Markets LLC and will pay other customary fees to the lenders, including a fee on unused commitments equal to 0.60% per annum.

The SPV's assets and credit are not available to satisfy the debts and obligations owed to the creditors of CONSOL Energy, the Sub-Originator or any of the Originators. The Sub-Originator, the Originators and CONSOL Pennsylvania as servicer are independently liable for their own customary representations, warranties, covenants and indemnities. In addition, CONSOL Energy has guaranteed the performance of the obligations of the Sub-Originator, the Originators and CONSOL Pennsylvania as servicer, and will guarantee the obligations of any additional originators or successor servicer that may become party to the Securitization. However, neither CONSOL Energy nor its affiliates will guarantee collectability of receivables or the creditworthiness of obligors thereunder.

The agreements comprising the Securitization contain various customary representations and warranties, covenants and default provisions which provide for the termination and acceleration of the commitments and loans under the Securitization in certain circumstances including, but not limited to, failure to make payments when due, breach of representation, warranty or covenant, certain insolvency events or failure to maintain the security interest in the trade receivables, and defaults under other material indebtedness.

At December 31, 2022, eligible accounts receivable yielded \$85 million of borrowing capacity. At December 31, 2022, the facility had no outstanding borrowings and approximately \$83 million of letters of credit outstanding, leaving \$2 million of unused capacity. Costs associated with the receivables facility totaled \$1 million for the year ended December 31, 2022. The Company has not derecognized any receivables due to its continued involvement in the collections efforts.

11.00% Senior Secured Second Lien Notes due 2025

On November 13, 2017, the Company issued \$300 million in aggregate principal amount of 11.00% Senior Secured Second Lien Notes due 2025 (the “Second Lien Notes”) pursuant to an indenture (the “Indenture”) dated as of November 13, 2017, by and between the Company and UMB Bank, N.A., a national banking association, as trustee and collateral trustee (the “Trustee”). On November 28, 2017, certain subsidiaries of the Company executed a supplement to the Indenture and became party to the Indenture as a guarantor (the “Guarantors”). The Second Lien Notes are secured by second priority liens on substantially all of the assets of the Company and the Guarantors that are pledged on a first-priority basis as collateral securing the Company’s obligations under the Senior Secured Credit Facilities (described above), subject to certain exceptions under the Indenture.

Since November 15, 2021, the Company has been permitted to redeem all or part of the Second Lien Notes at the redemption prices set forth below, plus accrued and unpaid interest, if any, to, but not including, the redemption date (subject to the rights of holders of the Second Lien Notes on the relevant record date to receive interest due on the relevant interest payment date), beginning on November 15 of the years indicated:

Year	Percentage
2021	105.50 %
2022	102.75 %
2023 and thereafter	100.00 %

As of December 31, 2022, the Company has partially redeemed its Second Lien Notes at a redemption price of 102.75% of the stated principal outstanding in the amount of \$25 million and announced an additional \$25 million redemption at 102.75% that was settled on January 19, 2023. Prior to November 15, 2021, the Company was permitted to redeem all or a part of the Second Lien Notes at a redemption price equal to 100% of the principal amount thereof plus the Applicable Premium, as defined in the Indenture, plus accrued and unpaid interest, if any, to, but not including, the redemption date (subject to the rights of holders of the Second Lien Notes on the relevant record date to receive interest due on the relevant interest payment date).

The Indenture contains covenants that limit the ability of the Company and the Guarantors, to (i) incur, assume or guarantee additional indebtedness or issue preferred stock; (ii) create liens to secure indebtedness; (iii) declare or pay dividends on the Company’s common stock, redeem stock or make other distributions to the Company’s stockholders; (iv) make investments; (v) restrict dividends, loans or other asset transfers from the Company’s restricted subsidiaries; (vi) merge or consolidate, or sell, transfer, lease or dispose of substantially all of the Company’s assets; (vii) sell or otherwise dispose of certain assets, including equity interests in subsidiaries; (viii) enter into transactions with affiliates; and (ix) create unrestricted subsidiaries. These covenants are subject to important exceptions and qualifications. If the Second Lien Notes achieve an investment grade rating from both Standard & Poor’s Ratings Services and Moody’s Investors Service, Inc. and no default under the Indenture exists, many of the foregoing covenants will terminate and cease to apply. The Indenture also contains customary events of default, including (i) default for 30 days in the payment when due of interest on the Notes; (ii) default in payment when due of principal or premium, if any, on the Notes at maturity, upon redemption or otherwise; (iii) covenant defaults; (iv) cross-defaults to certain indebtedness, and (v) certain events of bankruptcy or insolvency with respect to the Company or any of the Guarantors. If an event of default occurs and is continuing, the Trustee or the holders of at least 25% in aggregate principal amount of the then outstanding Second Lien Notes may declare all the Notes to be due and payable immediately. If an event of default arises from certain events of bankruptcy or insolvency, with respect to the Company, any restricted subsidiary of the Company that is a significant subsidiary or any group of restricted subsidiaries of the Company that, taken together, would constitute a significant subsidiary, all outstanding Second Lien Notes will become due and payable immediately without further action or notice.

If the Company experiences certain kinds of changes of control, holders of the Second Lien Notes will be entitled to require the Company to repurchase all or any part of that holder’s Second Lien Notes pursuant to an offer on the terms set forth in the Indenture. The Company will offer to make a cash payment equal to 101% of the aggregate principal amount of the Second Lien Notes repurchased plus accrued and unpaid interest on the Second Lien Notes repurchased to, but not including, the date of purchase, subject to the rights of holders of the Notes on the relevant record date to receive interest due on the relevant interest payment date.

The Second Lien Notes were issued in a private offering that was exempt from the registration requirements of the Securities Act of 1933, as amended (the “Securities Act”), to qualified institutional buyers in accordance with Rule 144A and to persons outside of the United States pursuant to Regulation S under the Securities Act.

Pennsylvania Economic Development Financing Authority Bonds

In April 2021, CONSOL Energy borrowed the proceeds received from the sale of tax-exempt bonds issued by the Pennsylvania Economic Development Financing Authority (“PEDFA”) in aggregate principal amount of \$75 million. The PEDFA Bonds bear interest at a fixed rate of 9.00% for an initial term of seven years. The PEDFA Bonds mature on April 1, 2051, but are subject to mandatory purchase by the Company on April 13, 2028, at the expiration of the initial term rate period. The PEDFA Bonds were issued pursuant to an indenture (the “PEDFA Indenture”) dated as of April 1, 2021, by and between PEDFA and Wilmington Trust, N.A., a national banking association, as trustee (the “PEDFA Notes Trustee”). PEDFA made a loan of the proceeds of the PEDFA Bonds to the Company pursuant to a Loan Agreement (the “Loan Agreement”) dated as of April 1, 2021 between PEDFA and the Company. Under the terms of the Loan Agreement, the Company agreed to make all payments of principal, interest and other amounts at any time due on the PEDFA Bonds or under the PEDFA Indenture. PEDFA assigned its rights as lender under the Loan Agreement, excluding certain reserved rights, to the PEDFA Notes Trustee. Certain subsidiaries of the Company (the “PEDFA Notes Guarantors”) executed a Guaranty Agreement (the “Guaranty”) dated as of April 1, 2021 in favor of the PEDFA Notes Trustee, guarantying the obligations of the Company under the Loan Agreement to pay the PEDFA Bonds when and as due. The obligations of the Company under the Loan Agreement and of the PEDFA Notes Guarantors under the Guaranty are secured by second priority liens on substantially all of the assets of the Company and the PEDFA Notes Guarantors on parity with the Second Lien Notes. The Loan Agreement and Guaranty incorporate by reference covenants in the Indenture under which the Second Lien Notes were issued (discussed previously).

Material Cash Requirements

CONSOL Energy expects to make payments of \$34 million on its long-term debt obligations, including interest, in the next 12 months. Refer to Note 13 – Long-Term Debt for additional information concerning material cash requirements in future years. CONSOL Energy expects to make payments of \$32 million on its operating and finance lease obligations, including interest, in the next 12 months. Refer to Note 14 – Leases for additional information concerning material cash requirements in future years. CONSOL Energy expects to make payments of \$50 million on its employee-related long-term liabilities in the next 12 months. Refer to Note 15 – Pension and Other Postretirement Benefit Plans and Note 16 – Coal Workers’ Pneumoconiosis and Workers’ Compensation for additional information concerning material cash requirements in future years. CONSOL Energy believes it will be able to satisfy these material requirements with cash generated from operations, cash on hand, borrowings under the revolving credit facility and securitization facility, and, if necessary, cash generated from its ability to issue additional equity or debt securities.

Debt

At December 31, 2022, CONSOL Energy had total long-term debt and finance lease obligations of \$388 million outstanding, including the current portion of long-term debt of \$29 million. This long-term debt consisted of:

- An aggregate principal amount of \$103 million of industrial revenue bonds which were issued to finance the CONSOL Marine Terminal, which bear interest at 5.75% per annum and mature in September 2025. Interest on the industrial revenue bonds is payable March 1 and September 1 of each year. Payment of the principal and interest on the notes is guaranteed by CONSOL Energy.
- An aggregate principal amount of \$99 million of 11.00% Senior Secured Second Lien Notes due in November 2025. Interest on the notes is payable May 15 and November 15 of each year.
- An aggregate principal amount of \$75 million of tax-exempt solid waste disposal revenue bonds, which were issued to finance the ongoing expansion of the coal refuse disposal area at the Central Preparation Plant, which bear interest at 9.00% per annum for an initial term of seven years and mature in April 2051. Interest on the tax-exempt solid waste disposal revenue bonds is payable on February 1 and August 1 of each year.
- An aggregate principal amount of \$64 million in connection with the TLB Facility, due in September 2024. Borrowings under the TLB Facility bear interest at a floating rate.
- An aggregate principal amount of \$37 million of finance leases with a weighted average interest rate of 6.53%.
- Advanced royalty commitments of \$8 million with a weighted average interest rate of 8.09% per annum.
- An aggregate principal amount of \$2 million of other debt arrangements.

At December 31, 2022, CONSOL Energy had no borrowings outstanding and approximately \$103 million of letters of credit outstanding under the \$400 million senior secured Revolving Credit Facility. At December 31, 2022, CONSOL Energy had no borrowings outstanding and approximately \$83 million of letters of credit outstanding under the \$100 million Securitization Facility.

Stock and Debt Repurchases

In December 2017, CONSOL Energy's Board of Directors approved a program to repurchase, from time to time, the Company's outstanding shares of common stock or its Second Lien Notes. Since its inception, the Company's Board of Directors has subsequently amended the program several times, the most recent of which amendment in August 2022 raised the aggregate limit of the Company's repurchase authority to \$600 million and extended the program until December 31, 2024.

Under the terms of the program, CONSOL Energy is permitted to make repurchases in the open market, in privately negotiated transactions, accelerated repurchase programs or in structured share repurchase programs. CONSOL Energy is also authorized to enter into one or more 10b5-1 plans with respect to any of the repurchases. Any repurchases of common stock or notes are to be funded from available cash on hand or short-term borrowings. The program does not obligate CONSOL Energy to acquire any particular amount of its common stock or notes, and it can be modified or suspended at any time at the Company's discretion. The program is conducted in compliance with applicable legal requirements and within the limits imposed by any credit agreement, receivables purchase agreement, indenture or the tax matters agreement and is subject to market conditions and other factors.

During the year ended December 31, 2022, the Company spent approximately \$26 million to retire \$25 million of its Second Lien Notes. During the year ended December 31, 2022, the Company repurchased and retired 124,454 shares of common stock at an average price of \$64.18 per share.

Total Equity and Dividends

Total equity attributable to CONSOL Energy was \$1,166 million at December 31, 2022 and \$673 million at December 31, 2021. See the Consolidated Statements of Stockholders' Equity in Item 8 of this Form 10-K for additional details.

The declaration and payment of dividends by CONSOL Energy is subject to the discretion of CONSOL Energy's Board of Directors, and no assurance can be given that CONSOL Energy will pay dividends in the future. The determination to pay dividends in the future will depend upon, among other things, general business conditions, CONSOL Energy's financial results, contractual and legal restrictions regarding the payment of dividends by CONSOL Energy, planned investments by CONSOL Energy and such other factors as the Board of Directors deems relevant. The Company's Senior Secured Credit Facilities and the Indenture to the Second Lien Notes limit CONSOL Energy's ability to pay dividends based on certain covenants. At December 31, 2022, the available capacity from which the Company can pay dividends was approximately \$336 million. The capacity available to pay future dividends will increase as the Company generates earnings and free cash flow, as defined within the Senior Secured Credit Facilities and the Indenture to the Second Lien Notes.

The Company paid the following dividends during the year ended December 31, 2022:

Per Share	Total Paid (000s omitted)	Payment Timing	Shareholder of Record Date
\$1.00	\$34,871	August 24, 2022	August 16, 2022
\$1.05	\$36,615	November 23, 2022	November 14, 2022

Recent Accounting Pronouncements

In March 2022, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2022-02 - Financial Instruments—Credit Losses (Topic 326). The amendments in this update eliminate the accounting guidance for troubled debt restructurings by creditors in Subtopic 310-40, Receivables—Troubled Debt Restructurings by Creditors, while enhancing disclosure requirements for certain loan refinancings and restructurings by creditors when a borrower is experiencing financial difficulty. The amendments in this update require that an entity disclose current-period gross writeoffs by year of origination for financing receivables and net investments in leases within the scope of Subtopic 326-20, Financial Instruments—Credit Losses—Measured at Amortized Cost. The amendments in this update are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Management is currently evaluating the impact of this guidance, but does not expect this update to have a material impact on the Company's financial statements.

In October 2021, the FASB issued ASU 2021-08 - Business Combinations (Topic 805). The amendments in this Update apply to all entities that enter into a business combination within the scope of Subtopic 805-10, Business Combinations—Overall. The amendments in this Update require that an entity (acquirer) recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606. The amendments in this Update do not affect the accounting for other assets or liabilities that may arise from revenue contracts with customers in accordance with Topic 606. The amendments in this Update are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Management is currently evaluating the impact of this guidance, but does not expect this update to have a material impact on the Company's financial statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

In addition to the risks inherent in operations, CONSOL Energy is exposed to financial, market, political and economic risks. The following discussion provides additional detail regarding the Company's exposure to the risks related to changes in commodity prices, interest rates and foreign exchange rates.

Commodity Price Risk

CONSOL Energy is exposed to market price risk in the normal course of selling coal. CONSOL Energy sells coal in the spot market and under both short-term and multi-year contracts that may contain prices subject to pre-established price adjustments that reflect (i) variances in the quality characteristics of coal delivered to the customer beyond threshold quality characteristics specified in the applicable sales contract, (ii) the actual calorific value of coal delivered to the customer, (iii) changes in electric power prices in the markets in which the Company's customers operate, as adjusted for any factors set forth in the applicable contract, and/or (iv) changes in published indices. CONSOL Energy has established risk management policies and procedures to strengthen the internal control environment of the marketing of commodities produced from its asset base.

The Company's primary method of mitigating commodity price volatility is through short-term and multi-year fixed-price contracts. During 2021, the Company initiated a targeted commodity price hedging strategy to mitigate pricing volatility inherent in a portion of the Company's 2022 physical contracts, related to variable pricing and the Company's spot export business, and secure future cash flows for export sales. The commodity market volatility has increased as demonstrated by significant market pricing increases throughout 2022. Loss on Commodity Derivatives, net during the year ended December 31, 2022 was \$237 million. All of our hedging arrangements have been settled.

Interest Rate Risk

CONSOL Energy's interest expense is sensitive to changes in the general level of interest rates in the United States. At December 31, 2022, CONSOL Energy had \$321 million aggregate principal amount of debt outstanding under fixed-rate instruments, including unamortized debt issuance costs of \$3 million, and \$63 million of debt outstanding under variable-rate instruments, including unamortized debt issuance costs of \$1 million. CONSOL Energy's primary exposure to market risk for changes in interest rates relates to the Company's Senior Secured Credit Facilities. From time to time, we enter into hedging arrangements in an effort to limit our exposure to interest rate volatility. These hedging arrangements may reduce, but will not eliminate, the potential effects of changing interest rates on our cash flow from operations for the periods covered by these arrangements. Furthermore, while intended to help reduce the effects of volatile interest rates, such transactions, depending on the hedging instrument used, may limit our potential gains if interest rates were to fall substantially under the price established by the hedge. A hypothetical 100 basis-point increase in the average rate for CONSOL Energy's variable-rate instruments would decrease pre-tax future earnings by less than \$1 million.

Foreign Exchange Rate Risk

All of CONSOL Energy's transactions are denominated in U.S. dollars, and, as a result, any fluctuations in currency exchange rates would have no impact to the Company's current financial transactions. However, because coal is sold internationally in U.S. dollars, general economic conditions in foreign markets and changes in foreign currency exchange rates may provide the Company's international competitors with a competitive advantage. If CONSOL Energy's competitors' currencies decline against the U.S. dollar or against the Company's international customers' local currencies, those competitors may be able to offer lower prices for coal to the Company's customers on an exchanged adjusted basis. Furthermore, if the currencies of CONSOL Energy's overseas customers were to significantly decline in value in comparison to the U.S. dollar, those customers may seek decreased prices for the coal the Company sells to them. Consequently, currency fluctuations could adversely affect the competitiveness of CONSOL Energy's coal in international markets.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

	Page
Report of Independent Registered Public Accounting Firm (PCAOB ID: 42)	69
Consolidated Statements of Income for the Years Ended December 31, 2022, 2021 and 2020	71
Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2022, 2021 and 2020	72
Consolidated Balance Sheets at December 31, 2022 and 2021	73
Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2022, 2021 and 2020	75
Consolidated Statements of Cash Flows for the Years Ended December 31, 2022, 2021 and 2020	76
Notes to the Audited Consolidated Financial Statements	77

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CONSOL Energy Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of CONSOL Energy Inc. and Subsidiaries (the Company) as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated February 10, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of the critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the account or disclosures to which it relates.

Asset Retirement Obligations - Closed Mines

Description of the Matter

CONSOL Energy accrues for the costs of current coal mine disturbance and final coal mine and gas well closure, including the cost of treating mine water discharge where necessary. Estimates of the Company's asset retirement obligations are based upon permit requirements and CONSOL Energy's assessment of these requirements. The total asset retirement obligations, including the current portion, were approximately \$252 million at December 31, 2022. This liability is reviewed annually, or when events and circumstances indicate an adjustment is necessary, by CONSOL Energy management and engineers. The estimated liability can significantly change if actual costs vary from the assumptions used in estimating the obligation or if governmental regulations change significantly. As discussed in Note 1 and Note 8 of the consolidated financial statements, the Company's accounting for asset retirement obligations requires that the fair value of an asset retirement obligation be recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. For active locations, the present value of the estimated asset retirement costs is capitalized as part of the carrying amount of the long-lived asset. For locations that have been fully depleted, or closed, the present value of a change in the estimated value of the obligation is recorded directly to the consolidated statements of income.

Auditing the amounts recorded for closed-mine asset retirement obligations is complex and judgmental due to the estimation that is required to determine the value of the asset retirement obligation associated with closed mines. In particular, the estimation of the value of the asset retirement obligation is dependent upon a number of factors, including the estimated future expenditures, estimated mine life, inflation rates and the assumed credit-adjusted risk-free interest rate.

How We Addressed the Matter in Our Audit

We tested controls that address the risk of material misstatement relating to the measurement of the closed-mine asset retirement obligation. For example, we tested controls over management's review of the estimates of asset retirement obligations for closed mines, management's review over the timing and amount of expected asset retirement costs and management's review over the assumptions discussed above.

To test the closed-mine asset retirement obligation, our audit procedures included, among others, assessing the methodology used, testing the significant assumptions discussed above and testing the underlying data used by the Company in its analyses. We compared the assumptions used in developing the inflation rate and credit-adjusted risk-free rate used by management to historical trends, published reports and publicly available information. We compared the expected amounts and timing of future expenditures to historical data and evaluated the changes in those amounts. For example, we evaluated management's methodology for determining the amount and timing of asset retirement obligation costs which is utilized to measure the asset retirement obligation, to current year activity, published pricing data and historical amounts. In addition, we involved our specialist to assist in our evaluation of management's estimates of the closed mine asset retirement obligation, including review of assumptions, regulatory requirements, reclamation plans, estimated future expenditures, and engineering drawings for consistency with permit requirements. We also tested the completeness and accuracy of the data used in the estimation of the Company's asset retirement obligations related to closed mines.

/s/ Ernst & Young LLP

We have served as the Company's auditor since 2017.
Pittsburgh, Pennsylvania
February 10, 2023

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME
(Dollars in thousands, except per share data)

	For the Years Ended December 31,		
	2022	2021	2020
Revenue and Other Income:			
Coal Revenue	\$ 2,018,662	\$ 1,092,022	\$ 772,662
Terminal Revenue	78,915	65,193	66,810
Freight Revenue	182,441	103,819	39,990
Loss on Commodity Derivatives, net	(237,024)	(52,204)	—
Miscellaneous Other Income (Note 4)	24,354	38,394	126,886
Gain on Sale of Assets	34,589	11,723	15,295
Total Revenue and Other Income	2,101,937	1,258,947	1,021,643
Costs and Expenses:			
Operating and Other Costs	949,222	745,292	668,199
Depreciation, Depletion and Amortization	226,878	224,583	210,760
Freight Expense	182,441	103,819	39,990
General and Administrative Costs	116,696	87,161	72,102
Loss (Gain) on Debt Extinguishment	5,623	(657)	(21,352)
Interest Expense	52,640	63,342	61,186
Total Costs and Expenses	1,533,500	1,223,540	1,030,885
Earnings (Loss) Before Income Tax	568,437	35,407	(9,242)
Income Tax Expense (Note 6)	101,458	1,297	3,972
Net Income (Loss)	466,979	34,110	(13,214)
Less: Net Loss Attributable to Noncontrolling Interest	—	—	(3,459)
Net Income (Loss) Attributable to CONSOL Energy Inc. Stockholders	\$ 466,979	\$ 34,110	\$ (9,755)
Earnings (Loss) per Share:			
Total Basic Earnings (Loss) per Share	\$ 13.41	\$ 0.99	\$ (0.37)
Total Dilutive Earnings (Loss) per Share	\$ 13.07	\$ 0.96	\$ (0.37)
Dividends Declared per Common Share	\$ 2.05	\$ —	\$ —

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
(Dollars in thousands)

	For the Years Ended December 31,		
	2022	2021	2020
Net Income (Loss)	\$ 466,979	\$ 34,110	\$ (13,214)
Other Comprehensive Income (Loss):			
Actuarially Determined Long-Term Liability Adjustments:			
Amortization of Prior Service Credits (net of tax: \$561, \$601, \$619)	(1,844)	(1,804)	(1,786)
Recognized Net Actuarial Loss (net of tax: \$(2,459), \$(5,122), \$(5,596))	8,076	15,374	16,161
Settlement Loss Recognized (net of tax: \$0, \$(6), \$0)	—	16	—
Other Comprehensive Gain (Loss) before Reclassifications (net of tax: \$(30,516), \$(21,979), \$109)	99,164	65,617	(145)
Unrecognized Gain (Loss) on Derivatives:			
Unrealized Gain (Loss) on Cash Flow Hedges (net of tax: \$116, \$596, \$674)	401	1,721	(2,004)
Other Comprehensive Income	105,797	80,924	12,226
Comprehensive Income (Loss)	\$ 572,776	\$ 115,034	\$ (988)
Less: Comprehensive Loss Attributable to Noncontrolling Interest	—	—	(3,400)
Comprehensive Income Attributable to CONSOL Energy Inc. Stockholders	<u>\$ 572,776</u>	<u>\$ 115,034</u>	<u>\$ 2,412</u>

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Dollars in thousands)

	December 31, 2022	December 31, 2021
ASSETS		
Current Assets:		
Cash and Cash Equivalents	\$ 273,070	\$ 149,913
Restricted Cash - Current	40,366	32,605
Accounts and Notes Receivable		
Trade Receivables, net	158,127	104,099
Other Receivables, net	38,517	11,631
Inventories (Note 9)	66,290	62,876
Prepaid Expenses	22,113	25,216
Total Current Assets	598,483	386,340
Property, Plant and Equipment (Note 10):		
Property, Plant and Equipment	5,408,577	5,250,805
Less—Accumulated Depreciation, Depletion and Amortization	3,448,495	3,272,255
Total Property, Plant and Equipment—Net	1,960,082	1,978,550
Other Assets:		
Deferred Income Taxes (Note 6)	—	57,011
Right of Use Asset - Operating Leases (Note 14)	19,799	21,956
Restricted Cash - Non-current	13,516	15,688
Salary Retirement (Note 15)	38,548	38,947
Other Noncurrent Assets, net	73,949	75,025
Total Other Assets	145,812	208,627
TOTAL ASSETS	\$ 2,704,377	\$ 2,573,517

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS
(Dollars in thousands)

	December 31, 2022	December 31, 2021
LIABILITIES AND EQUITY		
Current Liabilities:		
Accounts Payable	\$ 130,232	\$ 76,557
Current Portion of Long-Term Debt (Note 13)	28,846	57,332
Operating Lease Liability, Current Portion (Note 14)	4,922	6,682
Commodity Derivatives (Note 21)	15,142	52,204
Other Accrued Liabilities (Note 12)	269,656	252,457
Total Current Liabilities	448,798	445,232
Long-Term Debt:		
Long-Term Debt (Note 13)	342,110	568,052
Finance Lease Obligations (Note 14)	13,225	26,598
Total Long-Term Debt	355,335	594,650
Deferred Credits and Other Liabilities:		
Postretirement Benefits Other Than Pensions (Note 15)	232,593	329,659
Pneumoconiosis Benefits (Note 16)	148,390	203,473
Asset Retirement Obligations (Note 8)	221,858	210,718
Workers' Compensation (Note 16)	40,951	58,148
Salary Retirement (Note 15)	20,585	26,013
Operating Lease Liability (Note 14)	15,073	15,274
Deferred Income Taxes (Note 6)	21,914	—
Other Noncurrent Liabilities	33,054	17,537
Total Deferred Credits and Other Liabilities	734,418	860,822
TOTAL LIABILITIES	1,538,551	1,900,704
Stockholders' Equity:		
Common Stock, \$0.01 Par Value; 62,500,000 Shares Authorized, 34,746,904 Shares Issued and Outstanding at December 31, 2022; 34,480,181 Shares Issued and Outstanding at December 31, 2021	347	345
Capital in Excess of Par Value	646,237	646,945
Retained Earnings	668,882	280,960
Accumulated Other Comprehensive Loss	(149,640)	(255,437)
TOTAL EQUITY	1,165,826	672,813
TOTAL LIABILITIES AND EQUITY	\$ 2,704,377	\$ 2,573,517

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(Dollars in thousands)

	Common Stock	Capital in Excess of Par Value	Retained Earnings	Accumulated Other Comprehensive (Loss) Income	Total CONSOL Energy Inc. Stockholders' Equity	Non- Controlling Interest	Total Equity
December 31, 2019	\$ 259	\$ 523,762	\$ 259,903	\$ (348,725)	\$ 435,199	\$ 137,196	\$ 572,395
Net Loss	—	—	(9,755)	—	(9,755)	(3,459)	(13,214)
Actuarially Determined Long-Term Liability Adjustments (Net of \$(4,868) Tax)	—	—	—	14,171	14,171	59	14,230
Interest Rate Hedge (Net of \$(674) Tax)	—	—	—	(2,004)	(2,004)	—	(2,004)
Comprehensive (Loss) Income	—	—	(9,755)	12,167	2,412	(3,400)	(988)
Adoption of ASU 2016-13 (Net of \$(1,109) Tax)	—	—	(3,298)	—	(3,298)	—	(3,298)
Issuance of Common Stock	2	(2)	—	—	—	—	—
Amortization of Stock-Based Compensation Awards	—	11,161	—	—	11,161	418	11,579
Shares/Units Withheld for Taxes	—	(646)	—	—	(646)	(217)	(863)
Distributions to Noncontrolling Interest	—	—	—	—	—	(5,575)	(5,575)
CCR Merger	79	108,612	—	—	108,691	(128,422)	(19,731)
December 31, 2020	\$ 340	\$ 642,887	\$ 246,850	\$ (336,558)	\$ 553,519	\$ —	\$ 553,519
Net Income	—	—	34,110	—	34,110	—	34,110
Actuarially Determined Long-Term Liability Adjustments (Net of \$(26,506) Tax)	—	—	—	79,203	79,203	—	79,203
Interest Rate Hedge (Net of \$(596) Tax)	—	—	—	1,721	1,721	—	1,721
Comprehensive Income	—	—	34,110	80,924	115,034	—	115,034
Issuance of Common Stock	5	(5)	—	—	—	—	—
Amortization of Stock-Based Compensation Awards	—	6,632	—	—	6,632	—	6,632
Shares Withheld for Taxes	—	(2,303)	—	—	(2,303)	—	(2,303)
CCR Merger	—	(266)	—	197	(69)	—	(69)
December 31, 2021	\$ 345	\$ 646,945	\$ 280,960	\$ (255,437)	\$ 672,813	\$ —	\$ 672,813
Net Income	—	—	466,979	—	466,979	—	466,979
Actuarially Determined Long-Term Liability Adjustments (Net of \$(32,414) Tax)	—	—	—	105,396	105,396	—	105,396
Interest Rate Hedge (Net of \$(116) Tax)	—	—	—	401	401	—	401
Comprehensive Income	—	—	466,979	105,797	572,776	—	572,776
Issuance of Common Stock	4	(4)	—	—	—	—	—
Repurchases of Common Stock (124,454 Shares)	(2)	(2,333)	(5,653)	—	(7,988)	—	(7,988)
Amortization of Stock-Based Compensation Awards	—	7,890	—	—	7,890	—	7,890
Shares Withheld for Taxes	—	(6,261)	—	—	(6,261)	—	(6,261)
Dividends on Common Shares (\$2.05/share)	—	—	(71,486)	—	(71,486)	—	(71,486)
Dividend Equivalents Earned on Stock-Based Compensation Awards	—	—	(1,918)	—	(1,918)	—	(1,918)
December 31, 2022	\$ 347	\$ 646,237	\$ 668,882	\$ (149,640)	\$ 1,165,826	\$ —	\$ 1,165,826

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF CASH FLOWS
(Dollars in thousands)

	For the Years Ended December 31,		
	2022	2021	2020
Cash Flows from Operating Activities:			
Net Income (Loss)	\$ 466,979	\$ 34,110	\$ (13,214)
Adjustments to Reconcile Net Income (Loss) to Net Cash Provided by Operating Activities:			
Depreciation, Depletion and Amortization	226,878	224,583	210,760
Stock/Unit-Based Compensation	7,890	6,632	11,579
Gain on Sale of Assets	(34,589)	(11,723)	(15,295)
Amortization of Debt Issuance Costs	8,314	8,552	7,447
Loss (Gain) on Debt Extinguishment	5,623	(657)	(21,352)
Deferred Income Taxes	49,387	(14,760)	11,685
Other Adjustments to Net Income	3,880	644	1,251
Changes in Operating Assets:			
Trade and Other Receivables	(52,577)	44,707	11,130
Inventories	(3,020)	(6,676)	(2,069)
Prepaid Expenses and Other Assets	2,883	229	7,574
Changes in Other Assets	(26,063)	(13,797)	(21,058)
Changes in Operating Liabilities:			
Accounts Payable	39,235	11,473	(30,759)
Commodity Derivatives, net Liability	(37,062)	52,204	—
Other Operating Liabilities	14,453	27,461	(2,915)
Changes in Other Liabilities	(21,221)	(57,413)	(25,433)
Net Cash Provided by Operating Activities	650,990	305,569	129,331
Cash Flows from Investing Activities:			
Capital Expenditures	(171,506)	(132,752)	(86,004)
Proceeds from Sales of Assets	21,538	13,572	9,899
Other Investing Activity	7,790	(8,181)	(229)
Net Cash Used in Investing Activities	(142,178)	(127,361)	(76,334)
Cash Flows from Financing Activities:			
Proceeds from Finance Lease Obligations	—	—	19,314
Payments on Finance Lease Obligations	(24,511)	(27,447)	(28,295)
Payments on Term Loan A	(41,250)	(25,000)	(22,500)
Payments on Term Loan B	(175,687)	(30,911)	(2,750)
Payments on Second Lien Notes	(52,074)	(17,092)	(32,064)
Proceeds from Long-Term Debt	—	75,000	—
Payments on Other Debt	(840)	(731)	(705)
Distributions to Noncontrolling Interest	—	—	(5,575)
Shares/Units Withheld for Taxes	(6,261)	(2,303)	(863)
Debt Issuance and Financing Fees	(7,957)	(2,368)	(9,002)
Dividends	(71,486)	—	—
Net Cash Used in Financing Activities	(380,066)	(30,852)	(82,440)
Net Increase (Decrease) in Cash and Cash Equivalents and Restricted Cash	128,746	147,356	(29,443)

Cash and Cash Equivalents and Restricted Cash at Beginning of Period	198,206	50,850	80,293
Cash and Cash Equivalents and Restricted Cash at End of Period	<u>\$ 326,952</u>	<u>\$ 198,206</u>	<u>\$ 50,850</u>
Cash and Cash Equivalents	\$ 273,070	\$ 149,913	\$ 50,850
Restricted Cash - Current	40,366	32,605	—
Restricted Cash - Non-current	13,516	15,688	—
Cash and Cash Equivalents and Restricted Cash at End of Period	<u>\$ 326,952</u>	<u>\$ 198,206</u>	<u>\$ 50,850</u>

The accompanying notes are an integral part of these financial statements.

CONSOL ENERGY INC. AND SUBSIDIARIES
NOTES TO AUDITED CONSOLIDATED FINANCIAL STATEMENTS
(Dollars in thousands, except per share data)

NOTE 1—SIGNIFICANT ACCOUNTING POLICIES:

A summary of the significant accounting policies of CONSOL Energy Inc. and its subsidiaries (“we,” “our,” “us,” “our Company,” “the Company” and “CONSOL Energy”) is presented below. These, together with the other notes that follow, are an integral part of the Consolidated Financial Statements.

Basis of Consolidation

The Consolidated Financial Statements include the accounts of CONSOL Energy Inc. and its wholly-owned and majority-owned and/or controlled subsidiaries. The portion of these entities that is not owned by the Company is presented as non-controlling interest. All significant intercompany transactions and accounts have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, as well as various disclosures. Actual results could differ from those estimates. The most significant estimates included in the preparation of the consolidated financial statements are related to asset retirement obligations, income taxes and impairment of long-lived assets. However, the consolidated financial statements contain additional estimates, including, but not limited to, other postretirement benefits, coal workers' pneumoconiosis, workers' compensation, salary retirement benefits, stock-based compensation, contingencies and the values of coal properties.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand and on deposit at banking institutions as well as all highly liquid short-term securities with original maturities of three months or less.

Restricted Cash

Restricted cash includes the unused proceeds of tax-exempt bonds issued by the Pennsylvania Economic Development Financing Authority (“PEDFA”). Restricted cash also represents cash collateral supporting the Company's surety bond portfolio and letters of credit issued under the Company's accounts receivable securitization program. As of December 31, 2022, the Company had \$53,882 in restricted cash. As of December 31, 2021, the Company had \$48,293 in restricted cash.

Trade Receivables and Allowance for Credit Losses

Trade receivables are recorded at the invoiced amount and do not bear interest. Trade credit is extended based upon evaluations of each customer's ability to perform its obligations, which is assessed regularly. See Note 7 - Credit Losses for additional information regarding the Company's measurement of expected credit losses. There were no material financing receivables with a contractual maturity greater than one year at December 31, 2022 and 2021.

Inventories

Inventories are stated at the lower of cost or net realizable value. The cost of coal inventories is determined by the first-in, first-out (FIFO) method. Coal inventory costs include labor, supplies, equipment costs, operating overhead, depreciation, depletion, amortization, and other related costs. The cost of supplies inventory is determined by the average cost method and includes operating and maintenance supplies to be used in the Company's coal operations.

Property, Plant and Equipment

Property, plant and equipment is recorded at cost upon acquisition. Expenditures which extend the useful lives of existing plant and equipment are capitalized. Interest costs applicable to major asset additions are capitalized during the construction period. Costs of additional mine facilities required to maintain production after a mine reaches the production stage, generally referred to as “receding face costs,” are expensed as incurred; however, the costs of additional airshafts and new portals are capitalized. Planned major maintenance costs which do not extend the useful lives of existing plant and equipment are expensed as incurred.

Coal exploration costs are expensed as incurred. Coal exploration costs include those incurred to ascertain existence, location, extent or quality of ore or minerals before beginning the development stage of the mine. Costs of developing new underground mines and certain underground expansion projects are capitalized. Underground development costs, which are costs incurred to make the mineral physically accessible, include costs to prepare property for shafts, driving main entries for ventilation, haulage, personnel, construction of airshafts, roof protection and other facilities.

Airshafts and capitalized mine development associated with a coal reserve are amortized on a units-of-production basis as the coal is produced so that each ton of coal is assigned a portion of the unamortized costs. The Company employs this method to match costs with the related revenues realized in a particular period. Rates are updated when revisions to coal reserve estimates are made. Coal reserve estimates are reviewed when information becomes available that indicates a reserve change is needed, or at a minimum once a year. Any material effect from changes in estimates is disclosed in the period the change occurs. Amortization of development costs begins when the development phase is complete and the production phase begins. At an underground mine, the end of the development phase and the beginning of the production phase takes place when construction of the mine for economic extraction is substantially complete. Coal extracted during the development phase is incidental to the mine's production capacity and is not considered to shift the mine into the production phase.

Coal reserves are either owned in fee or controlled by lease. The duration of the leases vary; however, the lease terms are generally extended automatically to the exhaustion of economically recoverable reserves, as long as active mining continues. Coal interests held by lease provide the same rights as fee ownership for mineral extraction and are legally considered real property interests. Depletion of leased coal interests is computed using the units-of-production method over recoverable coal reserves. The Company also makes advance payments (advanced mining royalties) to lessors under certain lease agreements that are recoupable against future production, and it makes payments that are generally based upon a specified rate per ton or a percentage of gross realization from the sale of the coal. The Company evaluates its properties, including advance mining royalties and leased coal interests, for impairment indicators whenever events or circumstances indicate that the carrying amount may not be recoverable. Any revisions are accounted for prospectively as changes in accounting estimates.

Costs to obtain coal lands are capitalized based on the cost at acquisition and are amortized using the units-of-production method over all estimated recoverable reserve tons assigned and accessible to the mine. Recoverable coal reserves are estimated on a clean coal ton equivalent, which excludes nonrecoverable coal reserves and anticipated central preparation plant processing refuse. Rates are updated when revisions to coal reserve estimates are made. Coal reserve estimates are reviewed when events and circumstances indicate a reserve change is needed, or at a minimum once a year. Amortization of coal interests begins when the coal reserve is produced. At an underground mine, a ton is considered produced once it reaches the surface area of the mine. Any material effect from changes in estimates is disclosed in the period the change occurs.

When properties are retired or otherwise disposed, the related cost and accumulated depreciation are removed from the respective accounts and any profit or loss on disposition is recognized in Gain on Sale of Assets in the Consolidated Statements of Income.

Depreciation of plant and equipment is calculated using the straight-line method over the estimated useful lives or lease terms, generally as follows:

	Years
Buildings and improvements	10 to 45
Machinery and equipment	3 to 25
Leasehold improvements	Life of Lease

Capitalization of Interest

Interest costs associated with the development of significant properties and projects are capitalized until the project is substantially complete and ready for its intended use. A weighted average cost of borrowing rate is used. For the years ended December 31, 2022, 2021 and 2020, capitalized interest totaled \$5,425, \$2,425 and \$1,911, respectively.

Impairment of Long-lived Assets

Impairment of long-lived assets or asset groups is recorded when indicators of impairment are present and the undiscounted cash flows estimated to be generated by those assets are less than the assets' or asset groups' carrying value. The carrying value of the assets is then reduced to its estimated fair value which is usually measured based on an estimate of future discounted cash flows. There were no indicators of impairment and, therefore, no impairment losses were recorded during the years ended December 31, 2022, 2021 and 2020.

Income Taxes

The Company files a consolidated federal income tax return and utilizes the asset and liability method to account for income taxes. The provision for income taxes represents amounts paid or estimated to be payable, net of amounts refunded or estimated to be refunded, for the current year and the change in deferred taxes, exclusive of amounts recorded in Other Comprehensive Income (Loss). Any refinements to prior years' taxes made due to subsequent information are reflected as adjustments in the current period.

Deferred income tax assets and liabilities are determined based on temporary differences between the financial reporting and tax bases of assets and liabilities and are recognized using enacted tax rates for the effect of such temporary differences. Deferred tax assets are reduced by a valuation allowance if it is more likely than not that some portion or all of the deferred tax asset will not be realized.

In accounting for uncertainty in income taxes of a tax position taken or expected to be taken in a tax return, the Company utilizes a recognition threshold and measurement attribute for the financial statement recognition and measurement. The recognition threshold requires the Company to determine whether it is more likely than not that a tax position will be sustained upon examination, including resolution of any related appeals or litigation processes, based on the technical merits of the position in order to record any financial statement benefit. If it is more likely than not that a tax position will be sustained, then the Company must measure the tax position to determine the amount of benefit to recognize in the financial statements. The tax position is measured at the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement.

Postretirement Benefits Other Than Pensions

Postretirement benefit obligations established by the Coal Industry Retiree Health Benefit Act of 1992 (the Coal Act) are treated as a multi-employer plan which requires expense to be recorded for the associated obligations as payments are made. Postretirement benefits other than pensions, except for those established pursuant to the Coal Act, are accounted for in accordance with the Retirement Benefits Compensation and Non-retirement Postemployment Benefits Compensation Topics of the Financial Accounting Standards Board ("FASB") Accounting Standards Codification, which requires employers to accrue the cost of such retirement benefits for the employees' active service periods. Such liabilities are determined on an actuarial basis and CONSOL Energy administers these liabilities through a combination of self-insured and fully insured agreements. Differences between actual and expected results or changes in the value of obligations are recognized through Other Comprehensive Income (Loss).

Pneumoconiosis Benefits and Workers' Compensation

CONSOL Energy is required by federal and state statutes to provide benefits to certain current and former totally disabled employees or their dependents for awards related to coal workers' pneumoconiosis. CONSOL Energy is also required by various state statutes to provide workers' compensation benefits for employees who sustain employment-related physical injuries or some types of occupational disease. Workers' compensation benefits include compensation for disability, medical costs, and on some occasions, the cost of rehabilitation. CONSOL Energy is primarily self-insured for these benefits. Provisions for estimated benefits are determined on an actuarial basis.

Asset Retirement Obligations

Mine closing costs and costs associated with dismantling and removing de-gasification facilities are accrued using the accounting treatment prescribed by the Asset Retirement and Environmental Obligations Topic of the FASB Accounting Standards Codification. This topic requires the fair value of an asset retirement obligation be recognized in the period in which it is incurred if a reasonable estimate of fair value can be made. For active locations, the present value of the estimated asset retirement obligation is capitalized as part of the carrying amount of the long-lived asset. For locations that have been fully depleted or closed, the present value of the change is recorded directly to the consolidated statements of income. Generally, the capitalized asset retirement obligation is depreciated on a units-of-production basis. Accretion of the asset retirement obligation is recognized over time and until the reclamation obligations are satisfied. Accretion is included in Depreciation, Depletion and Amortization on the Consolidated Statements of Income. Asset

retirement obligations primarily relate to the closure of mines, which includes treatment of water and the reclamation of land upon exhaustion of coal reserves. Accrued mine closing costs, perpetual water treatment costs, reclamation and costs associated with dismantling and removing de-gasification facilities are regularly reviewed by management and are revised for changes in future estimated costs and regulatory requirements.

Subsidence

Subsidence occurs when there is sinking or shifting of the ground surface due to the removal of underlying coal. Areas affected may include, although are not limited to, streams, property, roads, pipelines and other land and surface structures. Total estimated subsidence claims are recognized in the period when the related coal has been extracted and are included in Operating and Other Costs on the Consolidated Statements of Income and Other Accrued Liabilities on the Consolidated Balance Sheets. On occasion, CONSOL Energy prepays the estimated damages prior to undermining the property, in return for a release of liability. Prepayments are included as assets and are either recognized as Prepaid Expenses or in Other Assets on the Consolidated Balance Sheets if the payment is made less than or greater than one year, respectively, prior to undermining the property.

Retirement Plans

CONSOL Energy has non-contributory defined benefit retirement plans. Effective December 31, 2015, CONSOL's qualified defined benefit retirement plan was frozen. The benefits for these plans are based primarily on years of service and employees' pay. These plans are accounted for using the guidance outlined in the Compensation - Retirement Benefits Topic of the FASB Accounting Standards Codification. The costs of these retiree benefits are recognized over the employees' service periods. CONSOL Energy uses actuarial methods and assumptions in the valuation of defined benefit obligations and the determination of expense. Differences between actual and expected results or changes in the value of obligations and plan assets are recognized through Other Comprehensive Income (Loss).

Stock-Based Compensation

Eligible CONSOL Energy employees have historically participated in equity-based compensation plans. CONSOL Energy recognizes compensation expense for all stock-based compensation awards based on the grant date fair value estimated in accordance with the provisions of the Stock Compensation Topic of the FASB Accounting Standards Codification. CONSOL Energy recognizes these compensation costs on a straight-line basis over the requisite service period of the award, which is generally the award's vesting term. See Note 18 - Stock-Based Compensation for additional information.

Revenue Recognition

Revenues are recognized when the performance obligation has been satisfied, and the corresponding transaction price has been determined. Generally, title passes when coal is loaded at the coal preparation facility, at terminal locations or other customer destinations. The Company's coal contract revenue per ton is fixed and determinable based upon either fixed forward pricing or pricing derived from established indices and adjusted for nominal quality characteristics. Some coal contracts also contain positive electric power price-related adjustments, which represent market-driven price adjustments, wherein no additional value is exchanged, in addition to a fixed base price per ton. The Company's coal contracts generally do not allow for retroactive adjustments to pricing after title to the coal has passed and typically do not have significant financing components. See Note 3 - Revenue from Contracts with Customers for additional information.

Freight Revenue and Expense

Shipping and handling costs invoiced to coal customers and paid to third-party carriers are recorded as Freight Revenue and Freight Expense, respectively.

Contingencies

From time to time, CONSOL Energy, or its subsidiaries, may be subject to various lawsuits and claims with respect to such matters as personal injury, wrongful death, damage to property, exposure to hazardous substances, governmental regulations (including environmental remediation), employment and contract disputes, and other claims and actions arising out of the normal course of business. Liabilities are recorded when it is probable that obligations have been incurred and the amounts can be reasonably estimated. Estimates are developed through consultation with legal counsel involved in the defense of these matters and are based upon the nature of the lawsuit, progress of the case in court, view of legal counsel, prior experience in similar matters and management's intended response. Environmental liabilities are not discounted or reduced by possible recoveries from third-parties. Legal fees associated with defending these various lawsuits and claims are expensed when incurred.

Derivative Instruments

The Company utilizes derivative instruments to manage exposures to interest rate risk on long-term debt. The Company enters into interest rate swaps in order to achieve a mix of fixed and variable rate debt that it deems appropriate. These interest rate swaps have been designated as cash flow hedges of future variable interest payments and are accounted for as an asset or a liability in the accompanying Consolidated Balance Sheets at their fair value. The Company may, from time to time, also utilize derivative instruments to manage exposure to the risk of fluctuating coal prices related to forecasted or index-priced sales of coal or to the risk of changes in the fair value of a fixed price physical sales contract. The Company may sell or purchase forward contracts, swaps and options in the over-the-counter coal market in order to manage its exposure to coal prices. The Company does not seek cash flow hedge accounting treatment for its coal-related derivative financial instruments and therefore, changes in fair value are reflected in current earnings (see Note 21 - Derivatives and Note 22 - Fair Value of Financial Instruments for additional information).

In a cash flow hedge, the Company hedges the risk of changes in future cash flows related to the underlying item being hedged. Changes in the fair value of the derivative instrument used as a hedge instrument in a cash flow hedge are recorded in other comprehensive income or loss. Amounts in other comprehensive income or loss are reclassified to earnings when the hedged transaction affects earnings and are classified in a manner consistent with the transaction being hedged. The Company evaluates the effectiveness of its hedging relationships both at the hedge's inception and on an ongoing basis. Any ineffective portion of the change in fair value of a derivative instrument used as a hedge instrument in a cash flow hedge is recognized immediately in earnings.

Earnings per Share

Basic earnings per share are computed by dividing net income (loss) attributable to CONSOL Energy Inc. stockholders by the weighted average number of shares outstanding during the reporting period. Dilutive earnings per share are computed similarly to basic earnings per share, except that the weighted average number of shares outstanding is increased to include additional shares from restricted stock units and performance share units, if dilutive. The number of additional shares is calculated by assuming that outstanding restricted stock units and performance share units were released, and that the proceeds from such activities, as applicable, were used to acquire shares of common stock at the average market price during the reporting period.

The table below sets forth the share-based awards that have been excluded from the computation of diluted earnings per share because their effect would be anti-dilutive:

	For the Years Ended December 31,		
	2022	2021	2020
Anti-Dilutive Restricted Stock Units	942	45,653	1,400,950
Anti-Dilutive Performance Share Units	—	—	110,470
	<u>942</u>	<u>45,653</u>	<u>1,511,420</u>

The computations for basic and dilutive earnings (loss) per share are as follows:

Dollars in thousands, except per share data	For the Years Ended December 31,		
	2022	2021	2020
Numerator:			
Net Income (Loss)	\$ 466,979	\$ 34,110	\$ (13,214)
Less: Net Loss Attributable to Noncontrolling Interest	—	—	(3,459)
Net Income (Loss) Attributable to CONSOL Energy Inc. Stockholders	\$ 466,979	\$ 34,110	\$ (9,755)
Denominator:			
Weighted-average shares of common stock outstanding	34,811,906	34,404,360	26,066,971
Effect of dilutive shares *	906,349	984,198	—
Weighted-average diluted shares of common stock outstanding	35,718,255	35,388,558	26,066,971
Earnings (Loss) per Share:			
Basic	\$ 13.41	\$ 0.99	\$ (0.37)
Dilutive	\$ 13.07	\$ 0.96	\$ (0.37)

* During periods in which the Company incurs a net loss, diluted weighted average shares outstanding are equal to basic weighted average shares outstanding because the effect of all equity awards is anti-dilutive.

As of December 31, 2022, CONSOL Energy has 500,000 shares of preferred stock authorized, none of which are issued or outstanding.

Shares of common stock outstanding were as follows:

	2022	2021	2020
Balance, Beginning of Year	34,480,181	34,031,374	25,932,618
Issuance Related to CCR Merger ⁽¹⁾	—	—	7,967,690
Retirement Related to Stock Repurchase ⁽²⁾	(124,454)	—	—
Issuance Related to Stock-Based Compensation ⁽³⁾	391,177	448,807	131,066
Balance, End of Year	34,746,904	34,480,181	34,031,374

(1) See Note 2 - Major Transactions for additional information.

(2) See Note 5 - Stock and Debt Repurchases for additional information.

(3) See Note 18 - Stock-Based Compensation for additional information.

Recent Accounting Pronouncements

In March 2022, the FASB issued Accounting Standards Update (“ASU”) 2022-02 - Financial Instruments—Credit Losses (Topic 326). The amendments in this update eliminate the accounting guidance for troubled debt restructurings by creditors in Subtopic 310-40, Receivables—Troubled Debt Restructurings by Creditors, while enhancing disclosure requirements for certain loan refinancings and restructurings by creditors when a borrower is experiencing financial difficulty. The amendments in this update require that an entity disclose current-period gross writeoffs by year of origination for financing receivables and net investments in leases within the scope of Subtopic 326-20, Financial Instruments—Credit Losses—Measured at Amortized Cost. The amendments in this update are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Management is currently evaluating the impact of this guidance, but does not expect this update to have a material impact on the Company’s financial statements.

In October 2021, the FASB issued ASU 2021-08 - Business Combinations (Topic 805). The amendments in this update apply to all entities that enter into a business combination within the scope of Subtopic 805-10, Business Combinations—Overall. The amendments in this update require that an entity (acquirer) recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606. The amendments in this update do not affect the accounting for other assets or liabilities that may arise from revenue contracts with customers in accordance with Topic 606. The amendments in this update are effective for fiscal years beginning after December 15, 2022, including interim periods within those fiscal years. Management is currently evaluating the impact of this guidance, but does not expect this update to have a material impact on the Company's financial statements.

Reclassifications

Certain amounts in prior periods have been reclassified to conform with the report classifications of the current period, including (1) the reclassification of the current portion of the Company's commodity derivatives liability, previously included in Other Accrued Liabilities on the Consolidated Balance Sheets; (2) the reclassification of accrued income taxes to Other Accrued Liabilities, previously included in Accounts Payable on the Consolidated Balance Sheets; and (3) the reclassification of certain expenses to Operating and Other Costs, previously included in General and Administrative Costs on the Consolidated Statements of Income. These reclassifications had no effect on previously reported total assets, stockholders' equity, net income or cash flows from operating activities.

NOTE 2—MAJOR TRANSACTIONS:

Merger with PA Mining Complex LP

On October 22, 2020, CONSOL Energy, the Partnership, the General Partner, a wholly-owned subsidiary of CONSOL Energy, and Merger Sub entered into a definitive merger agreement pursuant to which Merger Sub merged with and into the Partnership, with the Partnership surviving as an indirect, wholly-owned subsidiary of CONSOL Energy. On December 30, 2020, the CCR Merger was completed and CONSOL Energy issued 7,967,690 shares of common stock to acquire the 10,912,138 common units of the Partnership not owned by CONSOL Energy prior to the CCR Merger at a fixed exchange ratio of 0.73 shares of CONSOL Energy common stock for each Partnership unit, for total implied consideration of \$51,710. As a result of the CCR Merger, the Partnership's common units are no longer publicly traded.

Except for the Partnership's incentive distribution rights, which were automatically canceled immediately prior to the effective time of the CCR Merger for no consideration in accordance with the Partnership's partnership agreement, the interests in the Partnership owned by CONSOL Energy and its subsidiaries remain outstanding as limited partner interests in the surviving entity. The General Partner continues to own the non-economic general partner interest in the surviving entity.

Since CONSOL Energy controlled the Partnership prior to the CCR Merger and continues to control the Partnership after the CCR Merger, CONSOL Energy accounted for the change in its ownership interest in the Partnership as an equity transaction, which was reflected as a reduction of noncontrolling interest with corresponding increases to common stock and capital in excess of par value. No gain or loss was recognized in CONSOL Energy's Consolidated Statements of Income as a result of the CCR Merger. The tax effects of the CCR Merger were reported as adjustments to deferred income taxes and capital in excess of par value.

Prior to the effective date of the CCR Merger, public unitholders held a 39.3% equity interest in the Partnership's outstanding common units and CONSOL Energy owned the remaining 60.7% equity interest in the Partnership's outstanding common units. The earnings of the Partnership that were attributed to its common units held by the public prior to the CCR Merger are reflected in Net Loss Attributable to Noncontrolling Interest in the Consolidated Statements of Income.

The Company incurred \$9,822 of transaction costs directly attributable to the CCR Merger during the year ended December 31, 2020, including financial advisory, legal service and other professional fees, which were recorded to General and Administrative Costs in the Consolidated Statements of Income.

Settlement Transaction with Murray Energy

On September 16, 2020, CONSOL entered into a settlement transaction with (i) Murray Energy Holdings Co., Murray Energy Corporation, and their direct and indirect subsidiaries (such entities that are debtors in possession in Murray Energy Holdings Co.'s jointly administered Chapter 11 bankruptcy cases) and (ii) ACNR Holdings, Inc. to fully and finally resolve the disputes raised in the litigation captioned *CONSOL Energy Inc. v Murray Energy Holdings Co., et al., Adversary Case 2:20-ap-02036*, arising out of Murray Energy Holdings Co.'s bankruptcy proceedings and any and all

other disputes, controversies, or causes of action between and among them. The underlying agreements and compromises, which have been memorialized in definitive documentation, were treated as a single, integrated transaction. As of December 31, 2022, this single, integrated transaction resulted in \$4,867 of Other Receivables, net, and \$17,278 of Other Assets, net, included in the Consolidated Balance Sheets. As of December 31, 2021, this single, integrated transaction resulted in \$4,867 of Other Receivables, net, and \$19,790 of Other Assets, net, included in the Consolidated Balance Sheets. See Note 23 - Commitments and Contingent Liabilities with respect to additional information relating to certain liabilities of the Company under the Coal Act (as defined below).

NOTE 3—REVENUE FROM CONTRACTS WITH CUSTOMERS:

The following tables disaggregate CONSOL Energy's revenue from contracts with customers to depict how the nature, amount, timing and uncertainty of the Company's revenues and cash flows are affected by economic factors:

	For the Year Ended December 31, 2022		
	Domestic	Export	Total
Power Generation	\$ 908,666	\$ 393,647	\$ 1,302,313
Industrial	19,231	391,872	411,103
Metallurgical	16,637	288,609	305,246
Total Coal Revenue	944,534	1,074,128	2,018,662
Terminal Revenue			78,915
Freight Revenue			182,441
Total Revenue from Contracts with Customers			\$ 2,280,018

	For the Year Ended December 31, 2021		
	Domestic	Export	Total
Power Generation	\$ 571,622	\$ 118,361	\$ 689,983
Industrial	12,377	296,003	308,380
Metallurgical	6,942	86,717	93,659
Total Coal Revenue	590,941	501,081	1,092,022
Terminal Revenue			65,193
Freight Revenue			103,819
Total Revenue from Contracts with Customers			\$ 1,261,034

	For the Year Ended December 31, 2020		
	Domestic	Export	Total
Power Generation	\$ 486,215	\$ 143,353	\$ 629,568
Industrial	18,150	67,418	85,568
Metallurgical	2,189	55,337	57,526
Total Coal Revenue	506,554	266,108	772,662
Terminal Revenue			66,810
Freight Revenue			39,990
Total Revenue from Contracts with Customers			\$ 879,462

Coal Revenue

The Company has disaggregated its coal revenue, derived from the PAMC and Itmann Mining Complex, between domestic and export revenues, as well as industrial, power generation and metallurgical markets. Domestic coal revenue tends to be derived from contracts that typically have a term of one year or longer, and the pricing is typically fixed. Historically, export coal revenue tended to be derived from spot or shorter-term contracts with pricing determined closer to the time of shipment or based on a market index; however, the Company has recently begun to secure several long-term export contracts with varying pricing arrangements. Coal revenue derived from the Itmann Mining Complex consists

primarily of metallurgical coal sales, while coal revenue derived from the PAMC services all markets due to the nature of its coal quality characteristics.

CONSOL Energy's coal revenue is recognized when the performance obligation has been satisfied, and the corresponding transaction price has been determined. Generally, title passes when coal is loaded at the coal preparation facilities, at terminal locations or other customer destinations. The Company's coal contract revenue per ton is fixed and determinable based upon either fixed forward pricing or pricing derived from established indices and adjusted for nominal quality characteristics. Some coal contracts also contain positive electric power price-related adjustments, which represent market-driven price adjustments, wherein no additional value is exchanged, in addition to a fixed base price per ton. The Company's coal contracts generally do not allow for retroactive adjustments to pricing after title to the coal has passed and typically do not have significant financing components.

The estimated transaction price from each of the Company's contracts is based on the total amount of consideration to which the Company expects to be entitled under the contract. Included in the transaction price for certain coal supply contracts is the impact of variable consideration, including quality price adjustments, handling services and per ton price fluctuations based on certain coal sales price indices. The estimated transaction price for each contract is allocated to the Company's performance obligations based on relative stand-alone selling prices determined at contract inception. The Company has determined that each ton of coal represents a separate and distinct performance obligation. Some of the Company's contracts span multiple years and have annual pricing modifications, based upon market-driven or inflationary adjustments, where no additional value is exchanged.

While CONSOL Energy does, from time to time, experience costs of obtaining coal customer contracts with amortization periods greater than one year, those costs are generally immaterial to the Company's net income (loss). At December 31, 2022 and 2021, the Company did not have any capitalized costs to obtain customer contracts on its Consolidated Balance Sheets. For the years ended December 31, 2022, 2021 and 2020, the Company has not recognized any amortization of previously existing capitalized costs of obtaining customer contracts. Further, the Company has not recognized any coal revenue in the current period that is not a result of current period performance.

Terminal Revenue

Terminal revenues are attributable to the Company's CONSOL Marine Terminal and include revenues earned from providing receipt and unloading of coal from rail cars, transporting coal from the receipt point to temporary storage or stockpile facilities located at the Terminal, stockpiling, blending, weighing, sampling, redelivery, and loading of coal onto vessels. Revenues for these services are earned on a rateable basis, and performance obligations are considered fulfilled as the services are performed.

The CONSOL Marine Terminal does not normally experience material costs of obtaining customer contracts with amortization periods greater than one year. At December 31, 2022 and 2021, the Company did not have any capitalized costs to obtain customer contracts on its Consolidated Balance Sheets. For the years ended December 31, 2022, 2021 and 2020, the Company has not recognized any amortization of previously existing capitalized costs of obtaining Terminal customer contracts. Further, the Company has not recognized any revenue in the current period that is not a result of current period performance.

Freight Revenue

Some of CONSOL Energy's coal contracts require that the Company sell its coal at locations other than its coal preparation plants. The cost to transport the Company's coal to the ultimate sales point is passed through to the Company's customers and CONSOL Energy recognizes the freight revenue equal to the transportation costs when title of the coal passes to the customer.

Contract Balances

Contract assets, when present, are recorded separately from trade receivables in the Company's Consolidated Balance Sheets and are reclassified to trade receivables as title passes to the customer and the Company's right to consideration becomes unconditional. Credit is extended based on an evaluation of a customer's financial condition and a customer's ability to perform its obligations. CONSOL Energy typically does not have material contract assets that are stated separately from trade receivables since the Company's performance obligations are satisfied as control of the goods or services passes to the customer, thereby granting the Company an unconditional right to receive consideration. Contract liabilities relate to consideration received in advance of the satisfaction of the Company's performance obligations. Contract liabilities are recognized as revenue at the point in time when control of the goods passes to the customer, or over time when services are provided.

NOTE 4—MISCELLANEOUS OTHER INCOME:

	For the Years Ended December 31,		
	2022	2021	2020
Royalty Income - Non-Operated Coal	\$ 10,258	\$ 8,661	\$ 12,032
Interest Income	6,031	3,287	1,230
Rental Income	2,239	1,095	1,314
Sale of Certain Mining Rights	—	21,756	39,437
Contract Buyout	—	—	44,703
Sale of Certain Coal Lease Contracts	—	—	17,847
Other	5,826	3,595	10,323
Miscellaneous Other Income	<u>\$ 24,354</u>	<u>\$ 38,394</u>	<u>\$ 126,886</u>

Royalty income represents earned revenue related to overriding royalty agreements or coal reserve leases between the Company and third-party operators.

The sale of certain mining rights involved transactions in connection with future coal reserves completed in the years ended December 31, 2021 and 2020.

Contract buyout income was primarily the result of partial contract buyouts that involved negotiations to reduce coal quantities several customers were otherwise obligated to purchase under contracts in exchange for payment of certain fees to the Company, and did not impact forward contract terms.

The sale of certain coal lease contracts was in connection with one of several transactions completed in the year ended December 31, 2020 related to the Company's non-operating surface and mineral assets outside of the Pennsylvania Mining Complex.

NOTE 5— STOCK AND DEBT REPURCHASES:

In December 2017, CONSOL Energy's Board of Directors approved a program to repurchase, from time to time, the Company's outstanding shares of common stock or its 11.00% Senior Secured Second Lien Notes due 2025. Prior to the CCR Merger, the Company was also authorized to purchase the Partnership's outstanding common units under this program. As a result of the CCR Merger, the Partnership's common units are no longer publicly traded. Since the program's inception, the Company's Board of Directors has subsequently amended it several times, the most recent of which amendment in August 2022 raised the aggregate limit of the Company's repurchase authority to \$600,000 and extended the program until December 31, 2024.

Under the terms of the program, CONSOL Energy is permitted to make repurchases in the open market, in privately negotiated transactions, accelerated repurchase programs or in structured share repurchase programs. CONSOL Energy is also authorized to enter into one or more 10b5-1 plans with respect to any of the repurchases. Any repurchases of common stock or notes are to be funded from available cash on hand or short-term borrowings. The program does not obligate CONSOL Energy to acquire any particular amount of its common stock or notes, and the program can be modified or suspended at any time at the Company's discretion. The program is conducted in compliance with applicable legal requirements and within the limits imposed by any credit agreement, receivables purchase agreement or indenture.

During the years ended December 31, 2022, 2021 and 2020, the Company spent \$26,387 to retire \$25,000, spent \$17,092 to retire \$18,040 and spent \$32,064 to retire \$54,481 of its 11.00% Senior Secured Second Lien Notes due 2025, respectively. During the year ended December 31, 2022, the Company repurchased and retired 124,454 shares of the Company's common stock at an average price of \$64.18 per share. No shares of common stock were repurchased under this program during the years ended December 31, 2021 and 2020.

NOTE 6—INCOME TAXES:

The components of income tax expense (benefit) were as follows:

	For the Years Ended December 31,		
	2022	2021	2020
Current:			
U.S. Federal	\$ 45,068	\$ 13,769	\$ (5,933)
U.S. State	7,238	2,145	(2,294)
Non-U.S.	(235)	143	514
	<u>52,071</u>	<u>16,057</u>	<u>(7,713)</u>
Deferred:			
U.S. Federal	37,154	(16,657)	10,936
U.S. State	12,233	1,897	749
	<u>49,387</u>	<u>(14,760)</u>	<u>11,685</u>
Total Income Tax Expense	<u>\$ 101,458</u>	<u>\$ 1,297</u>	<u>\$ 3,972</u>

A reconciliation of income tax expense (benefit) and the amount computed by applying the statutory federal income tax rate of 21% to income (loss) from operations before income tax is:

	For the Years Ended December 31,					
	2022		2021		2020	
	Amount	Percent	Amount	Percent	Amount	Percent
Statutory U.S. federal income tax rate	\$ 119,372	21.0 %	\$ 7,436	21.0 %	\$ (1,941)	21.0 %
State income taxes, net of federal tax benefit	11,110	2.0	(642)	(1.8)	(1,109)	12.0
Effect of foreign income taxes	(241)	—	125	0.4	406	(4.4)
Excess tax depletion	(32,431)	(5.7)	(10,535)	(29.8)	—	—
Foreign derived intangible income	(4,906)	(0.9)	—	—	—	—
Uncertain tax positions	(792)	(0.1)	1,473	4.2	—	—
Compensation	4,178	0.7	3,192	9.0	1,310	(14.2)
Valuation allowance	(937)	(0.2)	(544)	(1.5)	1,479	(16.0)
Tax credits	(350)	(0.1)	(210)	(0.6)	1,150	(12.4)
Non-controlling interest	—	—	—	—	726	(7.9)
State rate change and prior period adjustments	5,397	0.9	642	1.8	1,797	(19.4)
Other	1,058	0.2	360	1.0	154	(1.6)
Income Tax Expense / Effective Rate	<u>\$ 101,458</u>	<u>17.8 %</u>	<u>\$ 1,297</u>	<u>3.7 %</u>	<u>\$ 3,972</u>	<u>(42.9)%</u>

Significant components of deferred tax assets and liabilities were as follows:

	December 31,	
	2022	2021
Deferred Tax Asset:		
Postretirement benefits other than pensions	\$ 56,119	\$ 84,130
Asset retirement obligations	44,680	47,180
Pneumoconiosis benefits	33,946	47,681
Compensation	8,826	5,203
Workers' compensation	7,099	11,419
State bonus, net of Federal	2,973	4,219
Long-term disability	1,463	1,931
Financing	838	—
Net operating loss	211	937
Operating lease liability	46	135
Other	4,957	5,772
Total Deferred Tax Asset	161,158	208,607
Valuation Allowance	—	(937)
Net Deferred Tax Asset	161,158	207,670
Deferred Tax Liability:		
Equity Partnerships	(118,231)	(99,811)
Property, plant and equipment	(54,322)	(40,064)
Advance mining royalties	(6,782)	(7,270)
Salary retirement	(3,737)	(2,739)
Financing	—	(640)
Right of use assets	—	(135)
Total Deferred Tax Liability	(183,072)	(150,659)
Net Deferred Tax (Liability) Asset	\$ (21,914)	\$ 57,011

The Company continues to evaluate the impacts of the Inflation Reduction Act of 2022 signed into law by the President of the United States on August 16, 2022, but does not expect this legislation to have a material impact on the Company's financial statements.

At December 31, 2022, the Company has net operating loss carryforwards of approximately \$207 for state income tax purposes, which will, if ultimately utilized, offset future taxable income. These net operating losses, if unused, will expire in 2041.

As required by U.S. GAAP, a valuation allowance is required when it is more likely than not that all or a portion of a deferred tax asset will not be realized. Management must review all available evidence, both positive and negative, in determining the need for a valuation allowance. As of December 31, 2022, no valuation allowance has been recorded.

Unrecognized Tax Benefits

The Company utilizes the "more likely than not" standard in recognizing a tax benefit in its financial statements. For the years ended December 31, 2022 and 2021, a reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	December 31,	
	2022	2021
Balance at January 1	\$ 3,633	\$ —
Additions based on tax positions related to the current year	384	774
Additions for tax positions of prior years	—	2,859
Reductions for tax positions of prior years	(1,168)	—
Reductions due to the statute of limitations	—	—
Settlements	(908)	—
Balance at December 31	<u>\$ 1,941</u>	<u>\$ 3,633</u>

The Company recorded an unrecognized tax benefit for the tax years ending December 31, 2022 and 2021 of \$1,941 and \$3,633, respectively, related to a position taken on state taxes. The actual amount of any change to the unrecognized tax benefit could vary depending on the timing and nature of the settlement; therefore, an estimate of change cannot be provided. Related interest and penalties were not accrued as these were estimated to be immaterial.

The Company is subject to taxation in the United States and its various states, as well as Canada and its various provinces. The Company is subject to examination for the tax periods 2018 through 2022 for federal and state returns.

NOTE 7—CREDIT LOSSES:

Effective January 1, 2020, the Company adopted ASU 2016-013, *Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments* using a modified retrospective approach. This ASU replaces the incurred loss impairment model with an expected credit loss impairment model for financial instruments, including trade and other receivables. The amendment requires entities to consider forward-looking information to estimate expected credit losses, resulting in earlier recognition of losses for receivables that are current or not yet due, which were not considered under previous accounting guidance. The Company recorded a cumulative-effect adjustment to retained earnings in the amount of \$3,298, net of \$1,109 of income taxes, for expected credit losses on financial assets at the adoption date.

The following table illustrates the impact of ASC 326.

	January 1, 2020		
	As Reported Under ASC 326	Pre-ASC 326 Adoption	Impact of ASC 326 Adoption
Trade Receivables	\$ 3,051	\$ 2,100	\$ 951
Other Non-Trade Contractual Arrangements	4,167	711	3,456
Allowance for Credit Losses on Receivables	<u>\$ 7,218</u>	<u>\$ 2,811</u>	<u>\$ 4,407</u>

Trade receivables are recorded at the invoiced amount and do not bear interest. The Company markets its coal to top-performing rail-served power plants in its core market areas and to industrial and metallurgical consumers in international markets. The Company also provides terminal services to facilitate the exporting of coal from both Company coal sales and third-party transactions. Credit is extended based on an evaluation of a customer's financial condition and a customer's ability to perform its obligations. Trade receivable balances are monitored against approved credit terms. Credit terms are reviewed and adjusted as considered necessary based on changes to a customer's credit profile. If a customer's credit deteriorates, the Company may reduce credit risk exposure by reducing credit terms, obtaining letters of credit, obtaining credit insurance, or requiring pre-payment for shipments.

Other non-trade contractual arrangements consist primarily of overriding royalty agreements and other financial arrangements between the Company and various counterparties. The following table excludes fully reserved receivables associated with certain transactions defined as other non-trade contractual arrangements in the amount of \$8,263 at December 31, 2022 and 2021, as management believes it is probable that these outstanding balances will not be collected and revenue has not been recognized on these transactions. At December 31, 2022, the allowance for credit losses

associated with other non-trade contractual arrangements was \$13,121 and \$2,193, included in Other Receivables, net and Other Noncurrent Assets, net, respectively, on the Consolidated Balance Sheets. At December 31, 2021, the allowance for credit losses associated with other non-trade contractual arrangements was \$12,329 and \$2,882, included in Other Receivables, net and Other Noncurrent Assets, net, respectively, on the Consolidated Balance Sheets.

The Company is exposed to credit losses primarily through sales of products and services. The Company's expected loss allowance methodology for accounts receivable is developed using historical collection experience, current and future economic and market conditions and a review of the current status of customers' trade and other accounts receivables. Due to the short-term nature of such receivables, the estimate of the amount of accounts receivable that may not be collected is based on an aging of the accounts receivable balances and the financial condition of customers. Additionally, specific allowance amounts are established to record the appropriate provision for customers that have a higher probability of default. The Company's monitoring activities include timely account reconciliations, dispute resolution, payment confirmation, consideration of customers' financial condition and macroeconomic conditions. Balances are written off when determined to be uncollectible.

Management estimates the allowance balance using relevant available information, from internal and external sources, relating to past events, current conditions, and reasonable and supportable forecasts. Historical credit loss experience provides the basis for the estimation of expected credit losses. Adjustments to historical loss information are made for changes to the assessment of anticipated payment, changes in economic conditions, current industry trends in the markets the Company serves, and changes in the financial health of the Company's counterparties.

The following table provides a roll-forward of the allowance for credit losses that is deducted from the amortized cost basis of accounts receivable to present the net amount expected to be collected.

	<u>Trade Receivables</u>	<u>Other Non-Trade Contractual Arrangements</u>
Beginning Balance, December 31, 2021	\$ 4,597	\$ 6,948
Provision for expected credit losses	(2,866)	103
Ending Balance, December 31, 2022	<u>\$ 1,731</u>	<u>\$ 7,051</u>

NOTE 8—ASSET RETIREMENT OBLIGATIONS:

CONSOL Energy accrues for mine closing costs, perpetual water treatment costs, and costs associated with the plugging of degasification wells using the accounting treatment prescribed by the Asset Retirement and Environmental Obligations Topic of the FASB Accounting Standards Codification. CONSOL Energy recognizes capitalized asset retirement obligations by increasing the carrying amount of related long-lived assets.

The reconciliation of changes in the Company's asset retirement obligations at December 31, 2022 and 2021 is as follows:

	<u>As of December 31,</u>	
	<u>2022</u>	<u>2021</u>
Balance at Beginning of Period	\$ 238,118	\$ 248,769
Accretion Expense	18,747	18,652
Payments	(18,025)	(18,144)
Revisions in Estimated Cash Flows	12,801	(10,334)
Other	(139)	(825)
Balance at End of Period	<u>\$ 251,502</u>	<u>\$ 238,118</u>

NOTE 9—INVENTORIES:

Inventory components consist of the following:

	December 31,	
	2022	2021
Coal	\$ 11,315	\$ 12,078
Supplies	54,975	50,798
Total Inventories	\$ 66,290	\$ 62,876

NOTE 10—PROPERTY, PLANT AND EQUIPMENT:

Property, plant and equipment consists of the following:

	December 31,	
	2022	2021
Plant and Equipment	\$ 3,330,755	\$ 3,209,232
Coal Properties and Surface Lands	898,628	881,551
Airshafts	481,090	473,866
Mine Development	366,241	357,479
Advance Mining Royalties	331,863	328,677
Total Property, Plant and Equipment	5,408,577	5,250,805
Less: Accumulated Depreciation, Depletion and Amortization	3,448,495	3,272,255
Total Property, Plant and Equipment - Net	\$ 1,960,082	\$ 1,978,550

As of December 31, 2022 and 2021, property, plant and equipment includes gross assets under finance leases of \$90,516 and \$80,232, respectively. Accumulated amortization for finance leases was \$54,028 and \$34,036 at December 31, 2022 and 2021, respectively. Amortization expense for assets under finance leases approximated \$24,206, \$27,846 and \$24,066 for the years ended December 31, 2022, 2021 and 2020, respectively, and is included in Depreciation, Depletion and Amortization in the accompanying Consolidated Statements of Income. See Note 14 - Leases for further discussion of finance leases.

NOTE 11—ACCOUNTS RECEIVABLE SECURITIZATION:

At December 31, 2022, CONSOL Energy and certain of its U.S. subsidiaries are parties to a trade accounts receivable securitization facility with financial institutions for the sale on a continuous basis of eligible trade accounts receivable. In March 2020, the securitization facility was amended to, among other things, extend the maturity date from August 30, 2021 to March 27, 2023. In July 2022, the securitization facility was again amended to, among other things, extend the maturity date to July 29, 2025.

Pursuant to the securitization facility, CONSOL Thermal Holdings LLC, an indirect, wholly-owned subsidiary of the Company, sells current and future trade receivables to CONSOL Pennsylvania Coal Company LLC, a wholly-owned subsidiary of the Company. CONSOL Marine Terminals LLC, a wholly-owned subsidiary of the Company, and CONSOL Pennsylvania Coal Company LLC sell and/or contribute current and future trade receivables (including receivables sold to CONSOL Pennsylvania Coal Company LLC by CONSOL Thermal Holdings LLC) to CONSOL Funding LLC, a wholly-owned subsidiary of the Company (the "SPV"). The SPV, in turn, pledges its interests in the receivables to PNC Bank, N.A., which either makes loans or issues letters of credit on behalf of the SPV. The maximum amount of advances and letters of credit outstanding under the securitization facility may not exceed \$100,000.

Loans under the securitization facility accrue interest at a reserve-adjusted market index rate equal to the applicable term SOFR rate. Loans and letters of credit under the securitization facility also accrue a program fee and a letter of credit participation fee, respectively, ranging from 2.00% to 2.50% per annum depending on the total net leverage ratio of CONSOL Energy. In addition, the SPV paid certain structuring fees to PNC Capital Markets LLC and pays other customary fees to the lenders, including a fee on unused commitments equal to 0.60% per annum.

At December 31, 2022, the Company's eligible accounts receivable yielded \$85,179 of borrowing capacity. At December 31, 2022, the facility had no outstanding borrowings and \$83,465 of letters of credit outstanding, leaving available borrowing capacity of \$1,714. At December 31, 2021, the Company's eligible accounts receivable yielded \$21,649 of borrowing capacity. At December 31, 2021, the facility had no outstanding borrowings and \$21,806 of letters of credit outstanding, leaving no unused capacity. CONSOL Energy posted \$157 of cash collateral to secure the difference in the outstanding letters of credit and the eligible accounts receivable. Cash collateral of \$157 is included in Restricted Cash - Current in the Consolidated Balance Sheets at December 31, 2021. Costs associated with the receivables facility totaled \$1,101, \$1,048 and \$1,156 for the years ended December 31, 2022, 2021 and 2020, respectively. The Company has not derecognized any receivables due to its continued involvement in the collections efforts.

NOTE 12—OTHER ACCRUED LIABILITIES:

	December 31,	
	2022	2021
Subsidence Liability	\$ 96,623	\$ 93,871
Accrued Compensation and Benefits	67,893	47,940
Accrued Other Taxes	10,551	8,474
Accrued Interest	7,942	9,042
Other	11,393	19,489
Current Portion of Long-Term Liabilities:		
Asset Retirement Obligations	29,644	27,400
Postretirement Benefits Other than Pensions	22,436	23,638
Pneumoconiosis Benefits	12,723	12,398
Workers' Compensation	10,451	10,205
Total Other Accrued Liabilities	<u>\$ 269,656</u>	<u>\$ 252,457</u>

NOTE 13—LONG-TERM DEBT:

	December 31,	
	2022	2021
Debt:		
MEDCO Revenue Bonds in Series due September 2025 at 5.75%	\$ 102,865	\$ 102,865
11.00% Senior Secured Second Lien Notes due November 2025	99,107	149,107
9.00% PEDFA Solid Waste Disposal Revenue Bonds due April 2028	75,000	75,000
Term Loan B due in September 2024 (Principal of \$63,590 and \$239,277 less Unamortized Discount of \$106 and \$687, 8.92% and 4.61% Weighted Average Interest Rate, respectively)	63,484	238,590
Term Loan A due in March 2023 (5.25% Weighted Average Interest Rate at December 31, 2021)	—	41,250
Other Debt Arrangements	2,400	2,082
Advance Royalty Commitments (8.09% and 8.01% Weighted Average Interest Rate, respectively)	7,716	4,858
Less: Unamortized Debt Issuance Costs	<u>(3,721)</u>	<u>(9,111)</u>
	346,851	604,641
Less: Amounts Due in One Year*	<u>(4,741)</u>	<u>(36,589)</u>
Long-Term Debt	<u>\$ 342,110</u>	<u>\$ 568,052</u>

*Excludes current portion of Finance Lease Obligations of \$24,105 and \$20,743 at December 31, 2022 and 2021, respectively.

Annual undiscounted maturities on the Company's debt instruments during the next five years and thereafter are as follows:

Year ended December 31,	Amount
2023	\$ 4,741
2024	62,633
2025	203,096
2026	969
2027	900
Thereafter	78,339
Total Long-Term Debt Maturities	\$ 350,678

Senior Secured Credit Facilities

In November 2017, CONSOL Energy entered into a revolving credit facility with PNC Bank, N.A. with commitments up to \$300,000 (the "Revolving Credit Facility"), a Term Loan A Facility of up to \$100,000 (the "TLA Facility") and a Term Loan B Facility of up to \$400,000 (the "TLB Facility", and together with the Revolving Credit Facility and the TLA Facility, the "Senior Secured Credit Facilities"). On March 28, 2019, the Company amended the Senior Secured Credit Facilities to increase the borrowing commitment of the Revolving Credit Facility to \$400,000 and reallocate the principal amounts outstanding under the TLA Facility and the TLB Facility. On June 5, 2020, the Company amended the Senior Secured Credit Facilities (the "2020 amendment") to provide eight quarters of financial covenant relaxation, effect an increase in the rate at which borrowings under the Revolving Credit Facility and the TLA Facility bear interest, and add an anti-cash hoarding provision. On March 29, 2021, the Company amended the Senior Secured Credit Facilities to revise the negative covenant with respect to other indebtedness to allow the Company to incur obligations under the tax-exempt solid waste disposal revenue bonds. On April 13, 2021, the Pennsylvania Economic Development Financing Authority ("PEDFA") Solid Waste Disposal Revenue Bonds were issued. The Revolving Credit Facility was further amended in July 2022 (the "2022 amendment") to, among other things, extend the maturity date of \$260,000 of borrowing commitments from March 28, 2023 to July 18, 2026. The Company will maintain full access to the current \$400,000 available under the Revolving Credit Facility until its maturity in March 2023. At that point, the Company's borrowing limit under the Revolving Credit Facility will be reduced to \$260,000 until the facility's maturity date in July 2026.

Borrowings under the Company's Senior Secured Credit Facilities bore interest at a floating rate which was, at the Company's option, either (i) LIBOR plus an applicable margin or (ii) an alternate base rate plus an applicable margin. The 2022 amendment provides that borrowings under the Senior Secured Credit Facilities will bear interest at a floating rate that is, at the Company's option, either (i) SOFR plus the applicable SOFR adjustment (as defined therein) depending on the applicable interest period plus an applicable margin or (ii) an alternate base rate plus an applicable margin. The applicable margin for the Revolving Credit Facility depends on the total net leverage ratio, whereas the applicable margin for the TLB Facility is fixed. The 2020 amendment increased the applicable margin by 50 basis points on both the Revolving Credit Facility and the TLA Facility. The maturity date of the Revolving Credit Facility is July 18, 2026 and the maturity date of the TLA Facility was March 28, 2023. The TLA Facility was paid in full on June 30, 2022. The TLB Facility's maturity date is September 28, 2024. Obligations under the Senior Secured Credit Facilities are guaranteed by (i) all owners of the PAMC held by the Company, (ii) any other members of the Company's group that own any portion of the collateral securing the Revolving Credit Facility, and (iii) subject to certain customary exceptions and agreed materiality thresholds, all other existing or future direct or indirect wholly-owned restricted subsidiaries of the Company. The obligations are secured by, subject to certain exceptions (including a limitation of pledges of equity interests in certain subsidiaries and certain thresholds with respect to real property), a first-priority lien on (i) the Company's interest in the PAMC, (ii) the equity interests in the Partnership held by the Company, (iii) the CONSOL Marine Terminal, (iv) the Itmann Mining Complex and (v) the 1.4 billion tons of Greenfield Reserves and Resources.

The Senior Secured Credit Facilities contain a number of customary affirmative covenants. In addition, the Senior Secured Credit Facilities contain a number of negative covenants, including (subject to certain exceptions) limitations on (among other things): indebtedness, liens, investments, acquisitions, dispositions, restricted payments and prepayments of junior indebtedness. The 2020 amendment added additional conditions to be met for the covenants relating to investments in joint ventures, general investments, share repurchases, dividends and repurchases of Second Lien Notes (as defined below). The additional conditions require that the Company have no outstanding borrowings and no more than \$200,000 of outstanding letters of credit on the Revolving Credit Facility. Further restrictions apply to investments in joint ventures, share repurchases and dividends that require the Company's total net leverage ratio shall not be greater than 2.00 to 1.00.

The Revolving Credit Facility also includes covenants relating to (i) a maximum first lien gross leverage ratio, (ii) a maximum total net leverage ratio, and (iii) a minimum fixed charge coverage ratio. The maximum first lien gross leverage ratio is calculated as the ratio of Consolidated First Lien Debt to Consolidated EBITDA. Consolidated EBITDA, as used in the covenant calculation, excludes non-cash compensation expenses, non-recurring transaction expenses, extraordinary gains and losses, gains and losses on discontinued operations, non-cash charges related to legacy employee liabilities and gains and losses on debt extinguishment, and subtracts cash payments related to legacy employee liabilities. The maximum total net leverage ratio is calculated as the ratio of Consolidated Indebtedness, minus Cash on Hand, to Consolidated EBITDA. The minimum fixed charge coverage ratio is calculated as the ratio of Consolidated EBITDA to Consolidated Fixed Charges. Consolidated Fixed Charges, as used in the covenant calculation, include cash interest payments, cash payments for income taxes, scheduled debt repayments, dividends paid and Maintenance Capital Expenditures. The 2022 amendment revised the financial covenants applicable to the Revolving Credit Facility relating to the maximum first lien gross leverage ratio, maximum total net leverage ratio and minimum fixed charge coverage ratio, so that, among other things, for the fiscal quarters ending on or after June 30, 2022, the maximum first lien gross leverage ratio shall be 1.50 to 1.00, the maximum total net leverage ratio shall be 2.50 to 1.00 and the minimum fixed charge coverage ratio shall be 1.10 to 1.00.

The Company's first lien gross leverage ratio was 0.13 to 1.00 at December 31, 2022. The Company's total net leverage ratio was 0.14 to 1.00 at December 31, 2022. The Company's fixed charge coverage ratio was 2.43 to 1.00 at December 31, 2022. The Company was in compliance with all of its financial covenants under the Senior Secured Credit Facilities as of December 31, 2022.

The TLB Facility also includes a financial covenant that requires the Company to repay a certain amount of its borrowings under the TLB Facility within ten business days after the date it files its Annual Report on Form 10-K with the Securities and Exchange Commission if the Company has excess cash flow (as defined in the credit agreement for the Senior Secured Credit Facilities) during the year covered by the applicable Annual Report on Form 10-K. As a result of achieving certain financial metrics as of December 31, 2022 and 2021, the Company was not required to make an excess cash flow payment with respect to the years ended December 31, 2022 and 2021. During the year ended December 31, 2021, CONSOL Energy made the required repayment of \$4,848 based on the amount of the Company's excess cash flow as of December 31, 2020. The required repayment is equal to a certain percentage of the Company's excess cash flow for such year, ranging from 0% to 75% depending on the Company's total net leverage ratio, less the amount of certain voluntary prepayments made by the Company, if any, under the TLB Facility during such fiscal year.

At December 31, 2022, the Revolving Credit Facility had no borrowings outstanding and \$103,029 of letters of credit outstanding, leaving \$296,971 of unused capacity. At December 31, 2021, the Revolving Credit Facility had no borrowings outstanding and \$169,241 of letters of credit outstanding, leaving \$230,759 of unused capacity. From time to time, CONSOL Energy is required to post financial assurances to satisfy contractual and other requirements generated in the normal course of business. Some of these assurances are posted to comply with federal, state or other government agencies' statutes and regulations. CONSOL Energy sometimes uses letters of credit to satisfy these requirements and these letters of credit reduce the Company's borrowing facility capacity.

Second Lien Notes

In November 2017, CONSOL Energy issued \$300,000 in aggregate principal amount of 11.00% Senior Secured Second Lien Notes due 2025 (the "Second Lien Notes") pursuant to an indenture (the "Indenture") dated as of November 13, 2017, by and between the Company and UMB Bank, N.A., a national banking association, as trustee and collateral trustee (the "Trustee"). On November 28, 2017, certain subsidiaries of the Company executed a supplement to the Indenture and became party to the Indenture as a guarantor (the "Guarantors"). The Second Lien Notes are secured by second priority liens on substantially all of the assets of the Company and the Guarantors that are pledged on a first-priority basis as collateral securing the Company's obligations under the Senior Secured Credit Facilities (described above), subject to certain exceptions under the Indenture. The Indenture contains covenants that limit the ability of the Company and the Guarantors to (i) incur, assume or guarantee additional indebtedness or issue preferred stock; (ii) create liens to secure indebtedness; (iii) declare or pay dividends on the Company's common stock, redeem stock or make other distributions to the Company's stockholders; (iv) make investments; (v) restrict dividends, loans or other asset transfers from the Company's restricted subsidiaries; (vi) merge or consolidate, or sell, transfer, lease or dispose of substantially all of the Company's assets; (vii) sell or otherwise dispose of certain assets, including equity interests in subsidiaries; (viii) enter into transactions with affiliates; and (ix) create unrestricted subsidiaries. These covenants are subject to important exceptions and qualifications. If the Second Lien Notes achieve an investment grade rating from both Standard & Poor's Ratings Services and Moody's Investors Service, Inc. and no default under the Indenture exists, many of the foregoing covenants will terminate and cease to apply.

The SPV is a non-guarantor subsidiary of the Second Lien Notes and the Senior Secured Credit Facilities, and the SPV holds the assets pledged to the lender in the securitization facility. The SPV had total assets of \$158,877 and \$104,548, comprised mainly of \$158,127 and \$104,099 trade receivables, net, as of December 31, 2022 and 2021, respectively. For the years ended December 31, 2022, 2021 and 2020, net income (loss) attributable to the SPV was \$12,330, (\$54) and \$2,854, respectively, which primarily reflected intercompany fees related to purchasing the receivables, which are eliminated in the Consolidated Financial Statements contained within this Annual Report on Form 10-K. During the years ended December 31, 2022, 2021 and 2020, there were no borrowings or payments under the Accounts Receivable Securitization Facility. See Note 11 - Accounts Receivable Securitization for additional information.

During the year ended December 31, 2022, the Company spent \$26,387 to repurchase \$25,000, and spent \$25,687 to redeem \$25,000 of its outstanding Second Lien Notes. During the year ended December 31, 2021, the Company spent \$17,092 to retire \$18,040 of its outstanding Second Lien Notes and made a required repayment of \$4,848 on the TLB Facility (discussed above). As a result of these transactions, \$5,623 and (\$657) was included in Loss (Gain) on Debt Extinguishment on the Consolidated Statements of Income for the years ended December 31, 2022 and 2021, respectively.

PEDFA Bonds

In April 2021, CONSOL Energy borrowed the proceeds received from the sale of tax-exempt bonds issued by PEDFA in an aggregate principal amount of \$75,000 (the "PEDFA Bonds"). The PEDFA Bonds bear interest at a fixed rate of 9.00% for an initial term of seven years. The PEDFA Bonds mature on April 1, 2051 but are subject to mandatory purchase by the Company on April 13, 2028, at the expiration of the initial term rate period. The PEDFA Bonds were issued pursuant to an indenture (the "PEDFA Indenture") dated as of April 1, 2021, by and between PEDFA and Wilmington Trust, N.A., a national banking association, as trustee (the "PEDFA Notes Trustee"). PEDFA made a loan of the proceeds of the PEDFA Bonds to the Company pursuant to a Loan Agreement (the "Loan Agreement") dated as of April 1, 2021 between PEDFA and the Company. Under the terms of the Loan Agreement, the Company agreed to make all payments of principal, interest and other amounts at any time due on the PEDFA Bonds or under the PEDFA Indenture. PEDFA assigned its rights as lender under the Loan Agreement, excluding certain reserved rights, to the PEDFA Notes Trustee. Certain subsidiaries of the Company (the "PEDFA Notes Guarantors") executed a Guaranty Agreement (the "Guaranty") dated as of April 1, 2021 in favor of the PEDFA Notes Trustee, guarantying the obligations of the Company under the Loan Agreement to pay the PEDFA Bonds when and as due. The obligations of the Company under the Loan Agreement and of the PEDFA Notes Guarantors under the Guaranty are secured by second priority liens on substantially all of the assets of the Company and the PEDFA Notes Guarantors on parity with the Second Lien Notes. The Loan Agreement and Guaranty incorporate by reference covenants in the Indenture under which the Second Lien Notes were issued (discussed above).

The Company started a capital construction project on the PAMC coarse refuse disposal area in 2017, which is now funded, in part, by the \$75,000 of PEDFA Bond proceeds loaned to the Company. The Company expects to expend these funds as qualified work is completed. During the years ended December 31, 2022 and 2021, the Company utilized restricted cash in the amount of \$11,196 and \$28,867, respectively, for qualified expenses. Additionally, the Company had \$35,516 and \$46,136 in restricted cash at December 31, 2022 and 2021, respectively, associated with this financing that will be used to fund future spending on the coarse refuse disposal area.

Other Indebtedness

During the year ended December 31, 2019, the Company entered into interest rate swaps, which effectively converted \$150,000 of the TLB Facility's floating interest rate to a fixed rate for the twelve months ending December 31, 2020 and 2021, and \$50,000 of the TLB Facility's floating interest rate to a fixed rate for the twelve months ending December 31, 2022. The \$50,000 interest rate swap was settled in August 2022 with the change in the floating rate on the TLB Facility to SOFR from LIBOR. The interest rate swaps qualified for cash flow hedge accounting treatment and as such, the change in the fair value of the interest rate swaps was recorded on the Company's Consolidated Balance Sheets as an asset or liability. The effective portion of the gains or losses was reported as a component of accumulated other comprehensive loss. No ineffective gains or losses were reported in earnings during the years ended December 31, 2022, 2021 and 2020.

NOTE 14—LEASES:

The Company has operating leases for mining and other equipment used in operations and office space. Many leases include one or more options to renew, some of which include options to extend, the leases, and some leases include options to terminate or buy out the leases within a set period of time. In certain of the Company's lease agreements, the rental payments are adjusted periodically to reflect actual charges incurred for inflation and/or changes in other indexes. Many of the Company's operating lease payments for mining equipment contain a variable component which is calculated based upon production metrics such as feet of advance or raw tonnage mined. While most of the Company's leases contain clauses regarding the general condition of the equipment upon lease termination, they do not contain residual value guarantees.

The Company determines if an arrangement is an operating or finance lease at inception of the applicable lease. For leases where the Company is the lessee, Right of Use ("ROU") assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent an obligation to make lease payments arising from the lease. ROU assets and lease liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. As most of the Company's leases do not provide an implicit interest rate, the Company uses its incremental borrowing rate based on the information available on the commencement date in determining the present value of lease payments. The ROU asset also consists of any prepaid lease payments, lease incentives received, and costs which will be incurred in exiting a lease. The lease terms used to calculate the ROU asset and related lease liability include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense for operating leases is recognized on a straight-line basis over the lease term as an operating expense while the expense for finance leases is recognized as depreciation expense and interest expense using the interest method of recognition. Further, the Company made an accounting policy election not to apply the recognition and measurement requirements to short-term leases, defined as leases with an initial term of twelve months or less. CONSOL Energy will recognize those lease payments in the Consolidated Statements of Income over the lease term. For the years ended December 31, 2022 and 2021, these short-term lease expenses were not material to the Company's financial statements.

For the years ended December 31, 2022 and 2021, the components of operating lease expense were as follows:

	December 31,	
	2022	2021
Fixed operating lease expense	\$ 11,467	\$ 17,695
Variable operating lease expense	10,752	6,884
Total operating lease expense	\$ 22,219	\$ 24,579

Supplemental cash flow information related to the Company's operating leases for the years ended December 31, 2022 and 2021 was as follows:

	December 31,	
	2022	2021
Cash paid for amounts included in the measurement of operating lease liabilities	\$ 22,020	\$ 25,330
Cash paid for early buyout of existing operating lease for longwall shields	—	18,380
ROU assets obtained in exchange for operating lease obligations	—	—

The following table presents the lease balances within the Consolidated Balance Sheets, weighted average lease term, and the weighted average discount rate related to the Company's operating leases at December 31, 2022 and 2021:

Lease Assets and Liabilities	Classification	December 31,	
		2022	2021
Assets:			
Operating Lease ROU Assets	Other Assets	\$ 19,799	\$ 21,956
Liabilities:			
Current:			
Operating Lease Liabilities	Operating Lease Liabilities	\$ 4,922	\$ 6,682
Long-Term:			
Operating Lease Liabilities	Operating Lease Liabilities	\$ 15,073	\$ 15,274
Total Operating Lease Liabilities		\$ 19,995	\$ 21,956
Weighted average remaining lease term (in years)		4.83	3.98
Weighted average discount rate		7.13 %	6.78 %

The Company also enters into finance leases for mining equipment and automobiles. Assets arising from finance leases are included in property, plant and equipment-net and the liabilities are included in current portion of long-term debt and long-term debt in the accompanying Consolidated Balance Sheets.

For the years ended December 31, 2022 and 2021, the components of finance lease expense were as follows:

	December 31,	
	2022	2021
Amortization of right of use assets	\$ 24,206	\$ 27,846
Interest expense	2,751	3,501
Total finance lease expense	\$ 26,957	\$ 31,347

The following table presents the weighted average lease term and weighted average discount rate related to the Company's finance leases as of December 31, 2022 and 2021:

	December 31,	December 31,
	2022	2021
Weighted average remaining lease term (in years)	1.62	2.03
Weighted average discount rate	6.53 %	6.21 %

The following table presents the future maturities of the Company's operating and finance lease liabilities, together with the present value of the net minimum lease payments, at December 31, 2022:

	Finance Leases	Operating Leases
2023	\$ 25,706	\$ 6,120
2024	10,603	5,680
2025	3,134	4,107
2026	159	3,964
2027	86	652
Thereafter	—	3,438
Total minimum lease payments	39,688	23,961
Less amount representing interest	(2,358)	(3,966)
Present value of minimum lease payments	<u>\$ 37,330</u>	<u>\$ 19,995</u>

The Company's previous building lease ended during 2022 as a result of a 2021 agreement to reduce the lease term. During the year ended December 31, 2022, the Company entered into a new operating lease for its current location.

NOTE 15—PENSION AND OTHER POSTRETIREMENT BENEFIT PLANS:

Pension

CONSOL Energy has non-contributory defined benefit retirement plans. The benefits for these plans are based primarily on years of service and employees' pay. CONSOL Energy's qualified pension plan (the "Pension Plan") allows for lump-sum distributions of benefits earned up until December 31, 2005, at the employees' election.

According to the Defined Benefit Plans Topic of the FASB Accounting Standards Codification, if the lump sum distributions made during a plan year, which for CONSOL Energy is January 1 to December 31, exceed the total of the projected service cost and interest cost for the plan year, settlement accounting is required. Lump sum payments exceeded this threshold during the year ended December 31, 2021. Accordingly, CONSOL Energy recognized expense of \$22 for the year ended December 31, 2021 in Operating and Other Costs in the Consolidated Statements of Income. The settlement charges represented a pro rata portion of the net unrecognized loss based on the percentage reduction in the projected benefit obligation due to the lump sum payments. The settlement charges noted above also resulted in a remeasurement of the pension plan at June 30, 2021, which reduced the pension liability by \$1,009. The settlement and corresponding remeasurement of the pension plan resulted in an adjustment of \$766 to Other Comprehensive Income, net of \$265 in deferred taxes. Lump sum payments did not exceed this threshold during the years ended December 31, 2022 and 2020.

Other Postretirement Benefit Plan

Certain subsidiaries of CONSOL Energy provide medical and prescription drug benefits to retired employees covered by either the Coal Industry Retiree Health Benefit Act of 1992 (the Coal Act) or the National Bituminous Coal Wage Agreement of 2011.

The reconciliation of changes in the benefit obligation, plan assets and funded status of these plans at December 31, 2022 and 2021 is as follows:

	Pension Benefits at December 31,		Other Postretirement Benefits at December 31,	
	2022	2021	2022	2021
Change in benefit obligation:				
Benefit obligation at beginning of period	\$ 723,006	\$ 778,868	\$ 353,297	\$ 413,710
Service cost	1,207	1,114	—	—
Interest cost	16,539	14,230	7,898	7,274
Actuarial gain	(173,233)	(25,073)	(84,810)	(42,836)
Plan settlement	—	(719)	—	—
Benefits and other payments	(43,307)	(45,414)	(21,356)	(24,851)
Benefit obligation at end of period	<u>\$ 524,212</u>	<u>\$ 723,006</u>	<u>\$ 255,029</u>	<u>\$ 353,297</u>
Change in plan assets:				
Fair value of plan assets at beginning of period	\$ 733,966	\$ 740,978	\$ —	\$ —
Actual return on plan assets	(151,968)	36,867	—	—
Company contributions	1,534	2,254	21,356	24,851
Benefits and other payments	(43,307)	(45,414)	(21,356)	(24,851)
Plan settlement	—	(719)	—	—
Fair value of plan assets at end of period	<u>\$ 540,225</u>	<u>\$ 733,966</u>	<u>\$ —</u>	<u>\$ —</u>
Funded status:				
Noncurrent assets	\$ 38,548	\$ 38,947	\$ —	\$ —
Current liabilities	(1,950)	(1,974)	(22,436)	(23,638)
Noncurrent liabilities	(20,585)	(26,013)	(232,593)	(329,659)
Net asset (obligation) recognized	<u>\$ 16,013</u>	<u>\$ 10,960</u>	<u>\$ (255,029)</u>	<u>\$ (353,297)</u>
Amounts recognized in accumulated other comprehensive loss consist of:				
Net actuarial loss (gain)	\$ 244,700	\$ 231,726	\$ (5,473)	\$ 82,851
Prior service credit	—	—	(13,734)	(16,138)
Net amount recognized (before tax effect)	<u>\$ 244,700</u>	<u>\$ 231,726</u>	<u>\$ (19,207)</u>	<u>\$ 66,713</u>

The components of net periodic benefit (credit) cost are as follows:

	Pension Benefits			Other Postretirement Benefits		
	For the Years Ended December 31,			For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Components of net periodic benefit (credit) cost:						
Service cost	\$ 1,207	\$ 1,114	\$ 1,183	\$ —	\$ —	\$ —
Interest cost	16,539	14,230	20,176	7,898	7,274	12,795
Expected return on plan assets	(37,276)	(42,168)	(41,821)	—	—	—
Amortization of prior service credits	—	—	—	(2,405)	(2,405)	(2,405)
Recognized net actuarial loss	3,037	5,469	6,922	3,515	6,516	9,277
Settlement loss recognized	—	22	—	—	—	—
Net periodic benefit (credit) cost	\$ (16,493)	\$ (21,333)	\$ (13,540)	\$ 9,008	\$ 11,385	\$ 19,667

(Credits) expenses related to pension and other post-employment benefits are reflected in Operating and Other Costs in the Consolidated Statements of Income.

CONSOL Energy utilizes a corridor approach to amortize actuarial gains and losses that have been accumulated under the Pension Plan. Cumulative gains and losses that are in excess of 10% of the greater of either the projected benefit obligation (PBO) or the market-related value of plan assets are amortized over the expected remaining future lifetime of all plan participants for the Pension Plan. Actuarial gains or losses can result from discount rate changes, changes in underlying assumptions that affect the projected benefit obligation, changes in underlying assumptions that affect the market-related value of plan assets, as well as actual fluctuations in the market value of plan assets.

CONSOL Energy also utilizes a corridor approach to amortize actuarial gains and losses that have been accumulated under the OPEB Plan. Cumulative gains and losses that are in excess of 10% of the accumulated postretirement benefit obligation (APBO) are amortized over the average future remaining lifetime of the current inactive population for the OPEB Plan.

The following table provides information related to pension plans with an accumulated benefit obligation in excess of plan assets:

	As of December 31,	
	2022	2021
Projected benefit obligation	\$ 22,535	\$ 27,988
Accumulated benefit obligation	\$ 22,203	\$ 27,734
Fair value of plan assets	\$ —	\$ —

Assumptions:

The weighted-average assumptions used to determine benefit obligations are as follows:

	Pension Obligations at December 31,		Other Postretirement Obligations at December 31,	
	2022	2021	2022	2021
Discount rate	5.41 %	2.83 %	5.43 %	2.79 %
Rate of compensation increase	3.89 %	3.78 %	—	—

The discount rates are determined using a Company-specific yield curve model (above-mean) developed with the assistance of an external actuary. The Company-specific yield curve models (above-mean) use a subset of the expanded bond universe to determine the Company-specific discount rate. Bonds used in the yield curve are rated AA by Moody's or Standard & Poor's as of the measurement date. The yield curve models parallel the plans' projected cash flows, and the underlying cash flows of the bonds included in the models exceed the cash flows needed to satisfy the Company's plans.

The weighted-average assumptions used to determine net periodic benefit costs are as follows:

	Pension Benefits For the Years Ended December 31,			Other Postretirement Benefits For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Discount rate	2.83 %	2.46 %	3.35 %	2.79 %	2.39 %	3.27 %
Expected long-term return on plan assets	4.75 %	5.60 %	6.48 %	—	—	—
Rate of compensation increase	3.78 %	3.76 %	3.68 %	—	—	—

The long-term rate of return is the sum of the portion of total assets in each asset class held multiplied by the expected return for that class, adjusted for expected expenses to be paid from the assets. The expected return for each class is determined using the plan asset allocation at the measurement date and a distribution of compound average returns over a twenty-year time horizon. The model uses asset class returns, variances and correlation assumptions to produce the expected return for each portfolio. The return assumptions used forward-looking gross returns influenced by the current Treasury yield curve. These returns recognize current bond yields, corporate bond spreads and equity risk premiums based on current market conditions.

The assumed health care cost trend rates are as follows:

	At December 31,	
	2022	2021
Health care cost trend rate for next year	6.78 %	5.35 %
Rate to which the cost trend is assumed to decline (ultimate trend rate)	4.00 %	4.00 %
Year that the rate reaches ultimate trend rate	2048	2046

Plan Assets:

The Company's overall investment strategy is to meet current and future benefit payment needs through diversification across asset classes, fund strategies and fund managers to achieve an optimal balance between risk and return and between income and growth of assets through capital appreciation. Consistent with the objectives of the pension trust (the "Trust") and in consideration of the Trust's current funded status and the current level of market interest rates, the Retirement Board, as appointed by the CONSOL Energy Board of Directors (the "Retirement Board") has approved an asset allocation strategy that will change over time in response to future improvements in the Trust's funded status and/or changes in market interest rates. Such changes in asset allocation strategy are intended to allocate additional assets to the fixed income asset class should the Trust's funded status improve. In this framework, the current target allocation for plan assets is 15.0% diversified growth assets and 85.0% liability hedging fixed income. Both the equity and fixed income portfolios are comprised of both active and passive investment strategies. The Trust is primarily invested in Mercer Common Collective Trusts. Equity securities consist of investments in large and mid/small cap companies; non-U.S. equities are derived from both developed and emerging markets. Fixed income securities consist primarily of U.S. long duration fixed income corporate and U.S. Treasury instruments. The average quality of the fixed income portfolio must be rated at least "investment grade" by nationally recognized rating agencies. Within the fixed income asset class, investments are invested primarily across various strategies such that the overall profile strongly correlates with the interest rate sensitivity of the Trust's liabilities in order to reduce the volatility resulting from the risk of changes in interest rates and the impact of such changes on the Trust's overall financial status. Derivatives, interest rate swaps, options and futures are permitted investments for the purpose of reducing risk and to extend the duration of the overall fixed income portfolio; however, they may not be used for speculative purposes. All or a portion of the assets may be invested in mutual funds or other commingled vehicles so long as the pooled investment funds have an adequate asset base relative to their asset class; are invested in a diversified manner; and have management and/or oversight by an Investment Advisor registered with the SEC. The Retirement Board reviews the investment program on an ongoing basis including asset performance, current trends and developments in capital markets, changes in Trust liabilities and ongoing appropriateness of the overall investment policy.

The fair values of plan assets at December 31, 2022 and 2021 by asset category are as follows:

Asset Category	Fair Value Measurements at December 31, 2022				Fair Value Measurements at December 31, 2021			
	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)	Total	Quoted Prices in Active Markets for Identical Assets (Level 1)	Significant Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Cash/Accrued Income	\$ 101	\$ 101	\$ —	\$ —	\$ 102	\$ 102	\$ —	\$ —
Mercer Common Collective Trusts (a)	540,124	—	—	—	733,864	—	—	—
Total	\$ 540,225	\$ 101	\$ —	\$ —	\$ 733,966	\$ 102	\$ —	\$ —

(a) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been classified in the fair value hierarchy but are included in the total.

There are no investments in CONSOL Energy stock held by these plans at December 31, 2022 or 2021.

There are no assets in the other postretirement benefit plan at December 31, 2022 or 2021.

Cash Flows:

If necessary, CONSOL Energy intends to contribute to the pension trust using prudent funding methods. However, the Company does not expect to contribute to the pension plan trust in 2023. Pension benefit payments are primarily funded from the Trust. CONSOL Energy expects to pay benefits of \$1,950 from the non-qualified pension plan in 2023. CONSOL Energy does not expect to contribute to the other postretirement benefit plan in 2023 and intends to pay benefit claims as they become due.

The following benefit payments are expected to be paid in accordance with plan documents:

	Pension Benefits	Other Postretirement Benefits
2023	\$ 41,835	\$ 22,436
2024	\$ 40,604	\$ 21,451
2025	\$ 39,535	\$ 21,263
2026	\$ 40,993	\$ 21,045
2027	\$ 38,911	\$ 20,558
Year 2028-2032	\$ 186,864	\$ 96,770

NOTE 16—COAL WORKERS' PNEUMOCONIOSIS AND WORKERS' COMPENSATION:
Coal Workers' Pneumoconiosis

Under the Federal Coal Mine Health and Safety Act of 1969, as amended, CONSOL Energy is responsible for medical and disability benefits to employees and their dependents resulting from occurrences of coal workers' pneumoconiosis (CWP) disease. CONSOL Energy is also responsible under various state statutes for pneumoconiosis benefits. CONSOL Energy primarily provides for these claims through a self-insurance program. The calculation of the actuarial present value of the estimated pneumoconiosis obligation is based on an annual actuarial study by independent actuaries and uses assumptions regarding disability incidence, medical costs, indemnity levels, mortality, death benefits, dependents and interest rates which are derived from actual company experience and outside sources. Actuarial gains or losses can result from discount rate changes, differences in incident rates and severity of claims filed as compared to original assumptions.

Workers' Compensation

CONSOL Energy must also compensate individuals who sustain employment-related physical injuries or some types of occupational diseases and, on some occasions, for costs of their rehabilitation. Workers' compensation programs will also compensate survivors of workers who suffer employment-related deaths. Workers' compensation laws are administered by state agencies, and each state has its own set of rules and regulations regarding compensation owed to an employee that is injured in the course of employment. CONSOL Energy primarily provides for these claims through a self-insurance program. CONSOL Energy recognizes an actuarial present value of the estimated workers' compensation obligation calculated by independent actuaries. The calculation is based on claims filed and an estimate of claims incurred but not yet reported as well as various assumptions, including discount rate, future healthcare trend rate, benefit duration and recurrence of injuries. Actuarial gains or losses associated with workers' compensation have resulted from discount rate changes and differences in claims experience and incident rates as compared to prior assumptions.

The reconciliation of changes in the benefit obligation and funded status of these plans at December 31, 2022 and 2021 is as follows:

	CWP at December 31,		Workers' Compensation at December 31,	
	2022	2021	2022	2021
Change in benefit obligation:				
Benefit obligation at beginning of period	\$ 215,871	\$ 241,923	\$ 67,261	\$ 73,441
State administrative fees and insurance bond premiums	—	—	1,817	1,778
Service cost	2,905	4,460	4,920	4,236
Interest cost	5,060	4,710	1,369	1,127
Actuarial gain	(46,498)	(22,256)	(14,422)	(2,039)
Benefits paid	(16,225)	(12,966)	(10,601)	(11,282)
Benefit obligation at end of period	<u>\$ 161,113</u>	<u>\$ 215,871</u>	<u>\$ 50,344</u>	<u>\$ 67,261</u>
Funded status:				
Current assets	\$ —	\$ —	\$ 1,058	\$ 1,092
Current liabilities	(12,723)	(12,398)	(10,451)	(10,205)
Noncurrent liabilities	(148,390)	(203,473)	(40,951)	(58,148)
Net obligation recognized	<u>\$ (161,113)</u>	<u>\$ (215,871)</u>	<u>\$ (50,344)</u>	<u>\$ (67,261)</u>
Amounts recognized in accumulated other comprehensive loss consist of:				
Net actuarial (gain) loss	\$ (10,098)	\$ 40,638	\$ (24,727)	\$ (10,726)
Net amount recognized (before tax effect)	<u>\$ (10,098)</u>	<u>\$ 40,638</u>	<u>\$ (24,727)</u>	<u>\$ (10,726)</u>

The components of net periodic benefit cost are as follows:

	CWP For the Years Ended December 31,			Workers' Compensation For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Service cost	\$ 2,905	\$ 4,460	\$ 4,603	\$ 4,920	\$ 4,236	\$ 6,276
Interest cost	5,060	4,710	6,206	1,369	1,127	1,844
Recognized net actuarial loss (gain)	4,238	8,364	5,604	(420)	(179)	(488)
State administrative fees and insurance bond premiums	—	—	—	1,817	1,778	1,996
Net periodic benefit cost	\$ 12,203	\$ 17,534	\$ 16,413	\$ 7,686	\$ 6,962	\$ 9,628

Expenses related to CWP and workers' compensation are reflected in Operating and Other Costs in the Consolidated Statements of Income.

CONSOL Energy utilizes a corridor approach to amortize actuarial gains and losses that have been accumulated under the Workers' Compensation and CWP plans. Cumulative gains and losses that are in excess of 10% of the greater of either the estimated liability or the market-related value of plan assets are amortized over the expected average remaining future service of the current active membership of the Workers' Compensation and CWP plans.

Assumptions:

The weighted-average discount rates used to determine benefit obligations and net periodic benefit costs are as follows:

	CWP For the Years Ended December 31,			Workers' Compensation For the Years Ended December 31,		
	2022	2021	2020	2022	2021	2020
Benefit obligations	5.40 %	2.85 %	2.53 %	5.38 %	2.74 %	2.35 %
Net periodic benefit costs	2.85 %	2.53 %	3.41 %	2.74 %	2.35 %	3.25 %

Discount rates are determined using a Company-specific yield curve model (above-mean) developed with the assistance of an external actuary. The Company-specific yield curve models (above-mean) use a subset of the expanded bond universe to determine the Company-specific discount rate. Bonds used in the yield curve are rated AA by Moody's or Standard & Poor's as of the measurement date. The yield curve models parallel the plans' projected cash flows, and the underlying cash flows of the bonds included in the models exceed the cash flows needed to satisfy the Company's plans.

Cash Flows:

CONSOL Energy does not intend to make contributions to the CWP or Workers' Compensation plans in 2023, but it intends to pay benefit claims as they become due.

The following benefit payments, which reflect expected future claims as appropriate, are expected to be paid:

	CWP Benefits	Workers' Compensation		
		Total Benefits	Actuarial Benefits	Other Benefits
2023	\$ 12,723	\$ 11,220	\$ 9,393	\$ 1,827
2024	\$ 12,520	\$ 11,159	\$ 9,287	\$ 1,872
2025	\$ 12,383	\$ 11,189	\$ 9,270	\$ 1,919
2026	\$ 12,061	\$ 11,379	\$ 9,412	\$ 1,967
2027	\$ 11,824	\$ 11,437	\$ 9,421	\$ 2,016
Year 2028-2032	\$ 58,328	\$ 60,115	\$ 49,252	\$ 10,863

NOTE 17—OTHER EMPLOYEE BENEFIT PLANS:

UMWA Benefit Trusts

The Coal Act created two multi-employer benefit plans: (1) the United Mine Workers of America Combined Benefit Fund (the "Combined Fund") into which the former UMWA Benefit Trusts were merged, and (2) the United Mine Workers of America 1992 Benefit Plan (the "1992 Benefit Plan"). CONSOL Energy accounts for required contributions to these multi-employer trusts as expense when incurred.

The Combined Fund provides medical and death benefits for all beneficiaries of the former UMWA Benefit Trusts who were actually receiving benefits as of July 20, 1992. The 1992 Benefit Plan provides medical and death benefits to orphan UMWA-represented members eligible for retirement on February 1, 1993 and for those who retired between July 20, 1992 and September 30, 1994. The Coal Act provides for the assignment of beneficiaries to former employers and the allocation of unassigned beneficiaries (referred to as orphans) to companies using a formula set forth in the Coal Act. The Coal Act requires that responsibility for funding the benefits to be paid to beneficiaries be assigned to their former signatory employers or related companies. This cost is recognized when contributions are assessed. CONSOL Energy's total contributions under the Coal Act were \$4,099, \$4,760 and \$5,383 for the years ended December 31, 2022, 2021 and 2020, respectively. Based on available information at December 31, 2022, CONSOL Energy's gross obligation for the Combined Fund and 1992 Benefit Plan is estimated to be approximately \$39,051.

Pursuant to the provisions of the Tax Relief and Healthcare Act of 2006 (the "2006 Act") and the 1992 Benefit Plan, CONSOL Energy is required to provide security in an amount based on the annual cost of providing health care benefits for all individuals receiving benefits from the 1992 Benefit Plan who are attributable to CONSOL Energy, plus all individuals receiving benefits from an individual employer plan maintained by CONSOL Energy who are entitled to receive such benefits. In accordance with the terms of the 2006 Act and the 1992 Benefit Plan, CONSOL Energy must secure its obligations by posting letters of credit, which were \$15,221, \$16,199 and \$17,421 at December 31, 2022, 2021 and 2020, respectively. The 2022, 2021 and 2020 security amounts were based on the annual cost of providing health care benefits and included a reduction in the number of eligible employees.

Investment Plan

CONSOL Energy has an investment plan available to most non-represented employees. Eligible employees of CONSOL Pennsylvania Coal Company began participation in the CONSOL Pennsylvania Coal Company Investment Plan (the "CPCC 401(k) Plan") on September 1, 2017, the CPCC 401(k) Plan's inception date. Remaining eligible employees of CONSOL Energy began participation in the CPCC 401(k) Plan on November 1, 2017. Prior to participating in the CPCC 401(k) Plan, eligible employees participated in the Company's former parent's 401(k) plan. Effective December 31, 2019, the CPCC 401(k) Plan was amended to change its sponsor from CONSOL Pennsylvania Coal Company to CONSOL Energy Inc., and the plan's name was changed from the CONSOL Pennsylvania Coal Company Investment Plan to the CONSOL Energy Inc. Investment Plan (the "CEIX 401(k) Plan"). The CEIX 401(k) Plan includes company matching of 6% of eligible compensation contributed by eligible CONSOL Energy employees. Total company matching contributions were \$10,216, \$9,117 and \$8,114 for the years ended December 31, 2022, 2021 and 2020, respectively.

The Company may also make discretionary contributions to the CEIX 401(k) Plan ranging from 1% to 6% of eligible compensation for eligible employees (as defined by the CEIX 401(k) Plan). Discretionary contributions of \$10,517 were accrued for at December 31, 2022 and will be paid into employees' accounts in 2023. Discretionary contributions of

\$9,378 were accrued for at December 31, 2021 and were paid into employees' accounts in 2022. There were no such discretionary contributions accrued for or paid by the Company in the year ended December 31, 2020.

Long-Term Disability

CONSOL Energy has a Long-Term Disability Plan available to all eligible full-time salaried employees. The benefits for this plan are based on a percentage of monthly earnings, offset by all other income benefits available to the disabled.

	For the Years Ended December 31,		
	2022	2021	2020
Net periodic benefit costs	\$ 546	\$ 1,075	\$ 1,700
Discount rate assumption used to determine net periodic benefit costs	2.39 %	1.86 %	2.86 %

Liabilities incurred under the Long-Term Disability Plan are included in Other Accrued Liabilities and Other Noncurrent Liabilities in the Consolidated Balance Sheets and amounted to a combined total of \$7,241 and \$9,528 at December 31, 2022 and 2021, respectively.

NOTE 18—STOCK-BASED COMPENSATION:

CONSOL Energy adopted the CONSOL Energy Inc. Omnibus Performance Incentive Plan (the "Performance Incentive Plan") on November 22, 2017. The Performance Incentive Plan provides for grants of stock-based awards to employees, including any officer or employee-director of the Company, who is not a member of the Compensation Committee. These awards are intended to compensate the recipients thereof based on the performance of the Company's stock and the recipients' continued services during the vesting period, as well as align the recipients' long-term interests with those of the Company's shareholders. CONSOL Energy is responsible for the cost of awards granted under the Performance Incentive Plan, and all determinations with respect to awards to be made under the Performance Incentive Plan will be made by the board of directors or a committee as delegated by the board of directors.

The Performance Incentive Plan limits the number of units that may be delivered pursuant to vested awards to 2,600,000 shares, subject to proportionate adjustment in the event of stock splits, stock dividends, recapitalizations, and other similar transactions or events. Shares subject to awards that are canceled, forfeited, withheld to satisfy exercise prices or tax withholding obligations or otherwise terminate without delivery will be available for delivery pursuant to other awards.

For only those shares expected to vest, CONSOL Energy recognizes stock-based compensation costs on a straight-line basis over the requisite service period of the award as specified in the award agreement, which is generally the vesting term. The vesting of all awards will accelerate in the event of death and disability and may accelerate upon a change in control of CONSOL Energy. Some awards may accelerate based on retirement age. The Company accounts for forfeitures of stock-based compensation as they occur. The total stock-based compensation expense recognized during the years ended December 31, 2022, 2021 and 2020 was \$7,890, \$6,632, and \$11,161, respectively, and was included in General and Administrative Costs on the Consolidated Statements of Income. This includes expense specifically related to the Performance Incentive Plan. The related deferred tax benefit totaled \$1,842, \$1,657 and \$2,871 for the years ended December 31, 2022, 2021 and 2020, respectively.

As of December 31, 2022, CONSOL Energy has \$4,945 of unrecognized compensation cost related to all nonvested stock-based compensation awards, which is expected to be recognized over a weighted-average period of 1.88 years. When restricted stock and performance share unit awards become vested, the issuances are made from CONSOL Energy's common stock shares.

Restricted Stock Units

CONSOL Energy grants certain employees and non-employee directors restricted stock units, which entitle the holder to shares of common stock as the award vests. Compensation expense is recognized on a straight-line basis over the requisite service period of the award. The total fair value of restricted stock units vested during the years ended December 31, 2022, 2021 and 2020 was \$5,420, \$6,716 and \$6,913, respectively. The following table represents the nonvested restricted stock units and their corresponding fair value (based upon the closing share price) at the date of grant:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2021	974,882	\$ 12.94
Granted	352,244	\$ 28.56
Vested	(442,339)	\$ 12.08
Forfeited	(22,909)	\$ 16.10
Nonvested at December 31, 2022	<u>861,878</u>	<u>\$ 19.67</u>

Performance Share Units

CONSOL Energy grants certain employees performance share unit awards, which entitle the holder to shares of common stock subject to the achievement of certain market and performance goals. Compensation expense is recognized over the service period of awards and adjusted for the probability of achievement of performance-based goals. The total fair value of performance share units vested during the years ended December 31, 2022, 2021 and 2020 was \$1,943, \$707 and \$1,042, respectively. The following table represents the nonvested performance share units and their corresponding fair value (based upon the closing share price and/or Monte Carlo simulation) on the date of grant:

	Number of Shares	Weighted Average Grant Date Fair Value
Nonvested at December 31, 2021	186,352	\$ 14.24
Granted	76,945	\$ 9.71
Vested	(168,822)	\$ 11.51
Forfeited	(20,366)	\$ 42.75
Nonvested at December 31, 2022	<u>74,109</u>	<u>\$ 7.91</u>

NOTE 19—SUPPLEMENTAL CASH FLOW INFORMATION:

The following are non-cash transactions that impact the investing and financing activities of CONSOL Energy.

CONSOL Energy entered into non-cash finance lease arrangements of \$24,844, \$19,011 and \$42,200 for the years ended December 31, 2022, 2021 and 2020, respectively.

As of December 31, 2022, 2021 and 2020, CONSOL Energy purchased goods and services related to capital projects in the amount of \$6,381, \$1,054 and \$1,671, respectively, which are included in Accounts Payable and Other Accrued Liabilities on the Consolidated Balance Sheets.

The following table shows cash paid for interest and income taxes for the periods indicated.

	For the Years Ended December 31,		
	2022	2021	2020
Cash Paid For:			
Interest (net of amounts capitalized)	\$ 50,844	\$ 54,401	\$ 62,997
Income taxes (net of refunds received)	\$ 55,753	\$ 3,199	\$ 1,476

NOTE 20—CONCENTRATION OF CREDIT RISK AND MAJOR CUSTOMERS:

CONSOL Energy primarily markets its thermal coal to electric power producers in the eastern United States. Revenues generated from electric power producers and other customers in the eastern United States were 47%, 54% and 65% for the years ended December 31, 2022, 2021 and 2020, respectively. The Company has contractual relationships with certain coal exporters who distribute coal to international markets. For the years ended December 31, 2022, 2021 and 2020, approximately 53%, 46% and 35%, respectively, of the Company's coal revenues were derived from these exporters and other foreign customers. The Company uses the end usage point as the basis for attributing tons to individual countries. Because title to the Company's export shipments typically transfers to customers at a point that does not necessarily reflect the end usage point, the Company attributes export tons to the country with the end usage point, if known. India and Europe were attributed greater than 10% of total revenue during the year ended December 31, 2022. India was attributed greater than 10% of total revenue during the year ended December 31, 2021. No individual country outside of the United States was attributed greater than 10% of total revenue during the year ended December 31, 2020.

During the year ended December 31, 2022, two customers each comprised over 10% of the Company's total sales, aggregating approximately 30% of the Company's total sales. During the years ended December 31, 2021 and 2020, three customers each comprised over 10% of the Company's total sales, aggregating approximately 40% and 55%, respectively, of the Company's total sales. Additionally, three of the Company's customers each had outstanding balances in excess of 10% of the total trade receivable balance as of December 31, 2022 and 2021.

Concentration of credit risk is summarized below:

	December 31,	
	2022	2021
Electric coal utilities	\$ 82,608	\$ 41,582
Coal exporters and industrial customers	51,548	53,949
Steel and coke producers	24,230	11,560
Other	1,472	1,605
Total Trade Receivables	159,858	108,696
Less: Allowance for credit losses	(1,731)	(4,597)
Total Trade Receivables, net	\$ 158,127	\$ 104,099

NOTE 21—DERIVATIVES:*Interest Rate Risk Management*

During the year ended December 31, 2019, the Company entered into interest rate swaps to manage exposures to interest rate risk on long-term debt in order to achieve a mix of fixed and variable rate debt that it deems appropriate. These interest rate swaps were designated as cash flow hedges of future variable interest payments. The \$50,000 interest rate swap was settled in August 2022 with the change in the floating rate on the TLB Facility to SOFR from LIBOR. For additional information on these arrangements, refer to Note 13 - Long-Term Debt.

Coal Price Risk Management Positions

The Company may sell or purchase forward contracts, swaps and options in the over-the-counter coal market in order to manage its exposure to coal prices. The Company has exposure to the risk of fluctuating coal prices related to forecasted or index-priced sales of coal or to the risk of changes in the fair value of a fixed price physical sales contract. As of December 31, 2022, all of the Company's coal-related derivative contracts have settled.

Tabular Derivatives Disclosures

The Company has master netting agreements with all of its counterparties which allow for the settlement of contracts in an asset position with contracts in a liability position in the event of default or termination. Such netting arrangements reduce the Company's credit exposure related to these counterparties to the extent the Company has any liability to such counterparties. For classification purposes, the Company records the net fair value of all the positions with a given counterparty as a net asset or liability in the Consolidated Balance Sheets. The fair value of derivatives reflected in the accompanying Consolidated Balance Sheets are set forth in the table below.

	December 31, 2022		December 31, 2021	
	Asset Derivatives	Liability Derivatives	Asset Derivatives	Liability Derivatives
Coal Swap Contracts	\$ 6,024	\$ (21,166)	\$ 1,086	\$ (53,290)
Effect of Counterparty Netting	\$ (6,024)	\$ 6,024	\$ (1,086)	\$ 1,086
Net Derivatives as Classified in the Consolidated Balance Sheets	\$ —	\$ (15,142)	\$ —	\$ (52,204)

Currently, the Company does not seek cash flow hedge accounting treatment for its commodity derivative financial instruments and therefore, changes in fair value are reflected in current earnings. During the year ended December 31, 2022, the Company settled its commodity derivatives at a loss of \$289,228. Additionally, during the years ended December 31, 2022 and 2021, the Company recognized adjustments to the fair value of its commodity derivatives of \$(52,204) and \$52,204, respectively. These settlements and fair value adjustments are included in Loss on Commodity Derivatives, net on the accompanying Consolidated Statements of Income.

The company classifies the cash effects of its derivatives within the Cash Flows from Operating Activities section of the Consolidated Statements of Cash Flows.

NOTE 22—FAIR VALUE OF FINANCIAL INSTRUMENTS:

CONSOL Energy determines the fair value of assets and liabilities based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. The fair values are based on assumptions that market participants would use when pricing an asset or liability, including assumptions about risk and the risks inherent in valuation techniques and the inputs to valuations. The fair value hierarchy is based on whether the inputs to valuation techniques are observable or unobservable. Observable inputs reflect market data obtained from independent sources (including LIBOR-based discount rates, SOFR-based discount rates and U.S. Treasury-based rates), while unobservable inputs reflect the Company's own assumptions of what market participants would use.

The fair value hierarchy includes three levels of inputs that may be used to measure fair value as described below.

Level One - Quoted prices for identical instruments in active markets.

Level Two - The fair value of the assets and liabilities included in Level 2 are based on standard industry income approach models that use significant observable inputs, including LIBOR-based discount rates, SOFR-based discount rates and U.S. Treasury-based rates. The Company's Level 2 assets and liabilities include interest rate swaps and coal commodity contracts with fair values derived from quoted prices in over-the-counter markets.

Level Three - Unobservable inputs significant to the fair value measurement supported by little or no market activity.

In those cases when the inputs used to measure fair value meet the definition of more than one level of the fair value hierarchy, the lowest level input that is significant to the fair value measurement in its totality determines the applicable level in the fair value hierarchy.

The financial instruments measured at fair value on a recurring basis are summarized below:

Description	Fair Value Measurements at December 31, 2022			Fair Value Measurements at December 31, 2021		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Commodity Derivatives	\$ —	\$ (15,142)	\$ —	\$ —	\$ (52,204)	\$ —
Interest Rate Swaps	\$ —	\$ —	\$ —	\$ —	\$ (517)	\$ —

The following methods and assumptions were used to estimate the fair value for which the fair value option was not elected:

Long-term debt: The fair value of long-term debt is measured using unadjusted quoted market prices or estimated using discounted cash flow analyses. The discounted cash flow analyses are based on current market rates for instruments with similar cash flows.

The carrying amounts and fair values of financial instruments for which the fair value option was not elected are as follows:

	December 31, 2022		December 31, 2021	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
Long-Term Debt (Excluding Debt Issuance Costs)	\$ 350,572	\$ 365,789	\$ 613,752	\$ 628,431

Certain of the Company's debt is actively traded on a public market and, as a result, constitutes Level 1 fair value measurements. The portion of the Company's debt obligations that is not actively traded is valued through reference to the applicable underlying benchmark rate and, as a result, constitutes Level 2 fair value measurements.

NOTE 23—COMMITMENTS AND CONTINGENT LIABILITIES:

The Company is subject to various lawsuits and claims with respect to such matters as personal injury, wrongful death, damage to property, exposure to hazardous substances, governmental regulations including environmental remediation, employment and contract disputes and other claims and actions arising out of the normal course of business. The Company accrues the estimated loss for these lawsuits and claims when the loss is probable and reasonably estimable. The Company's estimated accruals related to these pending claims, individually and in the aggregate, are immaterial to the financial position, results of operations or cash flows of the Company as of December 31, 2022. It is possible that the aggregate loss in the future with respect to these lawsuits and claims could ultimately be material to the Company's financial position, results of operations or cash flows; however, such amounts cannot be reasonably estimated. The amount claimed against the Company as of December 31, 2022 is disclosed below when an amount is expressly stated in the lawsuit or claim, which is not often the case.

Fitzwater Litigation: Three nonunion retired coal miners have sued Fola Coal Company LLC, Consolidation Coal Company ("CCC") and CONSOL of Kentucky Inc. ("COK") (as well as the Company's former parent) in the U.S. District Court for the Southern District of West Virginia alleging ERISA violations in the termination of retiree health care benefits. The Plaintiffs contend they relied to their detriment on oral statements and promises of "lifetime health benefits" allegedly made by various members of management during Plaintiffs' employment and that they were allegedly denied access to Summary Plan Documents that clearly reserved to the Company the right to modify or terminate the Retiree Health and Welfare Plan subject to Plaintiffs' claims. Pursuant to Plaintiffs' amended complaint filed on April 24, 2017, Plaintiffs request that retiree health benefits be reinstated and seek to represent a class of all nonunion retirees who were associated with AMVEST and COK areas of operation. On October 15, 2019, Plaintiffs' supplemental motion for class certification was denied on all counts. On July 15, 2020, Plaintiffs filed an interlocutory appeal with the Fourth Circuit Court of Appeals on the Order denying class certification. The Fourth Circuit denied Plaintiffs' appeal on August 14, 2020. On October 1, 2020, the District Court entered a pretrial order setting the trial date, which was held in February 2021. No ruling has been issued by the judge. The Company believes it has a meritorious defense and intends to vigorously defend this suit.

Casey Litigation: A class action lawsuit was filed on August 23, 2017 on behalf of two nonunion retired coal miners against CCC, COK, CONSOL Buchanan Mining Co., LLC and Kurt Salvatori, the Company's Chief Administrative Officer, in the U.S. District Court for the Southern District of West Virginia alleging ERISA violations in the termination of retiree health care benefits. Filed by the same lawyers who filed the Fitzwater litigation, and raising nearly identical claims, the Plaintiffs contend they relied to their detriment on oral promises of "lifetime health benefits" allegedly made by various members of management during Plaintiffs' employment and that they were not provided with copies of Summary Plan Documents clearly reserving to the Company the right to modify or terminate the Retiree Health and Welfare Plan. Plaintiffs request that retiree health benefits be reinstated for them and their dependents and seek to represent a class of all nonunion retirees of any subsidiary of the Company's former parent that operated or employed individuals in McDowell or Mercer Counties, West Virginia, or Buchanan or Tazewell Counties, Virginia whose retiree welfare benefits were terminated. On December 1, 2017, the trial court judge in Fitzwater signed an order to consolidate Fitzwater with Casey. The Casey complaint was amended on March 1, 2018 to add new plaintiffs, add defendant CONSOL Pennsylvania Coal Company, LLC and eliminate defendant CONSOL Buchanan Mining Co., LLC in an attempt to expand the class of retirees. On October 15, 2019, Plaintiffs' supplemental motion for class certification was denied on all counts. On July 15, 2020, Plaintiffs filed an interlocutory appeal with the Fourth Circuit Court of Appeals on the Order denying class

certification. The Fourth Circuit denied Plaintiffs' appeal on August 14, 2020. On October 1, 2020, the District Court entered a pretrial order setting the trial date, which was held in February 2021. No ruling has been issued by the judge. The Company believes it has a meritorious defense and intends to vigorously defend this suit.

United Mine Workers of America 1992 Benefit Plan Litigation: In 2013, Murray Energy and its subsidiaries ("Murray") entered into a stock purchase agreement (the "Murray sale agreement") with the Company's former parent pursuant to which Murray acquired the stock of CCC and certain subsidiaries and certain other assets and liabilities. At the time of sale, the liabilities included certain retiree medical liabilities under the Coal Act and certain federal black lung liabilities under the Black Lung Benefits Act ("BLBA"). Based upon information available, the Company estimates that the annual servicing costs of these liabilities are approximately \$10 million to \$20 million per year for the next ten years. The annual servicing cost would decline each year since the beneficiaries of the Coal Act consist principally of miners who retired prior to 1994. Murray filed for Chapter 11 bankruptcy in October 2019. As part of the bankruptcy proceedings, Murray unilaterally entered into a settlement with the 1992 Benefit Plan to transfer retirees in the Murray Energy Section 9711 Plan to the 1992 Benefit Plan. This was approved by the bankruptcy court on April 30, 2020. On May 2, 2020, the 1992 Benefit Plan filed an action in the United States District Court for the District of Columbia asking the court to make a determination whether the Company's former parent or the Company has any continuing retiree medical liabilities under the Coal Act (the "1992 Plan Lawsuit"). The Murray sale agreement includes indemnification by Murray with respect to the Coal Act and BLBA liabilities. In addition, the Company had agreed to indemnify its former parent relative to certain pre-separation liabilities. As of September 16, 2020, the Company entered into a settlement agreement with Murray and withdrew its claims in bankruptcy. On September 11, 2020, the Defendants in the 1992 Plan Lawsuit filed a Motion to Dismiss Plaintiffs' Second Amended Complaint which was denied by the Court on March 29, 2022. The Company will continue to vigorously defend any claims that attempt to transfer any of such liabilities directly or indirectly to the Company, including raising all applicable defenses against the 1992 Benefit Plan's suit. With respect to this lawsuit, while a loss is possible, it is not probable and, as a result, no accrual has been recorded.

Other Matters: On July 27, 2021, the Company's former parent informed the Company that it had received a request from the UMWA 1974 Pension Plan for information related to the facts and circumstances surrounding the former parent's 2013 sale of certain of its coal subsidiaries to Murray (the "Letter Request"). The Letter Request indicates that litigation by the UMWA 1974 Pension Plan against the Company's former parent related to potential withdrawal liabilities from the plan created by the 2019 bankruptcy of Murray is reasonably foreseeable. There has been no indication of potential claims against the Company by the UMWA 1974 Pension Plan and, at this time, no liability of the Company's former parent has been assessed.

The Company and various subsidiaries are defendants in certain other legal proceedings. In the opinion of management, based upon an investigation of these matters and discussion with legal counsel, the ultimate outcome of such other legal proceedings, individually and in the aggregate, is not expected to have a material adverse effect on the Company's financial position, results of operations or liquidity.

The following is a summary, as of December 31, 2022, of the financial guarantees, unconditional purchase obligations and letters of credit to certain third parties. Employee-related financial guarantees have primarily been provided to support the 1992 Benefit Plan and federal black lung and various state workers' compensation self-insurance programs. Environmental financial guarantees have primarily been provided to support various performance bonds related to reclamation and other environmental issues. Other financial guarantees have been extended to support sales contracts, insurance policies, surety indemnity agreements, legal matters, full and timely payments of mining equipment leases, and various other items necessary in the normal course of business. These amounts represent the maximum potential of total future payments that the Company could be required to make under these instruments. Certain letters of credit included in the table below were issued against other commitments included in this table. These amounts have not been reduced for potential recoveries under recourse or collateralization provisions. Generally, recoveries under reclamation bonds would be limited to the extent of the work performed at the time of the default. No amounts related to these commitments are recorded as liabilities in the financial statements. The Company's management believes that these commitments will not have a material adverse effect on the Company's financial condition.

Amount of Commitment Expiration Per Period

	Total Amounts Committed	Less Than 1 Year	1-3 Years	3-5 Years	Beyond 5 Years
Letters of Credit:					
Employee-Related	\$ 50,366	\$ 39,984	\$ 10,382	\$ —	\$ —
Environmental	398	—	398	—	—
Other	135,730	111,088	24,642	—	—
Total Letters of Credit	<u>\$ 186,494</u>	<u>\$ 151,072</u>	<u>\$ 35,422</u>	<u>\$ —</u>	<u>\$ —</u>
Surety Bonds:					
Employee-Related	\$ 81,010	\$ 81,010	\$ —	\$ —	\$ —
Environmental	517,935	517,935	—	—	—
Other	3,691	3,691	—	—	—
Total Surety Bonds	<u>\$ 602,636</u>	<u>\$ 602,636</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

The Company regularly evaluates the likelihood of default for all guarantees based on an expected loss analysis and records the fair value, if any, of its guarantees as an obligation in the Consolidated Financial Statements.

NOTE 24—SEGMENT INFORMATION:

The Company reports segment information based on the “management” approach. The management approach designates the internal reporting used by management to make decisions on and assess performance of the Company’s reportable segments. CONSOL Energy presently consists of two reportable segments, the PAMC and the CONSOL Marine Terminal. The PAMC includes the Bailey Mine, the Enlow Fork Mine, the Harvey Mine and a centralized preparation plant. The PAMC segment’s principal activities include the mining, preparation and marketing of bituminous coal, sold primarily to power generators, industrial end-users and metallurgical end-users. The CONSOL Marine Terminal provides coal export terminal services through the Port of Baltimore. General and administrative costs are allocated to the Company’s segments based on a percentage of resources utilized, a percentage of total revenue and a percentage of total projected capital expenditures. CONSOL Energy’s Other segment includes revenue and expenses from various corporate and diversified business activities that are not allocated to the PAMC or the CONSOL Marine Terminal segments. The diversified business activities include the development and operation of the Itmann Mining Complex, the Greenfield Reserves and Resources, closed mine activities, other income, gain on asset sales related to non-core assets, and gain/loss on debt extinguishment. Additionally, interest expense and income taxes, as well as various other non-operated activities, none of which are individually significant to the Company, are also reflected in CONSOL Energy’s Other segment and are not allocated to the PAMC and CONSOL Marine Terminal segments.

The Company evaluates the performance of its segments utilizing Adjusted EBITDA and various sales and production metrics. Adjusted EBITDA measures the operating performance of the Company’s segments and is used to allocate resources to the Company’s segments.

Reportable segment results for the year ended December 31, 2022 are:

	PAMC	CONSOL Marine Terminal	Other	Adjustments and Eliminations	Consolidated
Coal Revenue	\$ 1,973,884	\$ —	\$ 44,778	\$ —	\$ 2,018,662
Terminal Revenue	—	78,915	—	—	78,915
Freight Revenue	177,610	—	4,831	—	182,441
Total Revenue from Contracts with Customers	\$ 2,151,494	\$ 78,915	\$ 49,609	\$ —	\$ 2,280,018
Adjusted EBITDA	\$ 773,095	\$ 52,259	\$ (18,621)	\$ —	\$ 806,733
Segment Assets	\$ 1,756,368	\$ 82,333	\$ 865,676	\$ —	\$ 2,704,377
Depreciation, Depletion and Amortization	\$ 200,320	\$ 4,604	\$ 21,954	\$ —	\$ 226,878
Capital Expenditures	\$ 107,401	\$ 4,646	\$ 59,459	\$ —	\$ 171,506

Reportable segment results for the year ended December 31, 2021 are:

	PAMC	CONSOL Marine Terminal	Other	Adjustments and Eliminations	Consolidated
Coal Revenue	\$ 1,085,080	\$ —	\$ 6,942	\$ —	\$ 1,092,022
Terminal Revenue	—	65,193	—	—	65,193
Freight Revenue	103,819	—	—	—	103,819
Total Revenue from Contracts with Customers	\$ 1,188,899	\$ 65,193	\$ 6,942	\$ —	\$ 1,261,034
Adjusted EBITDA	\$ 360,480	\$ 43,491	\$ (25,725)	\$ —	\$ 378,246
Segment Assets	\$ 1,773,609	\$ 108,877	\$ 691,031	\$ —	\$ 2,573,517
Depreciation, Depletion and Amortization	\$ 206,727	\$ 4,834	\$ 13,022	\$ —	\$ 224,583
Capital Expenditures	\$ 100,896	\$ 974	\$ 30,882	\$ —	\$ 132,752

Reportable segment results for the year ended December 31, 2020 are:

	PAMC	CONSOL Marine Terminal	Other	Adjustments and Eliminations	Consolidated
Coal Revenue	\$ 771,363	\$ —	\$ 1,299	\$ —	\$ 772,662
Terminal Revenue	—	66,810	—	—	66,810
Freight Revenue	39,990	—	—	—	39,990
Total Revenue from Contracts with Customers	\$ 811,353	\$ 66,810	\$ 1,299	\$ —	\$ 879,462
Adjusted EBITDA	\$ 228,211	\$ 44,356	\$ (11,044)	\$ —	\$ 261,523
Segment Assets	\$ 1,864,514	\$ 108,711	\$ 550,141	\$ —	\$ 2,523,366
Depreciation, Depletion and Amortization	\$ 198,272	\$ 5,095	\$ 7,393	\$ —	\$ 210,760
Capital Expenditures	\$ 70,195	\$ 1,455	\$ 14,354	\$ —	\$ 86,004

For the years ended December 31, 2022, 2021 and 2020, the Company's reportable segments had revenues from the following customers, each comprising over 10% of the Company's total sales:

	For the Years Ended December 31,		
	2022	2021	2020
Customer A	\$ 328,994	\$ 186,622	\$ 134,354
Customer B	*	*	\$ 223,891
Customer C	*	\$ 141,968	\$ 116,536
Customer D	*	\$ 170,901	*
Customer E	\$ 368,502	*	*

* Revenues from these customers during the periods presented were less than 10% of the Company's total sales.

Reconciliation of Segment Information to Consolidated Amounts:

Revenue and Other Income:

	For the Years Ended December 31,		
	2022	2021	2020
Total Segment Revenue from Contracts with Customers	\$ 2,280,018	\$ 1,261,034	\$ 879,462
Loss on Commodity Derivatives, net	(237,024)	(52,204)	—
Other Income not Allocated to Segments (Note 4)	24,354	38,394	126,886
Gain on Sale of Assets	34,589	11,723	15,295
Total Consolidated Revenue and Other Income	\$ 2,101,937	\$ 1,258,947	\$ 1,021,643

Adjusted EBITDA:

	For the Year Ended December 31, 2022			
	PAMC	CONSOL Marine Terminal	Other	Total Company
Net Income (Loss)	\$ 620,208	\$ 41,223	\$ (194,452)	\$ 466,979
Income Tax Expense	—	—	101,458	101,458
Interest Expense	—	6,116	46,524	52,640
Interest Income	(1,857)	—	(4,174)	(6,031)
Depreciation, Depletion and Amortization	200,320	4,604	21,954	226,878
Stock-Based Compensation	6,628	316	946	7,890
Loss on Debt Extinguishment	—	—	5,623	5,623
Equity Affiliate Adjustments	—	—	3,500	3,500
Fair Value Adjustment of Commodity Derivative Instruments	(52,204)	—	—	(52,204)
Adjusted EBITDA	\$ 773,095	\$ 52,259	\$ (18,621)	\$ 806,733

	For the Year Ended December 31, 2021			
	PAMC	CONSOL Marine Terminal	Other	Total Company
Net Income (Loss)	\$ 94,161	\$ 32,251	\$ (92,302)	\$ 34,110
Income Tax Expense	—	—	1,297	1,297
Interest Expense	1,710	6,141	55,491	63,342
Interest Income	(90)	—	(3,197)	(3,287)
Depreciation, Depletion and Amortization	206,727	4,834	13,022	224,583
Stock-Based Compensation	5,768	265	599	6,632
Gain on Debt Extinguishment	—	—	(657)	(657)
Pension Settlement	—	—	22	22
Fair Value Adjustment of Commodity Derivative Instruments	52,204	—	—	52,204
Adjusted EBITDA	\$ 360,480	\$ 43,491	\$ (25,725)	\$ 378,246

	For the Year Ended December 31, 2020			
	PAMC	CONSOL Marine Terminal	Other	Total Company
Net Income (Loss)	\$ 16,185	\$ 32,537	\$ (61,936)	\$ (13,214)
Income Tax Expense	—	—	3,972	3,972
Interest Expense	1,236	6,166	53,784	61,186
Interest Income	(10)	—	(1,220)	(1,230)
Depreciation, Depletion and Amortization	198,272	5,095	7,393	210,760
Stock/Unit-Based Compensation	9,905	558	1,116	11,579
CCR Merger Fees	2,623	—	7,199	9,822
Gain on Debt Extinguishment	—	—	(21,352)	(21,352)
Adjusted EBITDA	\$ 228,211	\$ 44,356	\$ (11,044)	\$ 261,523

Enterprise-Wide Disclosures:

For the year ended December 31, 2022, more than 50% of the Company's revenue was attributable to international customers. India and Europe were attributed greater than 10% of total revenue during the year ended December 31, 2022. For the years ended December 31, 2021 and 2020, more than 50% of the Company's revenue was attributable to customers based in the United States of America. India was attributed greater than 10% of total revenue during the year ended December 31, 2021. No individual country outside of the United States was attributed greater than 10% of total revenue during the year ended December 31, 2020.

CONSOL Energy's property, plant and equipment is predominantly located in the United States. At December 31, 2022 and 2021, less than 1% of the Company's net property, plant and equipment was located in Canada.

NOTE 25—RELATED PARTY TRANSACTIONS
PA Mining Complex LP

On December 30, 2020, CONSOL Energy completed the acquisition of all of the outstanding common units of PA Mining Complex LP, and PA Mining Complex LP became the Company's indirect wholly-owned subsidiary (see Note 2 - Major Transactions for additional information). In connection with the closing of the CCR Merger, CONSOL Energy issued 7,967,690 shares of its common stock to acquire the 10,912,138 common units of the Partnership held by third-party investors at a fixed exchange ratio of 0.73 shares of CEIX common stock for each Partnership unit, for total implied consideration of \$51,710.

Prior to the CCR Merger, CONSOL Energy, certain of its subsidiaries and the Partnership were party to various agreements, including an Omnibus Agreement dated September 30, 2016, as amended on November 28, 2017, and an Affiliated Company Credit Agreement. Under the Omnibus Agreement, CONSOL Energy provided the Partnership with certain services in exchange for payments by the Partnership for those services. In connection with the closing of the CCR Merger, the Affiliated Company Credit Agreement was terminated, all obligations and guarantees thereunder repaid and discharged and all liens granted in connection therewith released. In connection with the termination of the Affiliated Company Credit Agreement and in exchange for, and in satisfaction of, payment of the outstanding balance of approximately \$176,535 thereunder, the Partnership issued 37,322,410 Partnership common units to the Company.

Charges for services from the Company to the Partnership prior to the CCR Merger include the following:

	For the Year Ended December 31, 2020
Operating and Other Costs	\$ 3,820
General and Administrative Costs	9,604
Total Services from CONSOL Energy	\$ 13,424

Operating and Other Costs included pension service costs and insurance expenses. General and Administrative Costs included charges for incentive compensation, an annual administrative support fee and reimbursement for the provision of certain management and operating services provided by the Company.

NOTE 26—SUBSEQUENT EVENTS

On December 20, 2022, CONSOL Energy issued a notice of partial redemption of its Second Lien Notes at 102.75% in the amount of \$25 million. The redemption took place on January 19, 2023.

On February 1, 2023, CONSOL Energy issued a notice of partial redemption of its Second Lien Notes at 102.75% in the amount of \$25 million. The redemption will take place on March 3, 2023.

On February 7, 2023, CONSOL Energy announced a \$1.10/share dividend in an aggregate amount of approximately \$39 million, payable on February 28, 2023 to all stockholders of record as of February 17, 2023.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

ITEM 9A. CONTROLS AND PROCEDURES

Disclosure controls and procedures. CONSOL Energy, under the supervision and with the participation of its management, including CONSOL Energy's principal executive officer and principal financial officer, evaluated the effectiveness of the Company's "disclosure controls and procedures," as such term is defined in Rule 13a-15(e) under the Exchange Act, as of the end of the period covered by this Annual Report on Form 10-K. Based on that evaluation, CONSOL Energy's principal executive officer and principal financial officer have concluded that the Company's disclosure controls and procedures are effective as of December 31, 2022 to ensure that information required to be disclosed by CONSOL Energy in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and includes controls and procedures designed to ensure that information required to be disclosed by CONSOL Energy in such reports is accumulated and communicated to CONSOL Energy's management, including CONSOL Energy's principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting. CONSOL Energy's management is responsible for establishing and maintaining adequate internal control over financial reporting. CONSOL Energy's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

CONSOL Energy's internal control over financial reporting includes policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of assets of the Company; (2) provide reasonable assurances that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures are being made only in accordance with authorizations of management and the directors of CONSOL Energy; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of CONSOL Energy's assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Accordingly, even effective controls can provide only reasonable assurance with respect to financial statement preparation and presentation. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of CONSOL Energy's internal control over financial reporting as of December 31, 2022. In making this assessment, management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (COSO) in Internal Control-Integrated Framework. Based on our assessment and those criteria, management has concluded that CONSOL Energy maintained effective internal control over financial reporting as of December 31, 2022.

Ernst & Young LLP, our independent registered public accounting firm that has audited the financial statements contained in this annual report on Form 10-K, has issued an attestation report on the Company's internal control over financial reporting, which is on page 127 of this annual report on Form 10-K.

Changes in internal controls over financial reporting. There was no change in the Company's internal controls over financial reporting, as such term is defined in Rule 13a-15(f) of the Exchange Act, that materially affected, or is reasonably likely to materially affect, the Company's internal controls over financial reporting.

It should be noted that any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system will be met. In addition, the design of any control system is based in part upon certain assumptions about the likelihood of future events.

Report of Independent Registered Public Accounting Firm

To the Stockholders and the Board of Directors of CONSOL Energy Inc.

Opinion on Internal Control Over Financial Reporting

We have audited CONSOL Energy Inc. and Subsidiaries' internal control over financial reporting as of December 31, 2022, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). In our opinion, CONSOL Energy Inc. and Subsidiaries (the Company) maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated balance sheets of CONSOL Energy Inc. and Subsidiaries as of December 31, 2022 and 2021, the related consolidated statements of income, comprehensive income, stockholders' equity and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and our report dated February 10, 2023 expressed an unqualified opinion thereon.

Basis for Opinion

The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects.

Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Ernst & Young LLP

Pittsburgh, Pennsylvania

February 10, 2023

ITEM 9B. OTHER INFORMATION

Employment Agreement - Brock

On February 6, 2023, the Board of Directors approved a third amendment (the “third amendment”) to the existing Employment Agreement between the Company and its Chief Executive Officer, James A. Brock, dated as of February 15, 2018, as amended on February 10, 2021 and February 10, 2022. The purpose of the third amendment is to add a performance condition to the 2023 retention payment. Specifically, in addition to the service requirement therein, the third amendment adds a requirement that the Company have paid all principal and interest outstanding under its Term Loan B Facility and its Second Lien Notes, in order for Mr. Brock to receive the full retention payment opportunity in the amount of \$1,000,000 payable on December 31, 2023 or January 1, 2024. The third amendment became effective on February 6, 2023. The foregoing description is qualified in its entirety by reference to the full text of the third amendment, which is filed as Exhibit 10.52 to this Annual Report on Form 10-K and is incorporated into this Item 9B by reference.

CIC Agreement - Thakkar

On February 6, 2023, the Board of Directors approved an amendment to the existing Change in Control Severance Agreement between the Company and its President, Miteshkumar B. Thakkar, dated as of January 3, 2020 (the “CIC Agreement”). The purpose of the amendment is to increase his severance pay in the event of termination without Cause or for Good Reason in connection with a Change in Control to 2.5 times the Base Salary and Incentive Pay (with each capitalized term as defined in the CIC Agreement). This amendment to the CIC Agreement became effective on February 8, 2023. The foregoing description is qualified in its entirety by reference to the full text of the amendment to the CIC Agreement, which is filed as Exhibit 10.53 to this Annual Report on Form 10-K and is incorporated into this Item 9B by reference.

ITEM 9C. DISCLOSURE REGARDING FOREIGN JURISDICTIONS THAT PREVENT INSPECTIONS

Not applicable.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item is incorporated by reference from the information under the captions “Proposal No. 1 - Election of Directors,” “Executive Officers,” “Beneficial Ownership of Securities” and “Board of Directors and Compensation Information - Board of Directors and its Committees” in the Company’s Proxy Statement on Schedule 14A for its 2023 Annual Meeting of Stockholders (the “Proxy Statement”).

CONSOL Energy has a written Code of Business Conduct and Ethics that applies to CONSOL Energy’s Chief Executive Officer (Principal Executive Officer), Chief Financial Officer (Principal Financial Officer), Chief Accounting Officer (Principal Accounting Officer) and others. The Code of Business Conduct and Ethics is available on CONSOL Energy’s website at www.consolenergy.com. Any amendments to, or waivers from, a provision of our Code of Business Conduct and Ethics that applies to our principal executive officer, principal financial officer and principal accounting officer and that relates to any element of the code of ethics enumerated in paragraph (b) of Item 406 of Regulation S-K shall be disclosed by posting such information on our website at www.consolenergy.com.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this Item is incorporated by reference from the information under the captions “Board of Directors and Compensation Information - Director Compensation Table - 2022,” “Board of Directors and Compensation Information - Understanding Our Director Compensation Table” and “Executive Compensation Information” in the Proxy Statement.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item is incorporated by reference from the information under the captions “Beneficial Ownership of Securities” and “Securities Authorized for Issuance Under the CONSOL Energy Inc. Equity Compensation Plan” in the Proxy Statement.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by this Item is incorporated by reference from the information under the captions “Related Person Transaction Policy and Procedures and Related Person Transactions” and “Board of Directors and Compensation Information - Board of Directors and its Committees - Determination of Director Independence” in the Proxy Statement.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this Item is incorporated by reference from the information under the caption “Audit Committee and Audit Fees - Independent Registered Public Accounting Firm” in the Proxy Statement.

PART IV**ITEM 15. EXHIBIT INDEX**

In reviewing any agreements incorporated by reference in this Form 10-K or filed with this 10-K, please remember that such agreements are included to provide information regarding their terms. They are not intended to be a source of financial, business or operational information about the Company or any of its subsidiaries or affiliates. The representations, warranties and covenants contained in these agreements are made solely for purposes of the agreements and are made as of specific dates; are solely for the benefit of the parties; may be subject to qualifications and limitations agreed upon by the parties in connection with negotiating the terms of the agreements, including being made for the purpose of allocating contractual risk between the parties instead of establishing matters as facts; and may be subject to standards of materiality applicable to the contracting parties that differ from those applicable to investors or security holders. Investors and security holders should not rely on the representations, warranties and covenants or any description thereof as characterizations of the actual state of facts or condition of the Company or any of its subsidiaries or affiliates or, in connection with acquisition agreements, of the assets to be acquired. Moreover, information concerning the subject matter of the representations, warranties and covenants may change after the date of the agreements. Accordingly, these representations and warranties alone may not describe the actual state of affairs as of the date they were made or at another time.

The following documents are filed as part of this report:

Financial Statements:

Report of Independent Registered Public Accounting Firm
Consolidated Statements of Income for the Years Ended December 31, 2022, 2021 and 2020
Consolidated Statements of Comprehensive Income for the Years Ended December 31, 2022, 2021 and 2020
Consolidated Balance Sheets at December 31, 2022 and 2021
Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 2022, 2021 and 2020
Consolidated Statements of Cash Flows for the Years Ended December 31, 2022, 2021 and 2020
Notes to the Audited Consolidated Financial Statements

Schedules:

None

Index to Exhibits

Exhibits	Description	Method of Filing
2.1	Separation and Distribution Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 2.1 to Form 8-K (File No. 001-38147) filed on December 4, 2017
2.2	Tax Matters Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 2.2 to Form 8-K (File No. 001-38147) filed on December 4, 2017
2.3	Employee Matters Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 2.3 to Form 8-K (File No. 001-38147) filed on December 4, 2017

2.4	Intellectual Property Matters Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 2.4 to Form 8-K (File No. 001-38147) filed on December 4, 2017
2.5***	Agreement and Plan of Merger, dated as of October 22, 2020, by and among CONSOL Energy Inc., Transformer LP Holdings Inc., Transformer Merger Sub LLC, CONSOL Coal Resources LP and CONSOL Coal Resources GP LLC	Filed as Exhibit 2.1 to Form 8-K (File No. 001-38147) filed on October 23, 2020
3.1	Amended and Restated Certificate of Incorporation of the Company	Filed as Exhibit 3.1 to Form 8-K (File No. 001-38147) filed on December 4, 2017
3.2	Certificate of Amendment to Amended and Restated Certificate of Incorporation of the Company	Filed as Exhibit 3.1 to Form 8-K (File No. 001-38147) filed on May 8, 2020
3.3	Second Amended and Restated Bylaws of the Company	Filed as Exhibit 3.2 to Form 8-K (File No. 001-38147) filed on May 8, 2020
4.1	Indenture dated as of November 13, 2017 by and between CONSOL Energy Inc. (formerly known as CONSOL Mining Corporation) and UMB Bank, N.A., as Trustee and Collateral Trustee (including form of supplemental indenture on subsidiary guarantors).	Filed as Exhibit 4.1 to Form 8-K (File No. 001-38147) filed on November 15, 2017
4.2	Description of Capital Stock	Filed as Exhibit 4.2 to Form 10-K (File No. 001-38147) filed on February 12, 2021
4.3	Indenture, dated as of April 1, 2021, among CONSOL Energy Inc., the subsidiary guarantors party thereto and Wilmington Trust, N.A., as trustee	Filed as Exhibit 4.1 to Form 8-K (File No. 001-38147) filed on April 19, 2021
4.4	Loan Agreement, dated as of April 1, 2021, between the Pennsylvania Economic Development Financing Authority and the Company	Filed as Exhibit 4.2 to Form 8-K (File No. 001-38147) filed on April 19, 2021
4.5	Guaranty Agreement, dated as of April 1, 2021, among the subsidiary guarantors of CONSOL Energy Inc. and Wilmington Trust, N.A., as trustee	Filed as Exhibit 4.3 to Form 8-K (File No. 001-38147) filed on April 19, 2021
10.1	Transition Services Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.2	CNX Resources Corporation to CONSOL Energy Inc. Trademark License Agreement dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 10.2 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.3	CONSOL Energy Inc. to CNX Resources Corporation Trademark License Agreement, dated as of November 28, 2017, by and between the Company and CNX	Filed as Exhibit 10.3 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.4	First Amendment to Contract Agency Agreement, dated as of November 28, 2017, by and among CONSOL Energy Sales Company, CONSOL Thermal Holdings LLC (formerly known as CNX Thermal Holdings LLC) and the other parties thereto	Filed as Exhibit 10.5 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.5	First Amendment to Water Supply and Services Agreement, dated as of November 28, 2017 by and between CNX Water Assets LLC and CONSOL Thermal Holdings LLC (formerly known as CNX Thermal Holdings LLC)	Filed as Exhibit 10.6 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.6	Second Amendment to the Pennsylvania Mine Complex Operating Agreement, dated as of November 28, 2017, by and among CONSOL Pennsylvania Coal Company LLC, Conrhein Coal Company, CONSOL Thermal Holdings LLC and CONSOL Coal Resources LP	Filed as Exhibit 10.7 to Form 8-K (File No. 001-38147) filed on December 4, 2017

10.7	Credit Agreement, dated as of November 28, 2017, by and among the Company, the various financial institutions from time to time party thereto, PNC Bank, N.A., as administrative agent for the Revolving Lenders and Term A Lenders, Citibank, N.A., as administrative agent for the Term B Lenders and PNC Bank, N.A., as collateral agent for the Lenders and the other Secured Parties referred to therein	Filed as Exhibit 10.8 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.8	Amendment No. 1, dated as of March 28, 2019, to Credit Agreement, dated as of November 28, 2017, among the Company, the various financial institutions from time to time party thereto, PNC Bank, N.A., as administrative agent for the Revolving Lenders and Term A Lenders, Citibank, N.A., as administrative agent for the Term B Lenders and PNC Bank, N.A., as collateral agent for the Lenders and the Other Secured Parties referred to therein	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on April 3, 2019
10.9	Amendment No. 2, dated as of June 5, 2020, to Credit Agreement, dated as of November 28, 2017, among the Company, the various financial institutions from time to time party thereto, PNC Bank, N.A., as administrative agent for the Revolving Lenders and Term A Lenders, Citibank, N.A., as administrative agent for the Term B Lenders and PNC Bank, N.A., as collateral agent for the Lenders and the Other Secured Parties referred to therein	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on June 11, 2020
10.10	Amendment No. 3, dated as of March 29, 2021, to Credit Agreement, dated as of November 28, 2017, among the Company, the various financial institutions from time to time party thereto, PNC Bank, N.A., as administrative agent for the Revolving Lenders and Term A Lenders, Citibank, N.A., as administrative agent for the Term B Lenders and PNC Bank, N.A., as collateral agent for the Lenders and the Other Secured Parties referred to therein	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on March 31, 2021
10.11	Amendment No. 4, dated as of July 18, 2022, to Credit Agreement, dated as of November 28, 2017, among the Company, the various financial institutions from time to time party thereto, PNC Bank, N.A., as administrative agent for the Revolving Lenders and Term A Lenders, Citibank, N.A., as administrative agent for the Term B Lenders and PNC Bank, N.A., as collateral agent for the Lenders and the Other Secured Parties referred to therein	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on July 25, 2022
10.12	CONSOL Energy Inc. Omnibus Performance Incentive Plan*	Filed as Exhibit 4.3 to Form S-8 (File No. 333-221727) filed on November 22, 2017
10.13	Purchase and Sale Agreement, dated as of November 30, 2017, by and among CONSOL Marine Terminals LLC, CONSOL Pennsylvania Coal Company LLC and CONSOL Funding LLC	Filed as Exhibit 10.11 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.14	Sub-Originator Sale Agreement, dated as of November 30, 2017, by and between CONSOL Thermal Holdings LLC and CONSOL Pennsylvania Coal Company LLC	Filed as Exhibit 10.12 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.15	Receivables Financing Agreement, dated as of November 30, 2017, by and among CONSOL Funding LLC, CONSOL Pennsylvania Coal Company LLC, PNC Bank, N.A., PNC Capital Markets, LLC and certain lenders from time to time party thereto	Filed as Exhibit 10.13 to Form 8-K (File No. 001-38147) filed on December 4, 2017
10.16	First Amendment to Receivables Financing Agreement dated as of May 29, 2018	Filed as Exhibit 10.13 to Form 10-K (File No. 001-38147) filed on February 12, 2021

10.17	Second Amendment to Receivables Financing Agreement dated as of June 26, 2018	Filed as Exhibit 10.14 to Form 10-K (File No. 001-38147) filed on February 12, 2021
10.18	Third Amendment to Receivables Financing Agreement dated as of July 19, 2018	Filed as Exhibit 10.15 to Form 10-K (File No. 001-38147) filed on February 12, 2021
10.19	Fourth Amendment to Receivables Financing Agreement dated as of August 30, 2018	Filed as Exhibit 10.16 to Form 10-K (File No. 001-38147) filed on February 12, 2021
10.20	Fifth Amendment to Receivables Financing Agreement dated as of March 27, 2020**	Filed as Exhibit 10.2 to Form 10-Q (File No. 001-38147) filed on May 11, 2020
10.21	Sixth Amendment to Receivables Financing Agreement dated as of June 22, 2022**	Filed as Exhibit 10.2 to Form 10-Q (File No. 001-38147) filed on August 4, 2022
10.22	Seventh Amendment to Receivables Financing Agreement dated as of July 29, 2022**	Filed as Exhibit 10.3 to Form 10-Q (File No. 001-38147) filed on August 4, 2022
10.23	Second Amendment and Restatement of Master Cooperation and Safety Agreement by and among CONSOL Energy Inc., CNX Gas Company LLC, CNX Resources Holdings LLC and certain other parties thereto	Filed as Exhibit 10.5 to Form 10-12B/A (File No. 001-38147) filed on October 27, 2017
10.24	CONSOL Energy Inc. Deferred Compensation Plan for Non-Employee Directors*	Filed as Exhibit 10.2 to Form 10-Q (File No. 001-38147) filed on November 1, 2018
10.25	Employment Agreement of James A. Brock*	Filed as Exhibit 10.1 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.26	Change in Control Severance Agreement for Martha A. Wiegand*	Filed as Exhibit 10.4 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.27	Change in Control Severance Agreement for Kurt Salvatori*	Filed as Exhibit 10.5 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.28	Change in Control Severance Agreement for John Rothka*	Filed as Exhibit 10.6 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.29	Form Notice of Restricted Stock Unit Award and Terms and Conditions*	Filed as Exhibit 10.7 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.30	Form Notice of Performance-based Restricted Stock Unit Award and Terms and Conditions*	Filed as Exhibit 10.8 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.31	Form Notice of Restricted Stock Unit Award and Terms and Conditions for Spin Recognition (Non-Employee Director)*	Filed as Exhibit 10.9 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.32	Form Notice of Restricted Stock Unit Award and Terms and Conditions for Spin Recognition*	Filed as Exhibit 10.10 to Form 10-Q (File No. 001-38147) filed on May 3, 2018
10.33	Form Notice of Restricted Stock Unit Award and Terms and Conditions*	Filed as Exhibit 10.4 to Form 10-Q (File No. 001-38147) filed on May 8, 2019
10.34	Form Notice of Performance-based Restricted Stock Unit Award and Terms and Conditions*	Filed as Exhibit 10.5 to Form 10-Q (File No. 001-38147) filed on May 8, 2019

10.35	Change in Control Severance Agreement for Mitesh Thakkar*	Filed as Exhibit 10.30 to Form 10-K (File No. 001-38147) filed on February 11, 2022
10.36	Form of Notice of Restricted Stock Unit Award Terms and Conditions*	Filed as Exhibit 10.3 to Form 10-Q (File No. 001-38147) filed on May 11, 2020
10.37	Form of Notice of Performance-Based Restricted Stock Unit Award Terms and Conditions for James A. Brock**	Filed as Exhibit 10.4 to Form 10-Q (File No. 001-38147) filed on May 11, 2020
10.38	Form of Notice of Performance-Based Cash Award**	Filed as Exhibit 10.5 to Form 10-Q (File No. 001-38147) filed on May 11, 2020
10.39	CONSOL Energy Inc. 2020 Amended and Restated Omnibus Performance Incentive Plan*	Filed as Exhibit 4.4 to Registration Statement on Form S-8 (file No. 333-238173) filed on May 11, 2020
10.40	Form of Notice of Restricted Stock Unit Award Terms and Conditions for Non-Employee Directors*	Filed as Exhibit 10.5 to Form 10-Q (File No. 001-38147) filed on August 10, 2020
10.41	Form Notice of Performance-based Phantom Units and Terms and Conditions*	Filed as Exhibit 10.2 to Form 10-Q (File No. 001-38147) filed on May 4, 2021
10.42	Form Notice of Performance-based Market Share Units and Terms and Conditions*	Filed as Exhibit 10.3 to Form 10-Q (File No. 001-38147) filed on May 4, 2021
10.43	Form of Notice of Restricted Stock Unit Award Terms and Conditions for Non-Employee Directors*	Filed as Exhibit 10.1 to Form 10-Q (File No. 001-38147) filed on August 3, 2021
10.44	Support Agreement, dated as of October 22, 2020, by and among CONSOL Energy Inc. and CONSOL Coal Resources LP	Filed as Exhibit 10.1 to Form 8-K (File No. 001-38147) filed on October 23, 2020
10.45	Amendment to CONSOL Energy Inc. 2020 Amended and Restated Omnibus Performance Incentive Plan, effective as of December 30, 2020 (incorporated by reference to Exhibit 4.5 to CEIX's Registration Statement on Form S-8 filed on December 31, 2020)	Filed as Exhibit 4.5 to Form S-8 (File No. 001-38147) filed on December 31, 2020
10.46	First Amendment to Employment Agreement of James A. Brock*	Filed as Exhibit 10.45 to Form 10-K (File No. 001-38147) filed on February 12, 2021
10.47	Second Amendment to Employment Agreement of James A. Brock*	Filed as Exhibit 10.44 to Form 10-K (File No. 001-38147) filed on February 11, 2022
10.48	Form of Notice of Restricted Stock Unit Award Terms and Conditions for Non-Employee Directors*	Filed as Exhibit 10.4 to Form 10-Q (File No. 001-38147) filed on August 4, 2022
10.49	Form Notice of Performance Based Cash Award and Terms and Conditions*	Filed as Exhibit 10.2 to Form 10-Q (File No. 001-38147) filed on May 3, 2022
10.50	Form Notice of Restricted Stock Unit Award and Terms and Conditions*	Filed as Exhibit 10.3 to Form 10-Q (File No. 001-38147) filed on May 3, 2022
10.51	2022 Executive Short-Term Incentive Program Terms and Conditions*	Filed as Exhibit 10.4 to Form 10-Q (File No. 001-38147) filed on May 3, 2022
10.52	Third Amendment to Employment Agreement of James A. Brock*	Filed herewith

10.53	Change in Control Severance Agreement for Mitesh Thakkar*	Filed herewith
21	Subsidiaries of CONSOL Energy Inc.	Filed herewith
23.1	Consent of Ernst & Young LLP	Filed herewith
23.2	Consent of Third-Party Qualified Person	Filed herewith
31.1	Certification of Chief Executive Officer pursuant to Section 302 of Sarbanes-Oxley Act of 2002	Filed herewith
31.2	Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
32.1	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	Furnished herewith
32.2	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002	Furnished herewith
95	Mine Safety Disclosure	Filed herewith
96.1	Technical Report Summary, Coal Resources and Coal Reserves, Pennsylvania Mining Complex, Pennsylvania and West Virginia	Filed herewith
96.2	Technical Report Summary, Coal Resources and Coal Reserves, Itmann Mining Complex, Wyoming and McDowell Counties, West Virginia	Filed herewith
96.3	Technical Report Summary, Coal Resources, Mason Dixon and River Mine Properties, Greene County, Pennsylvania, Marshall, Monongalia, and Wetzel Counties, West Virginia	Filed as Exhibit 96.3 to Form 10-K (File No. 001-38147) filed on February 11, 2022
101	Interactive Data File (Form 10-K for the year ended December 31, 2022, furnished in Inline XBRL)	Filed herewith
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)	Filed herewith

* Indicates management contract or compensatory plan or arrangement.

** Information in this exhibit identified by brackets is confidential and has been excluded pursuant to Item 601(b)(10)(iv) of Regulation S-K because it (i) is not material and (ii) would likely cause competitive harm to the Company if publicly disclosed.

*** The schedules have been omitted pursuant to Item 601(b)(2) of Regulation S-K and will be provided to the Securities and Exchange Commission upon request.

Schedules and attachments to this Exhibit have been omitted pursuant to Item 601(a)(5) of Regulation S-K.

Supplemental Information

No annual report or proxy material has been sent to shareholders of CONSOL Energy at the time of filing of this Form 10-K. An annual report will be sent to shareholders and to the commission subsequent to the filing of this Form 10-K.

In accordance with Item 601(b)(32)(ii), Exhibits 32.1 and 32.2 are being furnished and not filed.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, as of the 10th day of February, 2023.

CONSOL ENERGY INC.

By: _____ /s/ JAMES A. BROCK

James A. Brock
Director, Chief Executive Officer
(Principal Executive Officer)

By: _____ /s/ MITESHKUMAR B. THAKKAR

Miteshkumar B. Thakkar
Chief Financial Officer and President
(Principal Financial Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed as of the 10th day of February, 2023, by the following persons on behalf of the registrant in the capacities indicated:

<u>Signature</u>	<u>Title</u>
_____ /s/ JAMES A. BROCK James A. Brock	Director, Chief Executive Officer (Principal Executive Officer)
_____ /s/ MITESHKUMAR B. THAKKAR Miteshkumar B. Thakkar	Chief Financial Officer and President (Principal Financial Officer)
_____ /s/ JOHN M. ROTHKA John M. Rothka	Chief Accounting Officer (Principal Accounting Officer)
_____ /s/ WILLIAM P. POWELL William P. Powell	Director and Chairman of the Board
_____ /s/ SOPHIE BERGERON Sophie Bergeron	Director
_____ /s/ JOHN T. MILLS John T. Mills	Director
_____ /s/ JOSEPH P. PLATT Joseph P. Platt	Director
_____ /s/ EDWIN S. ROBERSON Edwin S. Roberson	Director

Third Amendment to Employment Agreement

RECITALS

WHEREAS, CONSOL Energy, Inc. (the “**Company**”) entered into an Employment Agreement dated as of February 15, 2018, as amended (the “**Agreement**”) with James A. Brock (the “**Executive**”);

WHEREAS the Company wishes to add performance goal requirements to certain retention payments Executive is eligible to receive under the Agreement;

WHEREAS, the Agreement by its terms under Section 9.02 may be amended by written agreement between the Executive and the Company; and

WHEREAS, the Executive is willing to commit himself to continue to serve the Company on the terms and subject to the conditions set forth in this Third Amendment to the Employment Agreement (the “**Third Amendment**”).

NOW THEREFORE, in consideration of the promises and the respective covenants and agreements of the parties herein contained, and intending to be legally bound hereby, the parties hereto agree as follows:

1. A new clause (B) is hereby added to Section 4.01(ii) of the Agreement as follows:

(B)If the Executive continues to be employed by the Company through December 31, 2023, the Company shall pay the Executive (x) a cash lump sum payment equal to \$500,000 if as of December 31, 2023 the Company has paid all principal and interest outstanding under its Term Loan B with Citibank, N.A., as administrative agent for the Term B lenders and (y) a cash lump sum payment equal to \$500,000 if as of December 31, 2023 the Company has paid all principal and interest outstanding on account of its 11.00% Senior Secured Second Lien Notes Due 2025 issued pursuant to an indenture dated as of November 13, 2017 by and between the Company and UMB Bank, N.A., with each lump sum payment being made no later than thirty (30) days following December 31, 2023 (collectively, the “**Second Retention Payment**”).

2. Miscellaneous. All other provisions of the Agreement shall remain in full force and effect, with this Amendment shall be effective as of February 6, 2023, unless otherwise provided herein.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment on February 6, 2023.

CONSOL Energy Inc.

By: /s/ Martha A. Wiegand
Martha A. Wiegand
General Counsel

/s/ James A. Brock
James A. Brock

CHANGE IN CONTROL SEVERANCE AGREEMENT

EMPLOYMENT AGREEMENT (“*Agreement*”) dated as of February 8, 2023 (the “Effective Date”) between CONSOL Energy Inc. 275 Technology Drive, Suite 101 Canonsburg, Pennsylvania 15317, a Delaware corporation (the “*Company*”), and Mitesh Thakkar (the “*Executive*”).

RECITALS

WHEREAS, the Board of Directors of the Company (the “Board”) has determined that it is in the best interests of the Company and its shareholders to assure that the Company will have the continued dedication and objectivity of the Executive, to provide the Executive with an incentive to continue his employment, and to motivate the Executive to achieve and exceed performance goals. The Board also believes it is imperative to diminish the inevitable distraction of the Executive by virtue of the personal uncertainties and risks created by certain involuntary terminations of employment absent Cause (as defined below), to encourage the Executive’s full attention and dedication to the Company currently, and to provide the Executive with compensation and benefits arrangements that are competitive with those of other corporations. In addition, the success of the Company’s business depends in part on the preservation of its confidential information, trade secrets and goodwill in the markets in which it competes. The Board and Executive have agreed to certain reasonable restrictions on Executive’s post-employment activities to protect these legitimate business interests. Therefore, in order to accomplish these objectives, the Board caused the Company to enter into this Agreement.

NOW, THEREFORE, IT IS HEREBY AGREED as follows:

ARTICLE 1

DEFINITIONS

Section 1.01 *Definitions*. For purposes of this Agreement, the following terms have the meanings set forth below:

“*Affiliate*” means (i) any entity that, directly or indirectly, is controlled by the Company, (ii) any entity in which the Company has a significant equity interest, and/or (iii) an affiliate of the Company as defined in Rule 12b-2 promulgated under Section 12 of the Securities Exchange Act of 1934, as amended.

“*Base Salary*” has the meaning set forth in Section 4.01.

“*Cause*” means (a) gross negligence in the performance of the Executive’s duties which results in material financial harm to the Company; (b) the Executive’s conviction of, or plea of guilty or nolo contendere to, (i) any felony, or (ii) any misdemeanor involving fraud, embezzlement or theft; (c) the Executive’s intentional failure or refusal to perform his duties and responsibilities with the Company, without the same being corrected within fifteen (15) days after being given written notice thereof; (d) the material breach by the Executive of any of the covenants contained in Articles 6 or 7 of this Agreement; (e) the Executive’s willful violation of any material provision of the Company’s code of conduct for executives and management employees; or (f) the Executive’s willful engagement in conduct that is demonstrably and materially injurious to the Company, monetarily or otherwise. The Executive may be terminated for Cause hereunder only by majority vote of all members of the Board (other than the Executive if applicable).

“*Change in Control*” means the occurrence of any of the following events:

(i) any individual, entity or group (within the meaning of section 13(d)(3) or 14(d)(2) of the Exchange Act) (a “Person”) acquires beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of more than 25% of the total fair market value of the then-outstanding shares of common stock of the Company or combined voting power of the then-outstanding

voting securities of the Company (the "Voting Stock") entitled to vote generally in the election of directors; provided, however, that for purposes of this subsection(i) or Section 1.01(d)(i), the following will not constitute a Change in Control: (A) any issuance of Voting Stock of the Company directly from the Company that is approved by the Incumbent Board (as defined in subsection (ii) below), (B) any acquisition by the Company of Voting Stock, (C) any acquisition of Voting Stock by any employee benefit plan (or related trust) sponsored or maintained by the Company or any subsidiary of the Company ("Subsidiary"), (D) any acquisition of Voting Stock by an underwriter holding securities of the Company in connection with a public offering thereof, or (E) any acquisition of Voting Stock of the Company by any Person pursuant to a Business Combination that complies with clauses (A), (B) and (C) of subsection (iii), below;

(ii) individuals who constitute the Board as of the Effective Date of the Change in Control (the "Incumbent Board," as modified by this subsection (ii), cease for any reason to constitute at least a majority of the Board; provided, however, that any individual becoming a director subsequent to such date whose election, or nomination for election by the Company's stockholders, was approved by a vote of at least two-thirds of the directors then comprising the Incumbent Board shall be deemed to have then been a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a Person other than the Board including, without limitation, through the use of any proxy access procedures contained in the Company's organizational documents.

(iii) the consummation of a reorganization, merger or consolidation of the Company or a direct or indirect wholly-owned subsidiary thereof, a sale or other disposition (whether by sale, taxable or nontaxable exchange, formation of a joint venture or otherwise) of all or substantially all of the assets of the Company, or other transaction involving the Company (each, a "Business Combination"), unless, in each case, immediately following such Business Combination, (A) all or substantially all of the individuals and entities who were the beneficial owners of voting stock immediately prior to such Business Combination beneficially own, directly or indirectly, more than 50% of the combined voting power of the then outstanding shares of voting stock of the entity resulting from such Business Combination or any direct or indirect parent corporation thereof (including, without limitation, an entity which as a result of such transaction owns the Company or all or substantially all of the Company's assets either directly or through one or more subsidiaries), (B) no Person other than the Company beneficially owns 25% or more of the combined voting power of the then outstanding shares of voting stock of the entity resulting from such Business Combination or any direct or indirect parent corporation thereof (disregarding all "acquisitions" described in subsections (A) - (C) of subsection (i) above, and (C) at least a majority of the members of the Board of Directors of the entity resulting from such Business Combination or any direct or indirect parent corporation thereof were members of the Incumbent Board at the time of the execution of the initial agreement or of the action of the Board providing for such Business Combination.

(iv) the stockholders of the Company approve a complete liquidation or dissolution of the Company, except pursuant to a Business Combination that complies with clauses (A), (B) and (C) of subsection (iii).

Provided, however, solely with respect to any payment under this Agreement that is subject to Section 409A of the Code (and not exempt therefrom), and for which a Change in Control is a distribution event for purposes of such payment, the foregoing definition of Change in Control shall be interpreted, administered, limited and construed in a manner necessary to ensure that the occurrence of any such event shall result in a Change in Control only if such event also qualifies as a change in the ownership or effective control of a corporation, or a change in the ownership of a substantial portion of the assets of a corporation, as applicable, within the meaning of Treasury Regulation Section 1.409A-3(i)(5) of the Code.

Notwithstanding anything to the contrary in the foregoing, a transaction will not constitute a Change in Control if it is effected for the purpose of changing the place of incorporation or form of organization of the ultimate parent entity (including where the Company is succeeded by an issuer incorporated under the laws of another state, country or foreign government for such purpose and whether

or not the Company remains in existence following such transaction) where all or substantially all of the persons or group that beneficially own all or substantially all of the combined voting power of the Company's Voting Stock immediately prior to the transaction beneficially own all or substantially all of the combined voting power of the Company or the ultimate parent entity in substantially the same proportions of their ownership after the transaction.

"**COBRA**" has the meaning set forth in Section 5.04(a).

"**COBRA Continuation Period**" has the meaning set forth in Section 5.04(a).

"**Code**" means the Internal Revenue Code of 1986, as amended.

"**Customer**" means any person or entity for which the Company or its Affiliates mined, extracted, developed, marketed, or sold coal to during the Term of Agreement or about whom Executive received proprietary confidential information or trade secrets.

"**Date of Termination**" has the meaning set forth in Section 5.06.

"**Good Reason**" means, without the Executive's written consent, (a) the adverse change in the Executive's position with the Company or the material diminution of the Executive's duties or responsibilities, including the assignment of any duties and responsibilities materially inconsistent with his position (but excluding any loss of any position with any subsidiary of the Company to which the Executive is not separately compensated); (b) a material reduction in the Executive's Base Salary (excluding any reduction that is generally applicable to all or substantially all executive officers of the Company); or (c) the relocation of the Executive's principal work location to a location that increases the Executive's normal work commute by fifty (50) miles or more as compared to the Executive's normal work commute immediately prior to the change, or that the Executive's required travel away from the Executive's office in the course of discharging the Executive's responsibilities or duties of the Executive's job is materially increased during the Employment Period. Notwithstanding the foregoing, in order for the Executive to terminate for Good Reason: (i) the Executive must give written notice to the Company of his intention to terminate his employment for Good Reason within sixty (60) days after the event or omission which constitutes Good Reason, and any failure to give such written notice within such period will result in a waiver by the Executive of his right to terminate for Good Reason as a result of such act or omission, (ii) the event must remain uncorrected by the Company for thirty (30) days following such notice (the "**Notice Period**"), and (iii) such termination must occur within sixty (60) days after the expiration of the Notice Period.

"**Incentive Pay**" means the greater of: (i) the Executive's Target Bonus for which the Executive was eligible during the period that includes the Date of Termination, or (ii) the average of the annual bonuses actually paid by the Company to the Executive for the three years prior to the year that includes the Date of Termination. For purposes of this definition, "Target Bonus" means 100% of the amount established under the Company's short term incentive plan, and any other annual bonus, applicable incentive, commission or other sales incentive compensation, or comparable incentive payment opportunity which, in the sole discretion of the Company is deemed to constitute a Target Bonus. For purposes of this definition, "Incentive Pay" does not include any stock option, stock appreciation, stock purchase, restricted stock, long term incentive programs or similar plans, arrangement or grants, one-time bonus or payment (including, but not limited to, any sign-on bonus), any amounts contributed by the Company or any of its Affiliates for the benefit of the Executive to any qualified or nonqualified deferred compensation plan, whether or not provided under an arrangement described in the prior sentence, or any amounts designated by the parties as amounts other than Incentive Pay.

"**Notice of Termination**" has the meaning set forth in Section 5.05.

"**Prospective Customer**" means any person or entity that is not a Customer but with respect to whom the Company or its Affiliates conducted, prepared, or submitted any proposal, written work product or marketing material during the Term of Agreement or about whom the Executive received proprietary confidential information or trade secrets.

“**Release**” has the meaning set forth in Sections 5.01 and 5.02.

“**Restricted Territory**” means the counties, towns, cities, states or other political subdivisions of any country in which the Company or its Affiliates operates or does business.

ARTICLE 2

EMPLOYMENT

Section 1.01 *Employment.* Executive’s employment with the Company is at-will, meaning that either the Company or the Executive may terminate the employment relationship at any time, and for any reason or no reason at all. Executive acknowledges that his employment is for no set or guaranteed period of time, and that no employee of the Company can promise to keep Executive employed for any guaranteed period of time or otherwise alter Executive’s at-will status; provided, however, that the Executive shall be entitled to certain compensation and benefits upon a termination event described in Sections 5.01 and 5.02 below.

Section 1.02 *Term of Agreement.* The term of this Agreement shall commence on the Effective Date hereof and continue until December 31, 2023; provided, however, that commencing on January 1, 2024, and each January 1 thereafter, the Agreement shall automatically be extended until the next following December 31, unless the Company gives notice not later than October 31 of the preceding year that it does not wish to extend this Agreement; provided, further, that regardless of any such notice by the Company, (1) this Agreement shall continue in effect for a period of twenty-four (24) months beyond the term provided herein if a Change in Control occurs during the period that this Agreement is in effect, and (2) in the event of the Executive’s termination of employment by the Company other than for Cause (including non-renewal), the Executive shall have received from the Company payment of the benefits described in this Agreement under Section 5.01 or 5.02, as applicable.

ARTICLE 3

POSITION AND DUTIES

Section 1.01 *Position and Duties.* As of the Effective Date, the Executive shall serve as the President and Chief Financial Officer of the Company. In such capacity, the Executive shall have such responsibilities, powers and duties as may from time to time be prescribed by the Chief Executive Officer (“*CEO*”); provided that such responsibilities, powers and duties are substantially consistent with those customarily assigned to individuals serving in such positions at comparable companies or as may be reasonably required by the conduct of the business of the Company.

Section 1.02 *Certain Representations.* The Executive hereby represents to the Company that he has full lawful right and power to enter into this Agreement and carry out his duties hereunder, and that same will not constitute a breach of or default under any employment, confidentiality, non-competition or other agreement by which he may be bound.

ARTICLE 4

BASE SALARY AND BENEFITS

Section 1.01 *Base Salary.* The Executive will receive an annual base salary (the “**Base Salary**”) established by Company payable in accordance with the normal payroll practices of the Company. For purposes of Sections 5.01 and 5.02, Base Salary shall mean the Executive’s annual base salary rate, exclusive of bonuses, commissions and other Incentive Pay, as in effect immediately preceding the Executive’s Date of Termination.

Section 1.02 *Bonuses.* In addition to the Base Salary, the Executive shall be eligible to receive an annual cash bonus in accordance with a plan/program and on such terms established from time to time by the Board or the Compensation Committee of the Board, as applicable.

Section 1.03 *Long Term Incentive Plan.* The Executive shall also be eligible to participate in any long-term incentive compensation plan maintained by the Company on the terms established from time to time by the Board or the Compensation Committee of the Board, as applicable.

Section 1.04 *Benefits.* During the Employment Term, the Executive shall be entitled to participate in all employee benefit and fringe benefit plans and arrangements made available by the Company to its executives and key management employees upon the terms and subject to the conditions set forth in the applicable plan or arrangement.

ARTICLE 5

TERMINATION

Section 1.01 *Termination Without Cause, Absent a Change in Control.* If the Company terminates the Executive's employment without Cause, provided the Executive has delivered a signed Release of claims reasonably satisfactory to the Company (the "Release") to the Company substantially in the form of Annex A hereto pursuant to the notice provision of Section 9.07 within thirty (30) days of the Date of Termination and not revoked the Release within the seven-day revocation period provided for in the Release, the Executive shall be paid solely:

- (i) Base Salary through the Date of Termination and any annual bonus awarded in accordance with the Company's bonus program but not yet paid;
- (ii) an amount equal to 1 times the Base Salary;
- (iii) a pro-rata portion of the Executive's Incentive Pay for the year of termination, calculated by reference to the number of days during the year of the Executive's termination during which he was employed by the Company;
- (iii) any amounts earned, accrued or owing but not yet paid to the Executive as of the Date of Termination, payable in a lump sum, and any benefits accrued or earned in accordance with the terms of any applicable benefit plans and programs of the Company or any of its Affiliates.
- (iv) Medical benefits shall be as provided in Section 5.04 below.

The amounts described in clauses (i) through (v) above will be paid in a single lump sum within 10 days after the Date of Termination; provided, however, that no amount shall be paid until expiration of the seven-day statutory revocation period with respect to the release referred to in this Section 5.01 above; provided that the Executive shall be entitled to any unpaid amounts in clauses (i) through (v) only if the Executive has not breached and does not breach the provisions of Sections 6.01 and 7.01 hereof. The Executive's entitlements under any other benefit plan or program shall be as determined thereunder, except that severance benefits shall not be payable under any other plan or program. Notwithstanding the foregoing, if a termination of employment results in severance benefits being paid under a separate change in control agreement (or any successor thereto), no amounts or benefits will be paid to the Executive under this Section 5.01 or 5.04.

Section 1.02 *Termination for Good Reason, Without Cause, in connection with a Change in Control.* If the Company terminates the Executive for any reason absent Cause, or the Executive terminates employment for Good Reason, within ninety (90) days prior to the occurrence of a Change in Control, or within two (2) years following a Change in Control, provided the Executive has delivered a signed Release pursuant to the notice provision of Section 9.07 within thirty (30) days of the Date of Termination and not revoked the Release within the seven-day revocation period provided for in the Release, the Executive shall be paid solely

- (i) Base Salary through the Date of Termination and any annual bonus awarded in accordance with the Company's bonus program but not yet paid;

(ii) an amount equal to 2.5 times the Base Salary and Incentive Pay;

(iii) a pro-rata portion of the Executive's Incentive Pay for the year of termination, calculated by reference to the number of days during the year of the Executive's termination during which he was employed by the Company;

(iv) a lump sum payment of \$25,000 in order to cover the cost of outplacement assistance services for the Executive and other expenses associated with seeking another employment position.

(v) a lump sum cash payment equal to the total amount that the Executive would have received under the Company's or any of its Affiliates' 401(k) plan as a company match if the Executive was eligible to participate in such 401(k) plan for the 18 month period after the Executive's Date of Termination and the Executive contributed the maximum amount to the plan for the match. Such amount shall be determined based on the assumption that the Executive would have received annual Base Salary plus Incentive Pay during such period in the amounts set forth in (ii) and (iii) above;

(vi) a lump sum cash payment equal to the difference between the present value of the Executive's accrued pension benefits at the Executive's Date of Termination under the Company's or any of its Affiliates' qualified defined benefit plan and (if eligible) any plan or plans sponsored by the Company or any of its Affiliates providing nonqualified retirement benefits (the qualified and nonqualified plans together being referred to as the "pension plans") and the present value of the accrued pension benefits to which the Executive would have been entitled under the pension plans if the Executive had continued participation in those plans for the 18 month period after the Executive's Date of Termination. Such amount shall be determined based on the assumption that the Executive would have received annual Base Salary plus Incentive Pay during such period in the amounts set forth in (ii) and (iii) above; and

(vii) any amounts earned, accrued or owing but not yet paid to the Executive as of the Date of Termination, payable in a lump sum, and any benefits accrued or earned in accordance with the terms of any applicable benefit plans and programs of the Company or any of its Affiliates; and

(viii) notwithstanding any provision to the contrary in any applicable plan, program or agreement, upon the occurrence of a termination event described in this Section 5.02, all stock options, stock appreciation rights, restricted stock, restricted stock units and other equity rights awarded by the Company or an Affiliate and held by the Executive will become fully vested and/or exercisable, as the case may be, on the Executive's Date of Termination, and all stock options or stock appreciation rights held by the Executive shall remain exercisable for the period set forth in the award agreement covering the options or rights; provided, however, that for any rights where the vesting or payment of which are dependent on the attainment of performance goals, such rights shall vest or continue to vest and shall be paid subject to the determination or satisfaction of the performance or payment determinations or conditions as specified in the applicable plan or award agreement.

Section 1.03 SECTION 5.03. *Termination for Cause.* If the Company terminates the Executive for Cause, the Executive shall be entitled to receive solely (i) the Base Salary through the Date of Termination; (ii) payment for all accrued, but unused, vacation time through the Date of Termination; and (iii) reimbursement of all Reimbursable Expenses incurred by the Executive prior to such termination. The Executive's rights under any benefit plan or program shall be as set forth thereunder.

Section 1.04 *Medical Benefits.*

(a) If the Employment Period is terminated as a result of a termination of employment as specified in Sections 5.01 and 5.02, the Executive and his dependents shall continue to receive his medical insurance benefits from the Company available through COBRA. If the Executive elects COBRA continuation coverage, the Executive shall continue to participate in all medical, dental and vision insurance plans the Executive was participating in on the Date of Termination, and the Company shall pay the applicable premium. During the applicable period of coverage described in the foregoing sentences, the Executive shall be entitled to benefits on substantially the same basis and cost as would have otherwise been provided had the Executive not separated from service. To the extent that such

benefits are available under the above-referenced benefit plans and the Executive had such coverage immediately prior to termination of employment, such continuation of benefits for the Executive shall also cover the Executive's dependents for so long as the Executive is receiving benefits under this Section 5.04(a). The COBRA Continuation Period for medical and dental insurance under this Section 5.04(a) shall be deemed to run concurrent with the continuation period federally mandated by COBRA (generally eighteen (18) months), or any other legally mandated and applicable federal, state, or local coverage period for benefits provided to terminated employees under the health care plan. For purposes of this Agreement, "COBRA" means the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended; and "COBRA Continuation Period" shall mean the continuation period for medical and dental insurance to be provided under the terms of this Agreement which shall commence on the first day of the calendar month following the month in which the Date of Termination falls and generally shall continue for an eighteen (18) month period.

(b) If the Executive would have been eligible for post-retirement medical and dental coverage had the Executive retired from employment during the period of eighteen (18) months following the Executive's Date of Termination, but is not so eligible as the result of the Executive's termination, then, at the conclusion of the benefit continuation period described in Section 5.04(a) above, the Company shall take all commercially reasonable efforts to provide the Executive with additional continued group medical and dental coverage comparable to that which would have been available to the Executive from time to time under the post-retirement medical and dental benefit program, for as long as such coverage would have been available under such program. It is specifically acknowledged by the Executive that if such coverage is provided under a Company sponsored self-insured plan, it will be provided on an after-tax basis and the Executive will have income imputed to the Executive annually equal to the fair market value of the premium. If this coverage cannot be provided by the Company (or where such continuation would adversely affect the tax status of the plan pursuant to which the coverage is provided), then as an alternative, the Company will reimburse the Executive in lieu of such coverage an amount equal to the Executive's actual and reasonable after-tax cost of continuing comparable coverage.

(c) Reimbursement to the Executive pursuant to Sections 5.04(a) and (b) above will be available only to the extent that (i) such expense is actually incurred for any particular calendar year and reasonably substantiated; (ii) reimbursement shall be made no later than the end of the calendar year following the year in which such expense is incurred by the Executive; (iii) no reimbursement provided for any expense incurred in one taxable year will affect the amount available in another taxable year; and (iv) the right to this reimbursement is not subject to liquidation or exchange for another benefit. Notwithstanding the foregoing, under subsection Section 5.04(a), no reimbursement will be provided for any expense incurred following the 18 months or for any expense which relates to coverage after such date.

Section 1.05 *Notice of Termination.* Any termination by the Company for Cause or by the Executive for Good Reason shall be communicated by written Notice of Termination to the other party hereto. For purposes of this Agreement, a "**Notice of Termination**" shall mean a notice which shall indicate the specific termination provision in this Agreement relied upon and shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination of employment under the provision indicated.

Section 1.06 *Date of Termination.* "**Date of Termination**" shall mean the later of the date the Notice of Termination is given or the end of any applicable correction period except as otherwise specifically provided herein.

Section 1.07 *No Duty to Mitigate.* The Executive shall have no duty to seek new employment or other duty to mitigate following a termination of employment as described in Sections 5.01 and 5.02 above, and no compensation or benefits described in Sections 5.01 and 5.02 shall be subject to reduction or offset on account of any subsequent compensation, other than as provided in Section 5.04.

Section 1.08 *Release.* Notwithstanding any other provision hereof, the Executive shall not be required by the Release to release claims that the Executive may have against the Company for reimbursement of ordinary and necessary business expenses incurred by him during the course of his employment, claims that arise after the effective date of the Release, any rights the Executive may have to

enforce Sections 5.01 and 5.02 of this Agreement, and claims for which the Executive is entitled to be indemnified under the Company's charter, by-laws or under applicable law or pursuant to the Company's directors' and officer's liability insurance policies.

ARTICLE 6

CONFIDENTIAL INFORMATION

Section 1.01 *Confidential Information and Trade Secrets.* The Executive and the Company agree that certain information, regardless of the form in which such information appears and whether or not such information has been reduced to a tangible form, including, but not limited to, information, data and other materials relating to financial matters, customers, employees, industry contracts, strategic business plans, product development (or other proprietary product data), marketing plans, and consulting solutions and processes, constitute proprietary confidential information and trade secrets. The Executive agrees that the Company would be irreparably damaged if he were to disclose or use its proprietary confidential information and trade secrets on behalf of another person or entity. Accordingly, the Executive will not at any time during or after the Executive's employment with the Company disclose or use for the Executive's own benefit or purposes or the benefit or purposes of any Person, other than the Company and any of its Affiliates, any proprietary confidential information or trade secrets. The foregoing obligations imposed by this Section 6.01 will not apply (i) in the course of the business of and for the benefit of the Company, (ii) if such information has become, through no fault of the Executive, generally known to the public, or (iii) if the Executive is required by law to make disclosure (after giving the Company notice and an opportunity to contest such requirement). The Executive agrees that upon termination of employment with the Company for any reason, the Executive will immediately return to the Company all memoranda, books, paper, plans, information, letters and other data, and all copies thereof or therefrom, which in any way relate to the business of the

Company and its Affiliates. The Executive further agrees that the Executive will not retain or use for the Executive's account at any time any trade names, trademark or other proprietary business designation used or owned in connection with the business of the Company or any of its Affiliates.

ARTICLE 7

NONCOMPETITION

Section 1.01 *Noncompetition.*

(a) The Company and its Affiliates mine, extract, prepare, source, market, and sell coal ("**Business Activity**") throughout the United States and internationally. The Company and its Affiliates invest significant resources in the training and development of its employees and in developing goodwill with its customers and vendors. As the Company's Chief Financial Officer, the Executive will have access to Company and Affiliate proprietary confidential information and trade secrets. The Executive acknowledges and recognizes the highly competitive nature of the business of the Company and its Affiliates, the importance of the proprietary confidential information and trade secrets to which Executive will have access, and the position of responsibility which Executive will hold with the Company and accordingly agrees that:

(i) during the term of the Executive's employment and for a period of two (2) years after the termination thereof, or from the date of entry by a court of competent jurisdiction of an order enforcing this Agreement (whichever is later), the Executive will not, except on behalf of the Company, directly or indirectly engage in any Business Activity which is in competition with any line of business conducted by the Company or any of its Affiliates in the Restricted Territory, including, but not limited to, where such engagement is as an officer, director, proprietor, employee, partner, investor, consultant, advisor, agent or sales representative, or have any ownership interest in, or participate in a financing, operation, management or control of, any person, firm, corporation or business that engages in any Business Activity in competition with any line of business conducted by the Company or any of its Affiliates in the Restricted Territory.

For this purpose, ownership of no more than 5% of the outstanding voting stock of a publicly traded corporation shall not constitute a violation of this provision;

(ii) during the term of the Executive's employment and for a period of one (1) year after the termination thereof, or from the date of entry by a court of competent jurisdiction of an order enforcing this Agreement (whichever is later), the Executive will not, without the Company's written consent, directly or indirectly, for himself or on behalf of any other person, partnership, company, organization, corporation or other entity perform or solicit the performance of services related to any competing Business Activity for any Customer or Prospective Customer of the Company or any of its Affiliates;

(iii) during the term of the Executive's employment and for a period of one (1) year after the termination thereof, or from the date of entry by a court of competent jurisdiction of an order enforcing this Agreement (whichever is later), the Executive will not directly or indirectly solicit, encourage or take any other action intended to induce any employee of the Company or any of its Affiliates to (1) engage in any activity or conduct which is prohibited pursuant to this Section 7.01, or (2) terminate such employee's employment with the Company or any of its Affiliates; and

(iv) the Executive will not directly or indirectly assist others in engaging in any of the activities which are prohibited under clauses (i)-(iii) of this Section 7.01(a) above.

(b) The covenant contained in Section 7.01(a)(i) above is intended to be construed as a series of separate covenants, one for each county, town, city and state or other political subdivision of a Restricted Territory. Except for geographic coverage, each such separate covenant shall be deemed identical in terms to the covenant contained in the preceding subsections. If, in any judicial proceeding, the court shall refuse to enforce any of the separate covenants (or any part thereof) deemed included in such subsections, then such unenforceable covenant (or such part) shall be deemed to be eliminated from this Agreement for the purpose of those proceedings to the extent necessary to permit the remaining separate covenants (or portions thereof) to be enforced.

(c) It is expressly understood and agreed that although the Executive and the Company consider the restrictions contained in this Section 7.01 to be reasonable, if a final judicial determination is made by a court of competent jurisdiction that the time or territory or any other restriction contained in this Agreement is an unenforceable restriction against the Executive, the provisions of this Agreement shall not be rendered void but shall be deemed amended to apply as to such maximum time and territory and to such maximum extent as such court may judicially determine or indicate to be enforceable. Alternatively, if any court of competent jurisdiction finds that any restriction contained in this Agreement is unenforceable, and such restriction cannot be amended so as to make it enforceable, such finding shall not affect the enforceability of any of the other restrictions contained herein.

ARTICLE 8

EQUITABLE RELIEF

Section 1.01 *Equitable Relief.* The Executive acknowledges that (a) the covenants contained in Sections 6.01 and 7.01 hereof are reasonable and necessary to protect the Company's interests and that they do not preclude or unreasonably limit the Executive's ability to earn a living, (b) the Executive's services are unique, and (c) a breach or threatened breach by him of any of his covenants and agreements with the Company contained in Sections 6.01 or 7.01 hereof could cause irreparable harm to the Company for which money damages would be an inadequate remedy and it would have no adequate remedy at law. Accordingly, and in addition to any remedies which the Company may have at law, in the event of an actual or threatened breach by the Executive of his covenants and agreements contained in Sections 6.01 or 7.01 hereof, the Company shall be entitled as a matter of right to an injunction, without a requirement to post bond, out of any court of competent jurisdiction, restraining any violation or further violation of such promises by the Executive or the Executive's employees, partners or agents.

ARTICLE 9
MISCELLANEOUS

Section 1.01 *Remedies*. The Company will have all rights and remedies set forth in this Agreement, all rights and remedies which the Company has been granted at any time under any other agreement or contract and all of the rights which the Company has under any law. The Company will be entitled to enforce such rights specifically, without posting a bond or other security, to recover damages by reason of any breach of any provision of this Agreement and to exercise all other rights granted by law. The failure of the Company to enforce at any time any provision of this Agreement shall in no way be construed to be a waiver of such provision or of any other provision hereof.

Section 1.02 *Consent to Amendments*. The provisions of this Agreement may be amended or waived only by a written agreement executed and delivered by the Company and the Executive. No other course of dealing between the parties to this Agreement or any delay in exercising any rights hereunder will operate as a waiver of any rights of any such parties. Notwithstanding the foregoing or any provisions of this Agreement to the contrary, the Company may at any time, with the consent of the Executive, modify or amend any provision of this Agreement or take any other action, to the extent necessary or advisable to ensure that this Agreement complies with or is exempt from Section 409A of the Code and that any payments or benefits under this Agreement are not subject to interest and penalties under Section 409A of the Code.

Section 1.03 *Successors and Assigns*. The Company will require any successor (whether direct or indirect, by purchase, merger, consolidation, reorganization or otherwise) to all or substantially all of the business or assets of the Company, by agreement in form and substance reasonably satisfactory to the Executive, expressly to assume and agree to perform this Agreement in the same manner and to the same extent the Company would be required to perform if no such succession had taken place. All covenants and agreements contained in this Agreement by or on behalf of any of the parties hereto will bind and inure to the benefit of the respective successors and assigns of the parties hereto whether so expressed or not, provided that the Executive may not assign his rights or delegate his obligations under this Agreement without the written consent of the Company.

Section 1.04 *Severability*. Whenever possible, each provision of this Agreement will be interpreted in such manner as to be effective and valid under applicable law, but if any provision of this Agreement is held to be prohibited by or invalid under applicable law, such provision will be ineffective only to the extent of such prohibition or invalidity, without invalidating the remainder of this Agreement.

Section 1.05 *Counterparts*. This Agreement may be executed simultaneously in two or more counterparts, any one of which need not contain the signatures of more than one party, but all of which counterparts taken together will constitute one and the same agreement.

Section 1.06 *Descriptive Headings*. The descriptive headings of this Agreement are inserted for convenience only and do not constitute a part of this Agreement.

Section 1.07 *Notices*. All notices, demands or other communications to be given or delivered under or by reason of the provisions of this Agreement will be in writing and will be deemed to have been given when delivered personally to the recipient, two (2) business days after the date when sent to the recipient by reputable express courier service (charges prepaid) or four (4) business days after the date when mailed to the recipient by certified or registered mail, return receipt requested and postage prepaid. Such notices, demands and other communications will be sent to the Executive and to the Company at the addresses set forth below.

If to the Executive: To the last address delivered to the Company by the Executive in the manner set forth herein.

If to the Company: CONSOL Energy Inc.
275 Technology Drive, Suite 101
Canonsburg, PA 15317-6506

Attn: Martha A. Wiegand

Copies of notices to the Company shall also be sent to:

McGuireWoods LLP
Tower Two Sixty
260 Forbes Avenue, Suite 1800
Pittsburgh, PA 15222
Attn: Hannah T. Frank, Esq.

or to such other address or to the attention of such other person as the recipient party has specified by prior written notice to the sending party.

Section 1.08 *Withholding*. The Company may withhold from any amounts payable under this Agreement such federal, state, local or foreign taxes as shall be required to be withheld pursuant to any applicable law or regulation.

Section 1.09 *No Third Party Beneficiary*. This Agreement will not confer any rights or remedies upon any person other than the Company, the Executive and their respective heirs, executors, successors and assigns.

Section 1.10 *Dispute Resolution*. Any dispute or controversy arising under or in connection with this Agreement (other than an action to enforce the covenants in Article 7 hereof) shall be resolved by arbitration. Arbitrators shall be selected, and arbitration shall be conducted, in accordance with the rules of the American Arbitration Association. The place of arbitration shall be Canonsburg, Pennsylvania or Washington County, Pennsylvania. The arbitrators shall have no authority to award punitive or other damages not measured by the prevailing party's actual damages, except as may be required by statute. The prevailing party shall be entitled to an award of reasonable attorney fees. Each party shall bear its own costs and expenses and an equal share of the arbitrators' and administrative fees of arbitration.

Section 1.11 *Binding Agreement*. Except as otherwise provided herein, this Agreement will supersede the provisions of any employment or other agreement between the Executive and the Company (or any predecessor or other entity previously affiliated with the Company), that relates to any matter that is also the subject of this Agreement, and such provisions in the other agreements will be null and void and Executive shall in no event be entitled to any payment under this Agreement that would result in a duplication of benefits under any other agreement maintained between the Company or a predecessor company.

Section 1.12 *Construction*. The language used in this Agreement will be deemed to be the language chosen by the parties to express their mutual intent, and no rule of strict construction will be applied against any party. Any reference to any federal, state, local or foreign statute or law will be deemed also to refer to all rules and regulations promulgated thereunder, unless the context requires otherwise. The use of the word "including" in this Agreement means "including without limitation" and is intended by the parties to be by way of example rather than limitation.

Section 1.13 *Survival*. Sections 5.01, 5.02, 5.03, 5.04, 5.08, 6.01, 7.01, 8.01 and Article 9 hereof will survive and continue in full force in accordance with their terms notwithstanding the Executive's termination employment and the Agreement shall otherwise remain in full force to the extent necessary to enforce any rights and obligations arising hereunder.

Section 1.14 *GOVERNING LAW*. ALL QUESTIONS CONCERNING THE CONSTRUCTION, VALIDITY AND INTERPRETATION OF THIS AGREEMENT WILL BE GOVERNED BY THE INTERNAL LAW OF STATE OF DELAWARE, WITHOUT REGARD TO PRINCIPLES OF CONFLICT OF LAWS.

Section 1.15 *Internal Revenue Code Section 409A*.

(a) If any benefit provided under this Agreement is subject to the provisions of Section 409A of the Code and the regulations issued thereunder, the provisions of the Agreement shall be administered, interpreted and construed in a manner necessary to comply with Section 409A and the regulations issued thereunder (or disregarded to the extent such provision cannot be so administered, interpreted, or construed.)

(b) For purposes of the Agreement, the Executive shall be considered to have experienced a termination of employment only if the Executive has terminated employment with the Company and all of its controlled group members within the meaning of Section 409A of the Code. For purposes hereof, the determination of controlled group members shall be made pursuant to the provisions of Section 414(b) and 414(c) of the Code; provided that the language "at least 50 percent" shall be used instead of "at least 80 percent" in each place it appears in Section 1563(a)(1),(2) and (3) of the Code and Treas. Reg. § 1.414(c)-2. Whether the Executive has terminated employment will be determined based on all of the facts and circumstances and in accordance with the guidance issued under Section 409A of the Code.

(c) For purposes of Section 409A, each severance benefit payment shall be treated as a separate payment. Each payment under this Agreement is intended to be excepted from Section 409A to the maximum extent provided under Section 409A as follows: (i) the Employee's termination date and within the applicable 2 & 1/2 month period specified in Treas. Reg. § 1.409A-1(b)(4) is intended to be excepted under the short-term deferral exception as specified in Treas. Reg. § 1.409A-1(b)(4); (ii) post-termination medical benefits are intended to be excepted under the medical benefits exceptions as specified in Treas. Reg. § 1.409A-1(b)(9)(v)(B); and (iii) to the extent payments are made as a result of an involuntary separation, each payment that is not otherwise excepted under the short-term deferral exception or medical benefits exception is intended to be excepted under the involuntary pay exception as specified in Treas. Reg. § 1.409A-1(b)(9)(iii). The Executive shall have no right to designate the date of any payment under this Agreement.

(d) With respect to payments subject to Section 409A of the Code (and not excepted therefrom), if any, it is intended that each payment is paid on a permissible distribution event and at a specified time consistent with Section 409A of the Code. The Company reserves the right to accelerate and/or defer any payment to the extent permitted and consistent with Section 409A. Notwithstanding any provision of this Agreement to the contrary, to the extent that a payment hereunder is subject to Section 409A of the Code (and not excepted therefrom) and payable on account or a termination of employment, such payment shall be delayed for a period of six months after the date of termination (or, if earlier, the death of the Executive) if the Executive is a "specified employee" (as defined in Section 409A of the Code and determined in accordance with the procedures established by the Company). Any payment that would otherwise have been due or owing during such 6-month period will be paid immediately following the end of the 6-month period in the month following the month containing the 6-month anniversary of the date of termination.

Section 1.16 *Limit on Payments by the Company.*

(a) Notwithstanding any other provision of this Agreement to the contrary, in the event that it shall be determined that any payment or distribution in the nature of compensation (within the meaning of Section 280G(b)(2) of the Code) to or for the benefit of the Executive, whether paid or payable or distributed or distributable pursuant to the terms of this Agreement or otherwise (the "**Payments**"), would constitute an "excess parachute payment" within the meaning of Section 280G of the Code, the Company shall reduce (but not below zero) the aggregate present value of the Payments under the Agreement to the Reduced Amount (as defined below), if reducing the Payments under this Agreement will provide the Executive with a greater net after-tax amount than would be the case if no such reduction was made. The Payments shall be reduced as described in the preceding sentence only if (i) the net amount of the Payments, as so reduced (and after subtracting the net amount of federal, state and local income and payroll taxes on the reduced Payments), is greater than or equal to (ii) the net amount of the Payments without such reduction (but after subtracting the net amount of federal, state and local income and payroll taxes on the Payments and the amount of excise tax to which the Executive would be subject with respect to the unreduced Payments). Only amounts payable under this Agreement shall be reduced pursuant to this Section 6, and any reduction shall be made in accordance with Section 409A of the Code. Except as set forth in the next sentence, all determinations to be made under this Section 6 shall be made by the

nationally recognized independent public accounting or valuation firm used by the Company immediately prior to the Change in Control ("**Firm**"), which Firm shall provide its determinations and any supporting calculations to the Company and the Executive within ten (10) days of the Executive's Date of Termination. The value of the Executive's non-competition covenant under Section 9.16 of this Agreement shall be determined by independent appraisal by a nationally-recognized business valuation firm acceptable to both the Executive and the Company, and a portion of the Agreement Payments shall, to the extent of that appraised value, be specifically allocated as reasonable compensation for such non-competition covenant and shall not be treated as a parachute payment. Any such determination by the Firm shall be binding upon the Company and the Executive.

[remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the date and year first above written.

CONSOL Energy Inc.

By:

/s/ James A. Brock
James A. Brock
Chief Executive Officer
Dated: February 8, 2023

/s/ Mitesh Thakkar
Mitesh Thakkar
Chief Financial Officer and President
Dated: February 8, 2023

SEPARATION OF EMPLOYMENT AND GENERAL RELEASE AGREEMENT

THIS SEPARATION OF EMPLOYMENT AND GENERAL RELEASE AGREEMENT (this "Agreement") is made as of this ___ day of _____, _____, by and between CONSOL Energy Inc. (the "Company") and [_____] (the "Executive").

WHEREAS, the Executive formerly was employed by the Company as [_____];

WHEREAS, the Executive and Company entered into a Change in Control Severance Agreement, dated _____, 2023, (the "Employment Agreement") which provides for certain payments and benefits in the event that the Executive's employment is terminated on account of a reason set forth in the Change in Control Severance Agreement; and

WHEREAS, the Executive's employment with the Company was terminated for reasons that qualify the Executive to receive certain payments and benefits, as set forth in Article 5 of the Employment Agreement, subject to, among other things, the Executive's execution of this Release as defined therein.

NOW, THEREFORE, for and in consideration of the Company's commitments in Article 5 of the Employment Agreement, and intending to be legally bound, the Executive and the Company hereby agree as follows:

1. (a) The Executive does hereby REMISE, RELEASE AND FOREVER DISCHARGE the Company, its affiliates, subsidiaries and parents, and its and their respective officers, directors, employees, and agents, and its and their respective successors and assigns, heirs, executors, and administrators, as well as the current and former fiduciaries of any pension, welfare, or other benefit plans applicable to the employees or former employees of the Company, and the current and former welfare and other benefit plans sponsored by the Company (collectively, "Releasees") from all causes of action, suits, debts, claims and demands whatsoever in law or in equity, which the Executive ever had, now has, or hereafter may have, whether known or unknown, or which the Executive's heirs, executors, or administrators may have, by reason of any matter, cause or thing whatsoever, from the beginning of time to the date the Executive signs this Agreement, and particularly, but without limitation of the foregoing general terms, any claims arising from or relating in any way to the Executive's employment relationship with the Company, the terms and conditions of that employment relationship, and the termination of that employment relationship, including, but not limited to, any claims arising under the Age Discrimination in Employment Act, the Older Workers Benefit Protection Act, Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1991, the Americans with Disabilities Act, the Fair Labor Standards Act, the Family Medical Leave Act, the Worker Readjustment and Retraining Notification Act, the Consolidated Omnibus Budget Reconciliation Act, the Employee Retirement Income Security Act of 1974, the Pennsylvania Human Relations Act, and any other claims under any federal, state or local common law, statutory, or regulatory provision, now or hereafter recognized, and any claims for attorneys' fees and costs. This Agreement is effective without regard to the legal nature of the claims raised and without regard to whether any such claims are based upon tort, equity, implied or express contract or discrimination of any sort.

Release of Age Discrimination Claims. Periods for Review and Reconsideration. Executive understands and agrees that this Agreement includes a release of all claims under the Age Discrimination in Employment Act ("ADEA") and, therefore, pursuant to the requirements of the ADEA, Executive acknowledges that he has been advised:

- (i) that this release includes, but is not limited to, all claims under the ADEA arising up to and including the date of execution of this release;
- (ii) to consult with an attorney and/or other advisor of his choosing concerning his rights and obligations under this release;

(iii) to consider fully this release before executing it: (a) that he has been offered ample time and opportunity, in excess of twenty-one (21) days, to do so; and (b) that this release shall become effective and enforceable seven (7) days following its execution by Executive, during which (7) day period Executive may revoke this acceptance of this release by delivering written notice to: [Name, Title, Address]. In the event of a timely revocation by the Executive, this Agreement will be deemed null and void and the Company will have no obligations hereunder or under Article 5 of the Employment Agreement.

(b) Although Paragraph 1(a) is intended to be a general release, it is understood and agreed that Paragraph 1(a) excludes claims related to the Executive's right to receive the payments and benefits described in Article 5 of the Employment Agreement, as well as claims under any statute or common law that the Executive is legally barred from releasing, such as the Executive's entitlement to vested pension benefits. Notwithstanding any other provision hereof, the Executive shall not release claims that the Executive may have against the Company for reimbursement of ordinary and necessary business expenses incurred by him during the course of his employment, claims that arise after the effective date of the Release, any rights the Executive may have to enforce Sections 5.02 and 5.03 of the Employment Agreement, and claims for which the Executive is entitled to be indemnified under the Company's charter, by-laws or under applicable law or pursuant to the Company's directors' and officers' liability insurance policies.

(c) Nothing in this Agreement, including, without limitation, the non-disparagement and confidentiality obligations, prevents or prohibits Executive from filing a charge or complaint with a federal, state, or local governmental agency, such as the U.S. Equal Employment Opportunity Commission or the U.S. Securities and Exchange Commission, that is responsible for enforcing a law on behalf of the government or from cooperating with or participating in the government's investigation of a charge or complaint. Executive understands and agrees, however, that because he is waiving and releasing all claims for monetary damages and any other form of personal relief in exchange for the benefits of this Agreement, that Executive will not seek or accept monetary damages or other forms of personal relief, other than a benefit or remedy pursuant to Section 922 of the Dodd-Frank Wall Street Reform and Protection Act, through or resulting from any charge or complaint for any released claims. Should any third party bring any action, charge or claim against the Releasees on Executive's behalf, including, without limitation, as a class, collective, or other representative action, Executive acknowledges and agrees that this Agreement provides him with full relief for any claims released under this Agreement, and he will not accept any additional relief for such claims asserted in that class, collective, or other representative action.

(d) The Executive represents and agrees by signing below that the Executive has not been denied any leave or benefit requested, has received the appropriate pay for all hours worked for the Company, and has no known workplace injuries or occupational diseases.

(e) To the fullest extent permitted by law, the Executive represents and affirms that (i) [other than _____,] the Executive has not filed or caused to be filed on the Executive's behalf any claim for relief against any Releasee and, to the best of the Executive's knowledge and belief, no outstanding claims for relief have been filed or asserted against the Company or any Releasee on the Executive's behalf; and (ii) [other than _____,] the Executive has not reported any improper, unethical or illegal conduct or activities to any supervisor, manager, department head, human resources representative, agent or other representative of the Company, to any member of the Company's legal or compliance departments, or to the ethics hotline, and has no knowledge of any such improper, unethical or illegal conduct or activities. The Executive agrees to promptly dismiss with prejudice all claims for relief filed before the date the Executive signs this Agreement.

3. The Executive further agrees and recognizes that the Executive's employment relationship with the Company has been permanently severed, that the Executive shall not seek employment with the Company or any affiliated entity at any time in the future, and that the Company has no obligation to employ the Executive in the future.

4. The Executive further agrees that the Executive will not disparage or subvert the Company, or make any statement reflecting negatively on the Releasees including, but not limited to, statements relating to the operation or management of the Company, the Executive's employment and the termination of the Executive's employment, irrespective of the truthfulness or falsity of such statement. It is expressly understood that any violation of the non-disparagement obligation imposed hereunder constitutes a material breach of this Agreement.

5. The Executive acknowledges that if the Executive had not executed this Agreement containing a release of all claims, the Executive would not have been entitled to the payments and benefits set forth in Article 5 of the Employment Agreement.

6. This Agreement contains the entire agreement between the Company and the Executive relating to the subject matter hereof. No prior or contemporaneous oral or written agreements or representations may be offered to alter the terms of this Agreement. To the extent Employee has entered into other agreements with the Company that are not in conflict with this Agreement, including, but not limited to the Employment Agreement, the terms of this Agreement shall not supersede, but shall be in addition to such other agreements.

7. The Executive agrees not to disclose the terms of this Agreement or the Employment Agreement to anyone, except the Executive's spouse, attorney and, as necessary, tax/financial advisor. Likewise, the Company agrees that the terms of this Agreement will not be disclosed except as may be necessary to obtain approval or authorization to fulfill its obligations hereunder or as required by law. It is expressly understood that any violation of the confidentiality obligation imposed hereunder constitutes a material breach of this Agreement.

8. The Executive represents that the Executive has returned to the Company and does not presently have in the Executive's possession or control any records and business documents, whether electronic or hard copy, and other materials (including but not limited to computer disks and tapes, computer programs and software, office keys, correspondence, files, customer lists, technical information, customer information, pricing information, business strategies and plans, sales records and all copies thereof) (collectively, the "Corporate Records") provided by the Company and/or its predecessors, subsidiaries or affiliates or obtained as a result of the Executive's prior employment with the Company and/or its predecessors, subsidiaries or affiliates, or created by the Executive while employed by or rendering services to the Company and/or its predecessors, subsidiaries or affiliates. In addition, the Executive has or will promptly return in good condition any other Company owned equipment or property, including, but not limited to, automobiles, personal data assistants, facsimile machines, copy machines, pagers, credit cards, cellular telephone equipment, business cards, laptops and computers. At the Executive's request, the Company will make reasonable arrangements to transfer cellular phone numbers and personal fax numbers to the Executive.

9. Nothing in this Agreement shall prohibit or restrict the Executive from: (i) making any disclosure of information required by law; (ii) providing information to, or testifying or otherwise assisting in any investigation or proceeding brought by, any federal regulatory or law enforcement agency or legislative body, any self-regulatory organization, or the Company's designated legal, compliance or human resources officers; or (iii) filing, testifying, participating in or otherwise assisting in a proceeding relating to an alleged violation of any federal, state or municipal law relating to fraud, or any rule or regulation of the Securities and Exchange Commission or any self-regulatory organization.

10. The parties agree and acknowledge that the agreement by the Company described herein, and the release of any asserted or unasserted claims against the Releasees, are not and shall not be construed to be an admission of any violation of any federal, state or local statute or regulation, or of any duty owed by any of the Releasees to the Executive.

11. The Executive agrees and recognizes that should the Executive breach any of the obligations or covenants set forth in Articles 6 and 7 of the Employment Agreement, the Company will have no further obligation to provide the Executive with the consideration set forth in Article 5 of the Employment Agreement, and will have the right to seek repayment of all consideration paid up to the time of any such breach. Notwithstanding the foregoing, the Executive acknowledges that if the Executive

breaches Articles 6 and 7 of the Employment Agreement, and if the Company terminates or recovers any of the payments or benefits provided under Article 5 of the Employment Agreement (as provided for in Articles 6 and 7 of the Employment Agreement), the release provided by Section 1 of this Agreement shall remain valid and enforceable.

12. The Executive further agrees that the Company shall be entitled to preliminary and permanent injunctive relief, without the necessity of proving actual damages, as well as to an equitable accounting of all earnings, profits and other benefits arising from any violations of this Agreement, which rights shall be cumulative and in addition to any other rights or remedies to which the Company may be entitled.

13. This Agreement and the obligations of the parties hereunder shall be construed, interpreted and enforced in accordance with the laws of the Commonwealth of Pennsylvania.

14. The Executive certifies and acknowledges as follows:

(a) That the Executive has read the terms of this Agreement, and that the Executive understands its terms and effects, including the fact that the Executive has agreed to RELEASE AND FOREVER DISCHARGE the Releasees from any legal action arising out of the Executive's employment relationship with the Company and the termination of that employment relationship; and

(b) That the Executive has signed this Agreement voluntarily and knowingly in exchange for the consideration described herein, which the Executive acknowledges is adequate and satisfactory to him and which the Executive acknowledges is in addition to any other benefits to which the Executive is otherwise entitled; and

(c) That the Executive has been and is hereby advised in writing to consult with an attorney prior to signing this Agreement.

Intending to be legally bound hereby, the Executive and the Company executed the foregoing Separation of Employment and General Release Agreement this ____ day of _____, _____.

Executive: [_____] Witness: _____

CONSOL Energy Inc.

By: _____ Witness: _____
Name:
Title:

CONSOL Energy Inc.
SUBSIDIARIES
As of February 10, 2023

(In alphabetical order)

AMVEST Gas Resources, LLC (a Virginia limited liability company)
 AMVEST LLC (a Virginia limited liability company)
 AMVEST West Virginia Coal, L.L.C. (a West Virginia limited liability company)
 Braxton-Clay Land & Mineral, LLC (a West Virginia limited liability company)
 CFOAM Holdings LLC (a Delaware limited liability company)
 CFOAM LLC (a Delaware limited liability company)
 Conrhein Coal Company (a Pennsylvania general partnership)
 CONSOL Amonate Facility LLC (a Delaware limited liability company)
 CONSOL Amonate Mining Company LLC (a Delaware limited liability company)
 CONSOL Coal Finance Corp. (a Delaware corporation)
 CONSOL Energy Canada Ltd. (a Canadian corporation)
 CONSOL Energy Sales Company LLC (formerly CONSOL Sales Company) (a Delaware limited liability company)
 CONSOL Financial Inc. (a Delaware corporation)
 CONSOL Funding LLC (a Delaware limited liability company)
 CONSOL Innovations LLC (a Delaware limited liability company)
 CONSOL Marine Terminals LLC (a Delaware limited liability company)
 CONSOL Mining Company LLC (a Delaware limited liability company)
 CONSOL Mining Holding Company LLC (a Delaware limited liability company)
 CONSOL of Canada LLC (a Delaware limited liability company)
 CONSOL of Kentucky LLC (a Delaware limited liability company)
 CONSOL Operating LLC (a Delaware limited liability company)
 CONSOL Pennsylvania Coal Company Exchange LLC (a Delaware limited liability company)
 Consol Pennsylvania Coal Company LLC (formerly Consol Pennsylvania Coal Company) (a Delaware limited liability company)

CONSOL Pennsylvania Mine Holding LLC (a Delaware limited liability company)
 CONSOL RCPC LLC (a Delaware limited liability company)
 Consol Thermal Holdings LLC (a Delaware limited liability company)
 Fola Coal Company, L.L.C. d/b/a Powellton Coal Company (a West Virginia limited liability company)
 Helvetia Coal Company LLC (a Pennsylvania limited liability company)
 Island Creek Coal Company LLC (a Delaware limited liability company)
 Laurel Run Mining Company LLC (a Virginia limited liability company)
 Leatherwood, LLC (a Pennsylvania limited liability company)
 Little Eagle Coal Company, L.L.C. (a West Virginia limited liability company)
 MTB LLC (a Delaware limited liability company)
 Nicholas-Clay Land & Mineral, LLC (a Virginia limited liability company)
 PA Mining Complex GP LLC (a Delaware limited liability company)
 PA Mining Complex LP (a Delaware limited partnership)
 R&PCC LLC (a Pennsylvania limited liability company)
 TECPART LLC (a Delaware limited liability company)
 Terry Eagle Coal Company, L.L.C. (a West Virginia limited liability company)
 Terry Eagle Limited Partnership (a West Virginia limited liability company)
 Transformer LP Holdings Inc. (a Delaware corporation)

Vaughan Railroad Company LLC (a West Virginia limited liability company)
 Windsor Coal Company LLC (a West Virginia limited liability company)
 Wolfpen Knob Development Company LLC (a Virginia limited liability company)

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- Registration Statement (Form S-3 No. 333-262670) of CONSOL Energy Inc. pertaining to the registration of Debt Securities, Common Stock, Preferred Stock and Warrants,
- Registration Statement (Form S-8 No. 333-221727) pertaining to the CONSOL Energy Inc. 2020 Amended and Restated Omnibus Performance Incentive Plan,
- Registration Statement (Form S-8 No. 333-251852) pertaining to the CONSOL Energy Inc. 2020 Amended and Restated Omnibus Performance Incentive Plan, and
- Registration Statement (Form S-8 No. 333-238173) pertaining to the CONSOL Energy Inc. 2020 Amended and Restated Omnibus Performance Incentive Plan;

of our reports dated February 10, 2023, with respect to the consolidated financial statements of CONSOL Energy Inc. and Subsidiaries and the effectiveness of internal control over financial reporting of CONSOL Energy Inc. and Subsidiaries included in this Annual Report (Form 10-K) of CONSOL Energy Inc. and Subsidiaries for the year ended December 31, 2022.

/s/ Ernst & Young LLP
Pittsburgh, Pennsylvania
February 10, 2023

John T. Boyd Company
4000 Town Center Boulevard, Suite 300
Canonsburg, PA 15317

CONSENT OF THIRD-PARTY QUALIFIED PERSON

The John T. Boyd Company (“BOYD”) in connection with the filing of the CONSOL Energy Inc. Annual Report on Form 10-K (the “Form 10-K”), consent to:

- the filing and use of the technical report summary titled “Technical Report Summary, Coal Resources and Coal Reserves, Pennsylvania Mining Complex, Pennsylvania and West Virginia” (the “PAMC Technical Report”), with an effective date of December 31, 2022, as an exhibit to and referenced in the Form 10-K;
- the filing and use of the technical report summary titled “Technical Report Summary, Coal Resources and Coal Reserves, Itmann Mining Complex, Wyoming and McDowell Counties, West Virginia” (the “Itmann Technical Report” and together with the PAMC Technical Report, the “Technical Reports”), with an effective date of December 31, 2022, as an exhibit to and referenced in the Form 10-K;
- the use of and references to our name, including our status as an expert or “qualified person” (as defined in Subpart 1300 of Regulation S-K promulgated by the Securities and Exchange Commission), in connection with the Form 10-K and any such Technical Report; and
- the information derived, summarized, quoted or referenced from any of the Technical Reports, or portions thereof, that was prepared by BOYD, that BOYD supervised the preparation of and/or that was reviewed and approved by BOYD, that is included or incorporated by reference in the Form 10-K.

BOYD is responsible for authoring, and this consent pertains to, the Technical Reports. BOYD certifies that it has read the Form 10-K and that it fairly and accurately represents the information in the sections of the Technical Reports for which BOYD is responsible.

BOYD also consents to the incorporation by reference in CONSOL Energy Inc.’s registration statements on Form S-3 (No. 333-262670) and Form S-8 (Nos. 333-221727, 333-238173 and 333-251852) of the above items as included in the Form 10-K.

The John T. Boyd Company
/s/ John T. Boyd II
President and CEO
February 10, 2023

CERTIFICATIONS

I, James A. Brock, certify that:

1. I have reviewed this annual report on Form 10-K of CONSOL Energy Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 10, 2023

/s/ James A. Brock

James A. Brock

Chief Executive Officer

(Principal Executive Officer)

CERTIFICATIONS

I, Miteshkumar B. Thakkar, certify that:

1. I have reviewed this annual report on Form 10-K of CONSOL Energy Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 10, 2023

/s/ Miteshkumar B. Thakkar

Miteshkumar B. Thakkar
Chief Financial Officer and President
(Principal Financial Officer)

CERTIFICATION
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002,
18 U.S.C. Section 1350

I, James A. Brock, Chief Executive Officer (principal executive officer) of CONSOL Energy Inc. (the "Registrant"), certify that to my knowledge, based upon a review of the Annual Report on Form 10-K for the period ended December 31, 2022, of the Registrant (the "Report"):

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Date: February 10, 2023

/s/ James A. Brock

James A. Brock

Chief Executive Officer

(Principal Executive Officer)

CERTIFICATION
Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002,
18 U.S.C. Section 1350

I, Miteshkumar B. Thakkar, Chief Financial Officer (principal financial officer) of CONSOL Energy Inc. (the "Registrant"), certify that to my knowledge, based upon a review of the Annual Report on Form 10-K for the period ended December 31, 2022, of the Registrant (the "Report"):

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Registrant.

Date: February 10, 2023

/s/ Miteshkumar B. Thakkar

Miteshkumar B. Thakkar
Chief Financial Officer and President
(Principal Financial Officer)

Mine Safety and Health Administration Safety Data

We believe that CONSOL Energy is one of the safest mining companies in the world. The Company has in place health and safety programs that include extensive employee training, accident prevention, workplace inspection, emergency response, accident investigation, regulatory compliance and program auditing. The objectives of our health and safety programs are to eliminate workplace incidents, comply with all mining-related regulations and provide support for both regulators and the industry to improve mine safety.

The operation of our mines is subject to regulation by the federal Mine Safety and Health Administration (MSHA) under the Federal Mine Safety and Health Act of 1977 (Mine Act). MSHA inspects our mines on a regular basis and issues various citations, orders and violations when it believes a violation has occurred under the Mine Act. We present information below regarding certain mining safety and health violations, orders and citations, issued by MSHA and related assessments and legal actions and mine-related fatalities with respect to our coal mining operations. In evaluating this information, consideration should be given to factors such as: (i) the number of violations, orders and citations will vary depending on the size of the coal mine, (ii) the number of violations, orders and citations issued will vary from inspector to inspector and mine to mine, and (iii) violations, orders and citations can be contested and appealed, and in that process, are often reduced in severity and amount, and are sometimes dismissed.

The table below sets forth for the year ended December 31, 2022, for each coal mine of CONSOL Energy and its subsidiaries, the total number of: (i) violations of mandatory health or safety standards that could significantly and substantially contribute to the cause and effect of a coal or other mine safety or health hazard under section 104 of the Mine Act for which the operator received a citation from MSHA; (ii) orders issued under section 104(b) of the Mine Act; (iii) citations and orders for unwarrantable failure of the mine operator to comply with mandatory health or safety standards under section 104(d) of the Mine Act; (iv) flagrant violations under section 110(b)(2) of the Mine Act; (v) imminent danger orders issued under section 107(a) of the Mine Act; (vi) the total dollar value of proposed assessments from MSHA (regardless of whether CONSOL Energy has challenged or appealed the assessment); (vii) the total number of mining-related fatalities; (viii) notices from MSHA of a pattern of violations of mandatory health or safety standards that are of such nature as could have significantly and substantially contributed to the cause and effect of coal or other mine health or safety hazards under section 104(e) of the Mine Act; (ix) notices from MSHA regarding the potential to have a pattern of violations as referenced in (viii) above; and (x) pending legal actions before the Federal Mine Safety and Health Review Commission (as of December 31, 2022) involving such coal or other mine, as well as the aggregate number of legal actions instituted and the aggregate number of legal actions resolved during the reporting period.

Mine or Operating Name/MSHA Identification Number	Section 104 S&S Citations	Section 104(b) Orders	Section 104(d) Citations and Orders	Section 110(b)(2) Violations	Section 107(a) Orders	Total Dollar Value of MSHA Assessments Proposed (In Dollars)	Total Number of Mining Related Fatalities	Received Notice of Pattern of Violations Under Section 104(e)	Received Notice of Potential to have Pattern Under Section 104(e)	Legal Actions Pending as of Last Day of Period (1)	Legal Actions Initiated During Period	Legal Actions Resolved During Period
<u>Active Operations</u>												
Bailey	36-07230	69	—	—	—	176,124	—	No	No	8	12	15
Enlow Fork	36-07416	24	—	—	—	73,372	—	No	No	6	11	15
Harvey	36-10045	6	—	—	—	22,615	—	No	No	2	4	8
Itmann No 5	46-09569	38	—	4	—	106,095	—	No	No	4	10	8
Itmann No 5 Plant	46-09598	—	—	—	—	266	—	No	No	—	—	—
		137	—	4	—	378,472	—			20	37	46

(1) See table below for additional detail regarding Legal Actions Pending as of December 31, 2022. With respect to Contests of Proposed Penalties, we have included the number of dockets (as opposed to citations) when counting the number of Legal Actions Pending as of December 31, 2022.

Mine or Operating Name/MSHA Identification Number		Contests of Citations, Orders (as of 12.31.22)	Contests of Proposed Penalties (as of 12.31.22) (b)		Complaints for Compensation (as of 12.31.22) (c)	Complaints of Discharge, Discrimination or Interference (as of 12.31.22) (d)	Applications for Temporary Relief (as of 12.31.22) (e)	Appeals of Judges' Decisions or Order (as of 12.31.22) (f)
		(a)	Dockets	Citations				
<u>Active Operations</u>								
Bailey	36-07230	—	8	32	—	—	—	3
Enlow Fork	36-07416	—	6	21	—	—	—	—
Harvey	36-10045	—	2	3	—	—	—	1
Itmann No 5	46-09569	—	4	23	—	—	—	—
Itmann No 5 Plant	46-09598	—	—	—	—	—	—	—
		—	20	79	—	—	—	4

(a) Represents (if any) contests of citations and orders, which typically are filed prior to an operator's receipt of a proposed penalty assessment from MSHA or relate to orders for which penalties are not assessed (such as imminent danger orders under Section 107 of the Mine Act). This category includes: (i) contests of citations or orders issued under section 104 of the Mine Act, (ii) contests of imminent danger withdrawal orders under section 107 of the Mine Act, and (iii) Emergency response plan dispute proceedings (as required under the Mine Improvement and New Emergency Response Act of 2006, Pub. L. No. 109-236, 120 Stat. 493).

(b) Represents (if any) contests of proposed penalties, which are administrative proceedings before the Federal Mine Safety and Health Review Commission (“FMSHRC”) challenging a civil penalty that MSHA has proposed for the violation contained in a citation or order.

(c) Represents (if any) complaints for compensation, which are cases under section 111 of the Mine Act that may be filed with the FMSHRC by miners idled by a closure order issued by MSHA who are entitled to compensation.

(d) Represents (if any) complaints of discharge, discrimination or interference under section 105 of the Mine Act, which cover: (i) discrimination proceedings involving a miner’s allegation that he or she has suffered adverse employment action because he or she engaged in activity protected under the Mine Act, such as making a safety complaint, and (ii) temporary reinstatement proceedings involving cases in which a miner has filed a complaint with MSHA stating that he or she has suffered such discrimination and has lost his or her position. Complaints of Discharge, Discrimination, or Interference are also included in Contests of Proposed Penalties, Column B.

(e) Represents (if any) applications for temporary relief, which are applications under section 105(b)(2) of the Mine Act for temporary relief from any modification or termination of any order or from any order issued under section 104 of the Mine Act (other than citations issued under section 104(a) or (f) of the Mine Act).

(f) Represents (if any) appeals of judges’ decisions or orders to the FMSHRC, including petitions for discretionary review and review by the FMSHRC on its own motion.

TECHNICAL REPORT SUMMARY
COAL RESOURCES AND COAL RESERVES
PENNSYLVANIA MINING COMPLEX
Pennsylvania and West Virginia

Prepared For
CONSOL ENERGY INC.
Canonsburg, Pennsylvania

By
John T. Boyd Company
Mining and Geological Consultants
Pittsburgh, Pennsylvania



Report No. 2755.091
JANUARY 2023



John T. Boyd Company

Mining and Geological Consultants

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James W. Boyd

President and CEO
John T. Boyd II

Managing Director and COO
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January 31, 2023
File: 2755.091

CONSOL Energy Inc.
275 Technology Drive, Suite 101
Canonsburg, PA 15317-9565

Attention: Mr. Michael Bohan
Senior Geologist

Subject: Technical Report Summary
Coal Resources and Coal Reserves
Pennsylvania Mining Complex
Pennsylvania and West Virginia

Ladies and Gentlemen:

The John T. Boyd Company (BOYD) was retained by CONSOL Energy Inc. (CONSOL) to complete an independent technical assessment of the coal resource and coal reserves estimates for the Pennsylvania Mining Complex (PAMC) as of December 31, 2022.

This technical report summary: 1) identifies and summarizes the scientific and technical information supporting the coal resource and coal reserves estimates for the PAMC and 2) provides BOYD's conclusions resulting from our independent assessment.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

John T. Boyd II
President and CEO

TABLE OF CONTENTS

Page

LETTER OF TRANSMITTAL

TABLE OF CONTENTS

DISCLAIMERS AND QUALIFICATIONS

GLOSSARY AND ABBREVIATIONS

1.0	EXECUTIVE SUMMARY	1-1
1.1	Introduction	1-1
1.2	Property Description	1-1
1.3	Geology	1-3
1.4	Exploration	1-3
1.5	Coal Reserves	1-4
1.6	Operations	1-5
1.6.1	Mining	1-5
1.6.2	Processing	1-5
1.6.3	Other Infrastructure	1-6
1.7	Financial Analysis	1-6
1.7.1	Market Analysis	1-6
1.7.2	Capital and Operating Cost Estimates	1-6
1.7.3	Economic Analysis	1-7
1.8	Permitting Requirements	1-7
1.9	Conclusions	1-8
2.0	INTRODUCTION	2-1
2.1	Registrant	2-1
2.2	Terms of Reference and Purpose	2-1
2.3	Expert Qualifications	2-2
2.4	Sources of Information	2-3
2.5	Personal Inspections	2-3
2.6	Report Version	2-4
2.7	Units of Measure	2-4
3.0	PROPERTY DESCRIPTION	3-1
3.1	Property Location	3-1
3.2	Property Control	3-3
3.2.1	Coal Ownership	3-3
3.2.2	Surface Ownership	3-4

	<u>Page</u>
3.3 Regulation and Liabilities	3-4
4.0 PHYSIOGRAPHY, ACCESSIBILITY, AND INFRASTRUCTURE	4-1
4.1 Topography, Elevation, and Vegetation	4-1
4.2 Accessibility	4-1
4.3 Climate	4-1
4.4 Infrastructure Availability and Sources	4-2
5.0 HISTORY	5-1
5.1 Reserve Acquisition	5-1
5.2 Mine Development	5-1
6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT	6-1
6.1 Regional Geology	6-1
6.2 Local Stratigraphy	6-2
6.2.1 Conemaugh Group	6-3
6.2.2 Monongahela Group	6-3
6.2.3 Dunkard Group	6-3
6.3 Coal Seam Geology	6-3
6.3.1 Lithology	6-3
6.3.2 Structure	6-6
6.3.3 Coal Quality	6-7
7.0 EXPLORATION DATA	7-1
7.1 Background	7-1
7.2 Procedures	7-1
7.2.1 Drilling	7-1
7.2.2 Coal Quality Sampling	7-3
7.2.3 Coal Washability Testing	7-4
7.2.4 Other Exploration Methods	7-5
7.3 Results	7-5
7.3.1 Summary of Exploration	7-5
7.3.2 Adequacy of Exploration	7-7
7.4 Data Verification	7-7
8.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY	8-1
9.0 DATA VERIFICATION	9-1
10.0 MINERAL PROCESSING AND METALLURGICAL TESTING	10-1

	<u>Page</u>	
11.0	COAL RESOURCE ESTIMATE	11-1
11.1	Applicable Standards and Definitions	11-1
11.2	Coal Resources	11-2
	11.2.1 Methodology	11-2
	11.2.2 Criteria	11-2
	11.2.3 Classification	11-2
	11.2.4 Coal Resource Estimate	11-3
	11.2.5 Validation	11-3
12.0	COAL RESERVE ESTIMATE	12-1
12.1	Applicable Standards and Definitions	12-1
12.2	Coal Reserves	12-2
	12.2.1 Methodology	12-2
	12.2.2 Parameters and Assumptions	12-2
	12.2.3 Classification	12-5
	12.2.4 Coal Reserve Estimate	12-5
	12.2.5 Reconciliation with Previous Estimates	12-11
13.0	MINING METHODS	13-1
13.1	Mining Method Description	13-1
13.2	Mine Equipment and Staffing	13-3
	13.2.1 Mine Equipment	13-3
	13.2.2 Staffing	13-3
13.3	Mine Production	13-4
	13.3.1 Historical Mine Production	13-4
	13.3.2 Forecasted Production	13-6
13.3.3	Mining Recovery and Dilution Factors	13-6
13.4	Other Mining Considerations	13-8
	13.4.1 Mine Design	13-8
	13.4.2 Mining Risk	13-9
14.0	PROCESSING OPERATIONS	14-1
14.1	Overview	14-1
14.2	Historical Operation	14-5
14.3	Future Operations	14-5
14.4	Conclusions	14-5
15.0	MINE INFRASTRUCTURE	15-1
15.1	Mine Surface Facilities	15-1
15.2	Bailey Refuse Facility	15-1
16.0	MARKET STUDIES	16-1

	<u>Page</u>	
16.1	Product Specifications	16-1
16.2	Primary Markets	16-2
	16.2.1 Domestic Sales	16-3
	16.2.2 Export Sales	16-4
16.3	Market Outlook	16-5
17.0	PERMITTING AND COMPLIANCE	17-1
17.1	Permitting	17-1
17.2	Compliance	17-1
17.3	Socio-Economic Impact	17-2
18.0	CAPITAL AND OPERATING COSTS	18-1
18.1	Introduction	18-1
18.2	Historical Operating Costs	18-2
18.3	Historical Capital Expenditures	18-4
18.4	Projected Five-Year Mine Plan	18-4
	18.4.1 Forecasted Production and Sales	18-5
	18.4.2 Forecasted Operating Costs	18-6
	18.4.3 Forecasted Capital Expenditures	18-7
19.0	ECONOMIC ANALYSIS	19-1
19.1	Introduction	19-1
	19.1.1 Production Schedule	19-2
	19.1.2 Coal Pricing	19-2
	19.1.3 Cash Production Costs	19-3
	19.1.4 Capital Expenditures	19-3
19.2	Pre-Tax Net Present Value Analysis	19-4
20.0	ADJACENT PROPERTIES	20-1
21.0	OTHER RELEVANT DATA AND INFORMATION	21-1
22.0	INTERPRETATION AND CONCLUSIONS	22-1
22.1	Audit Findings	22-1
22.2	Significant Risks and Uncertainties	22-1
23.0	RECOMMENDATIONS	23-1
24.0	REFERENCES	24-1
25.0	RELIANCE ON INFORMATION PROVIDED BY REGISTRANT	25-1

List of Tables

1.1	Coal Reserves Summary	1-4
3.1	Summary of Coal Ownership	3-3
4.1	Monthly Average Climate Data, Waynesburg, Pennsylvania	4-1
5.1	Historical Reserve Acquisition	5-1
7.1	Descriptive Statistics, Pittsburgh Seam Thickness	7-5
7.2	Descriptive Statistics, Pittsburgh Seam Coal Quality	7-7
11.1	Coal Resource Classification Criteria	11-3
12.1	Mining Parameters	12-3
12.2	Estimated Coal Reserves by Mine as of 31 December 2021	12-7
12.3	Coal Reserves Summary	12-5
12.4	Coal Reserves Product Quality Summary	12-8
13.1	PAMC Historical Employee Count	13-4
14.1	Bailey CPP Module Summary	14-1
15.1	CRDA Summary	15-2
15.2	Summary of CRDA Remaining Capacity	15-2
16.1	Indicative Thermal Coal Quality	16-1
16.2	Indicative Metallurgical Coal Quality	16-2
16.3	PAMC Sales by Product and Market Segment	16-2
16.4	Summary of PAMC Historical Thermal Coal Deliveries by State	16-3
18.1	PAMC Historical Capital Expenditures	18-4
18.2	Projected Saleable Production and Realization Estimates for PAMC	18-5
19.1	Projected PAMC Saleable Production	19-2
19.2	Projected Average PAMC Sale Price	19-2
19.3	Projected PAMC Cash Operating Costs	19-3
19.4	Projected PAMC Capital Expenditures	19-3
19.5	PAMC Cumulative NPV by Timeframe	19-4
19.6	NPV Sensitivity Analysis	19-5

List of Figures

1.1	General Location Map	1-2
3.1	Map Showing General Layout and Mineral Control	3-2
6.1	Generalized Stratigraphic Chart, Southwestern Pennsylvania	6-2
6.2	Generalized Stratigraphic Section, Showing Pittsburgh Coal Seam Main Bench, Draw Slate, and Roof Coal, Zone Average Thickness in the PAMC	6-4
6.3:	Map Showing Pittsburgh Seam Isopachs	6-5
7.1	Map Showing Drill Hole Locations	7-6
12.1	Relationship Between Coal Resources and Coal Reserves	12-2
12.2	Map Showing Product Yield Isopleths, Pittsburgh Seam	12-4
12.3	Map Showing Reserve Classification, Pittsburgh Seam	12-6
12.4	Map Showing Product Ash Isopleths, Pittsburgh Seam	12-9
12.5	Map Showing Product Sulfur Isopleths, Pittsburgh Seam	12-10
12.6	Distribution of PAMC Coal Reserves by Sulfur Dioxide Category	12-8
12.7	Reconciliation with Previous Coal Reserves Estimate	12-11
13.1	Longwall Mining Method	13-1
13.2	Historical PAMC Coal Production	13-4
13.3	Historic PAMC Mining Productivity	13-5
13.4	Projected PAMC Coal Production	13-6
14.1	Aerial Photograph Showing Bailey Preparation Plant Facilities	14-3
14.2	Generic Flowsheet, Dense Medium Cyclone/Spiral/Flotation, Bailey Preparation Plant Facilities	14-4
18.1	PAMC Historical Operating Costs and Sales Realizations	18-2
18.2	PAMC Historical Cash Operating Cost by Mine	18-3
18.3	PAMC Projected Operating Costs and Sales Realizations	18-6
18.4	PAMC's Projected Cash Operating Costs	18-7

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DISCLAIMERS AND QUALIFICATIONS

This report is intended for use by CONSOL subject to the terms and conditions of its professional services agreement with BOYD. The agreement permits CONSOL to file this report as a technical report summary with the U.S. Securities and Exchange Commission (SEC) pursuant to Subpart 1300 and Item 601(b) (96) of Regulation S-K. Except for the purposes legislated under US securities law, any other uses of or reliance on this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with CONSOL. The user of this document should ensure that this is the most recent disclosure of coal resources and coal reserves for the subject property as it is no longer valid if more recent estimates have been issued.

This report provides BOYD's assessment of CONSOL's coal resources and coal reserves. Our assessment was performed to obtain reasonable assurance that CONSOL's estimates of coal reserves and coal resources are free from material misstatement. We did not independently estimate coal resources or coal reserves as it was not required for the purposes of the assessment. The Economic Analysis and resulting net present value (NPV) estimate in this report were made for the purposes of confirming the economic viability of the reported coal reserves and not for the purposes of valuing CONSOL or its assets. Internal Rate of Return (IRR) and project payback were not calculated, as there was no initial investment considered in the financial model.

The ability of CONSOL to recover all the reported coal reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future coal prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

Cautionary Statements Regarding Forward-Looking Statements

Certain statements in this technical report summary are "forward-looking statements" within the meaning of the federal securities laws. Except for historical matters, the matters discussed in this technical report summary are forward-looking statements (as defined in Section 21E of the Securities Exchange Act of 1934, as amended) that involve risks and uncertainties that could cause actual results to differ materially from results projected in or implied by such forward-looking statements. Accordingly, investors should

not place undue reliance on forward-looking statements as a prediction of actual results. The forward-looking statements may include projections and estimates concerning the timing and success of specific projects and CONSOL's future production, revenues, income, and capital spending. When the words "anticipate," "believe," "could," "continue," "estimate," "expect," "intend," "may," "plan," "predict," "project," "should," "will," or their negatives, or other similar expressions are used in this technical report summary, the statements which include those words are usually forward-looking statements. Any expectations with respect to the PAMC or any other strategy that involves risks or uncertainties are forward-looking statements. These forward-looking statements are based on current expectations and assumptions about future events. While BOYD considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory, and other risks, contingencies and uncertainties, most of which are difficult to predict and many of which are beyond BOYD's control. The forward-looking statements in this report speak only as of the date of this technical report summary and BOYD disclaims any intention or obligation to update publicly any forward-looking statements in this technical report summary, whether in response to new information, future events, or otherwise, except as required by applicable law.

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GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

\$:	US dollar(s)
%	:	Percent or percentage
AFC	:	Armored Face Conveyor
As-Received Basis	:	Data or results are calculated to the moisture condition of the coal sample when it arrived at the testing facility.
ASTM	:	ASTM International (formerly American Society for Testing and Materials)
BMX	:	Bailey Mine Expansion
BOYD	:	John T. Boyd Company
Btu	:	British thermal unit. A unit of heat; it is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.
CAPP	:	Central Appalachian Basin. Coal producing region consisting of Eastern Kentucky, Virginia, Southern West Virginia, and the Tennessee counties of: Anderson, Campbell, Claiborne, Cumberland, Fentress, Morgan, Overton, Pickett, Putnam, Roane, and Scott.
CM	:	Continuous Miner
CPP	:	Coal Preparation Plant
Coal	:	Combustible sedimentary rock in which organic matter, including residual moisture comprises more than 50% by weight and more than 70% by volume of carbonaceous material formed from altered plant remains.
Coal Reserve	:	An estimate of tonnage and grade or quality of indicated and measured coal resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated coal resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Coal Resource	:	A concentration or occurrence of coal of economic interest in or on the Earth's crust in such form, quality, and quantity that there are reasonable prospects for economic extraction. A coal resource is a reasonable estimate of mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location, or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
CONSOL	:	CONSOL Energy Inc. and its subsidiaries
CRDA	:	Coal Refuse Disposal Area
CSX	:	CSX Corporation. A rail-based freight transportation company
CY	:	Cubic yards
DCF	:	Discounted Cash Flow
Dry Basis	:	Data or results are calculated to a theoretical base as if there were no moisture in the coal sample.
EIA	:	U.S. Energy Information Administration
FOB	:	Free-on-Board
ILB	:	Illinois Basin. Coal producing region consisting of Illinois, Indiana, and Western Kentucky.
Indicated Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on adequate geological evidence and sampling. The level of geological certainty associated with an indicated coal resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated coal resource has a lower level of confidence than the level of confidence of a measured coal resource, an indicated coal resource may only be converted to a probable coal reserve.

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Inferred Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on limited geological evidence and sampling. The level of geological uncertainty associated with an inferred coal resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred coal resource has the lowest level of geological confidence of all coal resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred coal resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a coal reserve.
IRR	:	Internal rate-of-return
ISO	:	International Organization for Standardization
lb	:	Pound
LOM	:	Life-of-Mine
LW	:	Longwall
MB	:	Miner-Bolter
Measured Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on conclusive geological evidence and sampling. The level of geological certainty associated with a measured coal resource is sufficient to allow a qualified person to apply modifying factors, as defined herein, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured coal resource has a higher level of confidence than the level of confidence of either an indicated coal resource or an inferred coal resource, a measured coal resource may be converted to a proven coal reserve or to a probable coal reserve
Mineral Reserve	:	See <i>"Coal Reserve"</i>
Mineral Resource	:	See <i>"Coal Resource"</i>
MM	:	Million

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Modifying Factors	:	The factors that a qualified person must apply to indicated and measured coal resources and then evaluate to establish the economic viability of coal reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated coal resources to proven and probable coal reserves. These factors include, but are not restricted to: mining; processing; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.
MSHA	:	Mine Safety and Health Administration. A division of the U.S. Department of Labor
NAPP	:	Northern Appalachian Basin. Coal producing region consisting of Maryland, Ohio, Pennsylvania, and Northern West Virginia
NAR	:	Net As Received
NS	:	Norfolk Southern Corporation. A rail-based freight transportation company.
NPV	:	Net Present Value
OSD	:	Out-of-Seam Dilution. Rock impurities recovered from above and below the coal seam with the coal seam during the normal mining process
PAMC	:	Pennsylvania Mining Complex. Includes the Bailey Mine, the Enlow Fork Mine, the Harvey Mine, and the Central Coal Preparation Plant
Probable Coal Reserve	:	The economically mineable part of an indicated and, in some cases, a measured coal resource.
Production Stage Property	:	A property with material extraction of coal reserves.
Proven Coal Reserve	:	The economically mineable part of a measured coal resource which can only result from conversion of a measured coal resource.
QP	:	Qualified Person

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Qualified Person	:	An individual who is: <ol style="list-style-type: none"> 1. A mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and 2. An eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must: <ol style="list-style-type: none"> a. Be either: <ol style="list-style-type: none"> i. An organization recognized within the mining industry as a reputable professional association; or ii. A board authorized by U.S. federal, state, or foreign statute to regulate professionals in the mining, geoscience, or related field; b. Admit eligible members primarily based on their academic qualifications and experience; c. Establish and require compliance with professional standards of competence and ethics; d. Require or encourage continuing professional development; e. Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and f. Provide a public list of members in good standing.
ROM	:	Run-of-Mine. The as-mined material including coal, in-seam rock partings mined with the coal, and out-of-seam dilution.
RSA	:	Republic of South Africa
SGF	:	Specific gravity float
SEC	:	U.S. Securities and Exchange Commission
S-K 1300	:	Subpart 1300 and Item 601(b)(96) of the U.S. Securities and Exchange Commission's Regulation S-K
Ton	:	Short Ton. A unit of weight equal to 2,000 pounds
TPH	:	Tons per Hour
TPEH	:	Tons per Employee-Hour

1.0 EXECUTIVE SUMMARY

1.1 Introduction

CONSOL's Pennsylvania Mining Complex (PAMC) is a complex that includes three active underground longwall (LW) mines—Bailey Mine, Enlow Fork Mine, and Harvey Mine—and the Central Coal Preparation Plant (CPP). BOYD was retained by CONSOL to complete an independent technical assessment of coal resource and coal reserve estimates for the PAMC.

BOYD's findings as a result of the audit of PAMC's coal resource and coal reserve estimates are based on our detailed examination of the supporting geologic, technical, and economic information obtained from: (1) CONSOL files, (2) discussions with CONSOL personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files.

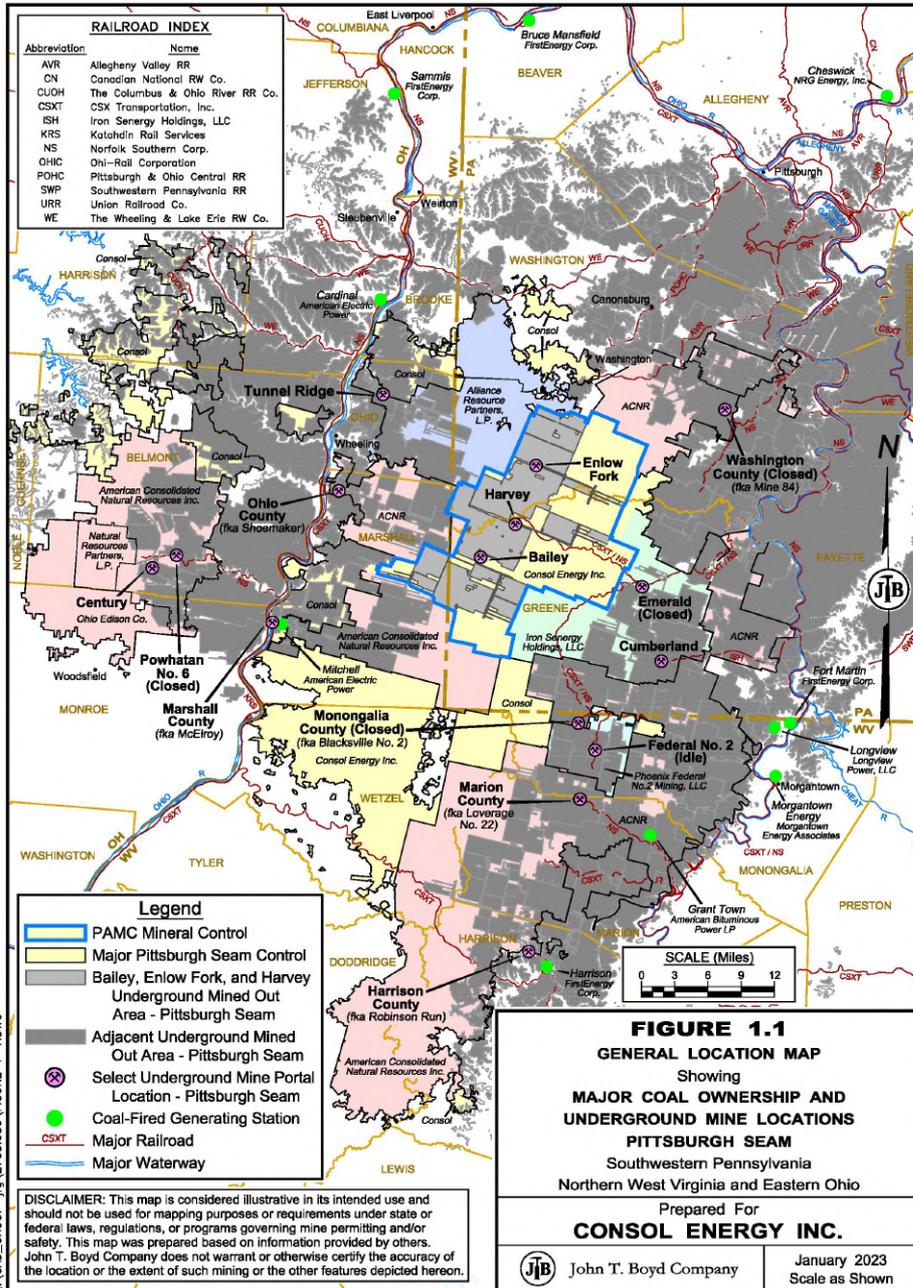
This technical report identifies and summarizes the results of our audit of the PAMC coal reserves and independent assessment of the economic viability of extracts of the PAMC coal reserves over the life of the mine and satisfies the requirements for CONSOL's disclosure of coal reserves set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K (S-K 1300). This is the second technical report summary for the PAMC. BOYD is a qualified person as defined in S-K 1300.

Weights and measurements are expressed in US customary units. Unless otherwise noted, the effective date of the information, including estimates of coal reserves, is December 31, 2022.

1.2 Property Description

The PAMC is an active underground coal mining and processing operation located in Greene and Washington counties, Pennsylvania, and Marshall County, West Virginia. The general location of the PAMC is provided in Figure 1.1, following this page. The project lies in a well-developed region with a robust infrastructure.

The PAMC comprises approximately 178,394 acres—or 279 square miles—within the Northern Appalachian Basin (NAPP) coal-producing region of the eastern United States.



C:\CAD_GROUP\fig\2755.080\FIGURE 1-1.DWG

The PAMC mines coal exclusively from the Pittsburgh Seam. Within the PAMC boundaries, CONSOL maintains the right to mine and remove almost all (approximately 99.7%) of the Pittsburgh Seam through whole or fractional mineral ownership and/or lease agreements. Several small adverse (uncontrolled) tracts exist within the proposed life-of-mine (LOM) plan; however, CONSOL has demonstrated success in acquiring these as required during the ordinary course of business, although there can be no assurance that it will be similarly successful in the future. BOYD is not aware of any encumbrances, litigation, or orders which would hinder continued development of the property.

As illustrated in Figure 1.1, the Pittsburgh Seam has historically been and continues to be extensively mined in and around the PAMC area. CONSOL has a lengthy history of successfully mining the Pittsburgh Seam and other coal beds in the region. CONSOL's involvement with the PAMC dates to the 1920s and it has been actively mining and developing the PAMC since 1984.

1.3 Geology

The PAMC is situated in the Allegheny Plateau of the NAPP coal fields region. Near-surface geology of this area primarily consists of Pennsylvanian and Lower Permian coal-bearing strata. Coal seams mined in this region are generally classified as high- to low-volatile bituminous, characterized by low-to-high sulfur content and high heating value.

The Pittsburgh Seam is the only coal seam of economic interest on the property. Structurally, the Pittsburgh Seam consists of three rather distinct and relatively consistent intervals: the main bench coal, an overlying draw slate, and a roof coal zone. With an average thickness of 5.5 ft, the main bench coal constitutes most of the mineable interval. The Pittsburgh Seam is relatively flat-lying, typically dipping less than one degree, and is located at depths ranging from approximately 300 ft to 1,400 ft below ground surface within the PAMC area.

The Pittsburgh Seam coal bed is characterized as a high-rank, high-volatile bituminous, medium-ash, and medium- to high-sulfur coal that is used for both thermal and metallurgical purposes.

1.4 Exploration

The Pittsburgh Seam has been extensively explored and mined in the region, with drilling records dating back to at least the 1920s. CONSOL provided data for 7,289 drill

holes, totaling more than 4 million ft of drilling, that have intercepted the Pittsburgh Seam. Of these, results from 2,349 drill holes were utilized to define the lateral extent, thickness, and qualities (both raw and clean) of the Pittsburgh Seam in the immediate PAMC project area.

BOYD's audit indicates that in general: (1) CONSOL has performed extensive drilling and sampling work on the subject property, (2) the work completed has been done by competent personnel, and (3) the amount of data available combined with wide-spread knowledge of the Pittsburgh Seam, is sufficient to confirm the thickness, lateral extents, and quality characteristics of the Pittsburgh Seam.

1.5 Coal Reserves

CONSOL's estimated underground mineable coal reserves for the PAMC total 622.1 million recoverable (clean) product tons remaining as of December 31, 2022. The coal reserves controlled by CONSOL are summarized in Table 1.1.

Mine	Product Tons (millions) by Classification		
	Proven	Probable	Total
Bailey	71.9	80.6	152.5
Enlow Fork	223.4	38.1	261.5
Harvey	104.3	103.8	208.1
Total	399.6	222.5	622.1

It is BOYD's opinion that extraction of the reported coal reserves is technically achievable and economically viable after the consideration of potentially material modifying factors. Periodic amendments to existing mining permits to add additional acreage (reserve tonnage) in order to sustain coal production is common practice. We are also not aware of any prohibition against the proposed mining and processing activities.

There are no reportable coal resources excluding those converted to coal reserves for the PAMC.

1.6 Operations

1.6.1 Mining

The PAMC is comprised of the Bailey, Enlow Fork, and Harvey underground mines. Each mine utilizes LW mining for primary production with supporting mine development performed by continuous miners (CM). This mining method is highly productive and commercially demonstrated; it has been the primary approach by coal mine operators to mine the Pittsburgh Seam for decades. PAMC has utilized this mining method since the inception of its mining operation in 1984. The complex is currently configured to operate multiple LW sections and has the ability to produce 28.5 million tons per year. The PAMC is generally considered an industry leader in terms of mining productivity and its mining costs are in the lower quartile when compared to its peers.

In the aggregate, the PAMC LOM plan projects the complex will produce approximately 1,113 million tons of run-of-mine (ROM) coal (622 million saleable tons after processing) over the expected life of the operations.

1.6.2 Processing

All coal mined from the three mines is directed to the Central CPP. The Central CPP serves as the coal washing facility for the PAMC's three LW mines. The plant was commissioned in 1984 to wash coal produced by the Bailey Mine. Since then, the Central CPP has undergone many expansions and has a current processing capacity of 8,200 raw tons-per-hour (TPH). It is the largest coal preparation plant in the United States.

The beneficiation process utilized at the PAMC has a proven record of accomplishment and has remained relatively unchanged for decades. Straightforward when compared to many other mineral processing techniques, the coal washing process is largely based on separating non-coal (rock) material from coal material by mechanically reducing the size of the feed and utilizing the materials' different densities to gravitationally separate one from the other. Largely, the process only requires water, magnetite, and frothing agents.

The plant's ability to blend raw coal production from the three underground mines into a singular plant feed allows for both more consistent plant operation and the ability to achieve a range of clean coal qualities for various coal markets.

1.6.3 Other Infrastructure

The PAMC is supported by several surface infrastructure sites. Major surface infrastructure includes ancillary buildings, high-voltage power distribution stations, ROM coal conveyor belts, CPP refuse facilities, underground access and ventilation structures, and rail loading systems.

Product coal from the PAMC is transported to its customer base via rail. The Central CPP is served by both the Norfolk Southern (NS) and CSX railroads via a rail spur that connects the complex with the mainline rail at Waynesburg, Pennsylvania.

The Bailey refuse facility serves as the disposal location for all waste rock (coarse coal refuse) and fine coal slurry (fine coal refuse) produced during the processing of coal.

1.7 Financial Analysis

1.7.1 Market Analysis

The PAMC produces a thermal coal that is sold into the domestic United States and international export markets. The high calorific value thermal coal produced by PAMC is currently used in the United States by electricity generators located in the PJM Interconnection, Southeast, and Midcontinent Independent System Operator regional electricity markets and by domestic industrial customers. In addition to the domestic market, PAMC also services international power generation and industrial customers in Europe, Africa, Asia, and other parts of North America. The coal's high quality enables it to receive premium pricing relative to regional price indices.

The PAMC also supplies lesser quantities—approximately 1.0 to 2.0 million tons per annum—of a secondary metallurgical coal product into Asia, Europe, and South America.

1.7.2 Capital and Operating Cost Estimates

The Pittsburgh Seam is widely recognized as being ideally suited for LW mining operations and conducive to efficient, low-cost production operations. In terms of total dollars expended per year, cash operating costs for LW mines are mostly fixed. Unit costs, therefore, will vary mostly due to changes in production and less so with regard to general inflation and major mine site changes.

During the historical review period of 2018–2022, total annual cash operating costs for the PAMC were within the range of \$28.00 to \$35.00 per saleable ton.

The PAMC is regarded as being highly capitalized and comprising of state-of-the-art operations when compared to industry peers. Continual capital expenditures have been ongoing by CONSOL in recent years to support mine infrastructure expansions, maintenance of production equipment, refuse placement, etc.

During the review of LOM plans and associated financial projections, BOYD found future operating and capital costs forecasted by CONSOL to be reflective of historical norms.

1.7.3 Economic Analysis

BOYD independently evaluated the economics of the PAMC over the forecasted life of the project. The results of our indicative economic analysis for PAMC over the remaining life of the operations (2023 to 2064) shows a NPV of approximately \$3.3 billion for the expected case at a 12% discount rate. The cash flow estimates are positive even after performing independent sensitivity analyses of up to 10% variation in sales price. From this we conclude that the stated coal reserves are economically viable under reasonable market price expectations for the coal produced from the PAMC.

The NPV estimate was made for purposes of confirming the economic viability of the reported coal reserves and not for purposes of valuing CONSOL or its assets. IRR and project payback were not calculated, as there was no initial investment considered in the financial model.

1.8 Permitting Requirements

Numerous permits are required by federal and state law for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits to support current operations are in place or pending approval. New permits or permit revisions may be necessary from time to time to facilitate future operations. Given sufficient time and planning, CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Permits generally require that CONSOL post a performance bond in an amount established by the regulator program to: (1) provide assurance that any disturbance or liability created during mining operation is properly mitigated, and (2) assure that all regulatory requirements of the permit are fully satisfied. As of December 31, 2022, CONSOL held more than \$370 million in surety bonds to cover its obligations relating to mining and reclamation, mine subsidence, stream restoration, water loss, and dam safety.

Periodic amendments to existing mining permits to add additional acreage (reserve tonnage) in order to sustain coal production are common practice. We are not aware of any issues which would impact or prevent the present "Not Permitted" reserves to be permitted as future mining needs dictate. We are also not aware of any prohibition against the proposed mining and processing activities.

1.9 Conclusions

It is BOYD's overall conclusion that CONSOL's estimates of coal reserves, as reported herein: (1) were prepared in conformance with accepted industry standards and practices, and (2) are reasonably and appropriately supported by technical evaluations, which consider all relevant modifying factors.

Given the lengthy operating history and status of evolution, residual uncertainty for this project is considered minor under the current and foreseeable operating environment. A general assessment of risk is presented in the relevant sections of this report.

It is BOYD's opinion that extraction of the PAMC's reported coal reserves is technically achievable and economically viable after the consideration of potentially material modifying factors. The ability of CONSOL, or any mine operator, to recover all of the reported coal reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future coal prices, etc. Unforeseen changes in regulations could also impact performance.

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2.0 INTRODUCTION

2.1 Registrant

CONSOL is a US-based mining company headquartered in Canonsburg, Pennsylvania whose common stock is listed on the New York stock exchange (NYSE:CEIX). CONSOL is actively engaged in the production and export of thermal coal and metallurgical coal from the PAMC. The company also operates a mine in Wyoming County, West Virginia that produces metallurgical coal. In addition, CONSOL controls considerable greenfield (i.e., undeveloped) thermal and metallurgical coal resources located in the major coal-producing basins of the eastern United States. The company also owns and operates the CONSOL Marine Terminal, which is in the Port of Baltimore, Maryland. Additional information regarding CONSOL can be found at www.consolenergy.com.

This technical report summary was prepared for CONSOL in support of their disclosure of coal resources and coal reserves for the PAMC.

2.2 Terms of Reference and Purpose

CONSOL retained BOYD to complete an independent assessment of CONSOL's internally-prepared coal resource and coal reserve estimates and supporting information for the PAMC. CONSOL also retained BOYD to perform an independent assessment of the economic viability of the PAMC coal reserves for the life of the mine. Our objective was to review and evaluate the scientific and technical information on which CONSOL's calculation of its coal resources and coal reserve estimates are based and also an evaluation that the extraction of the coal resources and coal reserves are economically viable over the life of the PAMC.

The technical summary of our third-party assessment, presented in report form herein, was prepared in accordance with the disclosure requirements set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K. The purpose of this report is: (1) to summarize technical and scientific information for the subject mining properties, (2) to provide the conclusions of our technical audit, (3) to provide a statement of coal resources and/or coal reserves for the PAMC, and (4) provide our conclusion of the economic viability of the PAMC's coal reserves.

BOYD's findings are based on our detailed examination of the supporting geologic and other scientific, technical, and economic information provided by CONSOL, as well as our assessment of the methodology and practices applied by CONSOL in formulating

the estimates of coal resources and coal reserves disclosed in this report. We did not independently estimate coal resources or coal reserves from first principles.

We used standard engineering and geoscience methods, or a combination of methods, that we considered to be appropriate and necessary to establish the conclusions set forth herein. As in all aspects of mining property evaluation, there are uncertainties inherent in the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

This report is intended for use by CONSOL subject to the terms and conditions of its professional services agreement with BOYD. We also consent to CONSOL filing this report as a technical report summary with the SEC pursuant to Subpart 1300 and Item 601(b)(96) of Regulation S-K.

2.3 Expert Qualifications

BOYD is an independent consulting firm specializing in mining-related engineering and financial consulting services. Since 1943, BOYD has completed over 4,000 projects in the United States and more than 60 other countries. Our full-time staff comprises mining experts in: civil, environmental, geotechnical, and mining engineering; geology; mineral economics; and market analysis. Our extensive experience in coal resources/reserve estimation and our knowledge of the subject coal properties provides BOYD an informed basis on which to opine on the reasonableness of the estimates provided by CONSOL. An overview of BOYD can be found on our website at www.jtboyd.com.

The individuals primarily responsible for this audit and the preparation of this report are, by virtue of their education, experience, and professional association, considered qualified persons as defined in S-K 1300.

Neither BOYD nor its staff employed in the preparation of this report have any beneficial interest in CONSOL, and are not insiders, associates, or affiliates of CONSOL. The results of our audit were not dependent upon any prior agreements concerning the conclusions to be reached, nor were there any undisclosed understandings concerning any future business dealings between CONSOL and BOYD. This report was prepared in return for fees based upon agreed commercial rates, and the payment for our services was not contingent upon our opinions regarding the project or approval of our work by CONSOL and its representatives.

2.4 Sources of Information

Information used in this assignment was obtained from: (1) CONSOL files, (2) discussions with CONSOL personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files.

The following information was provided by CONSOL:

- Year-end reserve statements and reports for 2021 and 2022.
- Exploration records (e.g., drilling logs, lab sheets).
- Geologic databases of lithology and coal quality.
- Computerized geologic models.
- Mapping data, with:
 - Mineral tenure boundaries.
 - Permit boundaries.
 - Limits of previous mining.
- Mine plans, production schedules, and supporting documentation.
- Historical information, including:
 - Production reports and reconciliation statements.
 - Financial statements.
 - Product sales and pricing.

Information from sources external to BOYD and/or CONSOL are referenced accordingly.

The data and work papers used in the preparation of this report are on file in our offices.

2.5 Personal Inspections

Although an inspection of the PAMC properties was not conducted as part of this study, BOYD has well-established knowledge of the subject mining operations having performed over 100 engineering studies on the Pittsburgh coal seam, including the PAMC and adjacent properties. BOYD's most recent visits to PAMC were in July and August, 2021.

2.6 Report Version

The coal resources and coal reserves presented in this technical report summary are effective as of December 31, 2022. The effective (i.e., "as of") date of the report is December 31, 2022.

This is the second technical report summary filed by CONSOL for the PAMC and supersedes the following previously filed report:

John T. Boyd Company; February 2022; Technical Report Summary, Coal Resources and Coal Reserves, Pennsylvania Mining Complex, Pennsylvania and West Virginia (Report No. 2755.080).

The user of this document should ensure that this is the most recent disclosure of coal resources and coal reserves for the PAMC as it is no longer valid if more recent estimates have been issued.

2.7 Units of Measure

The US customary measurement system has been used throughout this report. Tons are short tons of 2,000 pounds-mass. Unless otherwise stated, all currency is expressed in constant 2022 US Dollars (\$).

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3.0 PROPERTY DESCRIPTION

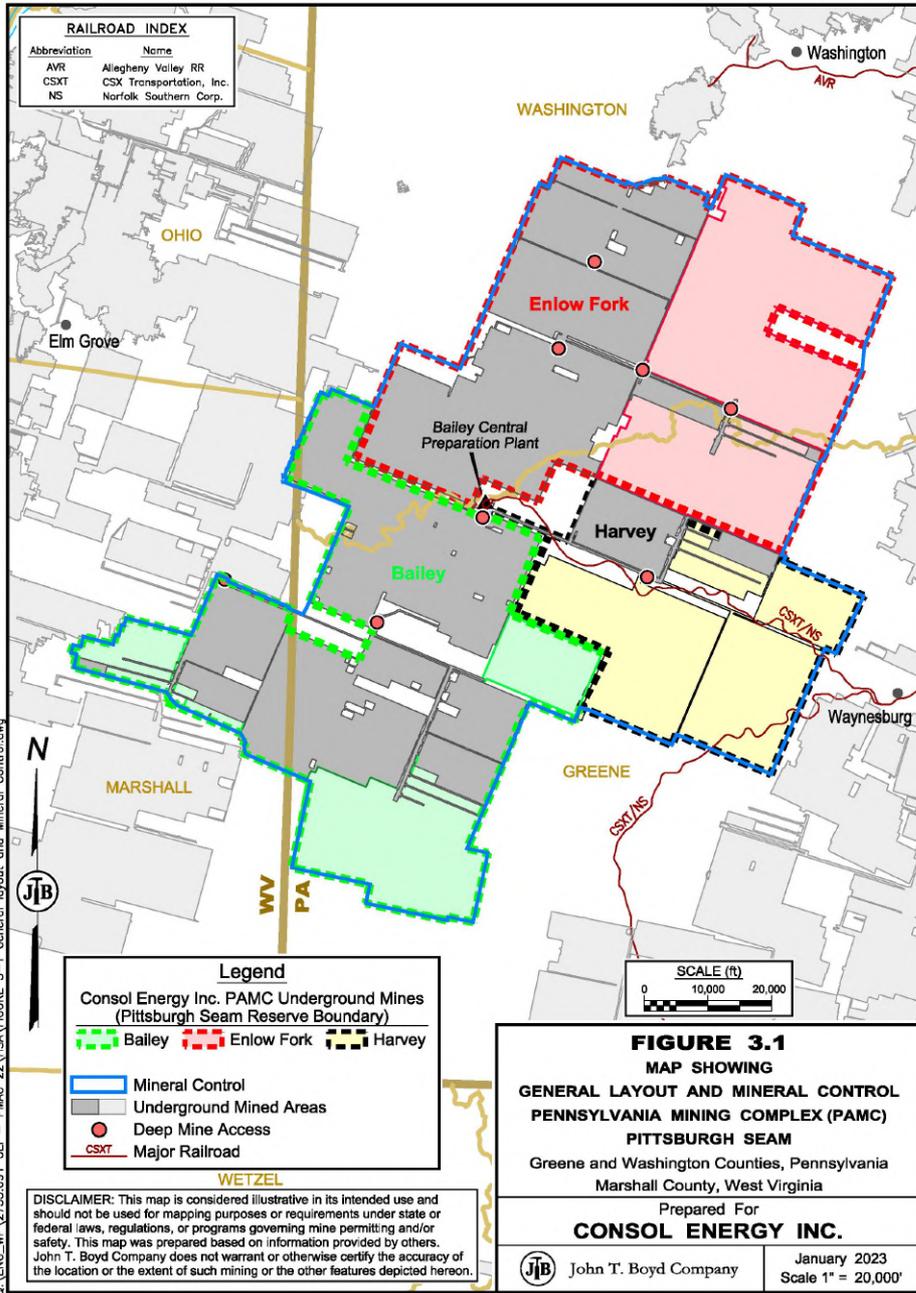
3.1 Property Location

The PAMC is a coal mining and processing operation located in Greene and Washington counties, Pennsylvania, and Marshall County, West Virginia. The PAMC comprises almost 279 square miles within the NAPP coal-producing region of the eastern United States. The PAMC operations currently consist of three active underground mines—Bailey, Enlow Fork, and Harvey—and related infrastructure.

The PAMC is commercially operated as a single entity, although each of the three mines operate under a unique Mine Safety and Health Administration (MSHA) mine identification number and has a separate direct management team. All mine output is delivered by belt conveyors to a central coal processing facility, the Central Preparation Plant, that is the largest in the country (8,200 raw tons per hour) and reports to MSHA under the Bailey Mine identification number. The ROM coal is segregated by mine, and sophisticated analysis and processing systems are utilized to meet customer specifications. Plant reject-material reports to the coarse and fine refuse disposal facilities. Saleable output is shipped to a diverse customer base via the rail load-out on a dedicated rail spur serviced by NS and CSX.

The PAMC is located approximately 26 miles southwest of Pittsburgh, near the city of Washington and the borough of Waynesburg, all in Pennsylvania. The city of Wheeling, West Virginia lies about 12 miles due west and the city of Morgantown, West Virginia, is located approximately 22 miles southeast. The project area is flanked by Interstate 70 to the northwest and Interstate 79 to the east. US Route 250 intersects the south-west corner of the property.

Geographically, the Central Preparation Plant is located at approximately 39°58'23.7" N latitude and 80°24'43.6" W longitude. Figures 1.1 (page 1-2) and 3.1, following this page, illustrate the location and general layout of the PAMC.



Q:\ENG\WP\27555.091_CEI - PAMC 22\HSA\FIGURE 3-1 General layout and Mineral Control.dwg

3.2 Property Control

Within the PAMC area, CONSOL controls approximately 178,394 acres of mineral and/or surface rights. This control exists as a complex collection of 2,734 owned and/or leased tracts that range from less than an acre to several hundred acres in size. Ownership of the surface rights and the mineral rights is often severed for the properties and the estates are often fractional, in which mineral rights are split between several owners. CONSOL and its predecessors have acquired the necessary rights to support development and operations through purchase or lease agreements with predominantly private owners or entities.

As it is outside the scope of our expertise, BOYD has not independently verified ownership of the PAMC area and the underlying property agreements. Ownership data including maps, deeds, lease agreements, and royalty rate furnished to us have been accepted as being true and accurate for the purpose of this report.

3.2.1 Coal Ownership

CONSOL maintains the right to mine and remove almost all of the Pittsburgh Seam within the PAMC boundaries through whole or fractional mineral ownership and/or lease agreements. In 2022, CONSOL sold approximately 12,644 contiguous acres of coal rights to a neighboring mine operator and purchased rights to approximately 9,510 contiguous acres from another neighboring mine operator. CONSOL's revised coal control is summarized in Table 3.1.

Mine	All Tracts		Tract Covering Coal Reserves	
	Acres	%	Acres	%
Owned:				
Fully	107,084	60.0	75,250	87.2
Fractionally	32,202	18.1	8,672	10.0
Subtotal	139,286	78.1	83,922	97.3
Leased	38,493	21.6	2,023	2.3
Adverse/Uncontrolled	615	0.3	342	0.4
Total	178,394	100	86,287	100

The 2,734 tracts of the PAMC are covered by 1,253 coal deeds and 80 coal lease agreements. Lease terms generally extend until all the coal is removed from the subject tract. Where applicable, royalty rates typically range from 3% to 8% of the gross sales price of the coal.

As shown in Table 3.1, almost all the Pittsburgh Seam coal (on an acreage basis) is controlled by CONSOL within in the PAMC area (99.7%) and covering the remaining coal reserves (99.6%). Small adverse (uncontrolled) tracts within the project limits are common; however, we believe it is generally reasonable to assume that such tracts can be acquired or leased in the ordinary course of business. It is BOYD's opinion that adverse coal control does not pose a material risk to the estimate of coal reserves reported herein.

3.2.2 Surface Ownership

As part of the PAMC, CONSOL controls surface rights to approximately 16,593 acres through fee simple ownership. This includes ownership of the property upon which the surface facilities for mine access, processing, storing, and shipping are located, as well as 3,509 permitted acres for coarse and fine refuse disposal facilities.

CONSOL reports it controls adequate surface rights to sustain current mining operations in the near term. Additional surface property will likely be required during the life of the mine for the placement of additional infrastructure. It is generally reasonable to assume the required property can be acquired or leased in the ordinary course of business; as such, we do not believe there is any undue risk associated with surface ownership to the estimated reserves reported herein.

3.3 Regulation and Liabilities

Mining and related support activities on the PAMC properties are subject to various federal, state, and local environmental regulations. The more significant federal laws include:

- Clean Air Act
- Clean Water Act
- Surface Mining Control and Reclamation Act
- Endangered Species Act
- National Environmental Policy Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Resource Conservation and Recovery Act

Operations on the PAMC properties must comply with other state, federal, and local environmental laws in addition to those listed above. These laws include, for example, the Safe Drinking Water Act, the Emergency Planning and Community Right to Know Act, the Toxic Release Inventory, and the rules governing the use and storage of explosives regulated by the U.S. Bureau of Alcohol, Tobacco, and Firearms and the Department of Homeland Security.

As mandated by these laws and regulations, numerous permits are required for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits are in place or applied for to support current operations. New permits or permit revisions may be necessary from time to time to facilitate future operations. Given sufficient time and planning, we believe CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Permits generally require that the permittee post a performance bond in an amount established by the regulator program to: (1) provide assurance that any disturbance or liability created during mining operation is properly mitigated, and (2) assure that all regulatory requirements of the permit are fully satisfied. CONSOL reports holding more than \$370 million in surety bonds to cover its obligations relating to mining and reclamation, mine subsidence, stream restoration, water loss, and dam safety.

Regular inspection of the mines and related facilities are conducted by MSHA for health and safety compliance. On finding any violation of a health or safety standard, an inspector will issue a citation that specifies the standard violated and evaluates the gravity of the violation by several factors, including likelihood of injury. Any infraction that is reasonably likely to result in a serious injury or illness or is caused by the operator's unwarrantable failure to comply with regulatory requirements will carry additional fines and could result in temporary closure. Typically, the civil penalties for regular assessments are not considered material.

BOYD is not aware of any prohibition of mining and processing activities for the PAMC. However, the reported coal reserves may be materially impacted by: CONSOL's failure to comply with permit conditions and rules; delays in obtaining required government or other regulatory approvals or permits; CONSOL's inability to obtain such required approvals or permits; or changes in governmental regulations.

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4.0 PHYSIOGRAPHY, ACCESSIBILITY, AND INFRASTRUCTURE

4.1 Topography, Elevation, and Vegetation

The PAMC lies within the Waynesburg Hills Section of the Appalachian Plateaus physiographic province of Pennsylvania. This region is characterized by very hilly topography, with narrow hilltops and dendritic valleys which display steeply sloping hillsides and moderate relief. Surface elevations within the PAMC area range from approximately 860 ft to 1,580 ft above mean sea-level. There is a vast network of overlying streams and waterways which cover complex area.

Land cover within the area consists predominantly of mixed forest and crop/pastureland dotted with medium- to low-density (rural) residential areas.

4.2 Accessibility

General access to the PAMC is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are generally open year-round. In addition, PAMC is supported by Class 1 railroads to transport processed coal products to various markets/consumers.

4.3 Climate

Climate in and around the PAMC is typical of southwestern Pennsylvania, with four distinct seasons: cold winters; hot and humid summers; and mild falls and springs. The average daily high temperatures are above freezing 12 months of year while the low temperatures drop below freezing 5 months of the year. Table 4.1 provides monthly average climate data collected from 2000 through 2022 in Waynesburg, Pennsylvania.

Average	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Temp	°F	38	42	51	63	72	80	83	82	76	65	54	42
Low Temp	°F	19	20	27	26	46	55	60	58	50	38	30	23
Precipitation	inches	3.0	2.6	3.7	3.1	4.4	3.7	4.2	3.7	3.2	2.8	3.4	2.9
	days	15	14	13	13	15	14	12	11	10	12	12	14
Snowfall	inches	9.0	8.0	5.0	1.0	—	—	—	—	—	—	1.0	5.0
	days	8	7	3	1	—	—	—	—	—	—	1	5

Source: National Oceanic and Atmospheric Administration

In general, the operating season for the PAMC is year-round. Adverse weather conditions seldom limit the PAMC coal mining, processing, and loading operations; however, extreme weather conditions may temporarily impact operations.

4.4 Infrastructure Availability and Sources

The PAMC lies within a well-developed region of southwestern Pennsylvania, with an extensive history related not only to coal mining, processing, and transportation, but also many other industries and services. A reported 3.1 million people live within 60 miles of the PAMC, according to the U.S. Census of 2010.

Coal produced at the PAMC is transported primarily by rail. A rail load-out facility and dedicated rail spur—19.3 miles of track that includes three side tracks—facilitate transportation of the coal on the NS and CSX railroads.

Several regional airports are located near the PAMC, and the Pittsburgh International Airport is located approximately 25 miles north of the complex.

Sources of electrical power, water, supplies, and materials are readily available. Electrical power is provided to the mines and facilities by regional utility companies. Water is supplied by public water services, surface impoundments, or water wells.

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5.0 HISTORY

5.1 Reserve Acquisition

CONSOL's involvement with the PAMC dates to the 1920s with the acquisition of certain coal leases by its forebearer. As shown in Table 5.1, CONSOL has actively acquired additional coal properties to expand the PAMC to its current size.

Table 5.1: Historical Reserve Acquisition

Reserve Area	Acquisition Year	Reported Reserves (million tons)
Ninevah	Prior to 1965	262
Manor	1977	209
Alexander	1981	93
Berkshire	1985	174
Chevron-Penn Central	1993	92
Green Hill	1995	220
Alliance, Drummond, and Mine 84	1996-2015	208

Note: "Reported Reserves" are historical estimates. A qualified person has not done sufficient work to classify historical estimates as current coal resources or coal reserves and the issuer is not treating the historical estimate as current coal resources or coal reserves. In 2022, CONSOL executed several coal reserve transactions with coal companies operating mines adjacent to PAMC (see Chapter 11 for details).

Despite a lengthy ownership history, commercial production on the property did not begin until 1984.

5.2 Mine Development

The Bailey Mine is the first mine that CONSOL developed at the PAMC. Construction of the slope and initial air shaft began in 1982. Following development of the slope and shaft, commercial coal production began in 1984. LW mining production commenced in the mid-1980s. In 2010, a new slope and overland belt system was commissioned, which allowed a large percentage of the Bailey Mine to be sealed off. The current workings are situated in the southwestern portion of the PAMC area.

Construction of the Enlow Fork Mine, which is located directly north of the Bailey Mine, began in 1989. Initial underground development was started from the Bailey Mine while the Enlow Fork slope was being constructed. Once the slope bottom was developed and the slope belt became operational, seals were constructed to separate the two mines.

LW mining production commenced in 1991 with the second LW coming online in 1992. In 2014, a new slope and overland belt system was commissioned and a substantial portion of the Enlow Fork Mine was sealed. The current workings are situated in the northern-most portion of the PAMC area.

In 2009, the Bailey Mine Expansion (BMX) project was initiated to develop reserves to the east of the original Bailey Mine portal. The project utilized the original Bailey Mine slope and airshaft/portal, which required an extensive underground sealing project to isolate the bottom area from the rest of the soon-to-be-sealed old works at the Bailey Mine. An extended underground corridor was developed between the Bailey and Enlow Fork Mine workings to a new shaft and portal facility. Construction of the supporting surface facilities commenced in 2011. In 2014, the BMX project was completely severed from Bailey Mine; a new MSHA identification number was issued and the mine was renamed as the Harvey Mine. LW mining production commenced in March 2014.

In 2022, CONSOL executed several coal reserve transactions with coal mining companies with active operations adjacent to the PAMC. The effect of this exchange has been reflected in the estimate of coal reserves provided in Chapter 11.

There are no significant Pittsburgh Seam mining activities known to have occurred within the PAMC bounds preceding CONSOL's development of the property.

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6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

The PAMC is located within the Appalachian Basin, an oblong synclinal, sedimentary basin which extends from central Alabama to central New York State. The Appalachian Basin spans an area of about 185,000 square miles, with a length of around 1,075 miles, consisting of Paleozoic sedimentary rocks, dating from the Early Cambrian through the Early Permian periods.

The Appalachian Basin has informally been subdivided into three coal regions—the northern, central, and southern Appalachian Basin coal regions—based on characteristics of the sediments and the coals that are found there. The three coal regions contain both formal and informal coal fields. Physiographically, the Appalachian Basin is divided into four distinct provinces, which from east to west are: the Piedmont, the Blue Ridge, the Valley and Ridge, and the Appalachian Plateaus. The PAMC is located within the NAPP basin coal region of the Appalachian Plateaus province. This region is known to contain much of the coal, oil, and shale gas resources of the eastern United States.

The Allegheny Plateau, in which the PAMC is located, is a major part of the Appalachian Plateaus province, underlain by essentially flat-lying strata, predominately of Mississippian and Pennsylvanian age. Throughout the region, the strata of the Allegheny Plateau have been broadly uplifted and, in some areas, broadly folded as well, but in general these bedrock units are only minimally deformed.

A large portion of the Allegheny Plateau consists of a coalfield comprising Pennsylvanian and Lower Permian coal-bearing strata and include, in depositional order, bedrock of the Pottsville, Allegheny, Conemaugh, Monongahela, and Dunkard groups. These coal-bearing formations contain approximately two-fifths of the nation's bituminous coal deposits. In some portions, the coalfield contains over 60 coal seams of varying economic significance. Seams are typically between 1 ft and 6 ft in thickness, with relatively little structural deformation. Coal in the region is classified as high- to low-volatile bituminous with rank increasing to the east. Coals are typically characterized as low to high sulfur and high heating value.

6.2 Local Stratigraphy

Pennsylvanian and Permian sedimentary strata comprise the uppermost stratigraphic units in and around the PAMC. These units primarily include bedrock of, in ascending stratigraphic order, the Conemaugh and Monongahela Groups of the Pennsylvanian Series, and the Permian Dunkard Group.

The strata of the Pennsylvanian and Permian systems locally are predominantly clastic and contain subordinate amounts of coal and limestone. The Pittsburgh coal seam is the basal member of the Monongahela Group. The stratigraphic relationship between these groups is presented in Figure 6.1 as follows.

System	Group	Formation
Permian	Dunkard	Green
		Washington
		Waynesburg
Pennsylvanian	Monongahela	Uniontown
		Pittsburgh
	Conemaugh	Casselman
		Glenshaw
	Allegheny	
	Pottsville	
Figure 6.1 Generalized Stratigraphic Chart, Southwestern Pennsylvania		

6.2.1 Conemaugh Group

The Conemaugh Group is characterized by sequences of red and green mudstone, claystone, and siltstone. Extending from the top of the Upper Freeport Coal to the base of the Pittsburgh Coal, it ranges in thickness from about 400 ft to 850 ft. The Conemaugh Group contains several thin marine limestone beds but only a few thin coal beds. The Conemaugh Group is divided into the Glenshaw and Casselman formations at the top of the regionally persistent Ames limestone. The bituminous coal beds present in the unit are impure and considered to be of limited-to-no economic value.

6.2.2 Monongahela Group

The Monongahela Group extends from the base of the Pittsburgh Coal to the base of the Waynesburg Coal. The unit is divided into the Pittsburgh and Uniontown formations at the base of the Uniontown Coal. The Monongahela Group is a sedimentary sequence of non-marine rocks (sandstone, siltstone, red and gray shale, dolomitic limestone, and coal) ranging in thickness from approximately 250 ft to 400 ft. Regionally, the Monongahela Group contains several commercial coal beds, including the Pittsburgh, Redstone, Sewickley, and Uniontown; however, within the vicinity of the PAMC, only the Pittsburgh coal seam is of economic interest. The Pittsburgh coal seam is unusually uniform in continuity and thickness for a coal seam in western Pennsylvania, and covers thousands of square miles.

6.2.3 Dunkard Group

The Dunkard Group includes all strata above the base of the Waynesburg coal bed. It is made up of Waynesburg, Washington, and Greene formations. The Dunkard Group reaches a maximum thickness of about 1,100 ft in Greene County and the upper surface is the modern-day erosional surface. Strata of the group are very similar to those of the underlying Monongahela Group, except that the Dunkard Group contains only thin discontinuous coal beds of little or no commercial value.

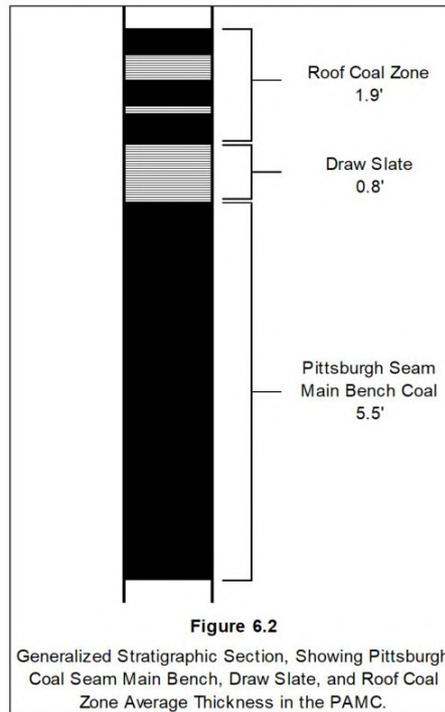
6.3 Coal Seam Geology

The Pittsburgh Seam is the only coal seam of economic interest within the PAMC. The Pittsburgh Seam is very uniform in depositional nature and continuity throughout much of the surrounding region, with a lengthy history of economically viable mining operations being very well documented.

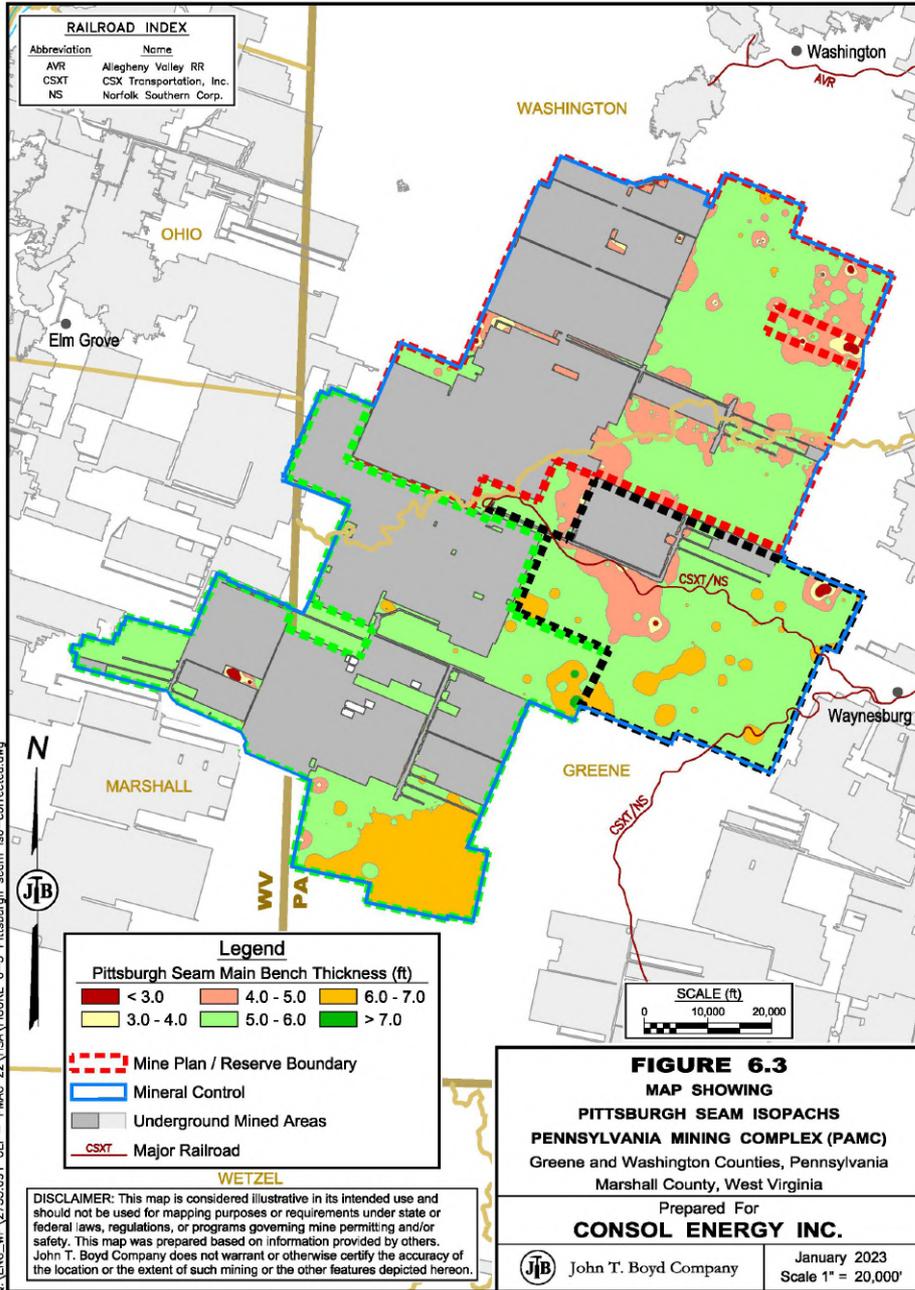
6.3.1 Lithology

The Pittsburgh Seam coal bed is composed of three distinct and relatively consistent intervals, in order of deposition being the thick "main bench" coal, an overlying "draw

slate”, and one or more “roof coal” zones. Mining methods employed at the PAMC generally necessitate extraction of the first (lowermost) roof coal zone, along with the draw slate and main bench coal. Figure 6.2 illustrates the various intervals of the Pittsburgh Seam coal bed.



The main bench coal thickness across the PAMC area is generally between the 5.0 ft to 6.0 ft range, averaging 5.5 ft over most of the mine plan area. Isolated pockets of both thinner and thicker coal do exist, and extreme but generally isolated occurrences may range from below 1 ft to above 11 ft thick. Figure 6.3, following this page, provides a map of the Pittsburgh Seam main bench thickness. The locations of thinner coal occurrences are generally well-defined by the extensive exploration performed in and around the study area, and mine plans have been developed to avoid these low coal occurrences.



Q:\ENG\WP\2755.091.CEI - PMAC 22\USA\FIGURE 6-3 Pittsburgh seam iso-corrected.dwg

The draw slate is a prominent, laterally persistent shale parting that immediately overlies the main bench coal. Thickness generally ranges from 0 to 2.0 ft, averaging less than 1.0 ft across much of the PAMC area. Isolated drilling within the study area have recorded instances of the draw slate being over 4-ft thick.

The roof coals tend to be of lesser quality when compared to the main bench coal, as well as being highly inconsistent in depositional nature. In some areas the roof coal may be completely absent; present as a solid interval of relatively thick coal; or split into several plies separated by shale, clay, and/or impure coal partings. Average roof coal zone thickness across the PAMC area is just under 2-ft thick.

The immediate roof overlying the Pittsburgh Seam coal bed consists of two different assemblages of strata:

1. A "normal roof", composed of interbedded shales and sandy shales, with one to several rider or roof coals.
2. A "sandstone roof", composed of paleochannel sandstone fill, known as the Pittsburgh Sandstone, which scoured and replaced part or all of the normal roof strata.

The Pittsburgh Sandstone represents a major fluvial system that flowed north-northwest from West Virginia, through Greene and Washington counties, depositing sandstone in an elongated body up to 80-ft thick and several miles wide. The Pittsburgh Sandstone is a result of several instances of paleochannelization eroding the typical roof strata, and in some localized areas eroding some of the main bench of the Pittsburgh Seam. Areas of the deposit with sandstone channels in close proximity to the Pittsburgh Seam commonly exhibit discontinuities and rolls in the coal bed. Poor roof conditions are also common along margins of the channels, where the roof type transitions between the sandstone roof and normal shale roof. CONSOL has implemented various programs to identify and mitigate, where possible, problems associated with poor roof conditions.

The immediate floor beneath the Pittsburgh Seam coal bed consists of an interval of typically 1 ft or less of underclay. The underclay provides a generally competent floor, however poor floor conditions can develop when the underclay is exposed to water.

6.3.2 Structure

The Pittsburgh Seam coal bed is located at depths ranging from approximately 300 ft to over 1,400 ft below ground surface within the PAMC area. Seam structure shows a general seam dip of less than 1 degree to the south-southwest, with slightly steeper

areas dipping up to 4 degrees in a southeast-northwest trend. There are not any major structural faulting or tectonic features known to occur in the deposit. Small-displacement faults and compaction-related faults may be present, but are not expected to materially affect mine plans.

The structural setting for the deposit is generally considered to be simple in terms of geological complexity. Some areas exhibit evidence of localized channelization; as such, isolated areas of the deposit may be considered moderate in geological complexity. Having been widely studied and extensively mined, the Pittsburgh Seam is well-known and widely-accepted to be a very uniform deposit.

6.3.3 Coal Quality

Overall, the Pittsburgh Seam coal bed is a high-rank, high-volatile bituminous, medium-ash, and medium-to high-sulfur coal that is used for both thermal and metallurgical purposes. The roof coal zones exhibit overall higher sulfur and ash contents, combined with lower calorific value; however, this is offset by the consistently superior quality of the main bench coal.

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7.0 EXPLORATION DATA

7.1 Background

The Pittsburgh Seam has been the subject of extensive exploration drilling and sampling by CONSOL and other parties, dating back to at least the 1920s. Records from exploration drilling comprise the primary data used in the evaluation of coal resources on the property. A database compiling the results of 7,289 drill holes—totaling more than 4 million ft of drilling which covers a large portion of the known extents of the PAMC area Pittsburgh Seam—along with electronic copies of original drilling and sampling logs, were provided for our review.

Additionally, CONSOL provided written field and exploration guidelines which outline some of their standard exploration and sampling methodologies. These guidelines were compiled by personnel from various company-wide exploration departments in the 1980s and are very thorough in regard to how CONSOL wanted drilling and sampling to be conducted. Topics covered standard procedures ranging from site safety and mapping, to how to select proper drilling equipment, recording accurate and detailed geological logs, performing coal sampling, supervising geophysical logging, and plugging drill holes once work was complete. CONSOL's provided exploration standards highlight their focus on obtaining the highest accuracy of data possible from the various exploration campaigns they completed.

Due to many company-wide restructurings, closures of various mining operations, and reorganization of departments as CONSOL evolved as a company over its many years in existence, specific drilling campaign reports, which would provide detailed information on the drilling and sampling methodologies utilized from year to year were placed into archival storage, and were not provided for our review. While this limits the ability to provide a completely transparent and detailed overview of the work completed in developing the PAMC, CONSOL has also demonstrated that they have been very thorough in exploring and sampling, and have been able to consistently and economically mine coal from this deposit for nearly 40 years, and from the Pittsburgh No. 8 Seam for more than a century.

7.2 Procedures

7.2.1 Drilling

Drill holes on the subject property were completed using various drilling procedures based on specific goals and data needs at various stages of planning and developing the PAMC. Some drill holes were rotary drilled for purposes of completing geophysical

logging, while others were completed using continuous core drilling methods to provide more detailed geologic records and sampling opportunities.

CONSOL geologists were able to summarize the standard types of equipment and procedures they generally utilized in exploration work completed on the property. This information, combined with information BOYD was able to gather from our review of drilling records are as follows:

- Frequently used drilling equipment that is utilized during exploration, depending on the goal of a specific drilling and sampling program, consists generally of one or both of:
 - Continuous NQ-sized (1.988 in. diameter) diamond core rigs.
 - Air rotary with either 4 in. or 6 in. diameter barrels.
- Presently, core logging activities are completed in the field. Cored intervals are photographed, with special attention paid to the coal interval. Cored coal is initially photographed in its entirety, and then again on 1-ft intervals from top to bottom to provide a detailed record of the coal core prior to sampling.
- Coal roof rock (approximately 30 ft) and floor rock (up to 5 ft) are photographed and then boxed for archival purposes. Drilling campaigns from 2018 on have archival cores stored at CONSOL Headquarters, in Canonsburg, Pennsylvania. Historically, CONSOL maintained regionally located core repositories, however these locations have been closed, and all core prior to 2018 have been disposed of.
- Geophysical logging on drill holes became standard starting in the mid-to-late 1970s. Prior to this time, geophysical logs were located for some drill holes, however they were much less frequently noted in the provided drill hole data files. CONSOL has noted that geophysical logging is currently completed on all holes drilled.

Due to the large extent of historic exploration work, any recent drilling is generally for infilling areas with lower geologic assurance. In such instances, nearby drill hole records are referenced prior to commencing any new drill holes, to show the anticipated depth to the coal horizons.

Geophysical logs obtained from newly drilled holes are correlated by CONSOL geologists by aligning known "marker beds", and then checking coal seam depths, elevations, and thicknesses to ensure seam continuity. These data are formatted and then imported into CONSOL's geologic modeling and mine production forecasting programs.

BOYD's review of the observed methodologies and procedures indicate the data obtained and utilized by CONSOL for the PAMC project area were carefully and professionally collected, prepared, and documented, conforming with general industry

standards, and are appropriate for use of evaluating and estimating coal resources and reserves.

7.2.2 Coal Quality Sampling

The PAMC coal quality testing was performed on a large number of coal samples obtained from the Pittsburgh seam, in and around the project area. The relatively dense core drilling coverage, combined with channel samples being taken regularly from underground development areas, provides a thorough understanding of the various potential products that could be produced from the PAMC.

All coal intercepts of PAMC exploration were geologically logged, photographed, and sampled in the field by CONSOL geologists. Explicit instructions are given to drilling teams to keep any cored coal intervals inside of core barrels until a CONSOL geologist is on-site to observe and record characteristics of the coal interval.

Sampling methodologies consist of first pushing the cored intervals of coal out of the core barrel, directly into a clean single-row wooden core box. Prior to removing coal core from the drilling barrel, the core box is lined with durable plastic sheeting, which helps retain moisture content and minimize coal core oxidation. Once the coal core is fully extruded from the core barrel, it is then inspected, photographed, and logged by the on-site geologist, and cardboard inserts are installed in the wooden core box to maintain coal core integrity.

Upon completing detailed recording (geologic logging and photographing) of the coal interval, coal cores are split into the desired intervals to be analyzed (i.e., entire seam, main bench, roof coal, etc.) and bagged. An order sheet is placed inside the sample bag, which specifies drill hole information, split information, and testing to be completed on the bagged sample. Sample bags are then zip tied closed, labeled, and then double bagged to eliminate incidental core loss due to potential damage during transportation to the testing lab. It is important to note that CONSOL has various internal departments that may request exploration and sampling work be conducted, and the requesting department is given priority as to how the coal intercept is split, and as to the types of coal analyses that are run.

CONSOL maintains all control of coal core samples, up to the point that samples are handed over to the lab performing testing. Once logging and sampling is complete, the sampled coal core intervals are transported to CONSOL headquarters by exploration personnel, at which time they are handed over to CONSOL's quality control department. The quality control department arranges pick up by the selected lab that will perform the

required analyses. Currently, CONSOL contracts all testing to an independent laboratory (Geochemical Testing in Somerset, Pennsylvania). Typical analyses performed include moisture content (total and air dried at 60 mesh), full proximate, and specific gravity. The lab manager signs off on the return analysis sheet, indicating that testing results are accurate and that the sample provided was sufficient for testing purposes.

Past programs utilized a myriad of various accredited coal testing laboratories, again depending on what testing needed to be completed on the coal core at a given time. All analytical work was conducted to International Organization of Standardization (ISO) or ASTM International (ASTM) standards, and various available laboratory sample sheets were provided for review with drilling log data.

Available testing sheets were reviewed by BOYD during our drill hole data audit, and our review of the field and sampling procedures noted above showed that the general description and sampling work were conducted to appropriate standards. Based on the stated standards and laboratory used, BOYD considers the sample preparation and analytical procedures were adequate for the coal quality results for inclusion in geological modelling and coal resource estimation.

7.2.3 Coal Washability Testing

Coal washability tests (proximate analysis) were conducted at various specific gravities, generally ranging from 1.40 specific gravity float (SGF) through 1.60 SGF. Estimated coal reserves for the PAMC are currently reported using a combination of 1.50 SGF and 1.60 SGF testing results, being reported as a composited "adjusted clean" coal quality over the entire PAMC project area. Proximate analysis test results were completed on 1,586 drill core samples, which were used in estimating quantity and quality of the remaining PAMC coal reserves. Additional washed coal yield testing was also performed, with an additional 756 core samples being analyzed (or a total of 2,342 drill core samples being tested) for wash yields.

Lab testing of the cored coal intervals was generally conducted in one of two manners: (1) by splitting the three main intervals that comprise the entire Pittsburgh coal seam (the Pittsburgh roof coal interval, the draw slate, the Pittsburgh main bench coal interval) into separate intervals that are individually analyzed, or by (2) creating a "B Sample", consisting of the roof coal interval and the draw slate together, and a separate "A Sample", consisting of the main bench coal interval. In either scenario, a composited Pittsburgh seam quality was then calculated by combining results from the individual analyses, in order to examine different mining scenarios and outcomes, which

were used to maximize both the quality and quantity of coal that may be mined over the PAMC.

Although it was noted that CONSOL generally does not perform any randomized sample verification in order to conduct quality control testing of individual coal analyses, CONSOL's quality department typically will perform channel sampling and quality analyses, roughly every 1,000 ft throughout development sections. The channel sample data are then utilized to update quality and production forecasting models. A quarterly audit is also performed to verify that the forecasted quality data matches coal product quality.

7.2.4 Other Exploration Methods

There is no known ore reported via other methods of exploration (such as airborne or ground geophysical surveys) for the project area.

7.3 Results

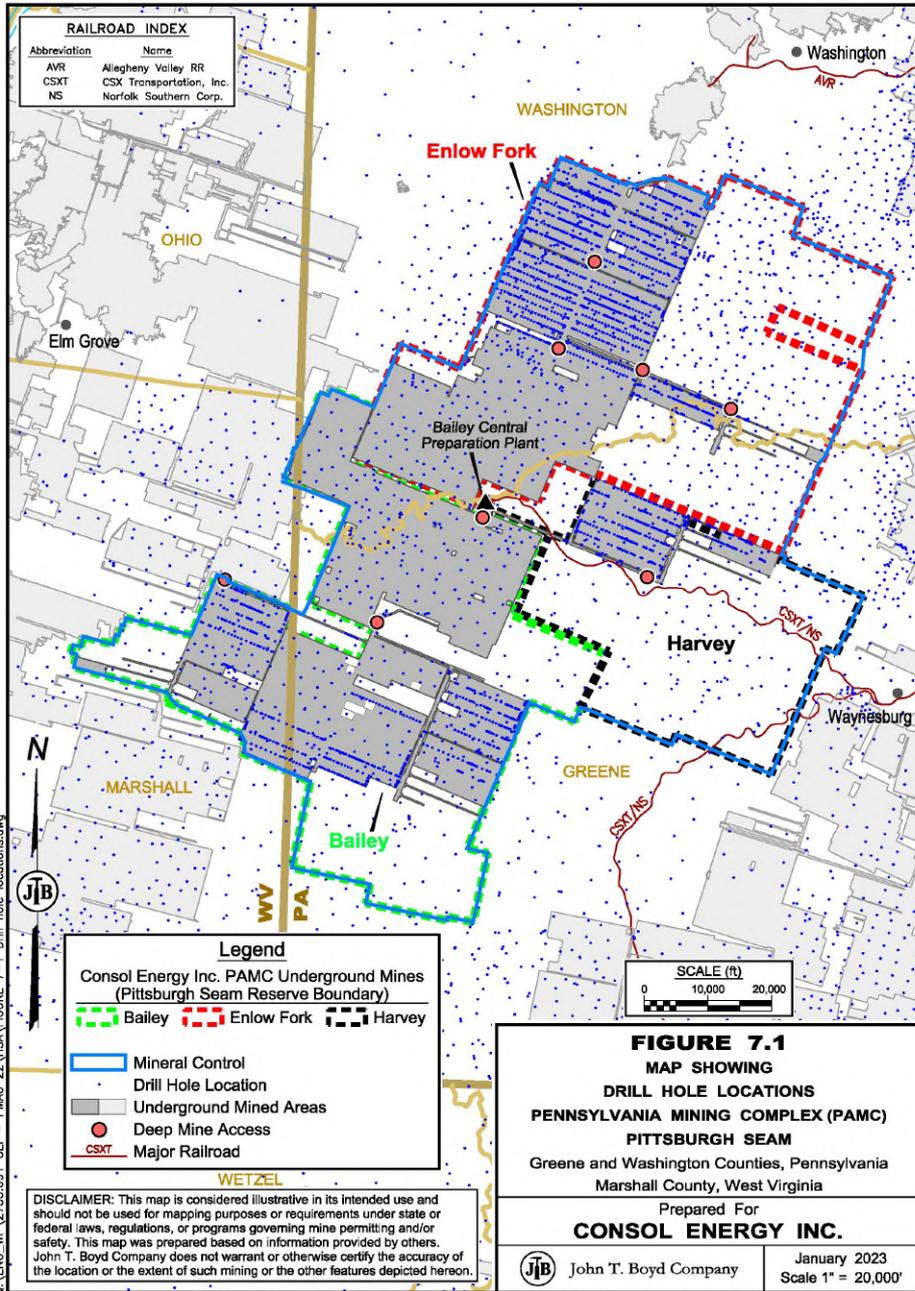
7.3.1 Summary of Exploration

A total of 2,349 drill holes and in-mine samples are in and around the PAMC area. The distribution of these drill holes is shown on Figure 7.1, following this page. Lithologic and coal quality data from these holes only were used for geologic modeling and coal resource assessment for the property.

General descriptive statistics for the three intervals of the Pittsburgh Seam are provided in Table 7.1. As shown, the thickness of the main bench is very consistent. Our analysis of drilling data indicates a very minor decrease in the thickness of the main bench when traversing the deposit from south to north.

Table 7.1: Descriptive Statistics, Pittsburgh Seam Thickness

	Interval Thickness (feet)		
	Main Bench	Draw Slate	Roof Coal
Mean	5.48	0.82	1.95
Minimum	0.78	0.00	0.00
Maximum	11.38	4.31	11.10
Standard Deviation	0.73	0.56	1.70
Coefficient of Variance	0.13	0.68	0.87



The results of the coal quality analyses from 1,688 holes are summarized in Table 7.2.

Table 7.2: Descriptive Statistics, Pittsburgh Seam Coal Quality

	Units	Mean	Minimum	Maximum	Standard Deviation	Coefficient of Variance
Apparent Specific Gravity	g/cc	1.52	1.12	2.37	0.1	0.07
Raw Coal Quality:						
Ash	%	28.67	8.79	71.95	8.03	0.28
Sulfur	%	2.38	0.77	6.78	0.94	0.39
Heating Value	btu/lb	10,436	3,301	13,723	1,292	0.12
Volatile Matter	%	30.52	15.92	40.69	3.55	0.12
Clean Coal Quality:						
Yield	%	70.27	6.01	95.35	10.65	0.15
Ash	%	7.33	4.67	12.15	0.95	0.13
Sulfure	%	2.39	0.89	5.19	0.83	0.35
Heating Value	btu/lb	13,923	13,118	14,401	197	0.01
Volatile Matter	%	39.35	32.69	43.77	1.5	0.4

Raw and clean (washed) coal quality data demonstrate the consistency of the Pittsburgh Seam as a high-rank, high-volatile bituminous, medium-ash, and medium-sulfur coal.

7.3.2 Adequacy of Exploration

BOYD's review indicates that in general, CONSOL has performed extensive drilling and sampling work on the subject property. The work completed has been done so by competent personnel, and the amount of data available combined with wide-spread knowledge of the Pittsburgh Seam, is sufficient to confirm seam uniformity and continuity throughout the PAMC deposit.

7.4 Data Verification

For purposes of this report, BOYD did not verify historic drill hole data by conducting independent drilling in areas already explored. It is customary in preparing coal resource and reserve estimates to accept basic drilling and coal quality data as provided by the client subject to the reported results being judged representative and reasonable.

BOYD's efforts to judge the appropriateness and reasonability of the source exploration data included reviewing a representative sample of drilling logs and coal quality test results for holes located in unmined portions of the PAMC area. These records were compared with their corresponding database records for transcription errors; of which

none were found. Lithologic and coal quality data points were compared via visual and statistical inspection with geologic mapping and cross-sections.

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JOHN T. BOYD COMPANY

8.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

The reader is referred to Sections 7.2 and 7.3 of this report for details regarding sample preparation, analysis, and security.

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JOHN T. BOYD COMPANY

9.0 DATA VERIFICATION

The reader is referred to Section 7.4 of this report for details regarding data verification.

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JOHN T. BOYD COMPANY

10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Information regarding coal washability testing is provided in Chapter 7.

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JOHN T. BOYD COMPANY

11.0 COAL RESOURCE ESTIMATE

11.1 Applicable Standards and Definitions

Unless noted, coal resource estimates disclosed herein are done so in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms "mineral" and "coal" to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of coal resources are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource. By assignment, BOYD used the definitions provided in S-K 1300 to describe the varying degree of certainty associated with the estimates reported herein.

The definition of mineral (coal) resource provided by S-K 1300 is:

Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

Estimates of coal resources are subdivided to reflect different levels of geological confidence into measured (highest geologic assurance), indicated, and inferred (lowest geologic assurance). See Glossary of Abbreviations and Definitions.

11.2 Coal Resources

11.2.1 Methodology

Based on provided information, CONSOL's coal resources estimation and modeling techniques consist of:

1. Interpreted and correlated coal seam intercepts are compiled and validated. Seam thickness is aggregated and coal qualities are composited, based on assumed mining methods, for each data point.
2. Boundaries of the respective resource classification regions are developed using the data points.
3. ROM coal thickness and coal qualities for each data point are derived from the application of dilution parameters.
4. Clean product qualities for each data point are derived from coal washability analysis and plant efficiency factors.
5. The approved LOM design is subdivided into small mining blocks and sequenced using CONSOL's proprietary mine planning software.
6. In-place, ROM, and clean product estimates of coal volume and qualities for each mining block are estimated within the mine planning software by inverse distance interpolation of the data points developed in Steps 1 and 2.
7. The mining blocks (and associated volumetric data) are further subdivided by resource classification and property tract polygons.
8. Relevant regional and periodic summaries are prepared within CONSOL's software to support planning and coal resource/reserve reporting.

11.2.2 Criteria

Development of the coal resource estimate for the PAMC assumes mining using standard underground development and LW methods and equipment, which have been utilized successfully at the PAMC for over 35 years.

A minimum mineable seam thickness of 5 ft was used to limit the coal resources. This thickness includes the Pittsburgh Seam main bench plus portions of the draw slate and roof coal as necessitated by the assumed mining methods. No other cut-offs were applied.

11.2.3 Classification

Geologic assuredness is established by the availability of both structural (thickness and elevation) and quality information for the Pittsburgh Seam. Classification is generally based on the concentration or spacing of exploration data, which can be used to

demonstrate the geologic continuity of the deposit. Table 11.1 provides the general criteria employed in the classification of the coal resources.

Table 11.1: Coal Resource Classification Criteria

Classification (Geologic Confidence)	Data Point Spacing	
	Feet	Miles
Measured	0 - 3,000	0 - 0.57
Indicated	3,000 - 7,920	0.57 - 1.50
Inferred	7,920 - 15,840	1.50 - 3.00

Extrapolation or projection of resources in any category beyond any data point does not exceed half the point spacing distance.

BOYD reviewed the classification criteria employed by CONSOL with regards to data density, data quality, geological continuity and/or complexity, and estimation quality. The Pittsburgh Seam is well-known and of low complexity. We believe these criteria appropriately reflect the interpreted geology and the estimation constraints of the deposit. Coal resources in the PAMC area are very well-defined throughout nearly all areas of the mine plan. Observed drill hole spacing averages approximately 1,470 ft and generally ranges between 500 ft and 2,500 ft.

BOYD is of the opinion that there is a high degree of certainty (assurance) associated with each of the resource classifications.

11.2.4 Coal Resource Estimate

There are no reportable coal resources excluding those converted to coal reserves for the PAMC. Quantities of coal controlled by CONSOL within the defined boundaries of the PAMC which are not reported as coal reserves, are not considered to have potential economic viability; as such, they are not reportable as coal resources.

11.2.5 Validation

BOYD independently estimated coal resources and reserves for portions of the PAMC mine plan representing approximately 20 years of mining under full-capacity conditions and other current operating assumptions. Our analysis utilized industry-standard grid modeling and estimation techniques and resulted in no material differences with estimates provided by CONSOL.

Based on our review of CONSOL's well-documented geologic modeling and estimation techniques and the results of our data validation efforts (described

earlier), we are of the opinion that CONSOL's resource estimation procedures are reasonable and appropriate. Furthermore, it is BOYD's opinion that the assigned resource classifications appropriately reflect the degree of uncertainty (assurance) associated with the quality of the exploration and sampling data, and the natural geological variability of Pittsburgh Seam.

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JOHN T. BOYD COMPANY

12.0 COAL RESERVE ESTIMATE

12.1 Applicable Standards and Definitions

Unless noted, coal reserve estimates disclosed herein are done so in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms "mineral" and "coal" to be generally interchangeable within the relevant sections of S-K 1300.

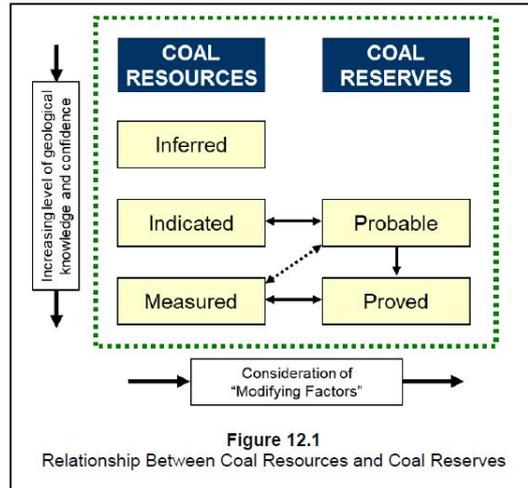
Estimates of coal reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the varying degree of certainty associated with the estimates reported herein.

The definition of mineral (coal) reserve provided by S-K 1300 is:

Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Estimates of coal reserves are subdivided to reflect geologic confidence, and potential uncertainties in the modifying factors, into proven (highest assurance) and probable. See Glossary of Abbreviations and Definitions.

Figure 12.1 shows the relationship between coal resources and coal reserves.



In this report, the term "coal reserves" represents the tonnage and coal quality of product coal that will be available for sale after beneficiation of the ROM coal.

12.2 Coal Reserves

12.2.1 Methodology

The coal reserve estimates have been prepared using generally accepted industry methodology to provide reasonable assurance that the coal reserves are economic and recoverable at the time of evaluation.

12.2.2 Parameters and Assumptions

The underground mining operation uses a conventional retreating LW mining method. The underground mine plans address anticipated geologic, geotechnical, and hydrogeologic conditions. Mining and processing parameters are revised periodically, to assure that the conversion of in-place coal to saleable product are: (1) in reasonable conformity with present and recent historical operational performance, and (2) reflective of expected mining and processing operations.

Table 12.1 summarizes the mining-related parameters used by CONSOL in the estimation of coal reserves.

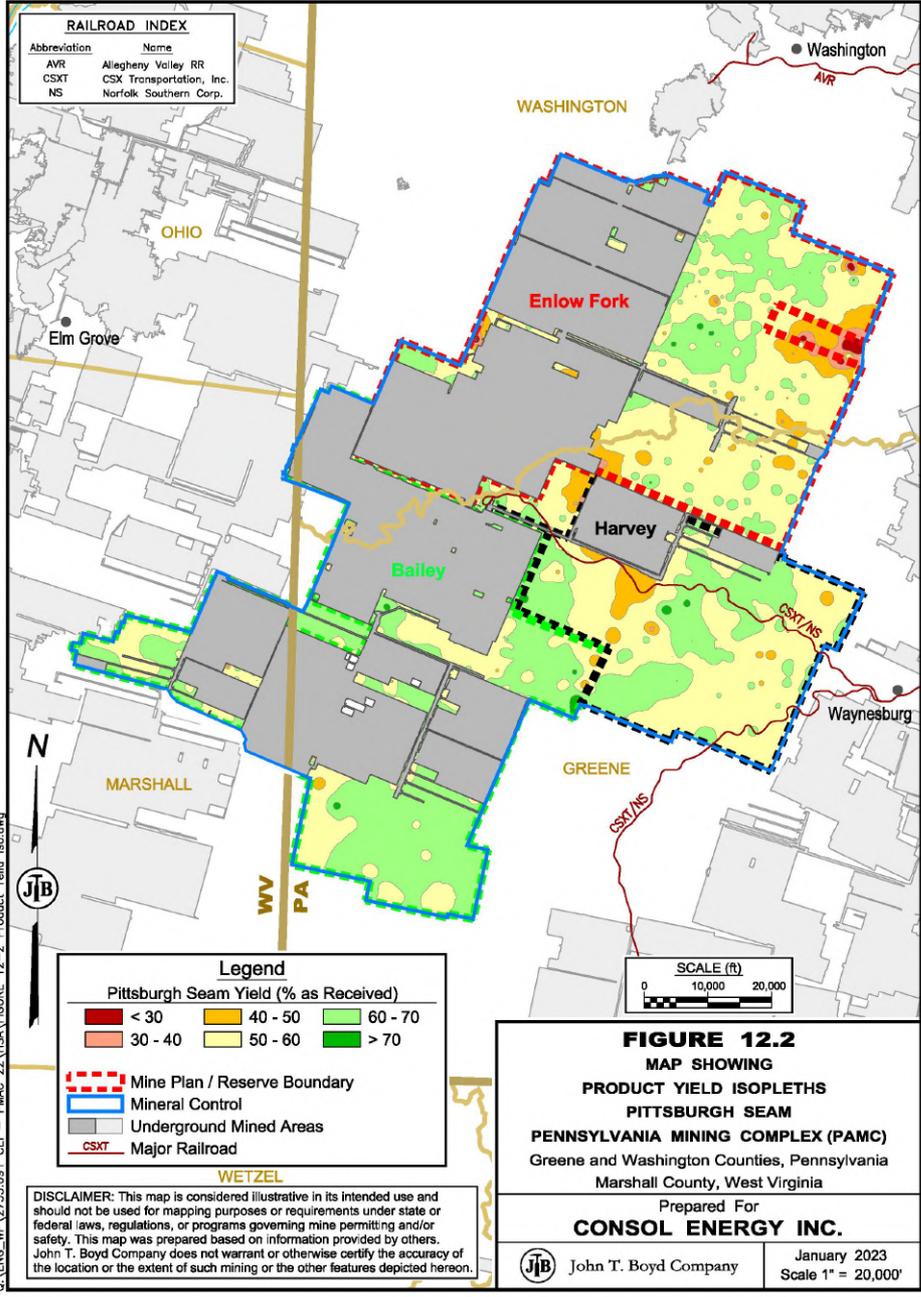
Parameter	Units	Mining Method	
		Development	Longwall
Mining Recovery	%	21 - 80	99
Dilution:			
Amount	feet	0.65	0.65
ASG	g/cc	2.50	2.50
Ash	%, db	80.0	80.0
Sulfur	%, db	2.00	2.00
Heating Value	btu/lb, db	1,000	1,000
ROM Adjustments:			
Moisture	%, ar	6.15	6.15
Ash	%, db	1.0	1.0
Sulfur	%, db	0.08	0.08

Mining recovery varies by mining method and design, with LW mining typically having the highest recovery factor. The average mining recovery for PAMC is expected to range between 75% to 85%.

Minor adjustments to ROM coal ash and sulfur content are made based on recent historical reconciliation studies.

Clean coal estimates are based on washability data, which are adjusted (reduced) to reflect practical yields achieved by the preparation plant. The preparation plant efficiency used in the estimation of coal reserves is 95.0%. The average product yield for the coal reserves is 58.6%. Figure 12.2 depicts the estimated product yield for the Pittsburgh Seam across the PAMC deposit.

Product moisture was estimated at 6.15% (as-received basis).



C:\ENG\WPA\2755.091.CEI - PMAC 22\HSA\FIGURE 12-2 Product Yield_Isc.dwg

12.2.3 Classification

Proven and probable coal reserves are derived from measured and indicated coal resources, respectively, in accordance with S-K 1300. BOYD is satisfied that the stated coal reserve classification reflects the outcome of technical and economic studies. Figure 12.3 illustrates the reserve classification of the Pittsburgh Seam within the PAMC.

12.2.4 Coal Reserve Estimate

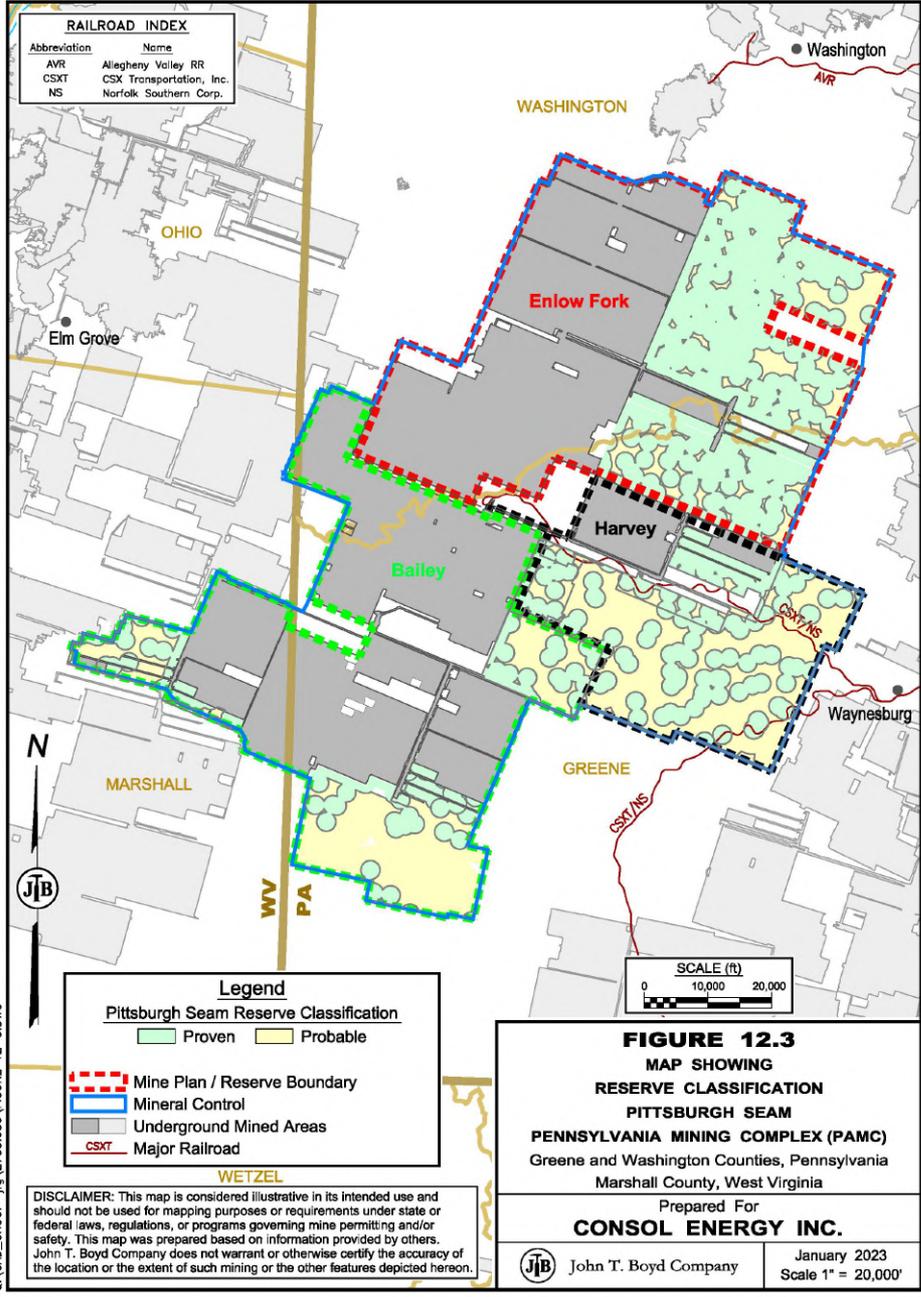
CONSOL's estimated underground mineable coal reserves for the PAMC total 622.1 million recoverable (clean) product tons remaining as of December 31, 2022. The coal reserves reported in Table 12.2 are based on the approved LOM plan which, in BOYD's opinion, is technically achievable and economically viable after the consideration of all material modifying factors.

Coal reserves for the PAMC (as of December 31, 2022) are summarized by mine in Table 12.3.

Mine	Product Tons (millions) by Classification		
	Proven	Probable	Total
Bailey	71.9	80.6	152.5
Enlow Fork	223.4	38.1	261.5
Harvey	104.3	103.8	208.1
Total	399.6	222.5	622.1

In terms of ownership, coal owned in fee by PAMC totals 560.4 million product tons (90% of the total reserve base), with the remaining reserves (61.7 million tons) held under lease agreements.

At the time of reporting, 184.5 million product tons (approximately 30% of the reported reserve base) are permitted for mining by appropriate federal and state regulatory authorities. While the remaining 437.6 million product tons are not permitted, it is typical for coal operations to only hold mining permits for the reserves currently being mined or expected to be mined in the near future. As mining progresses, mining permits are periodically amended to add acreage/tonnage to sustain coal production. It is reasonable to expect that all necessary permits to recover the coal will be successfully obtained in advance of mining.



C:\CAD_GROUP\fig\2755.080\FIGURE 12-3.DWG

TABLE 12.2

ESTIMATED COAL RESERVES BY MINE
AS OF DECEMBER 31, 2022
PENNSYLVANIA MINING COMPLEX
Pennsylvania and West Virginia
Prepared for
CONSOL ENERGY INC.

By
John T. Boyd Company
Mining and Geological Consultants
January 2023

Control	Classification	Product Tons (millions)							Average Product Quality (As Received Basis)					Heating Value (Btu/lb)
		By Permit Status			By SO ₂ Content (lbs per MMBtu)				%					
		Total	Permitted	Not Permitted	<2.5	2.5 to 4.5	4.5 to 6.5	> 6.5	Total Moisture	Ash	Volatile Matter	Sulfur		
Bailey Mine														
Owned	Proven	52.6	42.0	10.6	2.7	23.5	9.5	16.9	6.15	8.3	37.9	3.22	12,838	
	Probable	55.2	8.7	46.5	0.6	54.6	—	—	6.15	7.9	36.0	2.15	12,956	
	Subtotal	107.8	50.7	57.1	3.3	78.1	9.5	16.9	6.15	8.1	37.0	2.68	12,898	
Leased	Proven	19.3	17.1	2.2	2.5	16.7	—	0.1	6.15	7.5	36.4	2.14	13,044	
	Probable	25.4	11.8	13.6	—	25.4	—	—	6.15	7.8	36.3	2.27	12,998	
	Subtotal	44.7	28.9	15.8	2.5	42.1	—	0.1	6.15	7.6	36.4	2.21	13,019	
Total	Proven	71.9	59.1	12.8	5.2	40.2	9.5	17.0	6.15	8.1	37.5	2.91	12,896	
	Probable	80.6	20.5	60.1	0.6	80.0	—	—	6.15	7.8	36.1	2.19	12,969	
	Subtotal	152.5	79.6	72.9	5.8	120.2	9.5	17.0	6.15	7.9	36.8	2.54	12,934	
Enlow Fork Mine														
Owned	Proven	219.3	75.1	144.2	36.8	182.5	—	—	6.15	7.5	35.8	1.97	13,017	
	Probable	38.0	5.0	33.0	2.5	35.5	—	—	6.15	7.5	35.8	2.00	13,045	
	Subtotal	257.3	80.1	177.2	39.3	218.0	—	—	6.15	7.5	35.8	1.98	13,021	
Leased	Proven	4.1	0.2	3.9	0.2	3.9	—	—	6.15	7.4	35.7	1.87	13,006	
	Probable	0.1	—	0.1	—	0.1	—	—	6.15	7.3	35.6	1.89	13,016	
	Subtotal	4.2	0.2	4.0	0.2	4.0	—	—	6.15	7.4	35.7	1.87	13,006	
Total	Proven	223.4	75.3	148.1	37.0	186.4	—	—	6.15	7.5	35.8	1.97	13,017	
	Probable	38.1	5.0	33.1	2.5	35.6	—	—	6.15	7.5	35.8	2.00	13,045	
	Subtotal	261.5	80.3	181.2	39.5	222.0	—	—	6.15	7.5	35.8	1.97	13,021	
Harvey Mine														
Owned	Proven	94.9	21.9	73.0	0.5	75.1	19.3	—	6.15	7.9	36.8	2.60	12,957	
	Probable	100.4	2.7	97.7	—	74.1	26.3	—	6.15	8.1	37.0	2.72	12,919	
	Subtotal	195.3	24.6	170.7	0.5	149.2	45.6	—	6.15	8.0	36.9	2.66	12,937	
Leased	Proven	9.4	—	9.4	0.1	9.3	—	—	6.15	7.8	34.9	2.03	12,978	
	Probable	3.4	—	3.4	—	3.4	—	—	6.15	7.8	35.1	2.06	12,976	
	Subtotal	12.8	—	12.8	0.1	12.7	—	—	6.15	7.8	35.0	2.04	12,977	
Total	Proven	104.3	21.9	82.4	0.6	84.4	19.3	—	6.15	7.9	36.7	2.55	12,959	
	Probable	103.8	2.7	101.1	—	77.5	26.3	—	6.15	8.1	36.9	2.70	12,920	
	Subtotal	208.1	24.6	183.5	0.6	161.9	45.6	—	6.15	8.0	36.8	2.62	12,940	
Total - All Mines														
Owned	Proven	366.8	139.0	227.8	40.0	281.1	28.8	16.9	6.15	7.7	36.4	2.31	12,976	
	Probable	193.6	16.4	177.2	3.1	164.2	26.3	—	6.15	7.9	36.5	2.41	12,954	
	Subtotal	560.4	155.4	405.0	43.1	445.3	55.1	16.9	6.15	7.8	36.4	2.35	12,968	
Leased	Proven	32.8	17.3	15.5	2.8	29.9	—	0.1	6.15	7.5	35.9	2.07	13,020	
	Probable	28.9	11.8	17.1	—	28.9	—	—	6.15	7.8	36.2	2.25	12,995	
	Subtotal	61.7	29.1	32.6	2.8	58.8	—	0.1	6.15	7.6	36.0	2.15	13,009	
Total	Proven	399.6	156.3	243.3	42.8	311.0	28.8	17.0	6.15	7.7	36.3	2.29	12,979	
	Probable	222.5	28.2	194.3	3.1	193.1	26.3	—	6.15	7.9	36.5	2.39	12,960	
	Subtotal	622.1	184.5	437.6	45.9	504.1	55.1	17.0	6.15	7.8	36.4	2.33	12,972	

The coal reserves of the PAMC are well-explored and defined. It is our conclusion that nearly two-thirds of the stated reserves can be classified in the proven reliability category (the highest level of assurance) with the remainder classified as probable. Given the uniformity of the Pittsburgh Seam in and around the PAMC, it is reasonable to assume that further exploration and testing will confirm the occurrence of coal reserves and increase the percentage reportable as proven.

Table 12.4 below summarizes the washed coal quality for each mine of the PAMC. The reported coal reserves generally consist of high-rank, high-volatile bituminous, medium ash, and medium-to high-sulfur coal that may be used for thermal and limited metallurgical purposes.

Table 12.4: Coal Reserves Product Quality Summary

Mine	Average Product Quality (As Received Basis)				Heating Value (Btu/lb)
	%				
	Total Moisture	Ash	Volatile Matter	Sulfur	
Bailey	6.15	7.9	36.8	2.54	12,934
Enlow Fork	6.15	7.5	35.8	1.97	13,021
Harvey	6.15	8.0	36.8	2.62	12,940
Average	6.15	7.8	36.4	2.33	12,972

Figures 12.4 and 12.5 illustrate the product ash and product sulfur content over the PAMC area. As shown, there are slight increases in both ash and sulfur content from east to west across the property. The distribution of PAMC's coal reserves by sulfur dioxide (SO₂) emission category (reported in pounds (lbs) per million Btu [MMBtu]) is shown in Figure 12.6. Approximately 88% of the reported coal reserves are considered medium-sulfur or better coals.

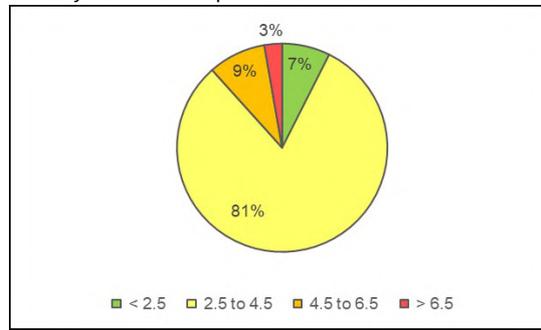
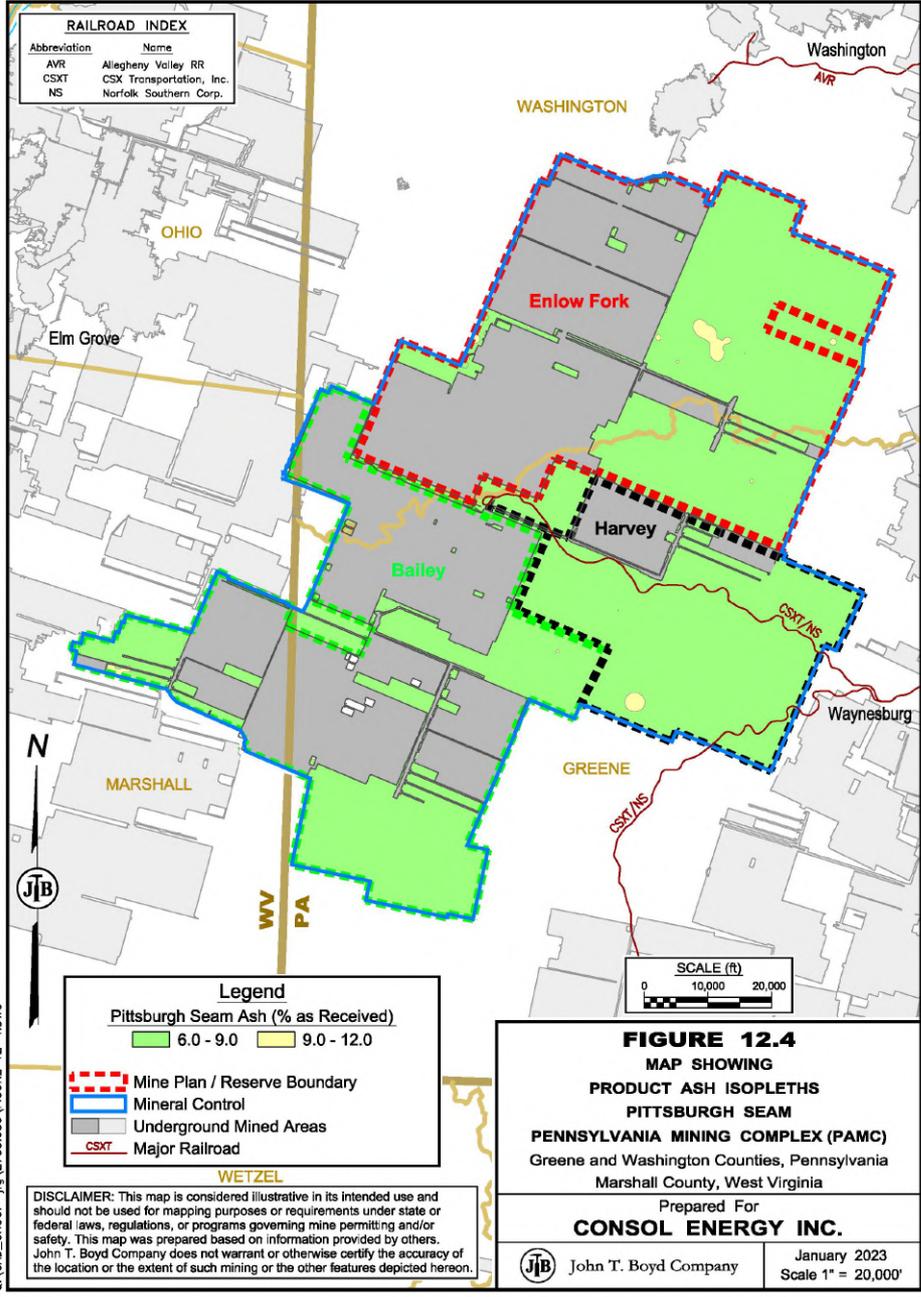
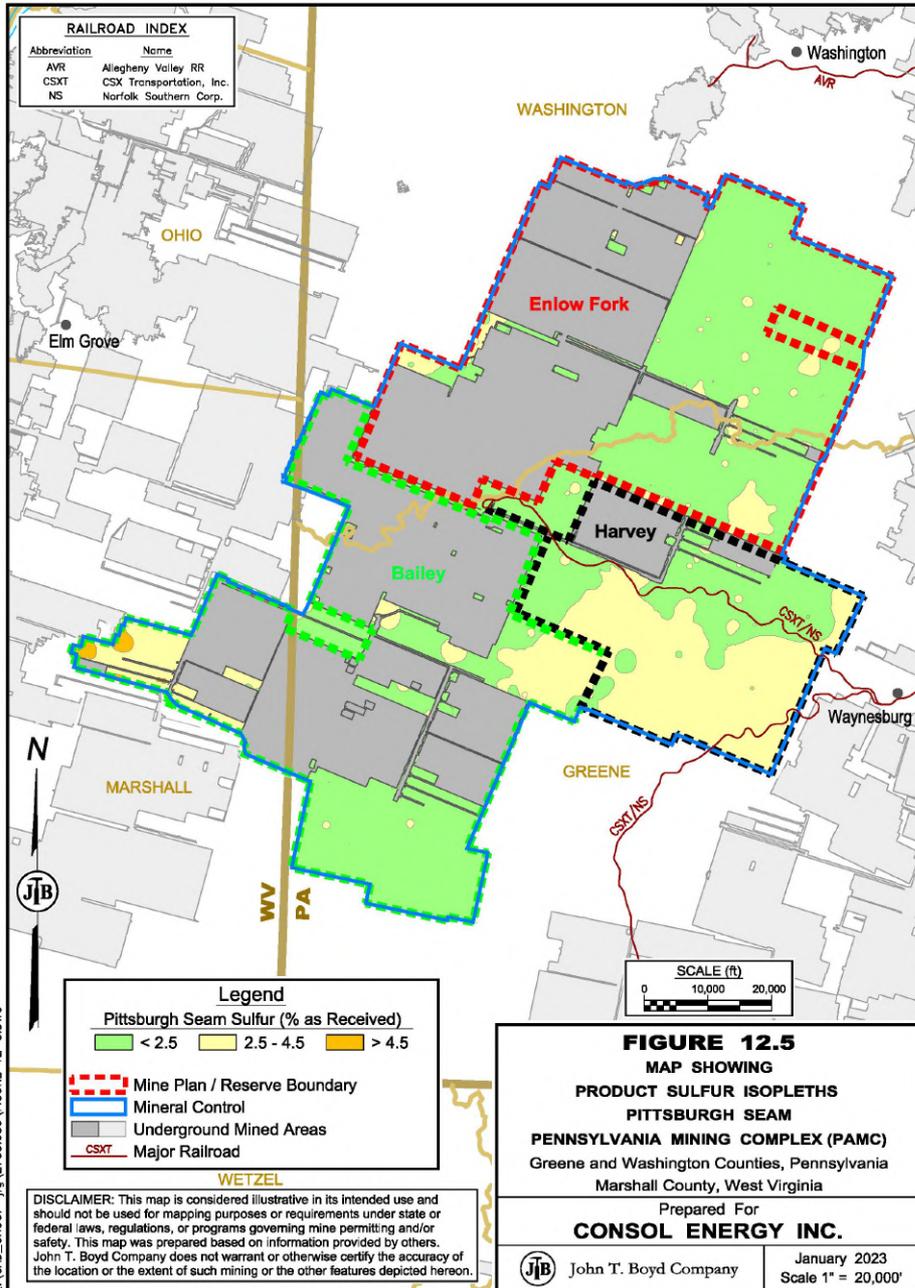


Figure 12.6: Distribution of PAMC Coal Reserves by Sulfur Dioxide Category



C:\CAD_GROUP\fig\2755.080\FIGURE 12-4.DWG



C:\CAD_GROUP\fig\2755.080\FIGURE 12-5.DWG

The PAMC is an established underground coal mining and processing complex with a lengthy operating history. BOYD has assessed that sufficient studies have been undertaken to enable the coal resources to be converted to coal reserves based on current operating methods and practices. Changes in the factors and assumptions employed in these studies may materially affect the coal reserve estimate.

The extent to which the coal reserves may be affected by any known geological, operational, environmental, permitting, legal, title, variation, socio-economic, marketing, political, or other relevant issues has been reviewed as warranted. It is the opinion of BOYD that CONSOL has appropriately mitigated, or has the operational acumen to mitigate, the risks associated with these factors. BOYD is not aware of any additional risks that could materially affect the development of the reserves.

Based on our audit review, we have a high degree of confidence that the estimates shown in this report accurately represent the available coal reserves controlled by CONSOL, as of December 31, 2022.

12.2.5 Reconciliation with Previous Estimates

When comparing CONSOL's coal reserve estimates as of December 31, 2022, with those reported as of December 31, 2021, we note a net increase resulting from property, acquisitions, revisions to mine plans and associated modifying factors, and depletion through ordinary mining operations and inventory sales.

Figure 12.7 illustrates the effects of each of these changes.

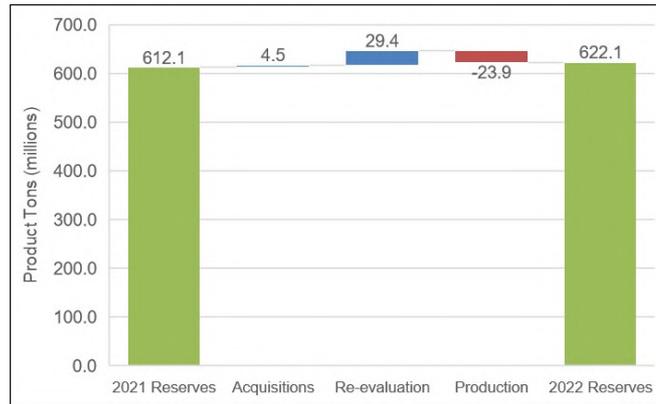


Figure 12.7
Reconciliation with Previous Coal Reserves Estimates

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13.0 MINING METHODS

13.1 Mining Method Description

PAMC is comprised of the Bailey, Enlow Fork, and Harvey underground mines (see Figure 3.1 for the general layout of each mine). Each mine utilizes LW mining for primary production with supporting mine development performed by CM. LW mining supported by CM development has been the primary approach to mining the Pittsburgh Seam (within which PAMC operates) for decades. Mining methods utilized by the Bailey Mine, which first began LW production in 1984 and is the oldest of the PAMC's three operations, are largely identical to those utilized at the Enlow Fork Mine and the Harvey Mine.

The LW mining method is centered around a dual-drummed coal cutting machine (shearer) that traverses the coal face of the developed LW panels. An illustration of a typical LW mining operation is provided in Figure 13.1.

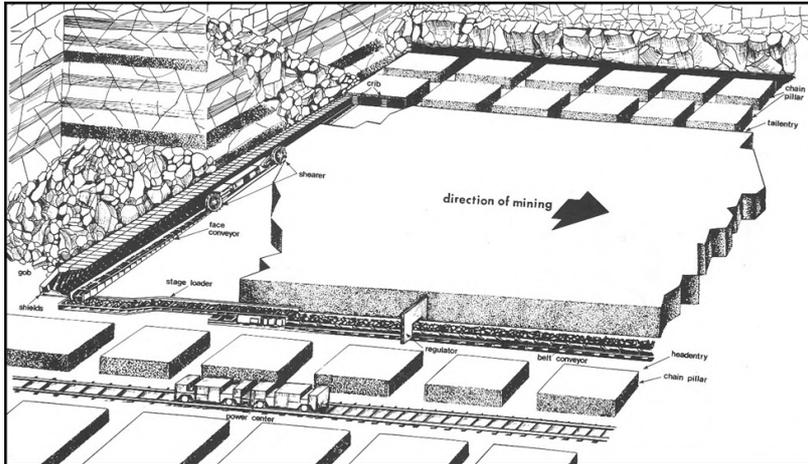


Figure 13.1
Longwall Mining Method
Source: Eickhoff America Corp.

The shearer advances through the developed LW panels by cutting a uniform slice of coal (approximately 42 in. in depth) as it travels back and forth across the length of the LW panel width (approximately 1,500 ft). Each pass or cut by the shearer completely removes the coal directly in front of the cutting drum. Hydraulically powered LW shields are used to support the immediate mine roof at the face, above the shearer. As the shearer cuts across the faceline (advancing 42 in. at a time), the LW shields similarly advance forward. In normal supporting conditions, the canopy of the LW shield is set tightly against the roof strata using the supporting resistances of the shield's hydraulic legs. When the shearer cuts and passes several shield units, the shield support legs for each shield unit are sequentially lowered and pulled forward the distance equal to the depth of cut (i.e., 42 in.). Upon advancing, the unsupported mine roof immediately behind the LW shields will collapse. In addition to providing roof support, the LW shields also allow production and maintenance employees to safely access/travel across the entire length of the LW face during the mining process.

Coal cut by the LW shearer is removed via an armored face conveyor (AFC) which runs along and parallel to the LW face, beneath the LW shields. The AFC serves as the track for the shearer to move on and as a guide to hold the machine in place. Coal cut by the shearer is continuously loaded onto the AFC and is transported to the "headgate" area where the LW face intersects perpendicularly with the adjacent, developed mine entry (i.e., the "headgate-entry"). Here the coal is passed through a crusher unit and is dumped onto a stageloader system, which in turn empties onto a belt conveyor located in the adjacent entry (some distance outby the headgate area). After the coal has been loaded onto the conveyor belt, it begins a multiple mile egress through existing underground mine workings to be discharged into ROM storage facilities on the surface.

Each of the PAMC underground mines have multiple CM development sections which develop the underground network of main entries, gate entries, setup entries, etc., necessary to support the LW production unit(s). Mine entry development is performed on each section by a piece of equipment known as a Miner Bolter (MB). The MB is a machine capable of cutting coal with a rotating drumhead while simultaneously supporting the newly exposed mine roof via the installation of roof bolts. The MB is outfitted with drill booms which drill holes into the newly exposed mine roof. The MB then inserts a high strength metal roof bolt (or roof bolt and adhesive glue combination) into the freshly drilled holes, thus securing (or "bolting") the immediate exposed mine roof to more component rock strata directly above the entry.

Coal cut by the MB is stockpiled behind the unit where a loading machine with oscillating gathering arms is positioned. The loading machine loads the stockpiled coal onto an

electric-powered transport vehicle (known as a “shuttle-car”) which then transports the mined coal to the development section’s feeder. Here the coal is crushed and then loaded onto a rubber conveyor belt for removal. Like the coal mined from the LW operation, development section ROM coal is transported through the mine workings on a series of conveyor belts until it reaches the surface.

The MB will continue mining in a single entry for a specified length according to ventilation requirements and/or mine operator preferences for completing the desired network of mine entries. Once the MB has developed the specified area, the MB will be moved to an adjacent entry to begin development. The freshly developed entry will then have additional roof bolts installed throughout its entirety by a roof bolting machine. These additional roof bolts will be installed as necessitated by the mine’s roof control plan or to the preferences of the mine operator. The process of developing the specified length of entries will be continued until the required entries have been developed and connected. The developmental belt will then be advanced (along with the section power supply) to shorten the required shuttle or ram car haul distance from the production faces. Once completed, the CM section mining cycle will resume, and be continuously repeated until necessary supporting entry infrastructure has been fully developed.

13.2 Mine Equipment and Staffing

13.2.1 Mine Equipment

The equipment utilized at the three PAMC underground LW mines is nearly identical to one another. This allows for synergies between the operations, including equipment, critical spare parts sharing, as well as buying power with equipment providers. Additionally, mining equipment utilized by PAMC is not unique to the Pittsburgh Seam LW region and is similar to the equipment commonly used by competitor LW mines in the region.

PAMC plans to operate multiple LW faces and CM sections annually to achieve forecasted production. Based on BOYD’s review of the PAMC equipment and asset listings, the operations’ current complement of equipment aligns with the projected level of production outlined in the LOM plan. In BOYD’s opinion, all mining equipment utilized on the PAMC LW and CM sections is suitable for the mining conditions anticipated, as well as for the currently anticipated rates of production.

13.2.2 Staffing

PAMC’s underground mines and coal preparation facility are staffed by a workforce primarily from the surrounding southwestern Pennsylvania, eastern Ohio, and northern

West Virginia areas. The workforce is comprised of both hourly and salary employees, in a similar fashion to those of other operating mines within the region. Unlike many competing mines within the region, the PAMC work force has no labor union affiliation. Table 13.1 provides recent historical end-of-year employment for PAMC:

Table 13.1: PAMC Historical Employee Count

2018	2019	2020	2021	2022
1,508	1,593	1,450	1,320	1,498

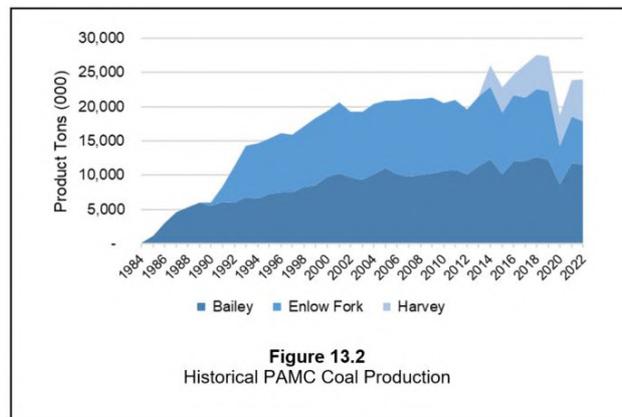
Source: Mine Safety and Health Administration

Except for a drop in employment in 2020 (attributed to poor market conditions during the COVID pandemic), staffing levels across the operational sites have largely remained consistent¹. Excluding the 2020 decline, forecasted employment levels align with historical levels. Going forward, given CONSOL's ability to hire and retain employees, staffing is not expected to hinder PAMC's currently anticipated production forecast.

13.3 Mine Production

13.3.1 Historical Mine Production

Historical mine production data (through year-end 2022) for the three PAMC underground LW mines, based on publicly available information reported by the MSHA, are shown in Figure 13.2.

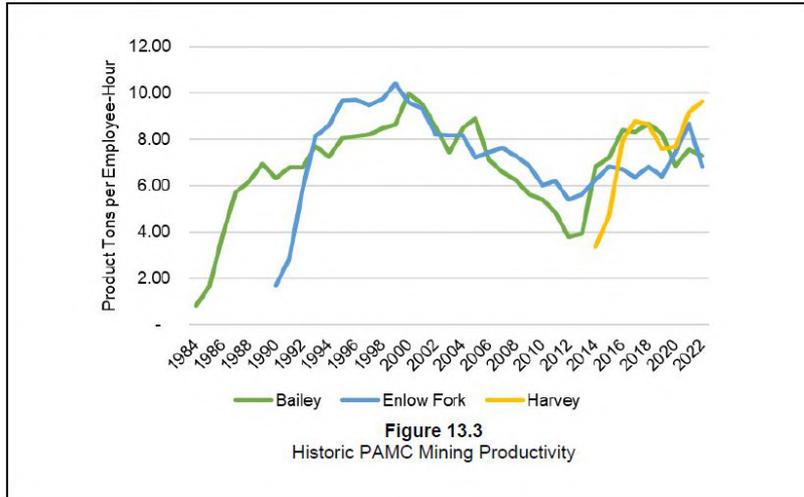


¹ It is not uncommon for coal operators in the region to fluctuate employment to match market conditions.

Relevant information regarding the three PAMC operations includes:

- Bailey Mine first recorded production from development mining during 1984, and subsequently experienced its first LW production in 1985. Through 2022, Bailey Mine has produced approximately 338 million tons since beginning operations. During its operating life, Bailey has been known as one of the most productive LW operations in the United States on a tons per employee hour (TPEH) basis.
- Enlow Fork first recorded production from development mining during 1989, which was followed by its first LW production recorded in 1991. Enlow Fork has produced approximately 288 million tons since beginning development mining in 1989 through 2022. Enlow Fork has historically operated two LW faces.
- Harvey, which is the newest of the PAMC mines, first recorded production from development mining during 2009 under the Bailey Mine MSHA identification number. The Harvey Mine officially began recording production under its own MSHA identification number during 2014. Harvey has produced approximately 40 million tons attributable to its own mine identification number. Harvey operates one LW face.

As a complex, PAMC has produced a combined 665.8 million tons of clean coal from 1984 to 2022. Through the same period, the complex has recorded an average productivity level of 7.4 TPEH. Figure 13.3 shows historic mining productivity for PAMC and each mine individually since their start.



13.3.2 Forecasted Production

BOYD reviewed the LOM plans for each of the PAMC underground LW mines to determine whether the plans: (1) utilize generally accepted engineering practices, and (2) align with historical and industry norms. Based on our assessment, it is BOYD’s opinion that the forecasted production levels for the PAMC operations are reasonable, logical, and consistent with typical LW mining practices in the Pittsburgh Seam and historical practices utilized by PAMC.

Currently anticipated PAMC coal production (through 2065) is shown in Figure 13.4:

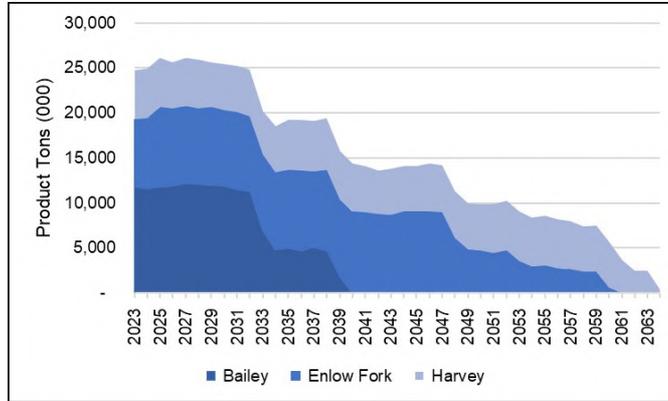


Figure 13.4
Projected PAMC Coal Production

In the aggregate, the PAMC LOM plan projects the complex will produce approximately 622 million tons of clean coal over its operational horizon. The rate at which the PAMC produces coal can vary based upon how the mines are operated.

While individual mines may encounter local areas of high ash and/or sulfur, PAMC’s infrastructure enables the output from each of the individual mines to be strategically blended, thus mitigating the influence/impact that an individual mine or production unit (producing in a localized area of lesser coal quality) could have on the complex’s overall product quality.

13.3.3 Mining Recovery and Dilution Factors

The PAMC’s underground LW mines operate within the same geological setting and coal seam with little distinguishable differences. As such, the design of each mine is largely the same (e.g., LW panel widths and lengths are relatively similar, as are the dimensions

for CM development support pillars). As a result, mining recoveries within the individual mine plans are largely similar. The estimated mining recoveries for PAMC's LW production panels is 99% and for the CM development areas ranges from 25% to 40%. Based on our audit of PAMC's reserves by individual mining areas, it is BOYD's opinion that the mining area recoveries are reasonable and align with general engineering principles.

The proximity of the operations within the same geologic setting and coal seam also results in similar dilution factors across the PAMC mines. The mining horizon targeted by each of the mines includes the main bench of the Pittsburgh Seam, draw slate (or binder), and overlying roof coal (refer to Chapter 4 for a generalized stratigraphic column of the Pittsburgh Seam). Each of the mines operate in a similar manner where the entirety of the main bench of coal and immediate draw slate (or binder) is removed. Subsequently, the roof coal immediately above the draw slate layer may be completely or partially removed based on the thickness of the total mining horizon.

The CM development sections have minimum mining heights which must be maintained to transport equipment and employees, provide ventilation airways, provide adequate clearances at belt transfers, etc., regardless of the targeted mining horizon thickness. As a result, out-of-seam dilution (OSD) variances on the CM development sections are more sporadic versus the LW sections; these variances are more likely a result of mine infrastructure and design rather than fluctuations in geology.

The LW production panels have minimum mining heights which must be maintained to provide clearance for LW equipment operation throughout the panel. The PAMC operations will mine to a certain mining horizon to provide the sufficient height necessary to mitigate operational risks (e.g., localized seam rolling, dipping, and zones of increased loading on LW shields, etc.), while also attempting to keep OSD to a minimum. Typically, this will result in mining the main bench of coal and draw slate in their entirety and leaving a portion of the roof coal (if mining horizon clearances allow). Estimated mining heights for the PAMC mines generally range from 7.5 ft to 8.5 ft but can reach 8.75 ft in portions of the Bailey Mine. BOYD views these mining heights as reasonably accurate and acceptable within the Pittsburgh Seam LW mining industry. These mining heights generally correlate with the OSD estimates for the Bailey, Enlow Fork, and Harvey mines (i.e., 25% OSD plus-or-minus 5%) which appears to agree with the PAMC forecasted production outputs.

13.4 Other Mining Considerations

13.4.1 Mine Design

The Pittsburgh Seam is widely recognized as being ideally suited for LW mining. The region's massive extent of reserves, good overall mining conditions, seam consistency, and relatively low population density on the overlying surface (vital to minimizing the impact of mine subsidence and the cost associated) are conducive to efficient, low-cost production operations.

Mining plans for large LW mines are simple but relatively inflexible, as major modifications to these mine plans require significant foresight and planning well in advance of mining. The entire foundation of the mining plan is based upon economies of scale resulting from a defined mining plan with high levels of annual output through all projected areas. The PAMC LW panels are large, typically measuring between 1,400 ft to 1,600 ft in width and up to 15,000 ft in length. This approach minimizes the percentage of high-cost CM output relative to low cost LW coal. Furthermore, the use of enormous panels maximizes the LW's operating time (i.e., less LW panel transfers throughout reserve exhaustion). Lead times for the development of LW panels are extensive, as CM development mining must be performed months or years in advance of the commencement of LW production. The application of the LW mining system is rigid. Therefore, there is minimal opportunity to alter the mining plan so as to avoid specific (localized) areas with adverse mining conditions (such as thin coal, poor roof, etc.) or poor coal quality (such as high sulfur, etc.). The only practical option is to mine through these adverse areas as CONSOL has successfully done in the past. On an annualized basis, this philosophy results in maximized recovery of reserves and minimized unit operating costs.

Coal mining operations are unlike other industrial facilities in that mines are not "assembly lines" or "factories" that are engineered to an exact design capacity or specific cost structure. Mining operations are conducted in the earth's strata, rather than within a homogeneous environment. There is inherent geologic risk, and mine operators must therefore contend with periodic adverse or variable geological conditions that cannot be fully anticipated in advance of actual mining activity. While the occurrences of these physical conditions are beyond the control of site management, it should not be interpreted that coal mining is inherently risky. On the contrary, there are established measures that mine operators utilize to minimize the operational and financial impacts associated with such encounters. Coal mining operations, such as the PAMC LW mines, have demonstrated a longer-term track record of sustaining consistent and predictable levels of performance on an annualized basis.

There remains substantial public and environmental group opposition to mining in general, particularly to LW mining and the effects of subsidence on surface structures and, more recently perennial streams. Ultimately, there is no current alternative to continued coal utilization for coal-fired electricity generation, manufacturing of coke, etc. While coal mining will continue, there are no indications that external pressures on the industry will lessen. CONSOL has historically demonstrated the ability to apply for and obtain the necessary permits for continued LW mining within their controlled reserves, even while being met with some environmental pushback. The established track record gives confidence in CONSOL's ability to work with environmental and regulatory agencies to achieve mine designs which allow for large reserve extractions while still maintaining environmental efficacy and good relationships with the surrounding communities.

13.4.2 Mining Risk

LW mines face two primary types of operational risks. The first category of risk includes those daily variations in physical mining conditions, mechanical failures, and operational

activities that can temporarily disrupt production activities. Several examples are as follows:

- Roof control problems and roof falls.
- Water accumulations/soft floor conditions.
- Ventilation disruption and concentrations of methane gas.
- Variations in seam consistency, thickness, and structure.
- Failures or breakdowns of operating equipment and supporting infrastructure.
- Weather disruptions (power outages, inability to load barges due to flooding of rivers, etc.).

The above conditions/circumstances can adversely affect production on any given day, but are not regarded as "risk issues" relative to the long-term operation of a mining operation. Instead, these are considered "nuisance items" that, while undesirable, are encountered on a periodic basis at virtually all mining operations. PAMC engineered mining plans and projections appear to incorporate historic performance levels as a basis, and thereby mitigate the likelihood that the mines will experience such disruptions to production operations to the extent that they have previously occurred. BOYD does not regard the issues listed above as being material to the PAMC mining operations or otherwise compromising their forecasted performance.

The second type of risk is categorized as "event risk." Items in this category are rare, but significant occurrences that are confined to an individual mine, and ultimately have a pronounced impact on production activities and corresponding financial outcomes. Examples of event risks are major fires or explosions, floods, or unforeseen geological anomalies that disrupt extensive areas of underground mine workings and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period of time (measured in months, and perhaps years) and/or result in the sterilization of coal reserves.

The US mining industry has made tremendous strides in enhancing employee safety and reducing the likelihood of fires, explosions, and other dramatic events over the past several decades, and underground LW mining is largely a predictable and safe industry. BOYD does not regard the PAMC mining operations and their mine plans as being particularly risky, inadequately managed, or otherwise susceptible to major events. There is no basis to predict or otherwise anticipate major operational shortfalls and/or extraction of coal reserves at any of the PAMC mining operations.

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14.0 PROCESSING OPERATIONS

14.1 Overview

The centrally located Central CPP is designed to process the combined ROM output produced by PAMC's three underground LW mines. Comprised of ROM coal storage silos, a coal processing plant, clean coal storage silos, and a rail loadout facility, the 300-acre processing complex is located within proximity of the active operations.

The Central (or "Bailey Central") CPP first began operation as the coal washing facility for the Bailey Mine in 1984. Since then, the Central CPP has undergone many expansions. In 2011, major renovations were made to the Central CPP to accommodate additional tonnage supplied from the newly commissioned Harvey Mine. Major process upgrades focused on improving processing circuit efficiencies and throughput as well as improved rail car loading capacity.

The Central CPP consists of two state-of-the-art PLC controlled heavy media plants with a combined rated raw coal capacity of 8,200 TPH. The plant employs five separate modules as shown in Table 14.1:

Table 14.1: Bailey CPP Module Summary

Plant	Module	Commission Date	Processing Capacity (Raw TPH)
Plant 1	1A	1989	2,000
	1B	1989	2,000
	Subtotal		4,000
Plant 2	2A	1991	1,400
	2B	1991	1,400
	2C	2004	1,400
	Subtotal		4,200
Total			8,200

A single plant operator can operate all five plant modules.

With a current processing capacity of 8,200 raw TPH, it is the largest CPP in the United States.

While the capacity of the facility has grown, the coal preparation process at Central CPP, like other preparation plants in the Pittsburgh Seam mining region, has largely remained

unchanged over the decades. Processing circuits within the Central CPP consist of heavy media bath, heavy media cyclones, hydro-spirals, and froth flotation. Rudimentary when compared to many other mineral processing techniques, the coal process is largely based on separating rock material from coal material contained in the raw coal feed by mechanically reducing the size of the feed and utilizing the materials' different densities to gravitationally separate one from the other. Largely, the process requires water, magnetite, and frothing agents.

ROM coal is shipped to the complex from the Bailey and Enlow Fork mines via two independently operated overland conveyor belts¹ while the centrally located Harvey Mine's slope conveyor belt delivers coal directly to the complex. There are nine ROM coal storage silos that provide approximately 153,000 tons of above-ground storage for the PAMC underground mines, six of which are located at the Central CPP complex. The ROM coal storage silos enable each mine to provide their plant feed separately to the preparation facility. The clean coal product is dried with screen-bowl centrifuges. Processed product is then stored in concrete silos with a total capacity of over 100,000 tons.

Clean coal is sampled and loaded into 130-car unit trains through a batch weigh system. The Central CPP is served by both the NS and CSX via a 19-mile rail spur that connects the complex with the mainline rail at Waynesburg, Pennsylvania. Two rail sidings are employed to facilitate railroad transportation logistics. At any time, the plant can accommodate four-unit trains: one unit train on the siding heading into the train load-out loop; one unit train being loaded; one unit train loaded and on the newly installed 8,000-ft siding; and one unit train loaded and leaving the facility. The train loadout system has a capacity of approximately 36 million tons per year.

Following this page are Figure 14.1, which provides an aerial overview of the preparation facility area, and Figure 14.2, which provides a generic flow sheet of the CPP and related facilities.

¹ The length of the overland belt from the Bailey Mine to the Central CPP is 4.2 miles; the length of the overland belt from the Enlow Fork Mine to the Central CPP is 5.5 miles.

G:\CAD_GROUP-FIG\2755.09\FIGURE 14-1.DWG

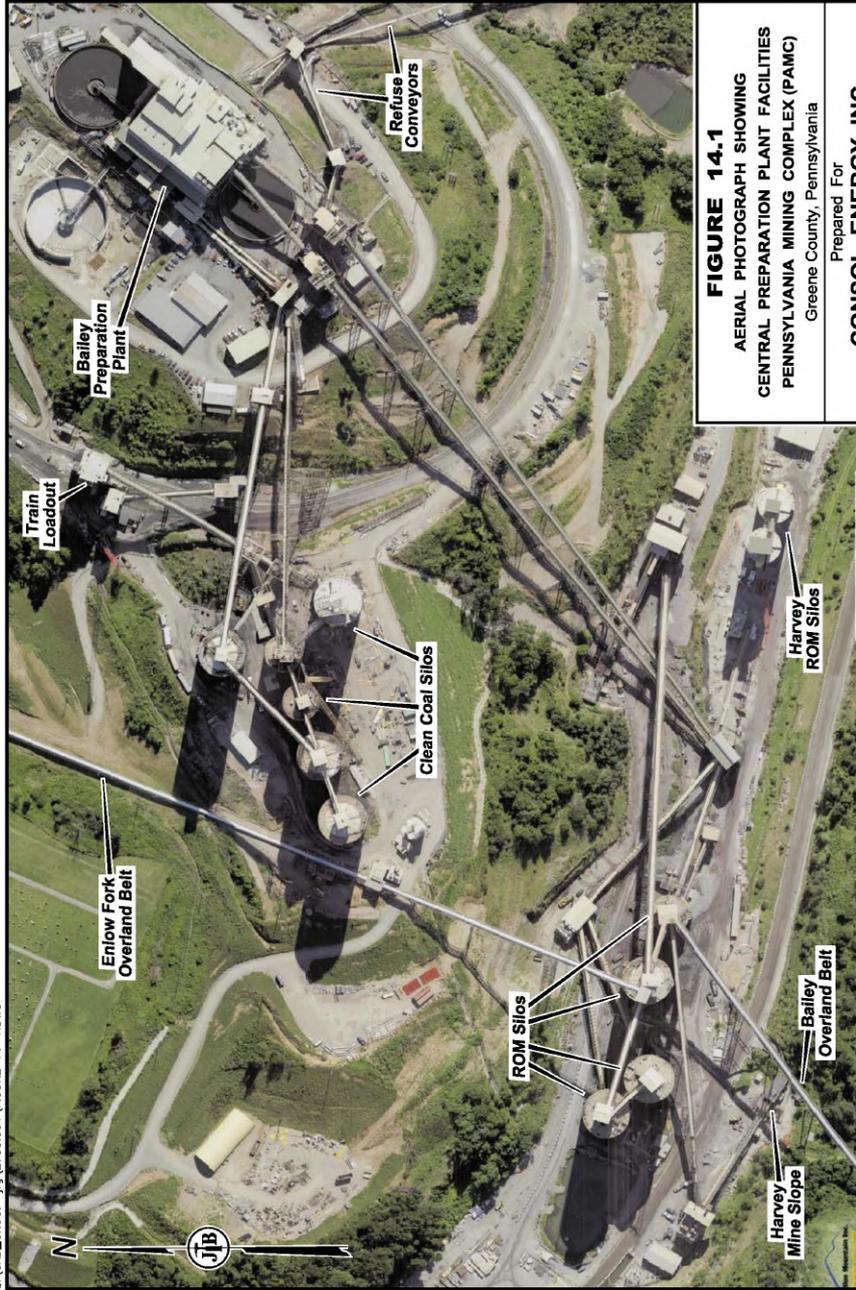


FIGURE 14.1
AERIAL PHOTOGRAPH SHOWING
CENTRAL PREPARATION PLANT FACILITIES
PENNSYLVANIA MINING COMPLEX (PAMC)
 Greene County, Pennsylvania
 Prepared For
CONSOL ENERGY INC.
 John T. Boyd Company
 January 2023
 Scale 1" = 250'

SCALE (ft)
 0 50 100 150 200 250

Note : Image Provided by Consol Energy Inc.
 with Additions by John T. Boyd Company.

Q:\CAD_GROUP-jg\2755.091\FIGURE 14-2.DWG

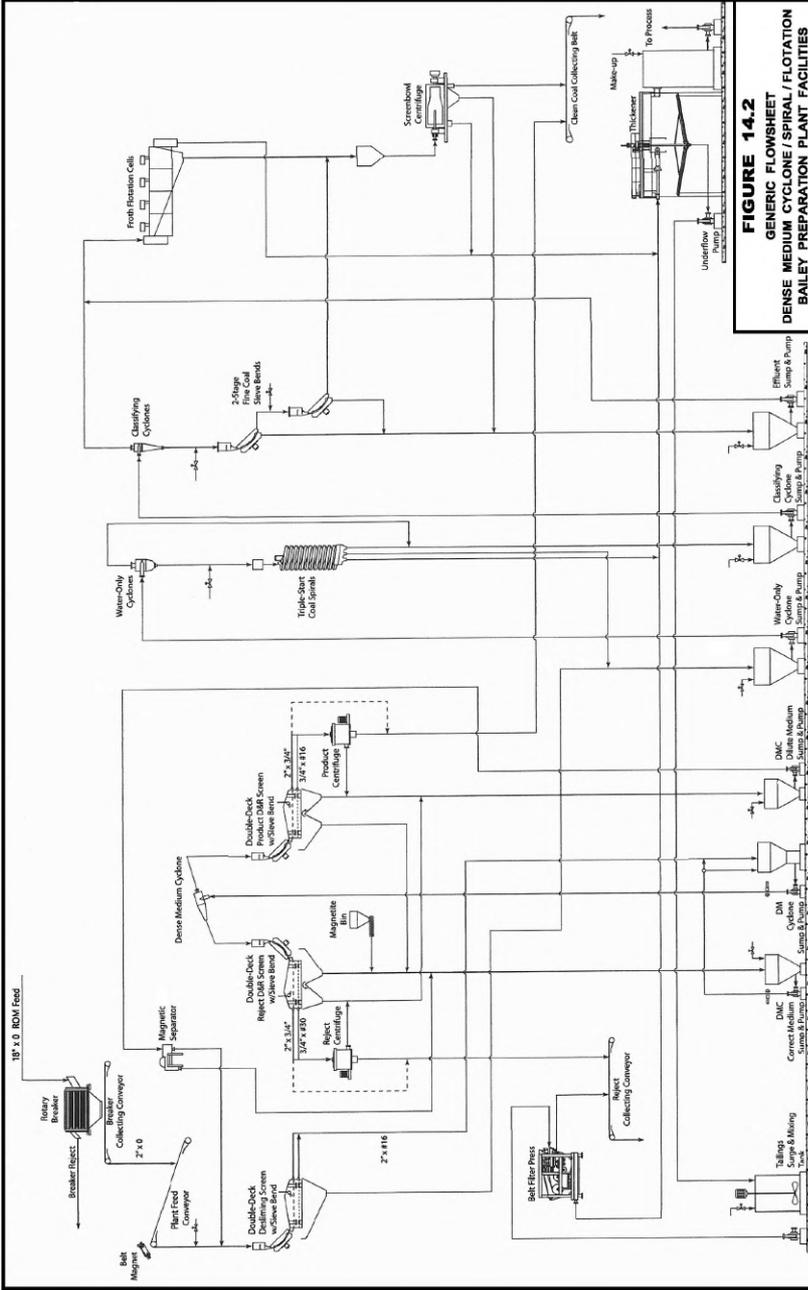


FIGURE 14.2
GENERIC FLOWSHEET
DENSE MEDIUM CYCLONE / SPIRAL FLOTATION
BAILEY PREPARATION PLANT FACILITIES
PENNSYLVANIA MINING COMPLEX (PAMC)
 Greene County, Pennsylvania

Prepared For
CONSOL ENERGY INC.
 John T. Boyd Company
 January 2023
 No Scale

Source : Coal Preparation Workshop, May 2012, Lexington, Ky,
 with Additions from John T. Boyd Company.

14.2 Historical Operation

Due to the evolution and enlargement of CONSOL's PAMC operations, the Central CPP has undergone modifications and expansions to accommodate the complex's increased coal production and washing requirements. The plant has historically operated at 75% of capacity.

The Central CPP produces a very consistent clean coal product, averaging on an as-received basis between 12,900 to 13,000 Btu per lb, 2.0 to 2.5% sulfur, and 7.0% to 8.0% ash. The plant's ability to blend raw coal production from the three underground mines into a singular plant feed allows for both more consistent plant operation and coal product qualities.

14.3 Future Operations

CONSOL intends to utilize the Central CPP to process coal from the PAMC underground LW mines throughout the complex's LOM plan.

14.4 Conclusions

Based on our review of historical processing data and forecasts of future production, it is BOYD's opinion that the present processing methods found at Central CPP will be sufficient for currently anticipated coal processing at PAMC.

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15.0 MINE INFRASTRUCTURE

15.1 Mine Surface Facilities

Operations at PAMC are supported by several surface facilities located within the areal proximity of the mine reserve boundary. Major surface infrastructure elements include: engineering and business offices, personnel bathhouses, parking areas, supply yards, warehouse buildings, ventilation fan structures, ventilation air shafts, high voltage power distribution stations, ROM coal conveyor belt structure, and primary underground access points, including slope tunnels (for transporting supplies underground/conveying ROM coal to the surface) and mine portals (shafts for transporting employees underground). Figure 3.1 (Page 3-2) provides a general location map highlighting the layout of the three PAMC underground mines and the surface location of their primary deep mine access points. Each of the PAMC underground LW mines maintain their own separate surface facilities. In terms of industry standards, the PAMC operations' surface infrastructure is comparable to or superior to facilities typically found within the Pittsburgh Seam mining region.

The current surface facilities located at each of the mines are well constructed and have the necessary capacity/capabilities to support the PAMC's near-term mining plans. Longer term, as the individual mines progress beyond their near-term mine plans and the location of future mining activities is centered outside the physical and/or operational limitations of the existing infrastructure, additional surface facilities of comparable design will be required to support continued mining (refer to Chapter 18 for a discussion regarding expectations for future capital expenditures).

Given CONSOL's demonstrated ability to steadily construct its expanding surface facility infrastructure in a timely fashion (relative to underground mine production), the need for continued surface facilities at select mines of PAMC is not seen as a hindrance for the execution of the LOM plans.

All ROM output from the PAMC mines is processed in the Central CPP, which is discussed in Chapter 14.

15.2 Bailey Refuse Facility

The Bailey refuse facility serves as the disposal location for all waste rock (coarse coal refuse) and fine coal slurry (fine coal refuse) produced during the processing of ROM coal from the three PAMC underground LW mines. The current Bailey refuse facility

encompasses approximately 3,509 permitted acres adjacent to the Central CPP. A summary of the currently permitted coal refuse disposal areas (CRDA) is provided in Table 15.1:

CRDA No.	Permitted Acres		Total
	Refuse Disposal Area	Supporting Activity Area	
No. 1 & 2	402	483	885
No. 3 & 4	373	184	557
No. 5 & 6	448	170	618
No. 7 & 8	837	612	1,449
Total	2,060	1,449	3,509

CRDA No. 7, the most recent permitted disposal site, received approval from the Pennsylvania Department of Environmental Protection in August 2020.

The Bailey refuse facility includes multiple disposal areas for coarse coal refuse and fine coal refuse disposal. Table 15.2 details the inventory of CRDA sites servicing the PAMC operations.

Course Refuse Areas ¹		Fine Refuse Areas ²	
No.	Capacity (CY)	No.	Capacity (CY)
1	207,000	1	—
3	8,270,000	3	—
4	—	5	99,269,681
5	36,789,000	7	83,000,000
6	—	8	17,200,000
7	33,357,000	Total	199,469,681
8	69,600,000		
Total	148,223,000		

¹CONSOL coarse coal refuse capacity estimate as of Dec. 21, 2022

²CONSOL fine coal refuse capacity estimate as of Dec. 29, 2022

According to forecasted LOM coal refuse disposal requirements, currently permitted refuse areas can accommodate coarse coal refuse disposal (properly staged) through 2035 while fine coal refuse disposal can be accommodated through 2067.

CONSOL indicated that the refuse disposal plan post-2035 will be based on proven practices and approaches. CONSOL has historically demonstrated the ability to steadily

acquire the required land for the refuse facility, associated permits, and to execute construction of disposal areas in a timely fashion. It is BOYD's opinion that CONSOL's staged refuse disposal through 2035 will meet or exceed the practices demonstrated by other industry peers. At this time, the absence of a staged and detailed refuse disposal plan post-2035 is not seen as a major hindrance to PAMC meeting its LOM plans.

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JOHN T. BOYD COMPANY

16.0 MARKET STUDIES

16.1 Product Specifications

The PAMC produces a thermal coal that is sold into the domestic US and international export markets. Indicative quality specifications for the PAMC thermal product are listed in Table 16.1 below.

Parameter	Units	Value
Moisture	%, arb	6.15
Ash	%, arb	7.5
Fixed Carbon	%, arb	51.2
Volatile matter	%, arb	36.5
Sulfur	%, arb	2.3
Heating Value	Btu/lb, arb	12,950
Heating Value	BTU/lb, MAF	15,000
SO ₂	lbs,MMBtu, arb	3.6
HGI		54

The high calorific value thermal coal produced by PAMC is currently used in the United States by electricity generators located in the PJM Interconnection, Southeast, and Midcontinent Independent System Operator regional electricity markets and by domestic industrial customers. In addition to the domestic market, PAMC also services international power generation and industrial customers in Europe, Africa, Asia, and other parts of North America. The coal's high quality enables it to receive premium pricing relative to regional price indices².

The PAMC also supplies lesser quantities—approximately 1.0 to 2.0 million tons per annum—of a secondary metallurgical coal product into the international export market.

² The main value driver for thermal coal is always energy or heat content, typically measured as a calorific value. With a typical heating value of 12,950 Btu/lb., PAMC's thermal coal is among the highest heat content US bituminous coals. In the international market, PAMC's thermal coal, which typically converts to 6,900 kcal/kg net as received (NAR), surpasses the major international bituminous coal benchmark products (e.g., the Republic of South Africa's [RSA] benchmark Richards Bay 6,000 kcal/kg NAR thermal product or Australia's Newcastle 6,000 kcal/kg NAR benchmark thermal coal) and is typically benchmarked against the API 2 index (6,000 kcal/kg NAR coal delivered into the Amsterdam, Rotterdam region in the Netherlands, and Antwerp region in Belgium)

Indicative quality characteristics for the PAMC metallurgical coal product are detailed in Table 16.2.

Table 16.2: Indicative Metallurgical Coal Quality

Parameter	Units	Value
Moisture	%, arb	6.3
Ash	%, db	7.8
Volatile matter	%, db	37.5
Sulfur	%, db	2.0-2.6

Due to its higher sulfur and high volatile matter contents, high fluidity, and a reflectance value less than 0.9%, PAMC's metallurgical coal product is ranked as a cross-over coking coal. This grade of metallurgical coal generally displays strong thermoplastic properties (e.g., fluidity), but its lower rank and higher sulfur content constrain its use in coking coal blends relative to premium coking coals. Despite its lower rank, PAMC has successfully marketed its metallurgical coal product to steel makers in South America (primarily Brazil), Asia, and Europe.

16.2 Primary Markets

A summary of PAMC's historical coal sales by product, market, and segment for 2020 through 2022 is provided in Table 16.3, below.

Table 16.3: PAMC Sales by Product and Market Segment (Tons 000)

	2020	2021	2022
Domestic			
Power Gen	11,324	12,333	13,218
Industrial	487	255	337
Subtotal	11,811	12,588	13,555
Export			
Power Gen	2,064	2,683	4,366
Industrial	3,722	7,204	4,693
Metallurgical	1,075	1,245	1,489
Subtotal	6,861	11,132	10,548
Total	18,672	23,720	24,104
	Percent of Total Sales		
Power Gen Coal	71.7	63.3	73.0
Metallurgical Coal	5.8	5.2	6.2
Industrial Coal	22.5	31.5	20.9
	100.0	100.0	100.0

Source: CONSOL

PAMC's primary focus is on growing sales into the export, industrial, and metallurgical segments while continuing to serve its key domestic customers.

16.2.1 Domestic Sales

A summary of PAMC thermal coal sales into the domestic market (i.e., US generating stations and industrial customers) during the period 2018 through year-to-date October 2022 (most recent as of the time of this report), as reported by the U.S. Energy Information Administration (EIA), is shown in Table 16.4 below:

Table 16.4: Summary of PAMC Historical Thermal Coal Deliveries by State (Tons 000)

	2018		2019		2020		2021		YTD October 2022		Total Deliveries 2018 - Oct 2022	
	Tons (000)	% of Total	Tons (000)	% of Total	Tons (000)	% of Total						
PA	6,882	35.0	6,699	36.6	4,032	31.2	4,028	31.0	3,668	33.3	25,309	25.1
NC	4,536	23.1	4,331	23.7	2,419	18.7	3,239	24.9	2,500	22.7	17,025	21.7
MD	3,261	16.6	1,791	9.8	680	5.3	1,260	9.7	713	6.5	7,705	14.8
MI	1,455	7.4	1,533	8.4	711	5.5	692	5.3	521	4.7	4,912	7.3
GA	765	3.9	918	5.0	506	3.9	893	6.9	592	5.4	3,674	5.4
SC	86	0.4	1,437	7.9	874	6.8	1,111	8.6	1,214	11.0	4,721	5.4
WV	781	4.0	404	2.2	618	4.8	996	7.7	1,117	10.2	3,917	4.7
VA	390	2.0	187	1.0	380	2.9	11	0.1	—	—	968	2.6
WI	78	0.4	358	2.0	529	4.1	469	3.6	453	4.1	1,888	2.2
NJ	345	1.8	348	1.9	428	3.3	288	2.2	143	1.3	1,551	1.8
OH	—	—	—	—	—	—	—	—	—	—	—	1.1
FL	—	—	—	—	—	—	—	—	—	—	—	0.9
IN	30	0.2	44	0.2	118	0.9	—	—	—	—	192	0.8
DE	24	0.1	71	0.4	—	—	—	—	84	0.8	179	0.7
KY	—	—	—	—	—	—	—	—	—	—	—	0.4
NH	—	—	—	—	—	—	—	—	—	—	—	0.2
NY	—	—	—	—	—	—	—	—	—	—	—	0.1
AL	—	—	—	—	—	—	—	—	—	—	—	0.0
Other	1,023	5.2	180	1.0	1,609	12.5	—	—	—	—	2,811	4.8
Total	19,654	100	18,300	100	12,904	100	12,987	100	11,005	100	74,850	100

Source: EIA Form 923.

According to EIA data, PAMC shipped thermal coal to 10 states from January through October 2022. From January 2018 through October 2022, PAMC customers in the top three sales states (Pennsylvania, North Carolina, and Maryland) were delivered over 50 million tons or 62% of the complex's total sales.

16.2.2 Export Sales

The PAMC also sells a significant amount of its coal outside the United States. The company's participation in the export market is influenced by several factors, including: prevailing international price indices, ocean freight tariffs, the status of the global supply/demand balance, and price premium and/or discounts that PAMC's products receive in the market because of the beneficial or detrimental qualities that its coal will afford its end users relative to benchmarks (i.e., the "value in use" proposition). The extent to which these factors influence PAMC's export sales will vary from year to year, by customer and region. PAMC's presence in the international thermal and metallurgical coal market has grown over the past five years, reflecting global demand for the products produced by PAMC, CONSOL's well-established international sales network, as well as developing trends/behaviors within the export market, including:

- As sales into the domestic thermal market have declined over the recent past (reflecting the United States' growing shift away from coal-fired generation towards other competing forms of generation), PAMC has steadily increased shipments into the international market. As developing economies expand their portfolio of thermal coal suppliers, utility and industrial customers in these regions are recognizing the value that high quality thermal coals—like the product produced by PAMC—provides to their operations.
- PAMC thermal coal competes with Illinois Basin coals in the European and Indian thermal markets. Due to its higher heating value, lower sulfur content, and transportation cost advantage, PAMC coal is highly competitive versus Illinois Basin products (which are exported through the US Gulf Coast) into these markets. Despite this advantage, PAMC can only profitably compete in certain international thermal coal markets so long as benchmark pricing³ supports the transaction.
- PAMC's metallurgical product is directed into the international market where steel producers commonly utilize high fluidity, low reflectance, and relatively high sulfur content metallurgical coal. Normally priced at a discount to higher rank US met coal products, PAMC met product is viewed as a low-cost blend material, routinely utilized by steel makers seeking to reduce their overall raw material expenditures (to the extent such moves are economically and technologically practical). PAMC's presence in the international met market has been enhanced by CONSOL's use of an internationally recognized third-party coal sales agent. Future sales into this sector are expected to range between 1.0 to 2.0 million tons annually.

PAMC's sales into the export market are advantaged by its access to the CONSOLMarine Terminal. The Terminal, located in the Port of Baltimore, features high-

³ In the case of shipments into Europe, the delivered price of PAMC coal (including the cost of the coal at the mine, rail, port, and ocean freight charges and high-sulfur pricing discounts) must be comparable to the API2 index price which reflects the cost-insurance-freight coal price to the port of Amsterdam-Rotterdam-Antwerp on a metric ton basis.

speed, high-capacity equipment that transloads coal from rail cars to ocean-going vessels. With an annual throughput capacity of approximately 15 million tons and on-site ground storage of approximately 1.1 million tons, the terminal is uniquely serviced by both the NS and CSX railroads. According to CONSOL, PAMC coal shipped through the Terminal has been directed to markets in Africa, Europe, North America, South America, and Asia.

16.3 Market Outlook

Coal use among domestic US power generators has reduced as competition from renewable forms of power generation has increased. In response to this development, CONSOL anticipates its domestic thermal markets will continue to erode over the mid- to long-term, in line with coal plant retirements and the associated drop in coal demand. Offsetting much of this decline is CONSOL's expectation of an expanded role for PAMC thermal coal in the international market. Additionally, CONSOL reasonably anticipates PAMC metallurgical coal will continue to find acceptance in the export market at levels slightly above current sales.

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17.0 PERMITTING AND COMPLIANCE

17.1 Permitting

Numerous permits are required by federal and state law for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits to support current operations are in place or pending approval. New permits or permit revisions may be necessary from time to time to facilitate future operations. Given sufficient time and planning, we believe CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Continuously increasing efforts are required to obtain permits for LW mining and related activities in Pennsylvania and West Virginia. The primary contributing factors are the effects of subsidence on overlying streams and the ability to permit refuse sites.

Please refer to Section 3.3 for additional information.

17.2 Compliance

CONSOL reports having an extensive environmental management system and compliance process.

In its 2021 corporate sustainability report, CONSOL reports:

- Over 99.9% environmental compliance with NPDES permit requirements.
- CONSOL Marine Terminal and Itmann each achieved a 100% environmental compliance record, with zero violations in 2021.
- The company announced its greenhouse gas emissions reduction targets, seeking to achieve a 50% reduction in scopes 1 and 2 emissions in a 5-year period (or by 2026), and net zero scope 1 and 2 emissions by 2040.

Based on our review of information provided by CONSOL, it is BOYD's opinion that CONSOL has a generally typical coal industry record of compliance with applicable mining, water quality, and environmental regulations. BOYD is not aware of any regulatory violation or compliance issue that would materially impact the coal reserve estimate.

17.3 Socio-Economic Impact

CONSOL's 2021 corporate sustainability report outlines the components of its core sustainability initiatives. It's stated financial priorities include continued support of local economic prosperity, regular stakeholder engagement, and creation of opportunities for the local communities.

BOYD is not aware of any community or stakeholder concerns, impacts, negotiations, or agreements which would materially impact the coal reserve estimate.

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18.0 CAPITAL AND OPERATING COSTS

18.1 Introduction

BOYD independently developed a discounted cash flow analysis to determine that in BOYD's opinion, extraction of the coal reserves of PAMC are economically viable. BOYD's calculations and determinations included in this chapter are based on what BOYD believes to be reasonable, appropriate, and relatively conservative investment and market assumptions and estimates, including all assumptions made about future prices and market conditions, production and sales volumes, operating costs, capital expenditures and other results and measures that are necessary and are used to determine the economic viability of the reported coal reserves.

BOYD's assumptions and estimates have been calculated and presented in this report solely for the purpose of confirming that future extraction of the coal reserves of PAMC are economically viable as required under S-K 1300. BOYD's estimates and assumptions underlying the discounted cash flow analysis and other calculations are based on future estimates of spot prices, PAMC historic performance from 1984 through December 31, 2022, BOYD's extensive knowledge of the Pittsburgh Seam, assumed future production at PAMC using multiple LWs as well as other assumptions and estimates detailed in this chapter. Actual future operating results and investment and market conditions may differ significantly from PAMC historic results or from the estimates of future investment and market conditions as well as from future PAMC performance assumed by BOYD in the discounted cash flow analysis as a result of various factors and risks, some of which may be outside of CONSOL's control. CONSOL, as with all coal mining companies, actively evaluates, changes, and modifies business and operating plans in response to various factors that may affect PAMC production, operations, and financial results. Actual PAMC future results, production levels, operating expenses, number of operating LWs and CMs, sales realizations, and all other modifying factors could vary significantly year to year from the assumptions and estimates used by BOYD in the calculations in this chapter.

In terms of the combination of productivity, cost, and production, CONSOL's PAMC complex is the preeminent underground coal operator within the Pittsburgh Seam. Comprised of three state-of-the-art underground LW mines, PAMC is among the largest underground sources of coal production in the United States. The complex's ability to consistently achieve high levels of annual output at generally low operating costs is attributed to its highly capitalized LW operations and financial controls.

The following section provides a review of recent historical operating costs and capital expenditures for the PAMC complex. A discussion of BOYD's outlook for the complex over the five-year period 2023 to 2027, including projected production and sales, operating costs, and capital expenditures, is also provided.

18.2 Historical Operating Costs

The following figure (Figure 18.1) presents PAMC's historical operating costs and average annual realizations for the period 2018 through 2022:

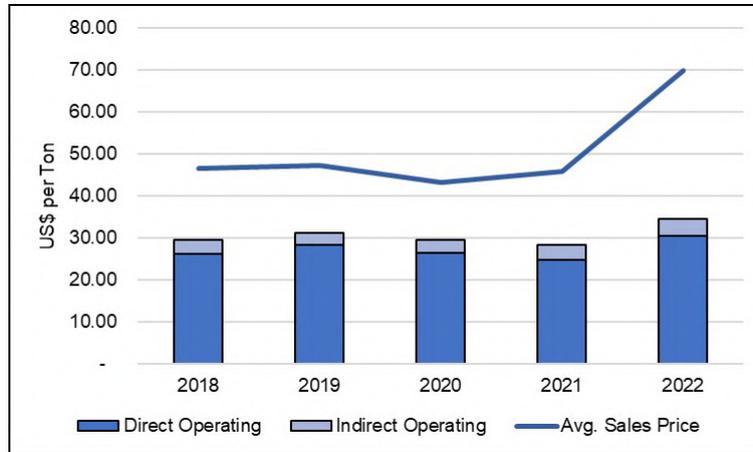


Figure 18.1
PAMC Historical Operating Costs and Sales Realizations (\$/Ton)
Note: Indirect Costs include SG&A, But excludes interest expense and DD&A.

Over the five-year period, the complex's average annual operating costs have ranged from \$28.00 to \$35.00 per ton. The increase in the 2022 average operating costs was more than offset by the increase in the average sales price in that year (to approximately \$70.00 per ton).

Cost performance for the individual mines is portrayed graphically in Figure 18.2.

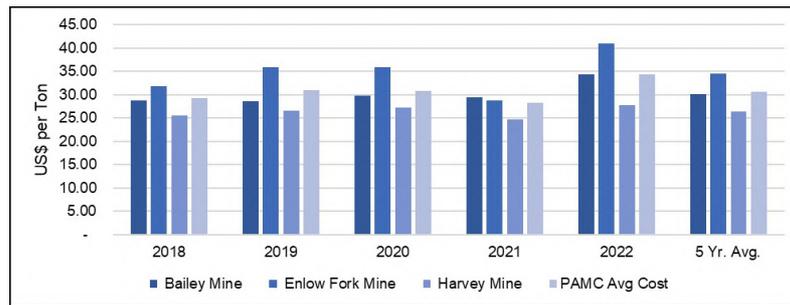


Figure 18.2
PAMC Historical Cash Operating Cost by Mine
(\$/Ton Sold)

Historically Bailey, Enlow Fork, and Harvey have had relatively low operating costs in comparison to other industry producers. Salient factors influencing the mines' recent performance include:

- Of the three PAMC underground LW mines, Harvey has demonstrated the lowest annual operating cost during the 2018 to 2022 time period. Unlike Bailey and Enlow Fork, which operate multiple LW faces, the Harvey Mine employs a single LW, thus limiting the mine's potential gains through economies of scale⁴. However, Harvey is the newest of the three PAMC LW mines. As a result, it supports less infrastructure and mine workings than Bailey and Enlow Fork, thus avoiding the costs associated with maintaining an expansive underground infrastructure.
- Enlow Fork's annual operating costs increased during the 2018 to 2022 period. The increase was attributable to added mine development and infrastructure associated with: (1) shorter than normal LW panels in the northern extent of the mine, and (2) the development of new LW panel districts in the eastern portion of the mine property.
- Bailey Mine annual cash operating costs during 2018 through 2022 ranged from \$28 to \$35 per ton, averaging approximately \$30/ton over the five-year period.

⁴ Economies of scale are of fundamental importance; a mine that has a productive year versus its budgeted plan can expect to have low unit costs while surpassing projected margins. Alternatively, a LW mine that achieves poor production levels would see a proportional reduction in revenue, but this would not be accompanied by a corresponding reduction in total costs. Such a mine would instead see high unit costs, and most of the revenue loss would flow through to the bottom line.

18.3 Historical Capital Expenditures

Relative to industry peers, the three PAMC underground LW mines and supporting centralized preparation facility are highly capitalized, state-of-the-art operations which have benefited from CONSOL's continual attention to capital upgrade/replacement programs and routine investment in mine infrastructure expansions, maintenance of production equipment, refuse placement, etc. A summary of the 2018 to 2022 historical capital expenditures for PAMC (including the three underground LW mines and Central CPP) is provided in Table 18.1.

Table 18.1: PAMC Historical Capital Expenditures (\$00)

2018	2019	2020	2021	2022
113,876	128,617	64,085	95,945	107,401

It is BOYD's experience that operations such as PAMC will have annual maintenance of production capital expenditures ranging between \$3.00 and \$5.00 per ton in any given year, with variations based on mine plan, mining conditions, rebuild and replacement schedules, equipment markets, etc. This is consistent with CONSOL historical performance and likely future capital requirements for continued operations.

18.4 Projected Five-Year Mine Plan

BOYD's projected five-year mine plan for the PAMC is based on engineered mine layouts⁵ which were designed for optimum reserve recovery, using efficient mining methods and practices⁶. Historical operating performance parameters and mining rates were applied to the mine plan to develop coal production and mining schedules. Financial budgets were then prepared (based on mine plan outputs and labor requirements), resulting in operating cost forecasts (based on constant 2022 dollars). The individual min

⁵ Mining plans for large LW mines are simple but relatively inflexible, as major modifications to these mine plans require significant foresight and planning well in advance of mining. The entire foundation of the mining plan is based upon economies of scale resulting from a defined mining plan with high levels of annual output through all projected areas. CONSOL's LW panels are large, typically measuring 1,300 ft to 1,600 ft in width and up to 15,000 ft in length, which equates to approximately 5 million product tons of coal per panel. This approach minimizes the percentage of high-cost CM output relative to low-cost LW coal.

⁶ LW mines are supported by CM units that develop the main, submain, and gate entries that provide underground roadways for transportation access, ventilation, and mine infrastructure. CM units contribute between 5% and 20% of total tonnage at a typical LW mine (with the LW being the primary production unit), but represent a significant portion of a mine's cost structure. CM development and associated construction and mine support activities must be performed in advance of the LW face in order to maintain annual levels of output. It is BOYD's opinion that CONSOL's approach to gate development and support activities, which are managed as an integrated portion of the overall mining cycle, are regarded as efficient and well organized.

ing plans recognize the impact of variations in physical mining conditions, mechanical failures, and operational activities that can temporarily disrupt production activities. BOYD believes the plans developed for PAMC are reasonable and achievable, provided no major abnormalities are encountered.

Forecasting performance based on the continuation of consistent mining conditions, excluding impacts from unforeseen events, increases the risk of underperformance versus the mine plan. BOYD's approach does not directly account for situations that can occur in underground coal mining, such as fire, water inundations, geological anomalies, etc. Risk mitigation is factored into the forecasted production schedule by projecting an operating level sustained by the use of multiple LW faces.

BOYD's mine plan assumes no major abnormalities are encountered within the coal market or at the individual mine level. The five-year forecasted operating and capital costs per saleable ton align with LW coal mines operating in the Pittsburgh Seam region. Subject to the guidelines outlined in Subpart 229 and Item 1302(d) of the S-K 1300, BOYD believes the extended LOM projection of operating and capital costs to be accurate to within $\pm 25\%$ of the operating and capital costs of other similarly capitalized LW mines operating in the Pittsburgh Seam. We did not assign a contingency budget to the extended LOM projection estimates.

18.4.1 Forecasted Production and Sales

The five-year financial projections reflect a slight reduction in sales tonnage from PAMC as coal prices begin to recover post COVID-19 pandemic. The forecast reflects a stable revenue stream, driven by BOYD's view that CONSOL's Pittsburgh Seam reserves and PAMC are in a strong competitive position to take advantage of improved coal pricing and demand. BOYD's projected saleable production and average realizations from coal sales from 2023 through 2027 for the PAMC are summarized in Table 18.2.

Table 18.2: Projected Saleable Production and Realization Estimates for PAMC

	Actual	Forecast	
	2022	2023	2024 - 2027
Annual Saleable Production (Million Tons)	24.1	24.7	24.9-26.2
Average Sales Price (\$/ton)	81.79	79.10	47.50-55.50

PAMC's future production over the five-year forecast period will remain well within the complex's previously achieved output levels and in line with current infrastructure capacities and capabilities.

18.4.2 Forecasted Operating Costs

BOYD anticipates PAMC will continue to operate at a stable operating cost level between 2023 and 2027. This is primarily reflects consistent performance from the operation's five LW faces, with production ranging from 25 to 26 million tons annually during this period. Operating costs per ton sold for the forecasted period of 2023 to 2027 are shown in Figure 18.3:

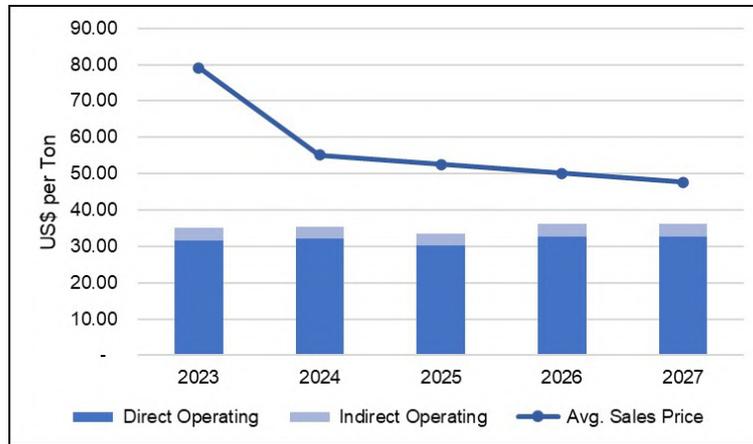


Figure 18.3
PAMC Project Operating Costs and Sales Price
Note: Indirect Costs include SG&A, But excludes interest expense and DD&A.

Projected unit cash costs for the Bailey Mine, Enlow Fork, and Harvey mines during the forecasted period of 2023 to 2027 are shown in Figure 18.4:

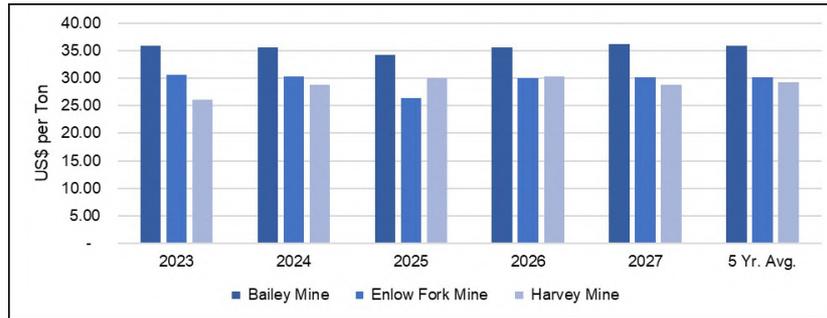


Figure 18.4
PAMC's Projected Cash Operating Costs

PAMC's average cash operating cost for the five-year forecast is expected to be consistent with its historical performance. In general, the projected operating costs within the PAMC five-year forecast align with the forecasted LOM plans.

18.4.3 Forecasted Capital Expenditures

BOYD projects PAMC will increase its level of capital expenditures over the 2023 to 2027 period, with spending focused on mine infrastructure expansion (air shafts, buildings, belt systems, etc.), maintenance of production equipment (new equipment purchases and/or rebuilds), and refuse area infrastructure. Capital expenditure appears to be logical and consistent with CONSOL's typical level of capitalization and maintaining of state-of-the-art LW and associated processing facilities.

In general, the projected capital expenditures within the five-year forecast agree with general engineering disciplines and industry norms and are reasonable for forecasting LOM capital requirements.

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19.0 ECONOMIC ANALYSIS

19.1 Introduction

BOYD independently developed a discounted cash flow analysis to determine in BOYD's opinion that extraction of the coal reserves of PAMC are economically viable. BOYD's calculations and determinations included in this chapter are based on what BOYD believes to be reasonable, appropriate, and relatively conservative investment and market assumptions and estimates, including all assumptions made about future prices and market conditions, production and sales volumes, operating costs, capital expenditures and other results and measures that are necessary and are used to determine the economic viability of the reported coal reserves.

BOYD's assumptions and estimates have been calculated and presented in this report solely for the purpose of confirming that future extraction of the coal reserves of PAMC are economically viable as required under S-K 1300. BOYD's estimates and assumptions underlying the discounted cash flow analysis and other calculations are based on future estimates of spot prices, PAMC historic performance from 1984 through December 31, 2022, BOYD's deep knowledge of the Pittsburgh Seam, assumed future production at PAMC using four LWs as well as other assumptions and estimates detailed in this chapter. Actual future operating results and investment and market conditions may differ significantly from PAMC historic results or from the estimates of future investment and market conditions as well as from future PAMC performance assumed by BOYD in the discounted cash flow analysis as a result of various factors and risks, some of which may be outside of CONSOL's control. CONSOL, as with all coal mining companies, actively evaluates, changes, and modifies business and operating plans in response to various factors that may affect PAMC production, operations, and financial results. Actual PAMC future results, production levels, operating expenses, number of operating LWs and CMs, sales realizations, and all other modifying factors could vary significantly year to year from the assumptions and estimates used by BOYD in the calculations in this chapter.

Results of our analysis for PAMC, which encompasses the economic contribution/impact of the Bailey, Enlow Fork, Harvey, and the Central CPP operations over the 42-year period (2023 to 2064), are discussed below.

19.1.1 Production Schedule

The production schedule to mine and process the remaining reserves is based on the existing production capacity of the PAMC mines and CPP. The following table summarizes the LOM production for the complex:

Table 19.1: Projected PAMC Saleable Production

Period	000 Tons
2023 - 2027	127,739
2028 - 2032	127,007
2033 - 2042	173,699
2043 - 2052	121,794
2053 - 2064	71,810
Total	622,049

BOYD has assumed that all necessary rights and approvals will be obtained in advance of mining. For the purposes of this analysis, BOYD assumed tons produced would be sold in that year (i.e., saleable production equates to total tons sold in the year). The production schedule and mine plan are described in more detail in Chapter 13 of this report.

19.1.2 Coal Pricing

The projected average price realized by PAMC for the LOM is shown in Table 19.2 below.

**Table 19.2: Projected
Average PAMC Sales Price**

Period	US\$ per Ton (Constant 2023)
2023 - 2027	56.70
2028 - 2032	54.90
2033 - 2042	55.90
2043 - 2052	56.70
2053 - 2064	56.80
Total	56.10

Prices for coal used in our analysis are based on the BOYD's internal price forecast for Pittsburgh Seam thermal coal meeting the PAMC quality specification for the period 2023 through 2027. Forecasted realizations are conservative compared to January 2023 market conditions. For purposes of this analysis, BOYD conservatively assumed 100% of the coal produced and sold would be directed into the thermal market; consequently,

additional revenue potential that would be realized through the sale of PAMC met coal into the higher value metallurgical markets were excluded. Prices shown are FOB Central CPP site in Pennsylvania. Pricing from 2028 forward is consistent with the average price over the 2023 through 2027 time-period.

19.1.3 Cash Production Costs

As described in Chapter 18, cash production costs include direct and indirect mining costs, including labor, material and supplies, processing, royalties and production taxes, insurance, and administrative costs. Administrative costs include sales and mine administration and corporate overhead allocations but exclude interest expense and DD&A. Total projected cash production costs are shown in Table 19.3 below.

Table 19.3: Projected PAMC Cash Operating Costs

Period	\$ (millions)	\$/Ton
2023 - 2027	4,504	35.30
2028 - 2032	4,675	36.80
2033 - 2042	6,109	35.20
2043 - 2052	4,152	34.10
2053 - 2064	2,698	37.60
Total	22,138	35.60

The operating costs for each operation are based on historical PAMC performance and BOYD's experience with LW mines operating in the Pittsburgh Seam. As noted in Chapter 18 of this report, BOYD reviewed the PAMC historical costs and found them to be reasonable.

19.1.4 Capital Expenditures

Capital expenditures are generally for sustaining capital, with spending focused on mine infrastructure expansion (air shafts, buildings, belt systems, etc.), maintenance of production equipment (new equipment purchases and/or rebuilds), and refuse area infrastructure. Total capital expenditures are shown in Table 19.4 below.

**Table 19.4: Projected
PAMC Capital Expenditures**

Period	\$ (millions)
2023 - 2027	660
2028 - 2032	685
2033 - 2042	930
2043 - 2052	671
2053 - 2064	383
Total	3,329

As noted in Section 18.4 of this report, actual capital expenditures from 2016 through 2022 were analyzed to determine an annual average requirement for the individual mines. The historic average or “run rate” is the basis of the long-range capital forecast for the PAMC.

19.2 Pre-Tax Net Present Value Analysis

Results of BOYD’s LOM economic analysis for PAMC, which reflects the DCF-NPV (pre-tax, discounted at 12% on a full year basis) over the life of the project, is shown in the following table. For reporting purposes, the cumulative DCF-NPV is shown for 15-year, 30-year, and LOM periods in Table 19.5:

**Table 19.5: PAMC Cumulative
NPV by Timeframe
(US\$ million)**

15-Year	30-Year	LOM
2,955	3,292	3,315

The primary assumptions which were utilized in the pre-tax NPV analysis are as follows:

- Recoverable Reserves – We utilized CONSOL’s recoverable reserves estimates for each mine after performing our analysis of the available geologic data. BOYD reviewed CONSOL’s mine plans for each PAMC entity, including the projected sequence of mining by areas designated for CM and LW extraction by year. Overall advance/extraction rates were reviewed and found to be consistent with historic Pittsburgh Seam performance. Mining units were sequenced through the recoverable areas of the reserves until mined out in their entirety. Bailey Mine depleted assigned reserves in 2039, Harvey Mine in 2064, and finally Enlow Fork depleted assigned reserves in 2060. BOYD’s projected mine production is conservative, but pragmatic, and aligned with industry standards for forecasting and actual recoveries of mine plans experienced by regional operators.
- Annual Mine Output –BOYD forecasted annual mine production based on the individual characteristics of each deposit, including: seam thickness, OSD amounts, overall size, optimum mine life, capabilities of mining equipment, expected coal quality, and our view of the potential markets and demand for PAMC’s coal products.
- Estimated cash flow and DCF-NPV analysis for PAMC is presented in Table 19.6. In addition to the assumed base coal pricing, BOYD also ran sensitivities with upside

(+10%) and downside (-10%) pricing scenarios. Table 19.6 provides a comparison of 15-year, 30-year, and LOM NPVs at different discount factors and pricing scenarios:

Table 19.6 NPV Sensitivity Analysis

Timeframe/ Scenario:	Pre-Tax DCF NPV (\$ million) by Discount Factor			
	10%	12%	15%	18%
15-Year				
Upside (+10%)	4,320	4,016	3,643	3,346
Base	3,168	2,956	2,696	2,489
Downside (-10%)	2,017	1,896	1,749	1,633
30-Year				
Upside (+10%)	4,960	4,466	3,913	3,512
Base	3,647	3,292	2,898	2,613
Downside (-10%)	2,336	2,120	1,884	1,716
LOM				
Upside (+10%)	5,018	4,498	3,926	3,518
Base	3,688	3,315	2,907	2,617
Downside (-10%)	2,360	2,134	1,889	1,718

- In both the upside and downside sensitivity cases, no adjustments were made by BOYD to the base operating scenario. While BOYD realizes that CONSOL would likely execute short-term fluctuations in production levels in order to minimize the impact of a period of low coal pricing and/or maximize the opportunity of high coal pricing, we deemed it likely immaterial in the assessment of economic mineability of reserves over LOM plans extending to 2064.
- Operating Costs –BOYD was provided with historical cash operating costs for the PAMC entities for years 2017 to 2022. BOYD utilized the historical actuals as the basis to develop line-by-line projections of cash operating costs at each mine and facility. We considered fixed and variable components within the overall mine plans, historical costs experienced, and operating cost structures of regional mine operators when making these estimates. The primary unit costs included: hourly and salary labor and benefits, mine operating supplies, and equipment maintenance costs.
- Capital Expenditures – BOYD considers the near-term detailed capital expenditure schedule as presented by CONSOL to be reasonable and representative of the capital necessary to operate the individual PAMC operations. The majority of expenditures are associated with infrastructure expansion (air shafts, buildings, belt systems, etc.), maintenance of production equipment (new equipment purchases and/or rebuilds), and refuse area infrastructure. CONSOL did not provide long-term projections of sustaining or maintenance of production capital corresponding to the LOM plans. To more accurately portray capital expenditures incurred to sustain long-term production, BOYD made assumptions for airshaft capital expenditure timing corresponding to the LOM plan. Additionally, BOYD made assumptions of annual

capital expenditures consistent with historical and near-term forecasted capital expenditures ranging between \$2.50 and \$3.00 per ROM ton for PAMC to account for sustaining capital.

- Coal Processing – PAMC has historically processed all of its output through the Central CPP and is forecasting all future output to be processed through the preparation facility as well. The processing facility is of substantial operating capacity to achieve the projected throughputs of the forecasted PAMC LOM plans. As the Bailey Mine reserves are depleted, there will be a diminished requirement for throughput capacity. Within the operating cost forecast for the Central CPP, as throughput requirements diminished, BOYD made corresponding assumptions regarding reductions in employment levels, as well as reductions in plant capacities (removal/closure or diminished maintenance of applicable processing circuits). We consider these assumptions to be reasonable and to align with general engineering principles and industry standards.
- Refuse Disposal – As previously discussed, the current refuse disposal plan provided by CONSOL outlined adequate staging of fine coal refuse and coarse coal refuse through 2035. In discussions with CONSOL, PAMC plans to continue their historic process of acquiring and permitting adjacent properties for refuse facility expansion. While the refuse disposal plan is not to a complete, detailed level for LOM planning purposes, BOYD views it as being to an adequate level of detail for purposes of this indicative economic analysis. In order to project operating and capital expenditures associated with future refuse disposal, BOYD utilized the historic and detailed five-year forecast data as a base average which then fluctuates with projected refuse volumes.
- Revenue for the washed thermal product is based on BOYD's five-year forward outlook which was extrapolated for the remainder of the LOM plan. Additional costs beyond the preparation plant for transportation, loading, and unloading at railroads, river terminals, and/or ocean terminals are assumed to be incurred by the customer (or added as a pass-through to FOB, mine prices).
- BOYD has applied a portion of the estimated closure costs for the underground mines within the LOM forecast period as mine reserves are depleted. While we acknowledge that most often these costs are accrued over the life of a mine/project, we have shown a portion of estimated mine closure costs as a lump sum operating cost during the last year of the project during the cash flow periods when mineable reserves have been exhausted. We deem this as a conservative approach to enhance the likelihood that adequate funds for mine site closure and reclamation have been accounted for in the economic reserve analysis.

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20.0 ADJACENT PROPERTIES

As illustrated in Figures 1.1 and 3.1, the PAMC is surrounded by several adverse and CONSOL-controlled mining properties. As shown, the Pittsburgh coal seam has been extensively mined within and surrounding the PAMC. CONSOL's mine plans include sufficient barrier zones to mitigate any risk associated with current and prior mining activities on the adjacent properties.

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21.0 OTHER RELEVANT DATA AND INFORMATION

BOYD is not aware of any additional information which would materially impact the coal reserve estimates reported herein.

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22.0 INTERPRETATION AND CONCLUSIONS

22.1 Audit Findings

BOYD's independent technical audit conducted in accordance with S-K 1300 concludes:

- Sufficient data have been obtained through various exploration and sampling programs and mining operations to support the geological interpretations of seam structure, thickness, and quality for the portions of the Pittsburgh Seam situated within the bounds of the PAMC. The data are of sufficient quantity and reliability to reasonably support the coal resource and coal reserve estimates in this technical report summary.
- Estimates of coal reserves reported herein are reasonably and appropriately supported by technical studies, which consider mining plans, revenue, and operating and capital cost estimates.
- The 622.1 million tons of underground coal reserves identified on the property (reported as of December 31, 2022) are economically mineable under reasonable expectations of market prices for thermal and metallurgical coal products, estimated operation costs, and capital expenditures.
- There is no other relevant data or information material to the PAMC that is necessary to make this technical report summary not misleading.

22.2 Significant Risks and Uncertainties

As a mining operation with a lengthy operating history, the purpose of CONSOL's periodic mine planning exercises is to collect and analyze sufficient data to reduce or eliminate risk in the technical components of the project and to refine economic projections based on current data. There is a high degree of certainty for this project under the current and foreseeable operating environment. A general assessment of risk is presented in the relevant sections of this report.

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23.0 RECOMMENDATIONS

BOYD makes no recommendations regarding the PAMC as it is fully operational.

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24.0 REFERENCES

There are no citations in this technical report summary. Therefore, there are no references to list.

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JOHN T. BOYD COMPANY

25.0 RELIANCE ON INFORMATION PROVIDED BY REGISTRANT

In the preparation of this report, BOYD has relied, without independent verification, upon information furnished by CONSOL with respect to: property interests; exploration results; current and historical production from such properties; current and historical costs of operation and production; and agreements relating to current and future operations and sale of production.

BOYD exercised due care in reviewing the information provided by CONSOL within the scope of our expertise and experience (which is in technical and financial mining issues) and concluded the data are valid and appropriate considering the status of the subject properties and the purpose for which this report was prepared. BOYD is not qualified to provide findings of a legal or accounting nature. We have no reason to believe that any material facts have been withheld, or that further analysis may reveal additional material information. However, the accuracy of the results and conclusions of this report are reliant on the accuracy of the information provided by CONSOL.

While we are not responsible for any material omissions in the information provided for use in this report, we do not disclaim responsibility for the disclosure of information contained herein which is within the realm of our expertise.

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TECHNICAL REPORT SUMMARY
COAL RESOURCES AND COAL RESERVES
ITMANN MINING COMPLEX
Wyoming and McDowell Counties, West Virginia

Prepared For
CONSOL ENERGY INC.
Canonsburg, Pennsylvania

By
John T. Boyd Company
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Report No. 2755.092
FEBRUARY 2023



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February 2, 2023
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Attention: Mr. Michael Bohan
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Subject: Technical Report Summary
Coal Resources and Coal Reserves
Itmann Mining Complex
Wyoming and McDowell Counties, West Virginia

Ladies and Gentlemen:

The John T. Boyd Company (BOYD) was retained by CONSOL Energy Inc. (CONSOL) to complete an independent technical assessment of the coal resource and reserve estimates for the Itmann Mining Complex (IMC) as of December 31, 2022.

This technical report summary: 1) identifies and summarizes the scientific and technical information supporting the coal reserve and resource estimates for the IMC and 2) provides BOYD's conclusions resulting from our independent assessment.

Respectfully submitted,

JOHN T. BOYD COMPANY
By:

John T. Boyd II
President and CEO

TABLE OF CONTENTS

Page

LETTER OF TRANSMITTAL

TABLE OF CONTENTS

DISCLAIMERS AND QUALIFICATIONS

GLOSSARY AND ABBREVIATIONS

1.0	EXECUTIVE SUMMARY	1-1
1.1	Introduction	1-1
1.2	Property Description	1-1
1.3	Geology	1-3
1.4	Exploration	1-3
1.5	Coal Reserves	1-4
1.6	Operations	1-4
	1.6.1 Mining	1-4
	1.6.2 Processing	1-5
	1.6.3 Other Infrastructure	1-5
1.7	Financial Analysis	1-5
	1.7.1 Capital and Operating Cost Estimates	1-5
	1.7.2 Economic Analysis	1-7
1.8	Permitting Requirements	1-8
1.9	Conclusions	1-8
2.0	INTRODUCTION	2-1
2.1	Registrant and Purpose	2-1
2.2	Terms of Reference	2-1
2.3	Expert Qualifications	2-2
2.4	Principal Sources of Information	2-3
2.5	Personal Inspections	2-3
2.6	Report Version	2-3
2.7	Units of Measure	2-4
3.0	PROPERTY DESCRIPTION	3-1
3.1	Property Location	3-1
3.2	Property Control	3-2
	3.2.1 Coal Ownership	3-6
	3.2.2 Surface Ownership	3-6
3.3	Regulation and Liabilities	3-7

	<u>Page</u>	
4.0	PHYSIOGRAPHY, ACCESSIBILITY, AND INFRASTRUCTURE	4-1
4.1	Topography, Elevation, and Vegetation	4-1
4.2	Accessibility	4-1
4.3	Climate	4-1
4.4	Infrastructure Availability and Sources	4-2
5.0	HISTORY	5-1
5.1	Background	5-1
6.0	GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT	6-1
6.1	Regional Geology	6-1
6.2	Local Stratigraphy	6-1
6.2.1	Pocahontas Formation	6-2
6.2.2	New River Formation	6-2
6.3	Coal Seam Geology	6-4
6.3.1	Lithology	6-4
6.3.2	Structure	6-9
6.3.3	Coal Quality	6-10
7.0	EXPLORATION DATA	7-1
7.1	Background	7-1
7.2	Procedures	7-2
7.2.1	Drilling	7-2
7.2.2	Coal Quality Sampling	7-3
7.2.3	Coal Washability Testing	7-5
7.2.4	Other Exploration Methods	7-5
7.3	Results	7-6
7.3.1	Summary of Exploration	7-6
7.3.2	Adequacy of Exploration	7-10
7.4	Data Verification	7-10
8.0	SAMPLE PREPARATION, ANALYSIS, AND SECURITY	8-1
9.0	DATA VERIFICATION	9-1
10.0	MINERAL PROCESSING AND METALLURGICAL TESTING	10-1
11.0	COAL RESOURCE ESTIMATE	11-1
11.1	Applicable Standards and Definitions	11-1
11.2	Coal Resources	11-1
11.2.1	Methodology	11-1

	<u>Page</u>	
11.2.2	Criteria	11-2
11.2.3	Classification	11-3
11.2.4	Coal Resource Estimate	11-3
11.2.5	Validation	11-3
12.0	COAL RESERVES ESTIMATE	12-1
12.1	Applicable Standards and Definitions	12-1
12.2	Coal Reserves	12-2
12.2.1	Methodology	12-2
12.2.2	Parameters and Assumptions	12-2
12.2.3	Classification	12-3
12.2.4	Coal Reserve Estimate	12-3
12.2.5	Reconciliation with Previous Estimates	12-19
13.0	MINING OPERATIONS	13-1
13.1	Mining Method Description	13-1
13.2	Mine Equipment and Staffing	13-4
13.2.1	Mine Equipment	13-4
13.2.2	Staffing	13-5
13.3	Mine Production	13-5
13.3.1	Historical Mine Production	13-5
13.3.2	Forecasted Production	13-5
13.3.3	Mining Recovery and Dilution Factors	13-6
13.3.4	Expected Mine Life	13-6
13.4	Other Mining Considerations	13-7
13.4.1	Mine Design	13-7
13.4.2	Mining Risk	13-8
14.0	PROCESSING OPERATIONS	14-1
14.1	Overview	14-1
14.2	Plant Description	14-1
14.3	Itmann No. 5 Refuse Facility	14-6
14.4	Historical Operation	14-6
14.5	Future Operations	14-6
14.6	Conclusions	14-6
15.0	MINE INFRASTRUCTURE	15-1
15.1	Mine Surface Facilities	15-1
16.0	MARKET STUDIES	16-1
16.1	Product Specifications	16-1

	<u>Page</u>	
16.2	Coal Transportation Options	16-2
16.3	Primary Markets	16-2
16.4	Future Sales	16-4
17.0	PERMITTING AND COMPLIANCE	17-1
17.1	Permitting	17-1
17.2	Compliance	17-1
17.3	Socio-Economic Impact	17-2
18.0	CAPITAL AND OPERATING COSTS	18-1
18.1	Introduction	18-1
18.2	Historical Operating Cost	18-2
18.3	Historical Capital Expenditures	18-2
18.4	Projected Five-Year Mine Plan	18-2
	18.4.1 Forecasted Production and Sales	18-3
	18.4.2 Forecasted Operating Costs	18-3
	18.4.3 Forecasted Capital Expenditures	18-4
19.0	ECONOMIC ANALYSIS	19-1
19.1	Introduction	19-1
	19.1.1 Production Schedule	19-2
	19.1.2 Coal Pricing	19-2
	19.1.3. Cash Production Costs	19-3
	19.1.4 Capital Expenditures	19-3
19.2.	Pre-Tax Net Present Value Analysis	19-4
20.0	ADJACENT PROPERTIES	20-1
21.0	OTHER RELEVANT DATA AND INFORMATION	21-1
22.0	INTERPRETATION AND CONCLUSIONS	22-1
22.1	Audit Findings	22-1
22.2	Significant Risks and Uncertainties	22-1
23.0	RECOMMENDATIONS	23-1
24.0	REFERENCES	24-1
25.0	RELIANCE ON INFORMATION PROVIDED BY REGISTRANT	25-1

List of Tables

1.1	Coal Reserves Summary	1-4
3.1	Summary of Coal Ownership	3-6
4.1	Monthly Average Climate Data, Beckley, West Virginia	4-2
7.1	Descriptive Statistics, Pocahontas No. 3 Seam Interval Thickness and Coal Qualities	7-6
7.2	Descriptive Statistics, Pocahontas No. 3 Seam Metallurgical Coal Properties	7-8
7.3	Descriptive Statistics, Pocahontas No. 4 Seam Interval Thickness and Coal Qualities	7-8
7.4	Pocahontas No. 4 Seam Metallurgical Coal Properties	7-8
7.5	Descriptive Statistics, Sewell, Seam Interval Thickness and Coal Qualities	7-10
11.1	Coal Resource Classification Criteria	11-2
12.1	Estimated Coal Reserves as of 31 December 2021	12-2
12.2	Coal Reserves Summary	12-11
12.3	Coal Reserves Product Quality Summary	12-12
13.1	Summary of Production Unit Equipment	13-4
13.2	Historical Production Data Itmann No. 5 Mine	13-5
16.1	Indicative Metallurgical Coal Quality	16-1
16.2	Ideal US Metallurgical Coal Quality Characteristics	16-3
18.1	Historical Capital Expenditures	18-2
18.2	Projected Saleable Production	18-3
19.1	Projected Saleable Production	19-2
19.2	Average Sales Price	19-2
19.3	Projected Cash Operating Costs	19-3
19.4	Projected Capital Expenditures	19-3
19.5	Cumulative NPV by Timeframe	19-4
19.6	NPV Sensitivity Analysis	19-5

List of Figures

1.1	General Location Map	1-2
1.2	Projected Capital Expenditures	1-6
1.3	Projected Cash Operating Costs	1-7
3.1	Map Showing General Layout and Mineral Control Pocahontas No. 3 Seam Itmann No. 5 Mine	3-3
3.2	Map Showing General Layout and Mineral Control Pocahontas No. 4 Seam Itmann No. 5 Mine	3-4
3.3	Map Showing General Layout and Mineral Control Sewell Seam Tug Fork Mine	3-5
6.1	Generalized Stratigraphic Chart, Southern West Virginia	6-2
6.2	Generalized Stratigraphic Section	6-3
6.3	Map Showing Pocahontas No. 3 Seam Isopachs	6-5
6.4	Map Showing Pocahontas No. 4 Seam Isopachs	6-7
6.5	Map Showing Pocahontas Sewell Seam Isopachs	6-8
7.1	Map Showing Drill Hole Locations for Itmann No. 5 Mine (Pocahontas No. 3 Seam)	7-7
7.2	Map Showing Drill Hole Locations for Itmann No. 5 Mine (Pocahontas No. 4 Seam)	7-9
7.3	Map Showing Drill Hole Locations for Tug Fork Mine (Sewell Seam)	7-11
12.1	Relationship Between Coal Resources and Coal Reserves	7-2
12.2	Map Showing Product Yield Isopleths, Pocahontas No. 3 Seam	12-4
12.3	Map Showing Product Yield Isopleths, Pocahontas No. 4 Seam	12-5
12.4	Map Showing Product Yield Isopleths, Sewell Seam	12-6
12.5	Map Showing Reserve Classification, Pocahontas No. 3 Seam	12-7
12.6	Map Showing Reserve Classification, Pocahontas No. 4 Seam	12-8
12.7	Map Showing Reserve Classification, Sewell Seam	12-9
12.8	Map Showing Product Ash Isopleths, Pocahontas No. 3 Seam	12-13
12.9	Map Showing Product Ash Isopleths, Pocahontas No. 4 Seam	12-14
12.10	Map Showing Product Ash Isopleths, Sewell Seam	12-15
12.11	Map Showing Product Sulfur Isopleths, Pocahontas No. 3 Seam	12-16
12.12	Map Showing Product Sulfur Isopleths, Pocahontas No. 4 Seam	12-17
12.13	Map Showing Product Sulfur Isopleths, Sewell Seam	12-18
12.14	Reconciliation with Previous Coal Reserves Estimate	12-19
14.1	Map Showing IMC Coal Preparation Plant and Site Plan Layout	14-3
14.2	Coal Processing Flowsheet, Itmann Coal Preparation Plant	14-4
14.3	Topographic Map Showing Existing and Future Permit Areas	14-5
18.1	Projected Cash Costs and Sales Pricing	18-3
18.2	Projected Capital Expenditures	18-5

DISCLAIMERS AND QUALIFICATIONS

This report is intended for use by CONSOL subject to the terms and conditions of its professional services agreement with BOYD. The agreement permits CONSOL to file this report as a technical report summary with the U.S. Securities and Exchange Commission (SEC) pursuant to Subpart 1300 and Item 601(b) (96) of Regulation S-K. Except for the purposes legislated under US securities law, any other uses of or reliance on this report by any third party is at that party's sole risk. The responsibility for this disclosure remains with CONSOL. The user of this document should ensure that this is the most recent disclosure of coal resources and coal reserves for the subject property as it is no longer valid if more recent estimates have been issued.

This report provides BOYD's assessment of CONSOL's coal resources and coal reserves. Our assessment was performed to obtain reasonable assurance that CONSOL's estimates of coal reserves and coal resources are free from material misstatement. We did not independently estimate coal resources or coal reserves as it was not required for the purposes of the assessment. The Economic Analysis and resulting NPV estimate in this report were made for the purposes of confirming the economic viability of the reported coal reserves and not for the purposes of valuing CONSOL or its assets. Internal Rate of Return (IRR) and project payback were not calculated, as there was no initial investment considered in the financial model.

The ability of CONSOL to recover all of the reported coal reserves is dependent on numerous factors that are beyond the control of, and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future coal prices, etc. Unforeseen changes in regulations could also impact performance. Opinions presented in this report apply to the site conditions and features as they existed at the time of BOYD's investigations and those reasonably foreseeable.

Cautionary Statements Regarding Forward-Looking Statements

Certain statements in this technical report summary are "forward-looking statements" within the meaning of the federal securities laws. Except for historical matters, the matters discussed in this technical report summary are forward-looking statements (as defined in Section 21E of the Securities Exchange Act of 1934, as amended) that involve risks and uncertainties that could cause actual results to differ materially from results projected in or implied by such forward-looking statements. Accordingly, investors should

not place undue reliance on forward-looking statements as a prediction of actual results. The forward-looking statements may include projections and estimates concerning the timing and success of specific projects and CONSOL's future production, revenues, income and capital spending. When the words "anticipate," "believe," "could," "continue," "estimate," "expect," "intend," "may," "plan," "predict," "project," "should," "will," or their negatives, or other similar expressions are used in this technical report summary, the statements which include those words are usually forward-looking statements. Any statements about expectations with respect to the Itmann Mining Complex or any other strategy that involves risks or uncertainties are forward-looking statements. These forward-looking statements are based on current expectations and assumptions about future events. While BOYD considers these expectations and assumptions to be reasonable, they are inherently subject to significant business, economic, competitive, regulatory, and other risks, contingencies, and uncertainties, most of which are difficult to predict and many of which are beyond BOYD's control. The forward-looking statements in this technical report summary speak only as of the date of this technical report summary and BOYD disclaims any intention or obligation to update publicly any forward-looking statements in this technical report summary, whether in response to new information, future events, or otherwise, except as required by applicable law.

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GLOSSARY OF ABBREVIATIONS AND DEFINITIONS

\$:	US dollar(s)
%	:	Percent or percentage
As-Received Basis	:	Data or results are calculated to the moisture condition of the coal sample when it arrived at the testing facility.
ASTM	:	ASTM International (formerly American Society for Testing and Materials)
BOYD	:	John T. Boyd Company
Btu	:	British thermal unit. A unit of heat; it is defined as the amount of heat required to raise the temperature of one pound of water by one degree Fahrenheit.
CAPP	:	Central Appalachian Basin. Coal producing region consisting of Eastern Kentucky, Virginia, Southern West Virginia, and the Tennessee counties of: Anderson, Campbell, Claiborne, Cumberland, Fentress, Morgan, Overton, Pickett, Putnam, Roane, and Scott.
CM	:	Continuous Miner
CPP	:	Coal Preparation Plant
Coal	:	Combustible sedimentary rock in which organic matter, including residual moisture comprises more than 50% by weight and more than 70% by volume of carbonaceous material formed from altered plant remains.
Coal Reserve	:	An estimate of tonnage and grade or quality of indicated and measured coal resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated coal resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Coal Resource	:	A concentration or occurrence of coal of economic interest in or on the Earth's crust in such form, quality, and quantity that there are reasonable prospects for economic extraction. A coal resource is a reasonable estimate of mineralization, considering relevant factors such as cut-off grade, likely mining dimensions, location, or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
CONSOL	:	CONSOL Energy Inc. and its subsidiaries
CSR	:	Coke strength after reaction
CY	:	Cubic yards
DCF	:	Discounted Cash Flow
Dry Basis	:	Data or results are calculated to a theoretical base as if there were no moisture in the coal sample.
EIA	:	U.S. Energy Information Administration
FOB	:	Free-on-Board
FSI	:	Free Swelling Index
IMC	:	Itmann Mining Complex. Includes the Itmann No. 5 Mine, the Tug Fork Mine, and the Itmann Coal Preparation Plant
Indicated Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on adequate geological evidence and sampling. The level of geological certainty associated with an indicated coal resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated coal resource has a lower level of confidence than the level of confidence of a measured coal resource, an indicated coal resource may only be converted to a probable coal reserve.

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Inferred Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on limited geological evidence and sampling. The level of geological uncertainty associated with an inferred coal resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred coal resource has the lowest level of geological confidence of all coal resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred coal resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a coal reserve.
IRR	:	Internal rate-of-return
ISO	:	International Organization for Standardization
lb	:	Pound
LOM	:	Life-of-Mine
LW	:	Longwall
Measured Coal Resource	:	That part of a coal resource for which quantity and quality are estimated based on conclusive geological evidence and sampling. The level of geological certainty associated with a measured coal resource is sufficient to allow a qualified person to apply modifying factors, as defined herein, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured coal resource has a higher level of confidence than the level of confidence of either an indicated coal resource or an inferred coal resource, a measured coal resource may be converted to a proven coal reserve or to a probable coal reserve
Mineral Reserve	:	See <i>"Coal Reserve"</i>
Mineral Resource	:	See <i>"Coal Resource"</i>
MM	:	Million

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

Modifying Factors		The factors that a qualified person must apply to indicated and measured coal resources and then evaluate to establish the economic viability of coal reserves. A qualified person must apply and evaluate modifying factors to convert measured and indicated coal resources to proven and probable coal reserves. These factors include, but are not restricted to: mining; processing; metallurgical; infrastructure; economic; marketing; legal; environmental compliance; plans, negotiations, or agreements with local individuals or groups; and governmental factors. The number, type and specific characteristics of the modifying factors applied will necessarily be a function of and depend upon the mineral, mine, property, or project.
MOP	:	Maintenance of Production
MSHA	:	Mine Safety and Health Administration. A division of the U.S. Department of Labor
NAPP	:	Northern Appalachian Basin. Coal producing region consisting of Maryland, Ohio, Pennsylvania, and Northern West Virginia
NAR	:	Net As Received
NS	:	Norfolk Southern Corporation. A rail-based freight transportation company.
NPV	:	Net Present Value
OSD	:	Out-of-Seam Dilution. Rock impurities recovered from above and below the coal seam with the coal seam during the normal mining process
P3	:	Pocahontas No. 3 Seam
P4		Pocahontas No. 4 Seam
P6	:	Pocahontas No. 6 Seam
Probable Coal Reserve	:	The economically mineable part of an indicated and, in some cases, a measured coal resource.
Production Stage Property	:	A property with material extraction of coal reserves.
Proven Coal Reserve	:	The economically mineable part of a measured coal resource which can only result from conversion of a measured coal resource.

GLOSSARY OF ABBREVIATIONS AND DEFINITIONS - Continued

QP	:	Qualified Person
Qualified Person	:	An individual who is: <ol style="list-style-type: none"> 1. A mineral industry professional with at least five years of relevant experience in the type of mineralization and type of deposit under consideration and in the specific type of activity that person is undertaking on behalf of the registrant; and 2. An eligible member or licensee in good standing of a recognized professional organization at the time the technical report is prepared. For an organization to be a recognized professional organization, it must: <ol style="list-style-type: none"> a. Be either: <ol style="list-style-type: none"> i. An organization recognized within the mining industry as a reputable professional association; or ii. A board authorized by U.S. federal, state, or foreign statute to regulate professionals in the mining, geoscience, or related field; b. Admit eligible members primarily based on their academic qualifications and experience; c. Establish and require compliance with professional standards of competence and ethics; d. Require or encourage continuing professional development; e. Have and apply disciplinary powers, including the power to suspend or expel a member regardless of where the member practices or resides; and f. Provide a public list of members in good standing.
ROM	:	Run-of-Mine. The as-mined material including coal, in-seam rock partings mined with the coal, and out-of-seam dilution.
SC	:	Shuttle Car
SGF	:	Specific gravity float
SEC	:	U.S. Securities and Exchange Commission
S-K 1300	:	Subpart 1300 and Item 601(b)(96) of the U.S. Securities and Exchange Commission's Regulation S-K
Ton	:	Short Ton. A unit of weight equal to 2,000 pounds
TPH	:	Tons per Hour
TPEH	:	Tons per Employee-Hour

1.0 EXECUTIVE SUMMARY

1.1 Introduction

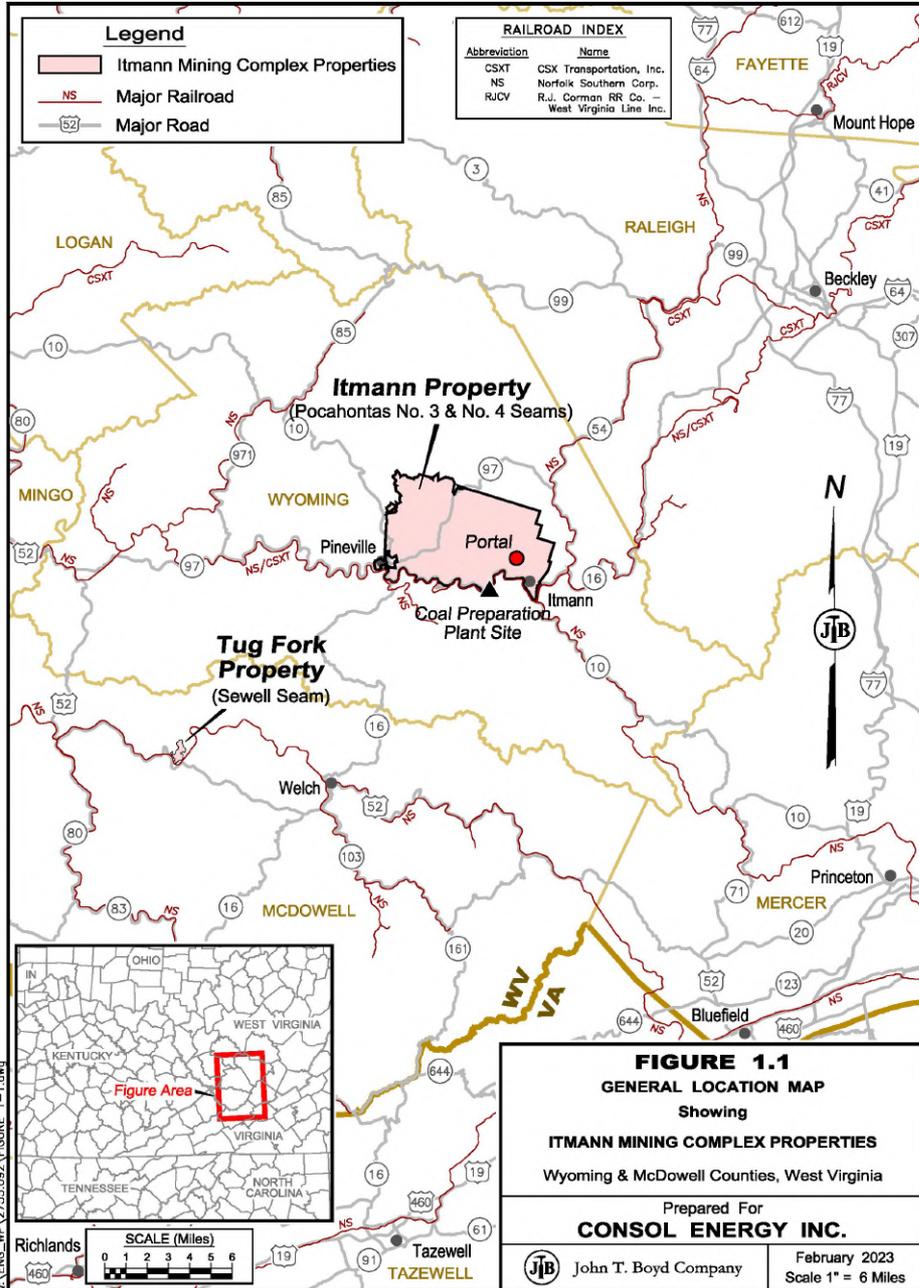
CONSOL's IMC includes the active Itmann No. 5 Mine underground mine which currently operates in the Pocahontas No. 3 (P3) Seam. Additionally, IMC operations will be supplemented in the near future by Pocahontas No. 4 (P4) Seam production from the Itmann No. 5 Mine as well as Sewell Seam production from the proposed Tug Fork Mine. Coal produced by IMC is processed at the newly constructed Itmann Coal Preparation Plant (CPP). BOYD was retained by CONSOL to complete an independent technical assessment of coal resource and reserve estimates for the IMC. BOYD's findings as a result of the audit of the IMC's coal resource and reserve estimates are based on our detailed examination of the supporting geologic, technical, and economic information obtained from: (1) CONSOL files, (2) discussions with CONSOL personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files.

This technical report identifies and summarizes the results of our audit of the IMC coal reserves and independent assessment of the economic viability of the reported coal reserves over the remaining life of the operation and satisfies the requirements for CONSOL's disclosure of coal reserves set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K (S-K 1300). This is the second technical report summary for the IMC. BOYD is a qualified person as defined in S-K 1300.

Weights and measurements are expressed in US customary units. Unless noted, the effective date of the information, including estimates of coal reserves, is December 31, 2022.

1.2 Property Description

The IMC is an active underground coal mining and processing operation located in Wyoming and McDowell Counties, West Virginia. The IMC comprises two properties: (1) 20,244 owned or leased acres known as the Itmann Property, and (2) 271 leased acres known as the Tug Fork Property. Figure 1.1, following this page, shows the locations of the two properties.



CONSOL's Itmann No. 5 Mine and the Itmann CPP are located on the Itmann Property. The Itmann No. 5 Mine currently produces from the P3 Seam and plans to mine coal from the overlying P4 Seam in the near future. Extensive mining of the P3 Seam has been conducted to both the south and the east of the Itmann No. 5 Mine, both within and outside of the Itmann Property. The P4 Seam has also been mined in the region; however, to a much lesser extent than the P3 Seam.

The first Itmann mine was opened in 1916 by the Pocahontas Fuel Company. During the 1970s, the Itmann mine complex was CONSOL's largest operation in the Central Appalachian Basin (CAPP); however, operations were ceased in 1986 due to increasing mining costs and decreasing metallurgical coal prices. Development of the new Itmann No. 5 Mine started in May 2019; the operation achieved commercial operating status in late 2022. .

In 2022, CONSOL acquired the coal mining rights (by lease) to the Sewell coal seam located within the Tug Fork Property.

1.3 Geology

The IMC is situated in the Allegheny Plateau of the CAPP coal fields region. Near-surface geology of this area primarily consists of Pennsylvanian coal-bearing strata. Coal seams mined in this region are generally classified as low-to-high-volatile bituminous in rank, characterized by low-to-medium sulfur content and high heating value.

Presently, there are three seams of economic interest at the IMC—the P3 and P4 seams on the Itmann Property, and the Sewell Seam on the Tug Fork Property. All three seams are generally characterized as being: (1) greater than 34-in. thick, (2) free of significant waste partings, (3) flat or shallow dipping, and (4) relatively unaffected by faulting or folding. As such, the coal seams are considered to be of low geologic complexity.

The washed Itmann coal product is characterized as a high-rank, low-volatile bituminous, low-ash, low-sulfur coal exhibiting premium coking qualities.

1.4 Exploration

In the region of the IMC, the subject coal seams have been extensively explored and mined dating back to the 1880s. CONSOL provided lithologic and coal quality data collected from numerous drill holes completed in and around the subject properties. BOYD's review of the provided exploration data indicates that in general: (1) extensive

drilling and sampling work has been performed on the subject properties, (2) we believe the work completed has been done by competent personnel, and (3) the amount of data available combined with wide-spread knowledge of the subject coal seams, is sufficient to confirm the thickness, lateral extents, and quality characteristics of said coal seams within the IMC reserve areas.

1.5 Coal Reserves

CONSOL's estimated underground mineable coal reserves for the IMC total 28.7 million recoverable (clean) product tons remaining as of December 31, 2022. The coal reserves controlled by CONSOL are summarized in Table 1.1.

Table 1.1: Coal Reserves Summary

Mine	Seam	Product Tons (thousands) by Classification		
		Proven	Probable	Total
Itmann No. 5	Pocahontas No. 3	12,078	11,778	23,856
	Pocahontas No.4	3,827	549	4,376
	Subtotal	15,905	12,327	28,232
Tug Fork	Sewell	447	1	448
Total		16,352	12,328	28,680

There are no reportable coal resources excluding those converted to coal reserves for the IMC.

1.6 Operations

1.6.1 Mining

The Itmann No. 5 Mine extracts coal from the P3 and P4 Seams while the planned Tug Fork Mine will mine the Sewell Seam. Both operations will use room-and-pillar underground mining methods. CONSOL's utilization of these techniques is well-supported by: (1) the dimensions and expected geologic conditions of the coal deposits, (2) the required production levels, (3) the successful application of similar mining methods within the region, and (4) CONSOL's demonstrated history of commercial success with the technique.

At full production, the IMC is forecasted to produce between 800,000 to 1.0 million product tons annually. In total, the life-of-mine (LOM) plan projects the IMC will produce approximately 28.7 million saleable tons during the next 32 years. It is BOYD's opinion

that the production levels forecasted for the IMC are reasonable, logical, and consistent with similar operations in the region.

1.6.2 Processing

CONSOL constructed a state-of-the-art coal preparation plant, which began operation in the second half of 2022. The processing complex (including the initial refuse disposal area) is located approximately 2.5 miles from the Itmann No. 5 underground mine portal entrance, at the site of the original Itmann CPP, which operated from 1950 to 1986 and washed coal from CONSOL's previous Itmann mines.

The designed beneficiation process for the Itmann CPP utilizes technology proven by other operations within the CAPP over several decades. Straightforward when compared to many other coal processing techniques, the coal washing process is largely based on separating non-coal (rock) material from coal material by mechanically reducing the size of the feed and utilizing the materials' different densities to gravitationally separate one from the other. Largely, the process only requires water, magnetite, and frothing agents.

1.6.3 Other Infrastructure

The IMC is supported by several surface infrastructure facilities. Major surface infrastructure includes ancillary buildings, high-voltage power distribution stations, ROM coal conveyor belts, and underground access and ventilation structures. In terms of industry standards, IMC's surface infrastructure is comparable to similar mining operations found within the CAPP.

Coal handling facilities for the Itmann CPP is comprised of a ROM truck dump, ROM coal storage area, clean coal storage area, and a rail loadout facility. Product coal is transported to IMC's customer base via the Norfolk Southern (NS) railroad.

The Itmann No. 5 refuse facility area (also known as the Joe's Branch refuse area) serves as the disposal location for coarse waste rock and dried, pressed fine coal refuse produced during the processing of ROM coal. Currently, the Itmann CPP and refuse site encompasses approximately 233.5 permitted and bonded acres (all approved).

1.7 Financial Analysis

1.7.1 Capital and Operating Cost Estimates

The Itmann No. 5 Mine reached operational status in the second half of 2022. For the LOM business plan (including the planned Tug Fork Mine), BOYD developed capital schedules that align with projected production levels and factor in major equipment

rebuild/replacement schedules. Equipment replacement was based on BOYD's experience and familiarity with mining equipment life cycles as well as general industry practices. The following figure depicts the estimated capital for the IMC mine over the LOM plan:

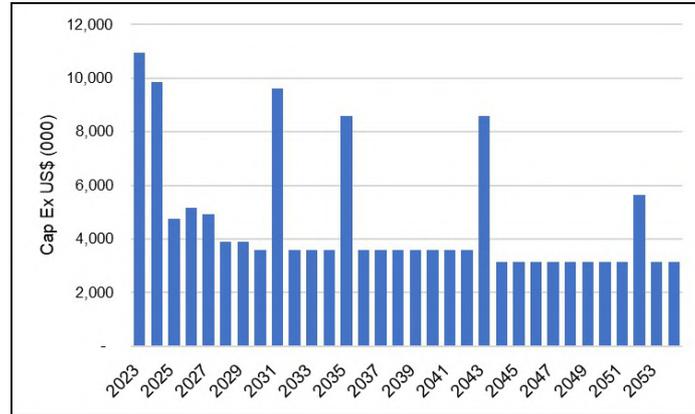


Figure 1.2: Projected Capital Expenditures

Total capital expenditures over the life of the operations are projected at nearly \$148 million. Relative to industry peers, the IMC is at-or-above capitalization levels witnessed at comparable CAPP operations, reflecting CONSOL's commitment to the project.

As shown in Figure 1.3, based on the LOM plan, BOYD projects total cash operating costs within the range of \$81 to \$99 per saleable ton.

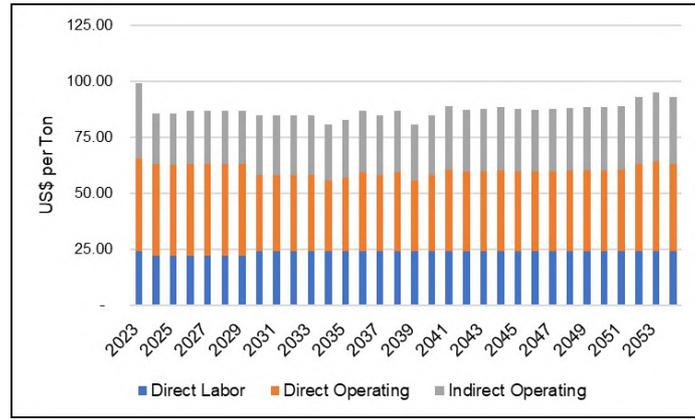


Figure 1.3: Projected Cash Operating Costs

The operating cash costs and resultant cash margins appear to align with expectations for similarly capitalized metallurgical coal room-and-pillar mining operations in the CAPP.

1.7.2 Economic Analysis

Under the Base Case scenario, the net present value (NPV) generated by the IMC over its 32-year operating period (2023 to 2054) was approximately \$524 million at a 12% discount rate. This reflects an average coal sales price of \$161.00 (ranging from \$150.00 to \$165.00) over the projection period. For sensitivity purposes, the Base Case sale pricing was decreased by 10% over the life of the project and a conservative 18% discount rate was applied to the economic analysis. Despite these “Pessimistic Case” adjustments, the IMC project generates a NPV of approximately \$272 million. Based on this analysis, BOYD concludes that the stated coal reserves for the IMC are economically viable under reasonable market price expectations.

The NPV estimate was made for purposes of confirming the economic viability of the reported coal reserves and not for purposes of valuing the IMC operations and/or CONSOL or its assets. IRR and project payback were not calculated, as there was no initial investment considered in the financial model.

1.8 Permitting Requirements

Numerous permits are required by federal and state law for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits to support current operations are in place or pending approval. New permits or permit revisions may be necessary from time to time to facilitate future operations. Given sufficient time and planning, CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Permits generally require that CONSOL post a performance bond in an amount established by the regulatory program to: (1) provide assurance that any disturbance or liability created during mining operation is properly mitigated, and (2) assure that all regulatory requirements of the permit are fully satisfied. As of December 31, 2022, CONSOL held less than \$1 million in surety bonds to cover its current obligations relating to mining and reclamation, mine subsidence, stream restoration, water loss, and dam safety. This level of bonding will increase over the life of the mine.

Periodic amendments to existing mining permits to add additional acreage (reserve tonnage) in order to sustain coal production is common practice. We are not aware of any issues which would impact or prevent the present "Not Permitted" reserves to be permitted as future mining needs dictate. We are also not aware of any prohibition against the proposed mining and processing activities.

1.9 Conclusions

It is BOYD's overall conclusion that CONSOL's estimates of coal reserves, as reported herein: (1) were prepared in conformance with accepted industry standards and practices, and (2) are reasonably and appropriately supported by technical evaluations, which consider all relevant modifying factors.

Given CONSOL's mining history and commitment to the project, coupled with proven historical mining of the subject coal seams in the region, residual uncertainty for this project is considered minor under the current and foreseeable operating environment. A general assessment of risk is presented in the relevant sections of this report.

It is BOYD's opinion that extraction of the IMC's reported coal reserves is technically achievable and economically viable after the consideration of potentially material modifying factors. The ability of CONSOL, or any mine operator, to recover all of the reported coal reserves is dependent on numerous factors that are beyond the control of,

and cannot be anticipated by, BOYD. These factors include mining and geologic conditions, the capabilities of management and employees, the securing of required approvals and permits in a timely manner, future coal prices, etc. Unforeseen changes in regulations could also impact performance.

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JOHN T. BOYD COMPANY

2.0 INTRODUCTION

2.1 Registrant and Purpose

CONSOL is a US-based mining company headquartered in Canonsburg, Pennsylvania. CONSOL's common stock is listed on the New York Stock Exchange (NYSE:CEIX). CONSOL is actively engaged in the production of metallurgical coal from the IMC. CONSOL also produces thermal and metallurgical coal from mines associated with its Pennsylvania Mining Complex. In addition, CONSOL controls considerable greenfield (i.e., undeveloped) thermal and metallurgical coal resources located in the major coal-producing basins of the eastern United States. The company also owns and operates the CONSOL Marine Terminal, which is in the Port of Baltimore, Maryland. Additional information regarding CONSOL can be found at www.consolenergy.com.

This technical report summary was prepared for CONSOL in support of their disclosure of coal resources and coal reserves for the IMC.

2.2 Terms of Reference

CONSOL retained BOYD to complete an independent technical assessment of CONSOL's internally-prepared coal resource and coal reserve estimates and supporting information for the IMC. CONSOL also retained BOYD to perform an independent assessment of the economic viability of the IMC coal reserves. Our objective was to review and evaluate the scientific and technical information on which CONSOL's calculation of its coal reserve and resource estimates are based and also an evaluation that that the extraction of the coal reserves is economically viable over the life of the IMC.

The technical summary of our third-party assessment, presented in report form herein, was prepared in accordance with the disclosure requirements set forth in Subpart 1300 and Item 601(b)(96) of the SEC's Regulation S-K. The purpose of this report is: (1) to summarize technical and scientific information for the subject mining properties, (2) to provide the conclusions of our technical audit, (3) to provide a statement of coal resources and/or coal reserves for the IMC properties, and (4) provide our conclusions of the economic viability of the IMC coal reserves.

BOYD's findings are based on our detailed examination of the supporting geologic and other scientific, technical, and economic information provided by CONSOL, as well as our assessment of the methodology and practices applied by CONSOL in formulating

the estimates of coal resources and coal reserves disclosed in this report. We did not independently estimate coal resources or coal reserves from first principles as this was not required for the purposes of our audit.

We used standard engineering and geoscience methods, or a combination of methods, that we considered to be appropriate and necessary to establish the conclusions set forth herein. As in all aspects of mining property evaluation, there are uncertainties inherent in the interpretation of engineering and geoscience data; therefore, our conclusions necessarily represent only informed professional judgment.

This report is intended for use by CONSOL subject to the terms and conditions of its professional services agreement with BOYD. We also consent to CONSOL filing this report as a technical report summary with the SEC pursuant to Subpart 1300 and Item 601(b)(96) of Regulation S-K.

2.3 Expert Qualifications

BOYD is an independent consulting firm specializing in mining-related engineering and financial consulting services. Since 1943, BOYD has completed over 4,000 projects in the United States and more than 60 other countries. Our full-time staff comprises experts in: geology and geological modeling; civil, environmental, geotechnical, and mining engineering; mineral economics; and valuation and market analysis. Our extensive experience in coal resources/reserve estimation and our knowledge of the subject coal properties, provides BOYD an informed basis on which to opine on the reasonableness of the estimates provided by CONSOL. An overview of BOYD can be found on our website at www.jtboyd.com.

The individuals primarily responsible for this audit and the preparation of this report are by virtue of their education, experience, and professional association considered qualified persons as defined in S-K 1300.

Neither BOYD nor its staff employed in the preparation of this report have any beneficial interest in CONSOL, and are not insiders, associates, or affiliates of CONSOL. The results of our audit were not dependent upon any prior agreements concerning the conclusions to be reached, nor were there any undisclosed understandings concerning any future business dealings between CONSOL and BOYD. This report was prepared in return for fees based upon agreed commercial rates, and the payment for our services was not contingent upon our opinions regarding the project or approval of our work by CONSOL and its representatives.

2.4 Principal Sources of Information

Information used in this assignment was obtained from: (1) CONSOL files, (2) discussions with CONSOL personnel, (3) records on file with regulatory agencies, (4) public sources, and (5) nonconfidential BOYD files.

The following information was provided by CONSOL:

- Year-end reserve statements and reports for 2021 and 2022.
- Exploration records (e.g., drilling logs, lab sheets).
- Geologic databases of lithology and coal quality.
- Computerized geologic models.
- Mapping data, with:
 - Mineral tenure boundaries.
 - Permit boundaries.
 - Limits of previous mining.
- Mine plans, production schedules, and supporting documentation.
- Historical information, including:
 - Production reports and reconciliation statements.
 - Financial statements.
 - Product sales and pricing.

Information from sources external to BOYD and/or CONSOL are referenced accordingly.

The data and work papers used in the preparation of this report are on file in our offices.

2.5 Personal Inspections

Although an inspection of the IMC was not conducted as part of this study, BOYD has a well-established knowledge of the subject mining operations. BOYD's most recent visit to the Itmann No. 5 Mine and surrounding infrastructure was completed in May 2021.

2.6 Report Version

The estimates of coal resources and coal reserves presented in this technical report summary are effective as of December 31, 2022. The effective (i.e., "as of") date of the report is December 31, 2022.

This is the second technical report summary filed by CONSOL for the IMC and supersedes the following previously filed report:

John T. Boyd Company; February 2022; Technical Report Summary, Coal Resources and Coal Reserves, Itmann No. 5 Mine, Wyoming County, West Virginia (Report No. 2755.081).

The user of this document should ensure that this is the most recent disclosure of coal resources and coal reserves for the IMC as it is no longer valid if more recent estimates have been issued.

2.7 Units of Measure

The US customary measurement system has been used throughout this report. Tons are short tons of 2,000 pounds-mass. Unless otherwise stated, all currency is expressed in constant 2022 US Dollars (\$).

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JOHN T. BOYD COMPANY

3.0 PROPERTY DESCRIPTION

3.1 Property Location

The IMC is an active underground coal mining and processing operation located in Wyoming and McDowell counties, West Virginia. The IMC comprises two properties: (1) a large contiguous block herein referred to as the Itmann Property, and (2) a small satellite property known as the Tug Fork Property. Figure 1.1 shows the locations of the two properties. CONSOL's Itmann No. 5 Mine and the Itmann CPP are located on the Itmann Property. The Itmann No. 5 Mine currently produces from the P3 Seam and plans to mine coal from the P4 Seam in the near future. The planned Tug Fork Mine will mine coal from the Swell Seam at the Tug Fork Property.

The Itmann Property is located in Wyoming County, West Virginia. The town of Pineville is located at the southwestern corner of the Itmann Property, while the towns of Mullens and Itmann are located east and southeast of the property, respectively. The Itmann Property is approximately 50 miles south-southeast of Charleston. Twin Falls State Park overlies the northeastern portion of the Itmann No. 5 mine plan area, and the Guyandotte River forms the southern boundary of the Itmann Property. State Route 16, as well as the NS rail line, follow the Guyandotte River, running east-west across the southern extent of the Itmann Property. A network of secondary state and local roadways provides access throughout the property. Geographically, the Itmann No. 5 Mine portal is located at approximately 37° 35' 23.65" N latitude and 81° 27' 14.43" W longitude. The portal consists of a box cut that enters the P3 Seam from outcrop. The current Itmann CPP is located at the site of the former Itmann CPP, approximately 2.5 miles south of the portal. Figures 3.1 and 3.2 illustrate the general layout of the Itmann No. 5's planned mining operations in the P3 and P4 seams, respectively.

The Tug Fork Property is located approximately 35 miles (by road) southwest of the Itmann Property, in McDowell County, West Virginia. The Tug Fork River, a tributary of the Big Sandy River, wraps around the property to the east, south, and southwest. The towns of Big Sandy and Roderfield lie on the opposite banks of the Tug Fork River, east of the property. US Route 52 follows the Tug Fork River, running east-west across the southern extent of the property. Figure 3.3 illustrates the general layout of the Tug Fork Property.

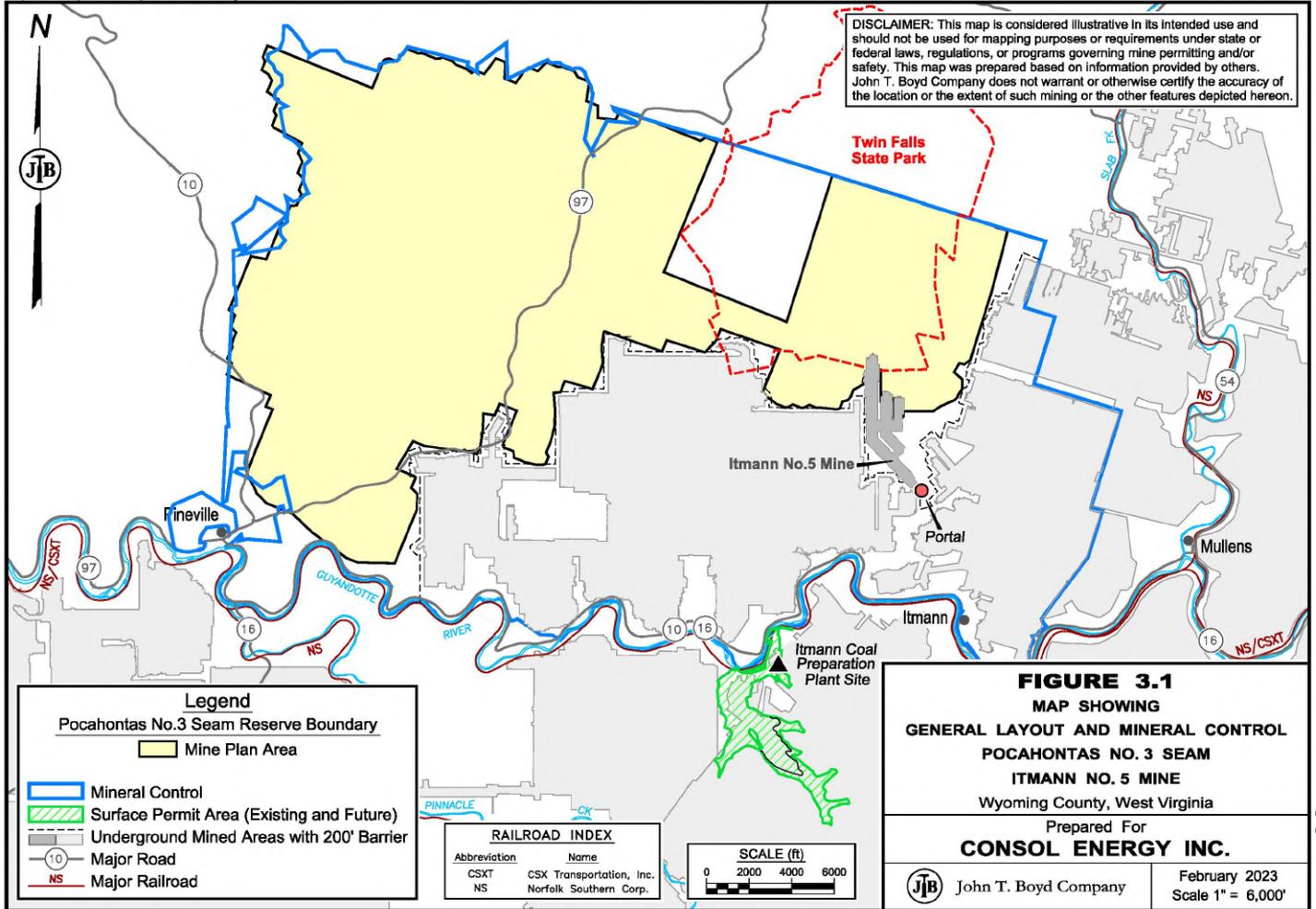
3.2 Property Control

The Itmann Property comprises 270 tracts totaling approximately 20,224 acres of mineral and/or surface rights controlled by CONSOL. Ownership of the surface rights and the mineral rights is often severed for the properties. CONSOL and its predecessors have acquired the necessary rights to support development and operations through purchase or lease agreements with various parties.

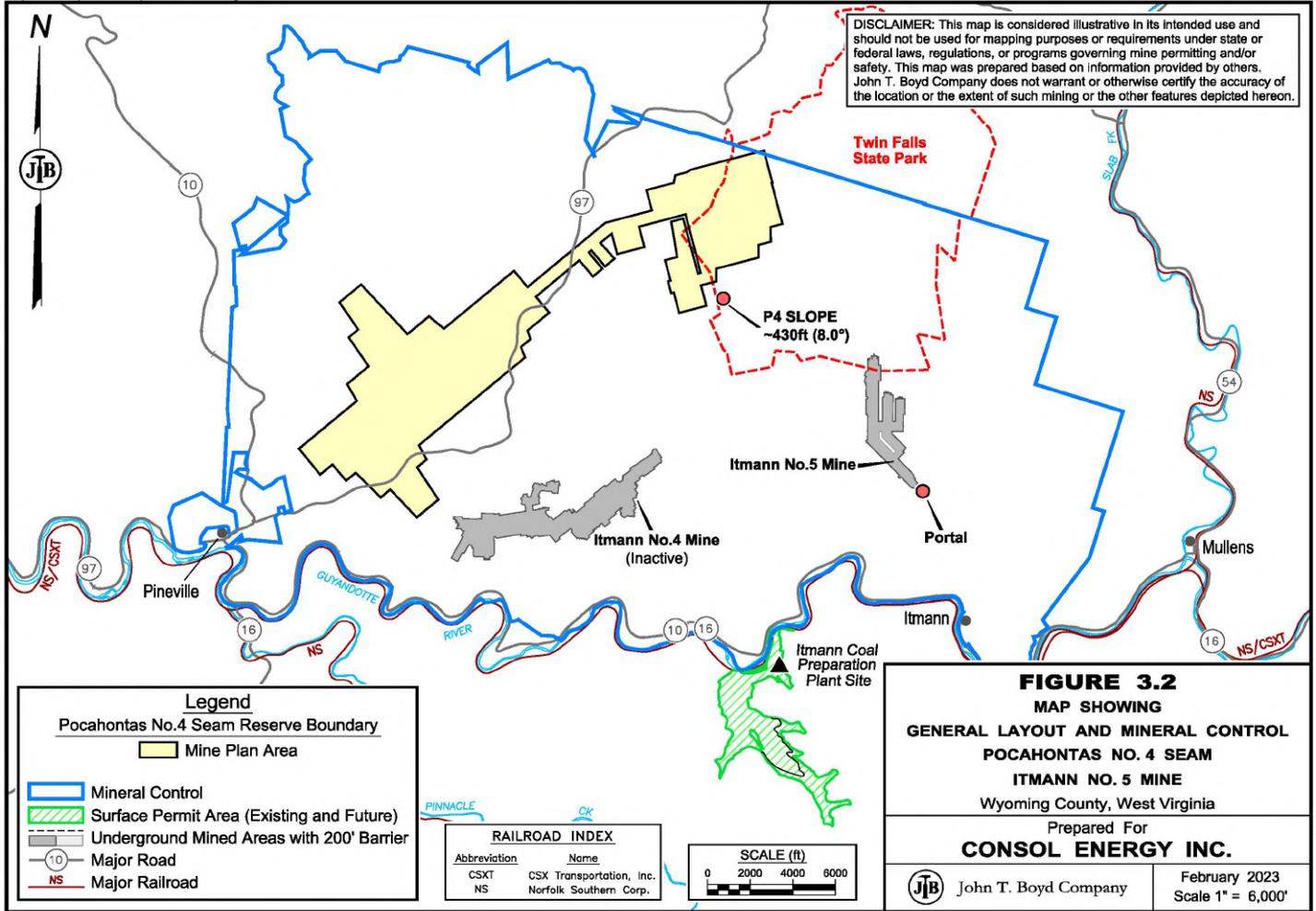
In 2022, CONSOL acquired a coal mining lease for the Tug Fork Property, a 201-acre tract owned by Alawest, Inc.

As it is outside the scope of our expertise, BOYD has not independently verified ownership of the subject properties and the underlying property agreements. Ownership data including maps, deeds, lease agreements, and royalty rate furnished to us, have been accepted as being true and accurate for the purpose of this report.

Q:\ENG_WP\2755.092\FIGURE 3-1.dwg



Q:\ENG_WP\2755.092\FIGURE 3-2.dwg



Q:\ENG_WP\2755.092\FIGURE 3-3.dwg

DISCLAIMER: This map is considered illustrative in its intended use and should not be used for mapping purposes or requirements under state or federal laws, regulations, or programs governing mine permitting and/or safety. This map was prepared based on information provided by others. John T. Boyd Company does not warrant or otherwise certify the accuracy of the location or the extent of such mining or the other features depicted hereon.



Legend

Sewell Seam Reserve Boundary

Mine Plan Area

Mineral Control

Underground Mined Areas with 200' Barrier

Major Road

Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

SCALE (ft)

0 500 1000 1500

FIGURE 3.3

MAP SHOWING

GENERAL LAYOUT AND MINERAL CONTROL

SEWELL SEAM

TUG FORK MINE

McDowell County, West Virginia

Prepared For

CONSOL ENERGY INC.

February 2023

Scale 1" = 1,500'

JTB John T. Boyd Company

3-5

3.2.1 Coal Ownership

CONSOL controls mining rights for nearly all the P3 and P4 seams within the Itmann Property limits through mineral ownership and long-term lease agreements with the Pocahontas Land Corporation and the Georgia-Pacific Corporation. A summary of controlled acres and coal is shown in Table 3.1 below.

Table 3.1: Summary of Coal Ownership

	All Tracts		Tracts Covering Coal Reserves	
	Acres	%	Acres	%
Owned	674	3.3	674	5.2
Leased from:				
Pocahontas Land Corp.	16,363	79.5	9,765	74.9
Georgia-Pacific Corp.	3,187	15.5	2,247	17.2
Subtotal	19,550	95.0	12,012	92.1
Adverse/Currently Uncontrolled	350	1.7	350	2.7
Total	20,574	100.0	13,036	100.0

As shown, the majority (95%) of the acreage is held under coal leases with lengthy terms and are subject to industry standard royalties.

CONSOL does not currently hold coal ownership or lease rights for a few disjointed tracts located within the limits of the Itmann Property. We believe, it is generally reasonable to assume that these tracts can be acquired or leased, as required to continue mining operations, during the ordinary course of business; however, there can be no assurance that such acquisitions or leases can be secured. In the unexpected event that CONSOL is unable to acquire the rights to mine these currently adverse tracts, the mine plan can be revised to allow CONSOL to circumvent (mine around) any adverse tract which is not acquired. It is BOYD's opinion that adverse coal control does not pose a material risk to the estimate of coal reserves reported herein.

CONSOL, through its lease agreement, controls right to all of the Sewell Seam within the boundaries of the Tug Fork Property.

3.2.2 Surface Ownership

CONSOL reports it controls adequate surface rights to sustain planned mining operations in the near-term. Additional surface property will likely be required during the life of the mine for the placement of additional infrastructure. It is generally reasonable to

assume the required property can be acquired or leased in the ordinary course of business; as such, we do not believe there is any undue risk associated with surface ownership to the estimated reserves reported herein.

3.3 Regulation and Liabilities

Mining and related support activities on the IMC properties are subject to various federal, state, and local environmental regulations. The more significant federal laws include:

- Clean Air Act
- Clean Water Act
- Surface Mining Control and Reclamation Act
- Endangered Species Act
- National Environmental Policy Act
- Comprehensive Environmental Response, Compensation, and Liability Act
- Resource Conservation and Recovery Act

Operations on the IMC properties must comply with other state, federal and local environmental laws in addition to those listed above. These laws include, for example, the Safe Drinking Water Act, the Emergency Planning and Community Right to Know Act, the Toxic Release Inventory, and the rules governing the use and storage of explosives regulated by the U.S. Bureau of Alcohol, Tobacco, and Firearms and the Department of Homeland Security.

As mandated by these laws and regulations, numerous permits are required for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits are in place or applied for to support current operations. New permits or permit revisions may be necessary from time to time to facilitate future operations. Given sufficient time and planning, we believe that CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Permits generally require that the permittee post a performance bond in an amount established by the regulator program to: (1) provide assurance that any disturbance or liability created during mining operation is properly mitigated; and (2) assure that all regulations requirements of the permit are fully satisfied. CONSOL reports holding under \$1 million in surety bonds to cover its obligations relating to mining and reclamation, mine subsidence, stream restoration, water loss, and dam safety. This level of bonding will increase over the life of the operations.

Regular inspection of the mines and related facilities are conducted by the Mine Safety and Health Administration (MSHA) for health and safety compliance. On finding any violation of a health or safety standard, an inspector will issue a citation that specifies the standard violated and evaluates the gravity of the violation by several factors, including likelihood of injury. Any infraction that is reasonably likely to result in a serious injury or illness, or is caused by the operator's unwarrantable failure to comply with regulatory requirements, will carry additional fines and could result in temporary closure. Typically, the civil penalties for regular assessments are not considered material.

BOYD is not aware of any prohibition of mining and processing activities for the IMC. However, the reported coal reserves may be materially impacted by: CONSOL's failure to comply with permit conditions and rules; delays in obtaining required government or other regulatory approvals or permits; CONSOL's inability to obtain such required approvals or permits; or changes in governmental regulations.

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4.0 PHYSIOGRAPHY, ACCESSIBILITY, AND INFRASTRUCTURE

4.1 Topography, Elevation, and Vegetation

The IMC lies within the Appalachian Plateaus physiographic province of West Virginia. Terrain overlying the mine consists of steeply sloping hills, with approximately 1,000 ft of relief across the each of properties. Surface elevations range from 1,300 ft along the banks of the Guyandotte River near Pineville, to above 2,300 ft on some of the hilltops. Numerous streams traverse the surface of the two properties, which flow to the adjacent rivers.

Land cover within the area consists predominantly of mixed forest and pasture land interspersed with low-density (rural) residential areas.

4.2 Accessibility

The IMC is located near several small rural towns in southern West Virginia. The region has a rather extensive coal mining history, with many large-scale operations having previously existed in the area, as well as a limited number of coal mines still operating today. The surrounding counties have a population of approximately 200,000 people, according to 2019 census estimates.

General access to the properties is via a well-developed network of primary and secondary roads serviced by state and local governments. These roads offer direct access to the mine and processing facilities and are generally open year-round. Primary vehicular access to the Itmann Property is via State Route 10/16, which follows the north bank of the Guyandotte River. The NS railway runs along the south bank of the Guyandotte River. Primary vehicular access to the Tug Fork Property is via US Route 52, which follows the south bank of the Tug Fork.

4.3 Climate

Climate in the Itmann area is typical of southern West Virginia, with four distinct seasons: cold winters; hot and humid summers; and mild falls and springs. The average daily high temperatures are above freezing 12 months of year while the low temperatures drop below freezing 3 months of the year. Table 4.1 provides monthly

average climate data collected from 2000 through 2022 in Beckley, West Virginia, which is located approximately 20 miles northeast of the Itmann No. 5 Mine.

Table 4.1: Monthly Average Climate Data, Beckley, WV

Average	Unit	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High Temp	°F	45	47	58	59	67	77	85	80	72	66	59	42
Low Temp	°F	30	29	39	38	49	58	65	63	55	47	38	27
Precipitation	inches	2.4	6.5	5.0	5.8	5.2	6.0	3.5	7.0	2.3	3.0	1.7	3.3
	days	14	20	20	20	17	20	9	16	13	12	10	11
Snowfall	inches	7.4	9.5	1.8	1.5	-	-	-	-	-	-	0.1	14.1
	days	7	8	2	1	-	-	-	-	-	-	1	7

Source: National Oceanic and Atmospheric Administration

In general, the operating season for the Itmann No. 5 Mine is year-round. The surrounding area, which contains steep terrain with relatively high relief, has been prone to occasional flash flooding during heavy rain events. These extreme weather conditions are relatively rare in occurrence; however, there is the possibility that mining operations could be impacted during times of unusually heavy precipitation.

4.4 Infrastructure Availability and Sources

Coal extracted from the Itmann No. 5 Mine is currently transported via belts to surface stockpiles, where it is loaded onto highway trucks and transported to the Itmann CPP for beneficiation. The cleaned coal is loaded into railcars and transported on a Class 1 railroad operated by the NS to various end markets.

Several regional airports are located within 20 to 30 miles of the Itmann Property. Sources of electrical power, water, supplies, and materials are readily available. Electrical power is provided to the mines and facilities by regional utility companies. Water is supplied by public water services, surface impoundments, or water wells.

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5.0 HISTORY

5.1 Background

Extensive mining of the P3 Seam has been conducted to both the south and the east of the Itmann No. 5 Mine, both within and outside of the Itmann Property. To a lesser extent, the P4 Seam has been mined in an area overlying previous P3 Seam mining in the southern portions of the Itmann Property. The first Itmann mine was opened in 1916 by the Pocahontas Fuel Company. By 1954, the Itmann mine was the largest underground coal mine in West Virginia and 10th largest in the United States, extracting over two million tons of coal per year. In 1956, the Pittsburgh Consolidation Coal Company (a predecessor business to CONSOL) acquired the Pocahontas Fuel Company. During the 1970s, the Itmann mine complex was CONSOL's largest operation in the CAPP, based on both annual production and number of employees. CONSOL ceased operating the Itmann mines in 1986 due to increasing mining costs and decreasing metallurgical coal prices.

In June 2019, CONSOL received MSHA identification number 4609569 for the Itmann No. 5 Mine. Development of the mine, including excavation of a box cut to access the P3 Seam, began shortly thereafter, with first coal production occurring in mid-2020. The mine reached operational status in late 2022. CONSOL received MSHA identification number 4609598 for the Itmann CPP in August 2020. CONSOL announced commissioning of the Itmann CPP in October 2022.

The Sewell Seam has been mined relatively extensively west and north of the proposed mining operations of the Tug Fork Property.

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6.0 GEOLOGICAL SETTING, MINERALIZATION, AND DEPOSIT

6.1 Regional Geology

CONSOL's Itmann No. 5 Mine is located within the Appalachian Basin, an oblong sedimentary basin which extends from central Alabama to central New York State. The Appalachian Basin spans an area of about 185,000 square miles, with a length of around 1,075 miles, consisting of Paleozoic sedimentary rocks, dating from the Early Cambrian through the Early Permian periods.

The Appalachian Basin has informally been subdivided into three coal regions—the northern, central, and southern Appalachian Basin coal regions—based on characteristics of the sediments and the coals that are found there. The three coal regions contain both formal and informal coal fields. Physiographically, the Appalachian Basin is divided into four distinct provinces, which from east to west are: the Piedmont, the Blue Ridge, the Valley and Ridge, and the Appalachian Plateaus. CONSOL's Itmann No. 5 Mine is located within the CAPP coal region of the Appalachian Plateaus province.

Regional structure of the properties' coal seams is gently folded as a result of the nearby Pineville (west of the properties) and Mullens (east of the properties) Anticlines. The subject properties are located between these two features, which trend generally in a north-northeast/south-southwest orientation. The steepest dipping strata are located along the western flank of the Mullins Anticline, near the Guyandotte River. Strata throughout most of the properties dip at less than two degrees, on average, towards the northwest.

Bedrock of the immediate area consists of Pennsylvanian Age Pottsville Group lithologies, characterized predominantly by sandstone beds with subordinate shale, mudstone, and coal intervals. There are over 30 regionally identified coal seams, with at least 20 of these coal seams having been mined to some degree in the past. Coals produced from this region are bituminous in rank, and are generally considered to be high-grade coals, whether they are being sold into the steam-coal or met-coal markets.

6.2 Local Stratigraphy

Pennsylvanian Age sedimentary strata of the lower Pottsville Group comprise the majority of the stratigraphic units in and around the Itmann and Tug Fork properties. More specifically, the overlying strata include bedrock and coal seams contained in the Pocahontas Formation and the New River Formation, in order of deposition.

The strata of the local Pennsylvanian system lithologies are predominantly clastic sandstones containing subordinate amounts of coals and shales. The Pennsylvania Aged P3 and P4 seams are in the lower portion of the Pocahontas Formation, while the Sewell Seam is in the upper portion of the New River Formation. The stratigraphic relationships between the nearby lithologies are presented in Figure 6.1.

System	Group	Formation
Pennsylvanian	Allegheny Formation	
	Pottsville	Kanawha
		New River
		Pocahontas
Mississippian	Mauch Chunk	Bluestone

Figure 6.1: Generalized Stratigraphic Chart, Southern West Virginia

A generalized stratigraphic section showing overlying coal seams within each formation is presented in Figure 6.2, following this page.

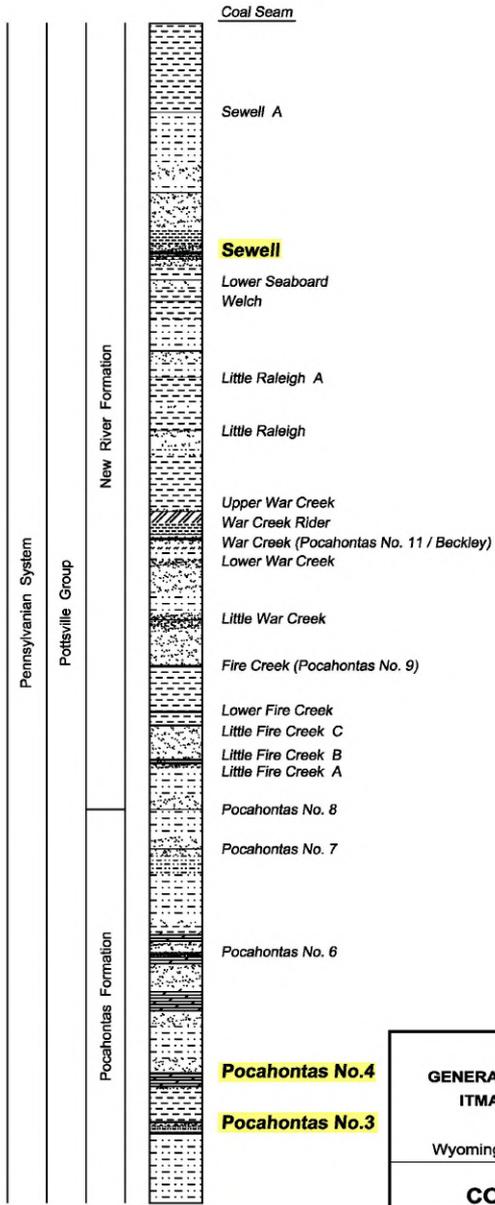
6.2.1 Pocahontas Formation

The Pocahontas Formation is characterized predominantly by sandstone sequences, containing varying amounts of shales, siltstones, and coal beds. The coal beds are appropriately named the Pocahontas Coals, ranging from the lower-most Pocahontas No.1 coal seam, through the upper-most Pocahontas No. 7 coal seam. Unconformities are present at both the bottom and top of the Pocahontas Formation, with overall thicknesses generally ranging from approximately 400 ft to 700 ft. Many of the Pocahontas coal seams have been, and continue to be, mined in and around the study area.

6.2.2 New River Formation

The New River Formation is comprised predominantly of sandstones with grey/dark-grey shale beds, siltstones, and coals. The major coal beds in the New River Formation range from the upper-most Pocahontas coal seams (No. 8 and No. 9), the Fire Creek, War

G:\ENG\WP\2755.092 CEI - Itmann 22\HSA\ITMANN CAD FILES\CAD - GROUP FILES 2022\FIGURE 6-2.dwg



<p>FIGURE 6.2 GENERALIZED STRATIGRAPHIC SECTION ITMANN NO. 5 MINE PROPERTIES CENTRAL APPALACHIA Wyoming & McDowell Counties, West Virginia</p>	
<p>Prepared For CONSOL ENERGY INC.</p>	
<p> John T. Boyd Company</p>	<p>February 2023 No Scale</p>

Creek, Raleigh, Seaboard, and Sewell seams and their various splits and riders. In total, the New River Formation contains approximately 20 known coal beds. In the immediate study area, the thickness of the New River Formation increases from the northern portion of the state, reaching over 900 ft thick locally.

6.3 Coal Seam Geology

The P3 Seam is the predominant coal seam of significant economic interest for CONSOL within the Itmann Property. Historically, the P3 Seam has been one of the most important coal seams of the CAPP coalfields, due to its thickness and metallurgical properties. To a lesser extent, the overlying P4 Seam is also of economic interest for CONSOL within the Itmann Property. The Sewell Seam is the only coal seam of economic interest controlled by CONSOL within the Tug Fork Property.

6.3.1 Lithology

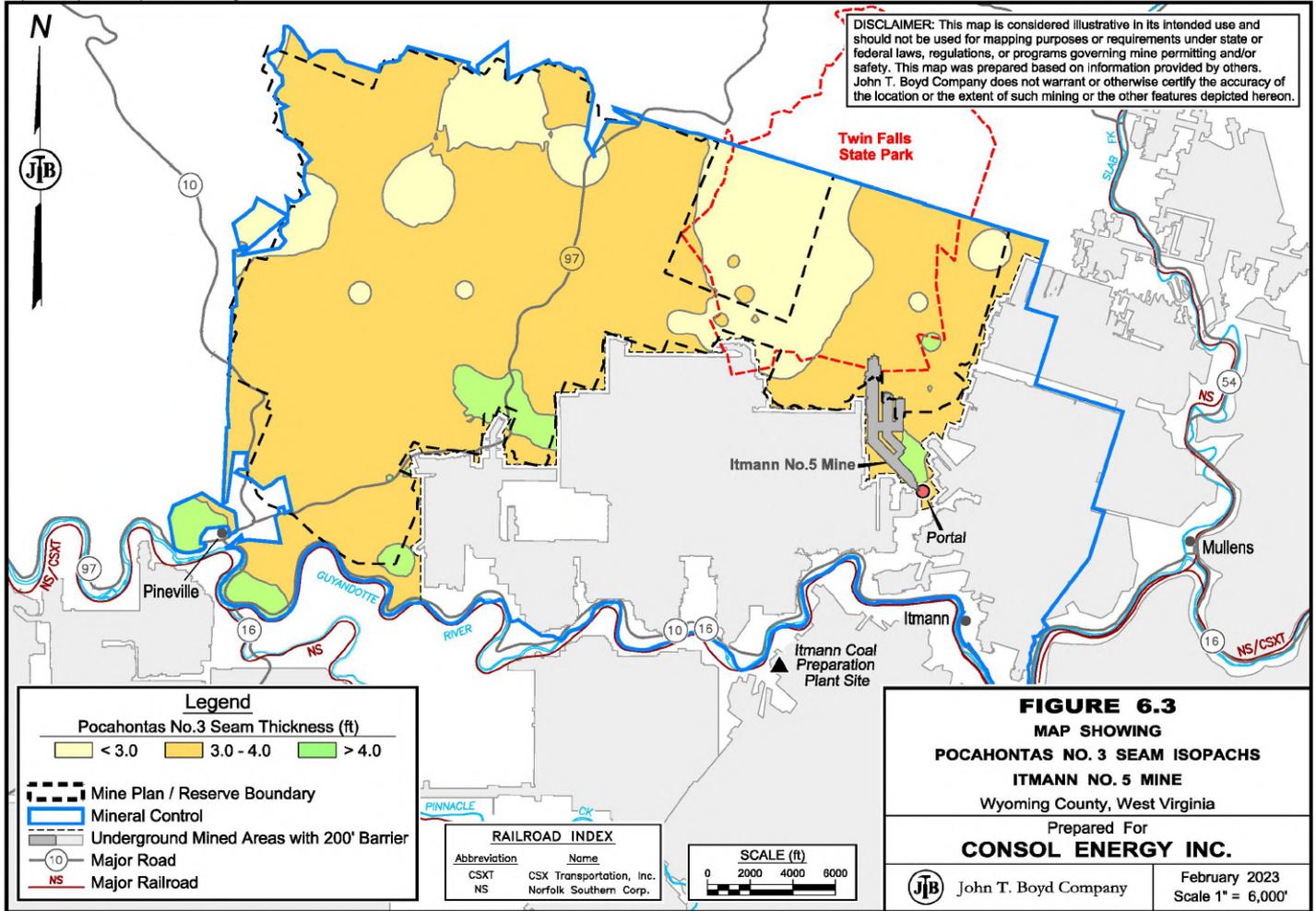
6.3.1.1 Pocahontas No. 3 Seam

The P3 Seam occurs locally as one 36-in. to 54-in. thick bench of coal, containing between 6 in. to 12 in. of impurities in the form of numerous shales, bony laminated coals, or narrow sulfur bands within the seam. Thickness of the P3 Seam throughout the Itmann No. 5 Mine area averages approximately 41 in. Figure 6.3, following this page, is a map showing P3 Seam thickness isopachs for the Itmann Property.

The stratigraphic position of the P3 Seam is well marked by a massive sandstone that overlies the coal bed in most locations. Available source data indicate the immediate roof material consists of a sandy shale (7 ft to 10 ft thick) containing interbedded sandstone, with the massive sandstone marker bed (120 ft thick) lying directly above the immediate roof. Floor material is generally a sandy shale interval, which should provide competent floor conditions.

Although available drill hole data do not specifically indicate the presence of sandstone channelization within the Itmann Property, channelization with some degree of seam scouring has been encountered in nearby P3 Seam mines in the past and are likely to be encountered periodically during mining operations at the Itmann No. 5 Mine.

Q:\ENG_WP\2755.092\FIGURE 6-3.dwg



6.3.1.2 Pocahontas No. 4 Seam

The P4 Seam presents as laterally discontinuous lens-shaped coal deposit that ranges in thickness from 12-in. to over 86-in. The P4 generally contains 6 in. to 12 in. of impurities in the form of numerous shales, bony laminated coals, or narrow sulfur bands within the seam. Figure 6.4, on the following page, illustrates the thickness of the P4 seam at the Itmann Property.

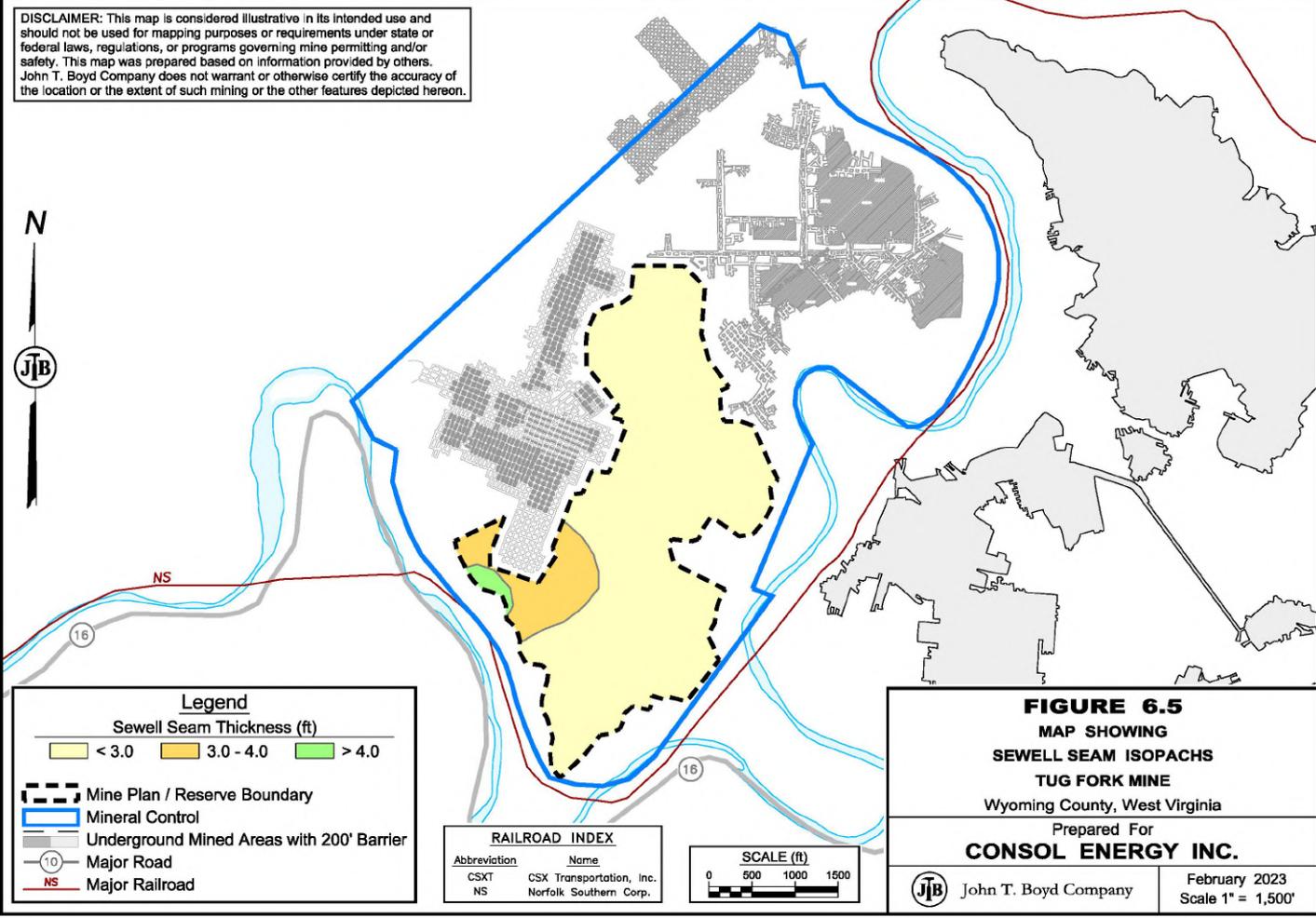
The immediate roof of the P4 Seam is highly variable, consisting of dark gray/black shale, sandy shale, and sandstone. These roof conditions are similar to those encountered in the P4 Seam at the nearby Itmann No. 4 Mine.

6.3.1.3 Sewell Seam

The Sewell Seam occurs locally as one to four benches of coal totaling 30-in. to 48-in. in thickness and containing between 6 in. to 12 in. of impurities in the form of numerous shales, bony laminated coals, or narrow sulfur bands within the seam. Figure 6.5, on page 6-8, is a map showing Sewell Seam thickness isopachs for the Tug Fork Property.

The immediate roof of the Sewell Seam at the Tug Fork Property consists of 0 ft to 8 ft of dark gray/gray shale, overlain by sandy shales and sandstones.

DISCLAIMER: This map is considered illustrative in its intended use and should not be used for mapping purposes or requirements under state or federal laws, regulations, or programs governing mine permitting and/or safety. This map was prepared based on information provided by others. John T. Boyd Company does not warrant or otherwise certify the accuracy of the location or the extent of such mining or the other features depicted hereon.



Legend

Sewell Seam Thickness (ft)

	< 3.0		3.0 - 4.0		> 4.0
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- Mine Plan / Reserve Boundary
- Mineral Control
- Underground Mined Areas with 200' Barrier
- Major Road
- Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

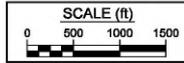


FIGURE 6.5
MAP SHOWING
SEWELL SEAM ISOPACHS
TUG FORK MINE
 Wyoming County, West Virginia
 Prepared For
CONSOL ENERGY INC.

John T. Boyd Company	February 2023 Scale 1" = 1,500'
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6.3.2 Structure

6.3.2.1 Pocahontas No. 3 Seam

The P3 Seam coal bed outcrops at the southeastern portion of the Itmann Property, near the Guyandotte River, in the area where the mine portal box cut is located. Maximum depth of cover reaches over 1,400 ft in the northwestern portion of the property, as the seam generally dips towards the northwest, at less than two degrees on average. There are not any major structural faulting or tectonic features known to occur within the deposit. Small-displacement faults and compaction-related faults may be present but are not expected to materially affect mining operations.

The structural setting for the P3 Seam is generally considered to be simple in terms of geological complexity, as thickness and structure are relatively consistent as indicated by drilling data.

6.3.2.2 Pocahontas No. 4 Seam

The P4 Seam lies 40 to 108 ft above the P3 Seam and also outcrops at the southeastern portion of the Itmann Property, near the Guyandotte River. Maximum depth of cover reaches over 1,300 ft in the northwestern portion of the property, as the seam generally dips towards the northwest, at less than two degrees on average. There are no major structural faulting or tectonic features known to occur within the deposit. Small- displacement faults and compaction-related faults may be present but are not expected to materially affect mining operations.

The structural setting for the P4 Seam is generally considered to be simple in terms of geological complexity, as thickness and structure are relatively consistent as indicated by drilling data.

6.3.2.3 Sewell Seam

The Sewell coal bed outcrops along the Tug Fork River, which bounds the eastern and southern portions of the Tug Fork Property. Maximum depth of cover reaches over 800 ft in the northern portion of the property, as the seam generally dips towards the northwest at less than two degrees on average. There are not any major structural faulting or tectonic features known to occur within the deposit. Small-displacement faults and compaction-related faults may be present but are not expected to materially affect mining operations.

The structural setting for the Sewell Seam is generally considered to be simple in terms of geological complexity, as thickness and structure are relatively consistent as indicated by drilling data.

6.3.3 Coal Quality

Overall, the washed Itmann No. 5 coal product—a blend of P3, P4, and/or Sewell seam coals—is marketed as a low-volatile bituminous rank, low-ash, low-sulfur coal, exhibiting premium coking qualities. Average sulfur content (on a dry basis) is typically around or below 1.0%, with volatile matter averaging around 19%, well below the typical upper limit (21% - 23%) for low-volatile coals. Due to the long-standing history of mining the subject coal seams, their general quality characteristics and mining conditions are well-understood.

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7.0 EXPLORATION DATA

7.1 Background

The P3, P4, and Sewell coal seams have an extensive exploration and mining history in the CAPP region, not only by CONSOL with its previous Itmann coal mines, but also with myriad other coal mining companies that successfully ran operations in this region in the past. The history of coal mining in the area dates back to the 1880s when the Norfolk & Western Railway completed a rail line to Pocahontas, Virginia, and subsequently began leasing mineral rights under their subsidiary Pocahontas Land Corporation to various coal companies.

Records from exploration drilling completed on the Itmann and Tug Fork properties comprise the primary data used in the evaluation of the coal resources. Maps illustrating the extents of the subject coal seams along with available electronic copies of original drilling and sampling logs and coal quality testing were provided for our review.

CONSOL provided written field and exploration guidelines which outline its standard exploration and sampling methodologies. These guidelines were compiled by personnel from various company-wide exploration departments in the 1980s, and are very thorough in regards to how CONSOL wanted drilling and sampling to be conducted. Topics covered standard procedures ranging from site safety and mapping, including how to: select proper drilling equipment, record accurate and detailed geological logs, perform coal sampling, supervise geophysical logging, and plug drill holes once work was complete. CONSOL's provided exploration standards highlight their focus on obtaining consistent and accurate data from the various exploration campaigns they completed.

Due to many company-wide restructurings, closures of various mining operations, and reorganization of departments as CONSOL evolved as a company over its many years in existence, many specific drilling campaign reports, which would provide detailed information on the drilling and sampling methodologies utilized from year to year were placed into archival storage and were not provided for our review. While this limits the ability to provide a completely transparent and detailed overview of the work completed in exploring the properties, we believe CONSOL has also demonstrated that it has been very thorough in exploring and sampling, and have been successful in economically mining coal from the P3 and P4 seams in this region.

7.2 Procedures

7.2.1 Drilling

7.2.1.1 Itmann Property

Drill holes on the Itmann Property were completed primarily by continuous core drilling methods, or a combination of continuous core drilling and air rotary drilling methods, with geophysical logs being run on most core holes.

CONSOL geologists were able to summarize the standard types of equipment and procedures they generally utilized in exploration work completed on the property. This information, combined with information BOYD was able to gather from our review of drilling records are as follows:

- Frequently used drilling equipment that is utilized during exploration, depending on the goal of a specific drilling and sampling program, consists generally of one or both of:
 - Continuous NQ-sized (1.988 in. diameter) diamond core rigs.
 - Air rotary with either 4-in. or 6-in. diameter barrels.
- Presently, core logging activities are completed in the field. Cored intervals are photographed, with special attention paid to the coal interval. Cored coal seam is initially photographed in its entirety, and then again on 1-ft intervals from top to bottom to provide a detailed record of the coal core prior to sampling.
- Coal roof rock (approximately 30 ft) and floor rock (up to 5 ft) are photographed and then boxed for archival purposes. Drilling campaigns from 2018 on have archival cores stored at CONSOL Headquarters, in Canonsburg, Pennsylvania. Historically, CONSOL maintained regionally located core repositories; however, these locations have been closed, and all core prior to 2018 have been disposed of.
- Geophysical logging on drill holes became standard starting in the mid-to-late 1970s. Prior to this time, geophysical logs were located for some drill holes; however, they were much less frequently noted in the provided drill hole data files. CONSOL has noted that geophysical logging is currently completed on all holes drilled.

Due to the previous knowledge of the P3 and P4 coal seams in and around the Itmann property, and the extent of historic exploration work, any recent drilling is generally for infilling areas with lower geologic assurance. In such instances, nearby drill hole records are referenced prior to commencing any new drill holes, to show the anticipated depth to the coal horizons.

Geophysical logs obtained from newly drilled holes are correlated by CONSOL geologists by aligning known "marker beds", and then checking coal seam depths, elevations, and thicknesses to ensure seam continuity. These data are formatted and

then imported into CONSOL's geologic modeling and mine production forecasting programs.

BOYD's review of the observed methodologies and procedures indicate the data obtained and utilized by CONSOL for the Itmann Property were carefully and professionally collected, prepared, and documented, conforming with general industry standards, and are appropriate for use of evaluating and estimating coal resources and reserves.

7.2.1.2 Tug Fork Property

While no detailed information regarding exploration drilling on the Tug Fork Property was provided for our review, compiled results indicate that continuous core drilling methods were utilized.

7.2.2 Coal Quality Sampling

7.2.2.1 Itmann Property

Coal quality testing of the P3 and P4 seams was performed on many of the drill holes completed in and around the Itmann Property. Additional drilling and testing have been completed outside of the study area, at CONSOL's previous operations. However, these data would not influence quality of the Itmann No. 5 Mine, and were not reviewed as part of this study.

The relatively dense core drilling coverage, combined with channel samples taken from underground development areas, provides a thorough understanding of the various potential coal products that could be mined from the Itmann Property.

All coal intercepts during recent exploration programs were geologically logged, photographed, and sampled in the field by CONSOL geologists. Explicit instructions are given to drilling teams to keep any cored coal intervals inside of core barrels until a CONSOL geologist is on-site to observe and record characteristics of the coal interval.

Sampling methodologies consist of first pushing the cored intervals of coal out of the core barrel, directly into a clean single-row wooden core box. Prior to removing coal core from the drilling barrel, the core box is lined with durable plastic sheeting, which helps retain moisture content and minimize coal core oxidation. Once the coal core is fully extruded from the core barrel, it is then inspected, photographed, and logged by the on-site geologist, and cardboard inserts are installed in the wooden core box to maintain coal core integrity.

Upon completing detailed recording (geologic logging and photographing) of the coal interval, coal cores are split into the desired intervals to be analyzed (i.e., entire seam, main bench, roof coal, etc.) and bagged. An order sheet is placed inside the sample bag, which specifies drill hole information, split information, and testing to be completed on the bagged sample. Sample bags are then zip tied closed, labeled, and then double bagged to eliminate incidental core loss due to potential damage during transportation to the testing lab. It is important to note that CONSOL has various internal departments that may request exploration and sampling work be conducted, and the requesting department is given priority as to how the coal intercept is split, and as to the types of coal analyses that are run.

CONSOL maintains all control of coal core samples, up to the point that samples are handed over to the lab performing testing. Once logging and sampling is complete, the sampled coal core intervals are transported to CONSOL headquarters by exploration personnel, at which time they are handed over to CONSOL's quality control department. The quality control department arranges pick up by the selected lab that will perform the required analyses. Currently, CONSOL contracts standard coal washability analyses of the coal core independent laboratory (Geochemical Testing in Somerset, Pennsylvania). Any required petrographic analyses of the coal core are performed by another independent laboratory (Coaltech Petrographic Associates, Inc. in Murrysville, Pennsylvania). Standard washability analyses performed include moisture content (total and air dried at 60-mesh), full proximate, and specific gravity. Petrographic analyses consist of determining the coals rank and type in order to evaluate its ability to produce coke. In either situation, the lab manager signs off on the return analysis sheet, indicating that testing results are accurate and that the sample provided was sufficient for testing purposes.

Past programs utilized various accredited coal testing laboratories, again depending on what testing needed to be completed on the coal core at a given time. All analytical work was conducted to International Organization for Standardization (ISO) or ASTM International (ASTM) standards, and various available laboratory sample sheets were provided for review with drilling log data.

Available testing sheets were reviewed by BOYD during our drill hole data audit, and our review of the field and sampling procedures noted above showed that the general description and sampling work were conducted to appropriate standards. Based on the stated standards and laboratory used, BOYD considers the sample preparation and analytical procedures were adequate for the coal quality results for inclusion in geological modelling and coal resource estimation.

7.2.2.2 Tug Fork Property

No detailed information regarding coal quality sampling on the Tug Fork Property was provided for our review.

7.2.3 Coal Washability Testing

7.2.3.1 Itmann Property

Analysis of the Itmann No. 5 Mine's P3 and P4 seams drill core samples consisted of conducting coal washability tests (proximate analysis) at various specific gravities, generally ranging from 1.40 FL through 1.60 FL. Several core samples were analyzed for metallurgical coal properties (e.g., petrographics, fluidity, etc.).

Lab testing of the cored coal seam intervals was generally conducted by performing two analyses on a coal seam core sample: (1) a full seam analysis of the coal seam (including coal and all partings together), and (2) individual analyses performed on each individual coal and parting split encountered during drilling. This method provides additional information to be able to assess the ability to target thinner benches and maximize quality intervals of coal seams.

Although it was noted that CONSOL generally does not perform any randomized sample verification in order to conduct quality control testing of individual coal analyses, the generally low variation of quality results over the Itmann Property lends itself as somewhat of a check that resulting analyses are in-line with anticipated product coal quality.

7.2.3.2 Tug Fork Property

No detailed information regarding coal washability testing on the Tug Fork Property was provided for our review.

7.2.4 Other Exploration Methods

There were no other methods of exploration (such as airborne or ground geophysical surveys) reported to have been completed on the properties.

7.3 Results

7.3.1 Summary of Exploration

7.3.1.1 Itmann Property

A total of 310 drill holes and in-mine sample locations are distributed in and around the Itmann Property. The distribution of these drill holes is shown on Figure 7.1, following this page. For the P3 Seam, a total of 152 of these drill holes were sampled and analyzed for coal quality, with 18 petrographic analyses being performed. For the P4 Seam, nine core hole samples were subjected to proximate analysis testing and petrographic analysis was completed on one sample. Lithologic and coal quality data from these holes only were used for geologic modeling and coal resource assessment of the property.

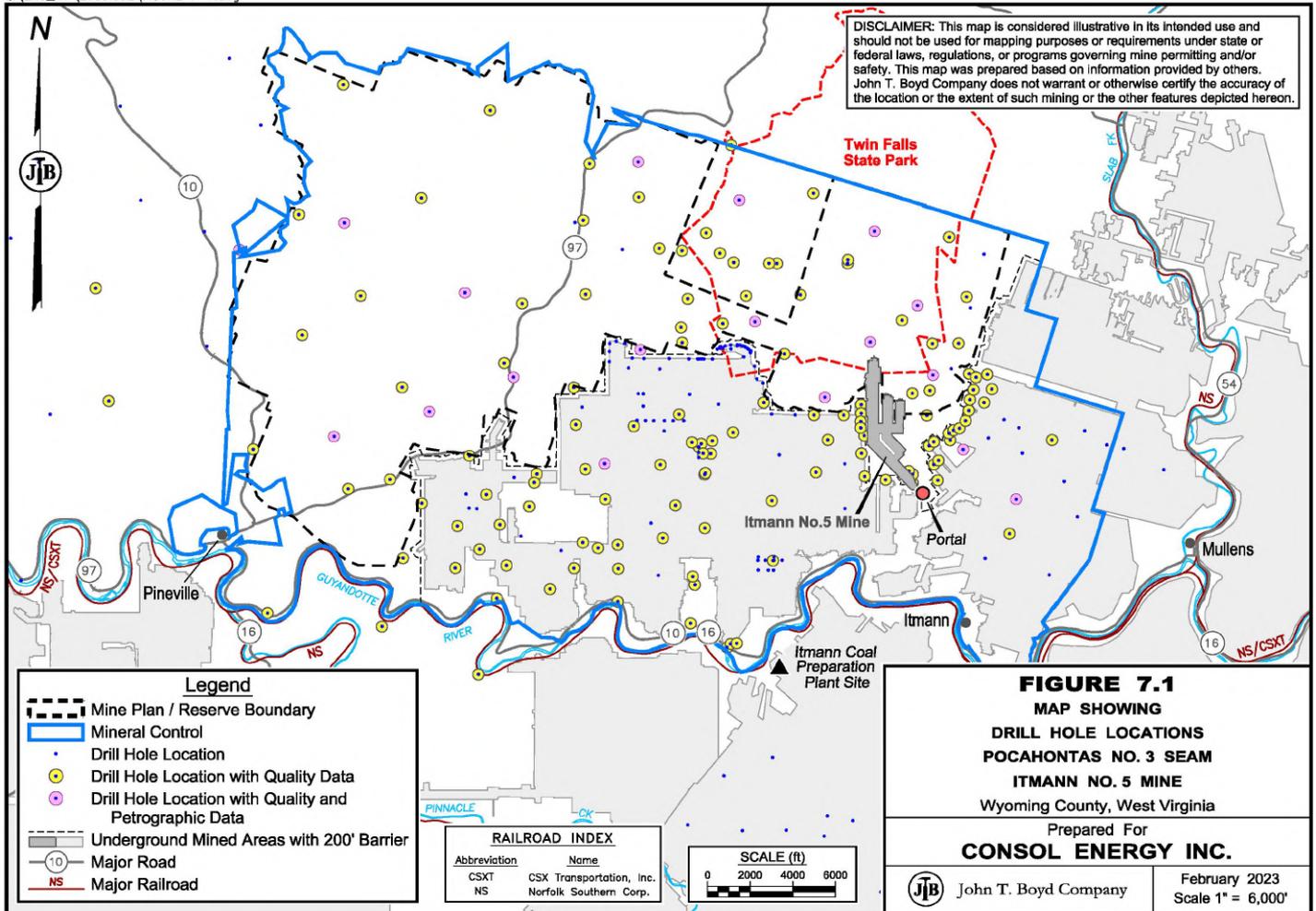
General descriptive statistics for the P3 Seam are provided in Table 7.1. Our analysis of drilling data indicates that the P3 Seam begins to thin towards the northern portion of the property. The CONSOL underground mine plan has been developed to avoid areas containing less than a 3-ft minimum P3 Seam thickness.

**Table 7.1: Descriptive Statistics, Pocahontas No. 3 Seam
Interval Thickness and Coal Qualities**

	Units	Mean	Minimum	Maximum	Standard Deviation	Coefficient of Variance
Seam Thickness	feet	3.46	2.45	4.60	0.63	0.18
Apparent Specific Gravity	g/cc	1.69	1.41	2.25	0.16	0.09
Raw Coal Quality						
Ash	%	42.49	24.42	60.54	7.31	0.17
Sulfur	%	0.86	0.51	1.80	0.21	0.24
Heating Value	btu/lb	8,155	5,135	10,893	1,075	0.13
Volatile Matter	%	13.17	10.14	15.32	0.97	0.07
Clean Coal Quality (1.50 Float)						
Yield ⁽¹⁾	%	48.79	11.07	76.88	13.26	0.27
Ash	%	6.81	4.60	10.84	1.65	0.24
Sulfur	%	0.97	0.77	1.43	0.10	0.10
Heating Value	btu/lb	14,408	13,939	14,688	118	0.01
Volatile Matter	%	18.99	17.17	20.49	0.60	0.03

Notes:

(1) Includes the impact of mining out-of-seam dilution.



The results of petrographic analyses for the P3 Seam are summarized in Table 7.2.

**Table 7.2: Descriptive Statistics, Pocahontas No. 3 Seam
Metallurgical Coal Properties**

	Units	Mean	Minimum	Maximum	Standard Deviation	Coefficient of Variance
Seam Thickness	ddpm	275	33	825	267	0.97
Heating Value	vrf	1.56	1.49	1.64	0.05	0.03
Volatile Matter		56	53	60	1	0.03

General descriptive statistics for the P4 Seam are provided in Table 7.3

**Table 7.3: Descriptive Statistics, Pocahontas No. 4 Seam
Interval Thickness and Coal Qualities**

	Units	Mean	Minimum	Maximum	Standard Deviation	Coefficient of Variance
Seam Thickness	feet	3.13	-	7.17	1.90	0.61
Apparent Specific Gravity	g/cc	1.40	1.32	1.67	0.12	0.09
Clean Coal Quality (1.60 Float)						
Yield	%	89.63	62.94	100.00	11.66	0.13
Ash	%	6.33	4.05	9.79	1.83	0.29
Sulfur	%	0.78	0.63	0.98	0.12	0.16
Heating Value	btu/lb	14,680	14,143	14,964	294	0.02
Volatile Matter	%	18.78	17.76	20.03	0.72	0.04

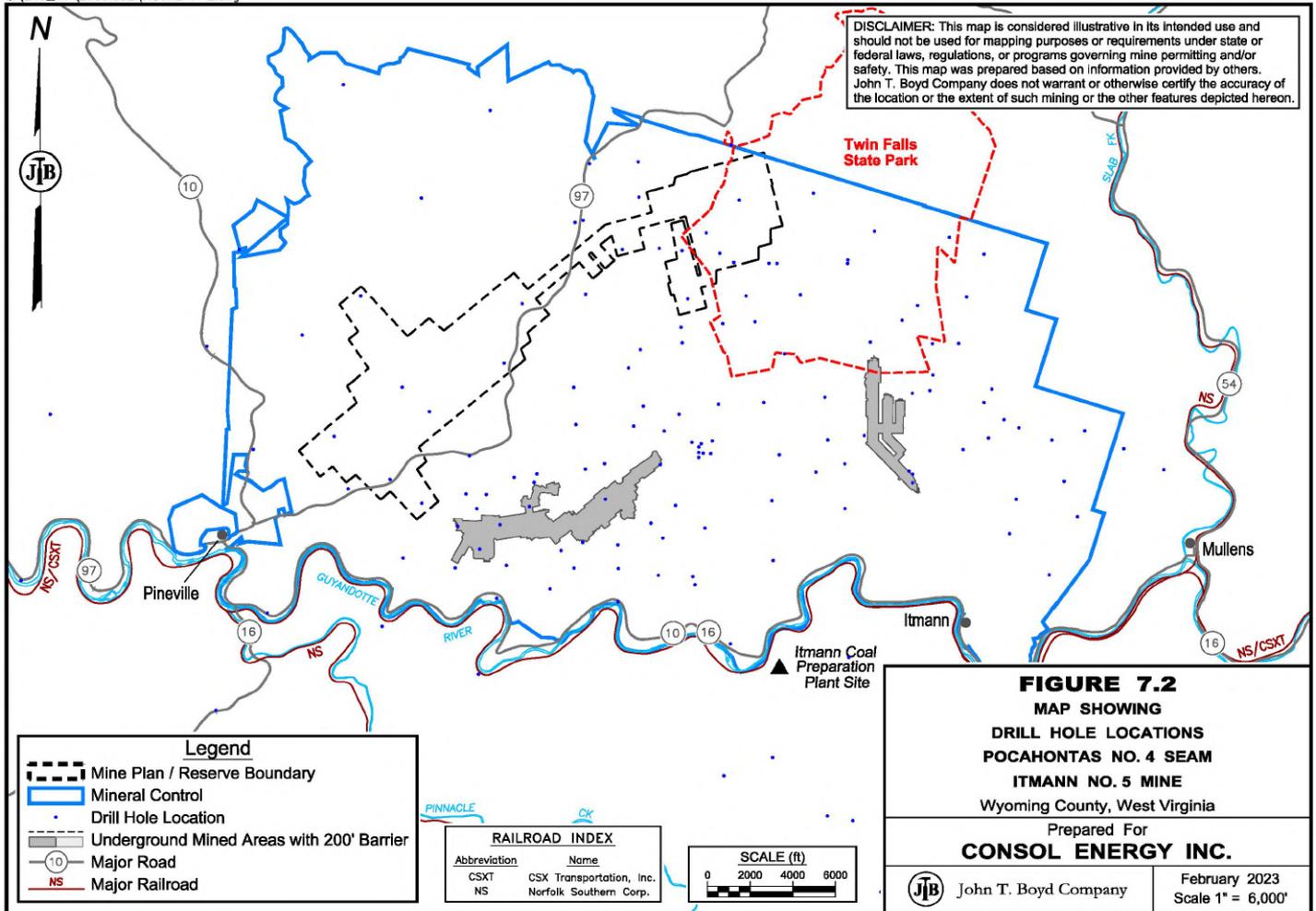
The results of petrographic analysis for the P4 Seam are summarized in Table 7.4.

Table 7.4: Pocahontas No. 4 Seam Metallurgical Coal Properties

	Units	Test Result
Max Fluidity	ddpm	122
Reflectance	vrf	1.64
Coke Stability		29

7.3.1.2 Tug Fork Property

The results of 67 drill holes and in-mine and outcrop measurements were provided for the Tug Fork Property. The distribution of these drill holes is shown on Figure 7.2, following this page. Limited coal quality data (less than nine samples) were provided for



the Sewell Seam on the Tug Fork Property. General descriptive statistics for the Sewell Seam are provided in Table 7.5.

**Table 7.5: Descriptive Statistics, Sewell Seam
Interval Thickness and Coal Qualities**

	Units	Mean	Minimum	Maximum	Standard Deviation	Coefficient of Variance
Seam Thickness	feet	3.22	0.70	5.68	1.12	0.35
Apparent Specific Gravity	g/cc	1.50	1.38	1.68	0.10	0.07
Clean Coal Quality (1.50 Float)						
Yield	%	65.71	38.64	84.38	14.10	0.21
Ash	%	5.05	4.13	6.00	0.58	0.11
Sulfur	%	0.78	0.64	1.03	0.11	0.14
Heating Value	btu/lb	14,962	14,847	15,026	81	0.01
Volatile Matter	%	20.32	19.60	20.83	0.45	0.02

7.3.2 Adequacy of Exploration

BOYD's review indicates that in general: (1) extensive drilling and sampling work has been completed on the subject properties, (2) we believe the work completed has been done so by competent personnel, and (3) the amount of data available combined with wide-spread knowledge of the P3, P4, and Sewell seams, is sufficient to confirm seam uniformity and continuity throughout the subject deposits.

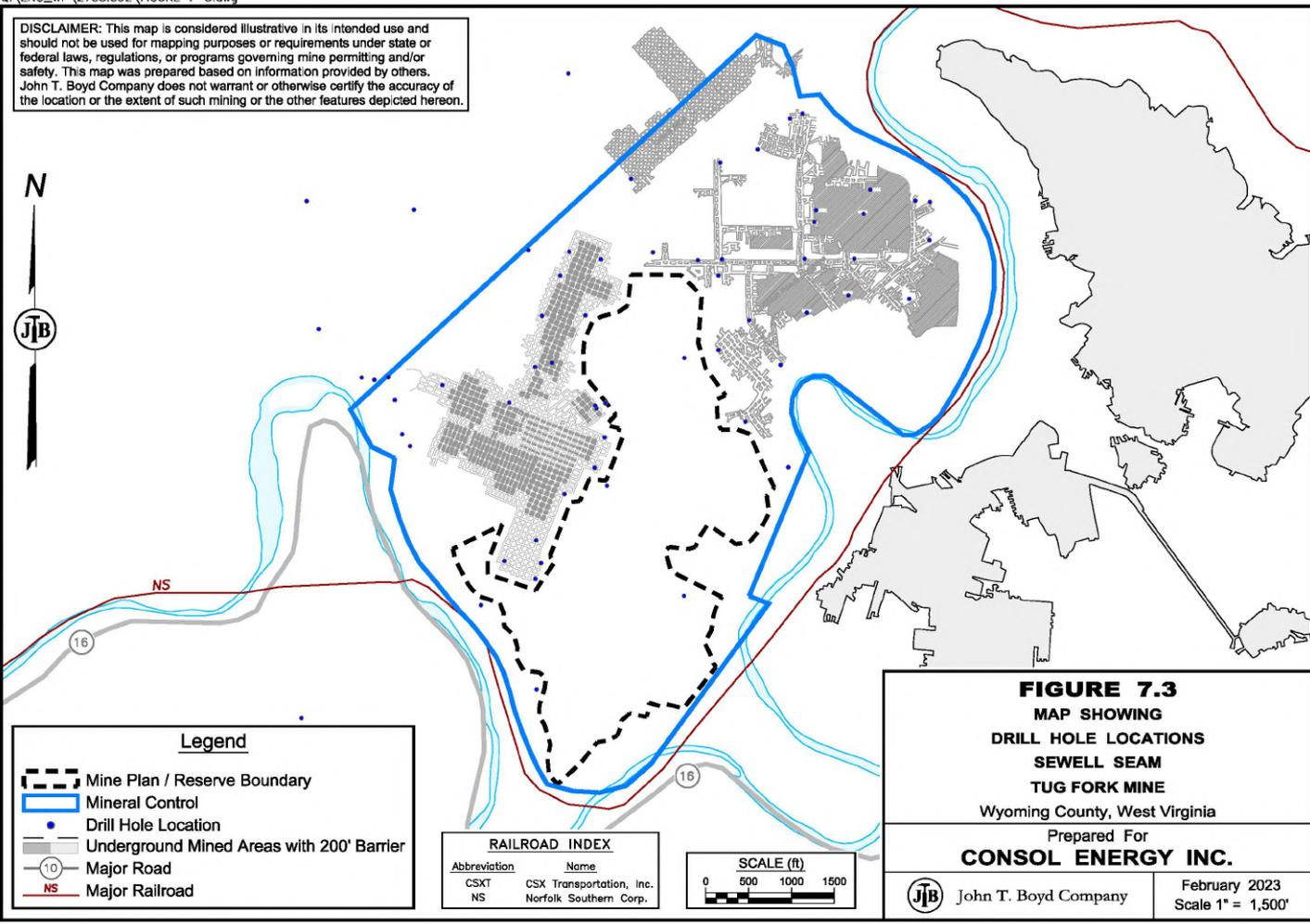
7.4 Data Verification

For purposes of this report, BOYD did not verify historic drill hole data by conducting independent drilling in areas already explored. It is customary in preparing coal resource and reserve estimates to accept basic drilling and coal quality data as provided by the client subject to the reported results being judged representative and reasonable.

BOYD's efforts to judge the appropriateness and reasonability of the source exploration data included reviewing a representative sample of drilling logs and coal quality test results for holes located in unmined portions of the Itmann Property. These records were compared with their corresponding database records for transcription errors; of which none were found. Lithologic and coal quality data points were compared via visual and statistical inspection with geologic mapping and cross-sections.

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Legend

- Mine Plan / Reserve Boundary
- Mineral Control
- Drill Hole Location
- Underground Mined Areas with 200' Barrier
- Major Road
- Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

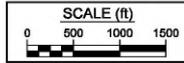


FIGURE 7.3
MAP SHOWING
DRILL HOLE LOCATIONS
SEWELL SEAM
TUG FORK MINE
 Wyoming County, West Virginia
 Prepared For
CONSOL ENERGY INC.

John T. Boyd Company February 2023
 Scale 1" = 1,500'

7-11

8.0 SAMPLE PREPARATION, ANALYSIS, AND SECURITY

The reader is referred to Sections 7.2 and 7.3 of this report for details regarding sample preparation, analysis, and security.

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9.0 DATA VERIFICATION

The reader is referred to Section 7.4 of this report for details regarding data verification.

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10.0 MINERAL PROCESSING AND METALLURGICAL TESTING

Information regarding coal washability testing is provided in Chapter 7.

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JOHN T. BOYD COMPANY

11.0 COAL RESOURCE ESTIMATE

11.1 Applicable Standards and Definitions

Unless noted, coal resource and coal reserve estimates disclosed herein are done so in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms "mineral" and "coal" to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of coal resources and reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource/reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the degree of uncertainty associated with the estimates reported herein.

The definition of mineral (coal) resource provided by S-K 1300 is:

Mineral resource is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.

Estimates of coal resources are subdivided to reflect different levels of geological confidence into measured (highest geologic assurance), indicated, and inferred (lowest geologic assurance)

11.2 Coal Resources

11.2.1 Methodology

Based on provided information, CONSOL's coal resources (and coal reserves) estimation and modeling techniques consist of:

1. Interpreted and correlated coal seam intercepts are compiled and validated. Seam thickness is aggregated and coal qualities are composited, based on assumed mining methods, for each data point.

2. Resource classification regions are derived from the data points.
3. ROM coal thickness and coal qualities for each data point are derived from the application of dilution parameters.
4. Clean product qualities for each data point are derived for coal washability analysis and plant efficiency factors.
5. The approved LOM design is subdivided into small mining blocks and sequenced using mine planning software.
6. In-place, ROM, and clean product estimates of coal volume and qualities for each mining block are estimated within the mine planning software by inverse distance interpolation of the data points developed in Steps 1 and 2.
7. The mining blocks (and associated volumetric data) are further subdivided by resource classification and property tract polygons.
8. Relevant regional and periodic summaries are prepared to support planning and coal resource/reserve reporting.

11.2.2 Criteria

Development of the coal resource estimate for the IMC assumes mining using standard underground development and CM mining methods and equipment, which have been utilized in four other operations by CONSOL in the Itmann area in the past.

Minimum seam thicknesses of 36 in. for the P3 and P4 seams and 34 in. for the Sewell Seam were used to limit the coal resources. There were not any other cut-offs applied.

11.2.3 Classification

Geologic assuredness is established by the availability of both structural (thickness and elevation) and quality information for the subject coal seams. Classification is generally based on the concentration or spacing of exploration data, which can be used to demonstrate the geologic continuity of the deposit. Table 11.1 provides the general criteria employed in the classification of the coal resources.

Table 11.1: Coal Resource Classification Criteria

Classification (Geologic Confidence)	Data Point Spacing			
	Feet		Miles	
Measured	0	– 2,640	0	– 0.50
Indicated	2,640	– 7,920	0.50	– 1.50
Inferred	7,920	– 15,840	1.50	– 3.00

Extrapolation or projection of resources in any category beyond any data point does not exceed half the point spacing distance.

BOYD reviewed the classification criteria employed by CONSOL with regards to data density, data quality, geological continuity and/or complexity, and estimation quality. The subject coal seams are well-known and of relatively low complexity. We believe these criteria appropriately reflect the interpreted geology and the estimation constraints of the deposits. Coal resources in the Itmann and Tug Fork properties area are well-defined throughout nearly all areas of the mine plan. Observed drill hole spacing averages approximately 1,000 ft and generally ranges between 500 ft and 2,000 ft over most of the mine plan area.

11.2.4 Coal Resource Estimate

There are no reportable coal resources excluding those converted to coal reserves for the IMC. Quantities of coal controlled by CONSOL within the defined boundaries of properties which are not reported as coal reserves are not considered to have potential economic viability; as such, they are not reportable as coal resources.

11.2.5 Validation

BOYD independently estimated coal resources and reserves for portions of CONSOL's mine plan representing approximately 32 years of various types of mining under full-capacity conditions and other current operating assumptions. Our analysis utilized industry-standard grid modeling and estimation techniques and resulted in no material differences with estimates provided by CONSOL.

Based on our review of CONSOL's well-documented geologic modeling and estimation techniques and the results of our data validation efforts (described earlier), we are of the opinion that CONSOL's resource estimation procedures are reasonable and appropriate.

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12.0 COAL RESERVES ESTIMATE

12.1 Applicable Standards and Definitions

Unless noted, coal resource and coal reserve estimates disclosed herein are done so in accordance with the standards and definitions provided by S-K 1300. It should be noted that BOYD considers the terms "mineral" and "coal" to be generally interchangeable within the relevant sections of S-K 1300.

Estimates of coal resources and reserves are always subject to a degree of uncertainty. The level of confidence that can be applied to a particular estimate is a function of, among other things: the amount, quality, and completeness of exploration data; the geological complexity of the deposit; and economic, legal, social, and environmental factors associated with mining the resource/reserve. By assignment, BOYD used the definitions provided in S-K 1300 to describe the degree of uncertainty associated with the estimates reported herein.

The definition of mineral (coal) reserve provided by S-K 1300 is:

Mineral reserve is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.

Estimates of coal reserves are subdivided to reflect geologic confidence, and potential uncertainties in the modifying factors, into proven (highest assurance) and probable.

Figure 12.1 shows the relationship between coal resources and coal reserves.

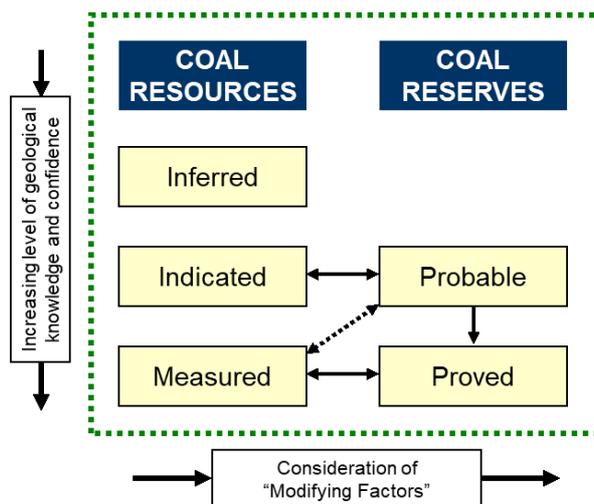


Figure 12.1: Relationship Between Coal Resources and Coal Reserves

In this report, the term "coal reserves" represents the tonnage and coal quality that will be available for sale after beneficiation of the ROM coal.

12.2 Coal Reserves

12.2.1 Methodology

The coal reserve estimates have been prepared using generally accepted industry methodology to provide reasonable assurance that the coal reserves are economic and recoverable as of the date of estimation.

12.2.2 Parameters and Assumptions

The underground mining operations use conventional CM room-and-pillar mining methods. The underground mine plans address anticipated geologic, geotechnical, and hydrogeologic conditions. Mining and processing parameters are revised periodically, to assure that the conversion of in-place coal to saleable product are: (1) in reasonable conformity with present and recent historical operational performance; and (2) reflective of expected mining and processing operations.

Expected mining recovery is dependent on numerous factors associated with CM mining and ranges from 30% to over 56% in the proposed mine plan. The estimated average mining recovery for the IMC is approximately 40% and is considered reasonable.

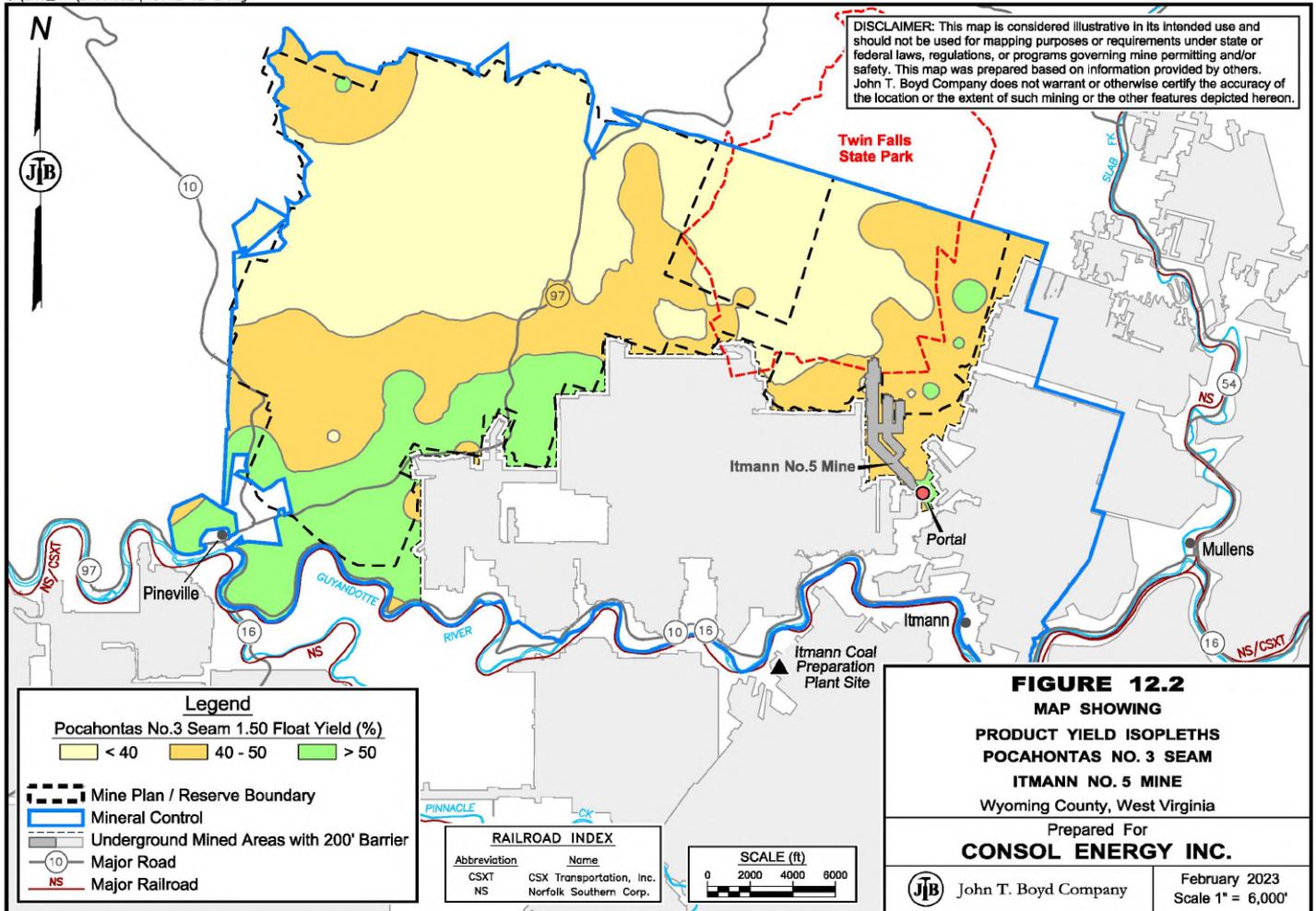
Clean coal estimates are based on washability data, adjusted to reflect practical yields achieved by the preparation plant. The preparation plant efficiency used in the estimation of coal reserves is 95%. The average product yield for the coal reserves is 62.4% at an as-received product moisture of 7.0%. Figures 12.2–12.4 depict the estimated product yields for the P3, P4, and Sewell seams, respectively.

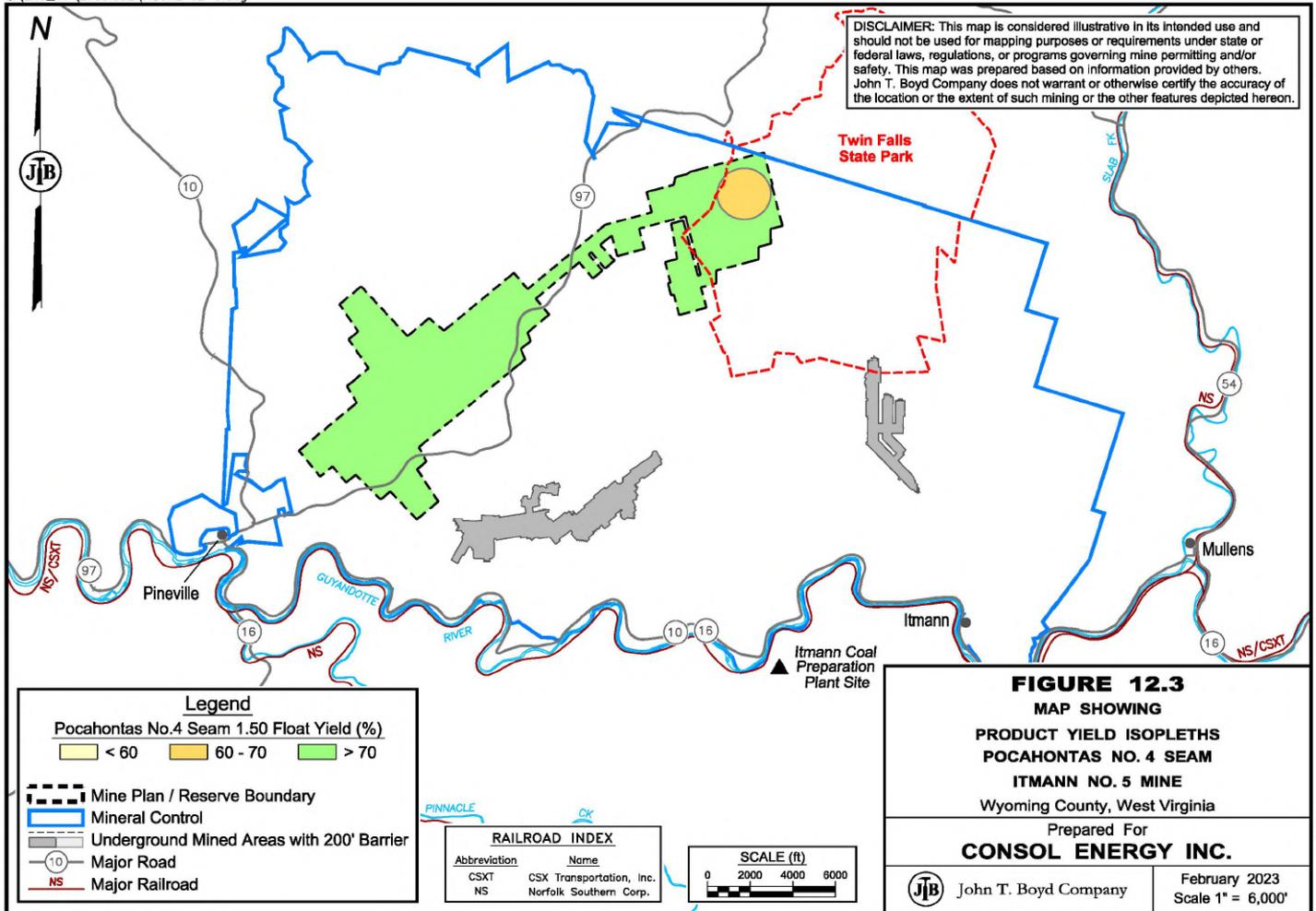
12.2.3 Classification

Proven and probable coal reserves are derived from measured and indicated coal resources, respectively, in accordance with S-K 1300. BOYD is satisfied that the stated coal reserve classification reflects the outcome of technical and economic studies. Figures 12.5–12.7 illustrate the reserve classification of the P3, P4, and Sewell seams, respectively.

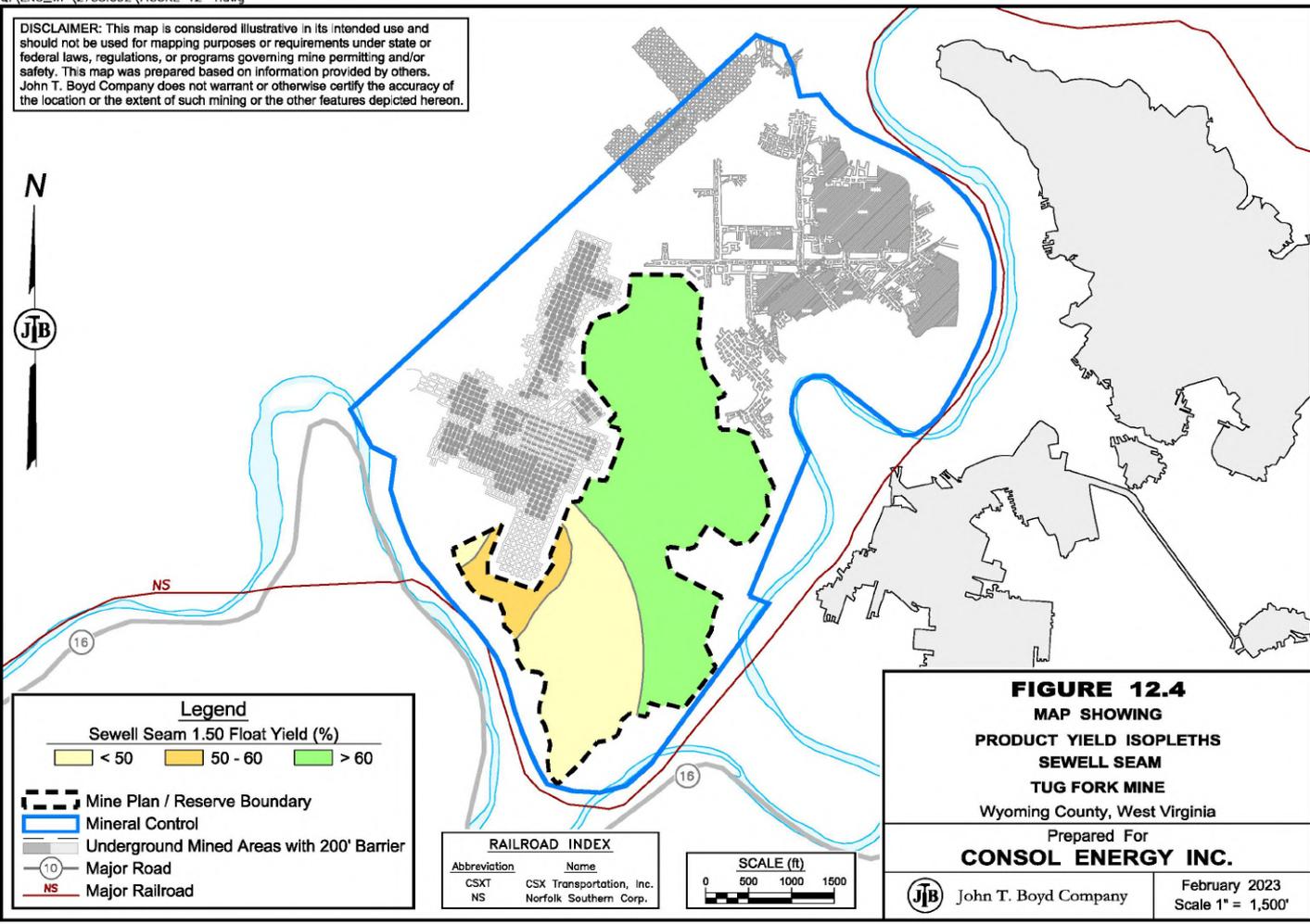
12.2.4 Coal Reserve Estimate

CONSOL's estimated underground mineable coal reserves for the IMC total 28.7 million recoverable (clean) product tons remaining as of December 31, 2022. The coal reserves reported in Table 12.1 (page 12-10) are based on the approved LOM plans which, in BOYD's opinion, are technically achievable and economically viable after the consideration of all material modifying factors.





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Legend

Sewell Seam 1.50 Float Yield (%)

	< 50		50 - 60		> 60
--	------	--	---------	--	------

- Mine Plan / Reserve Boundary
- Mineral Control
- Underground Mined Areas with 200' Barrier
- Major Road
- Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

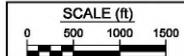
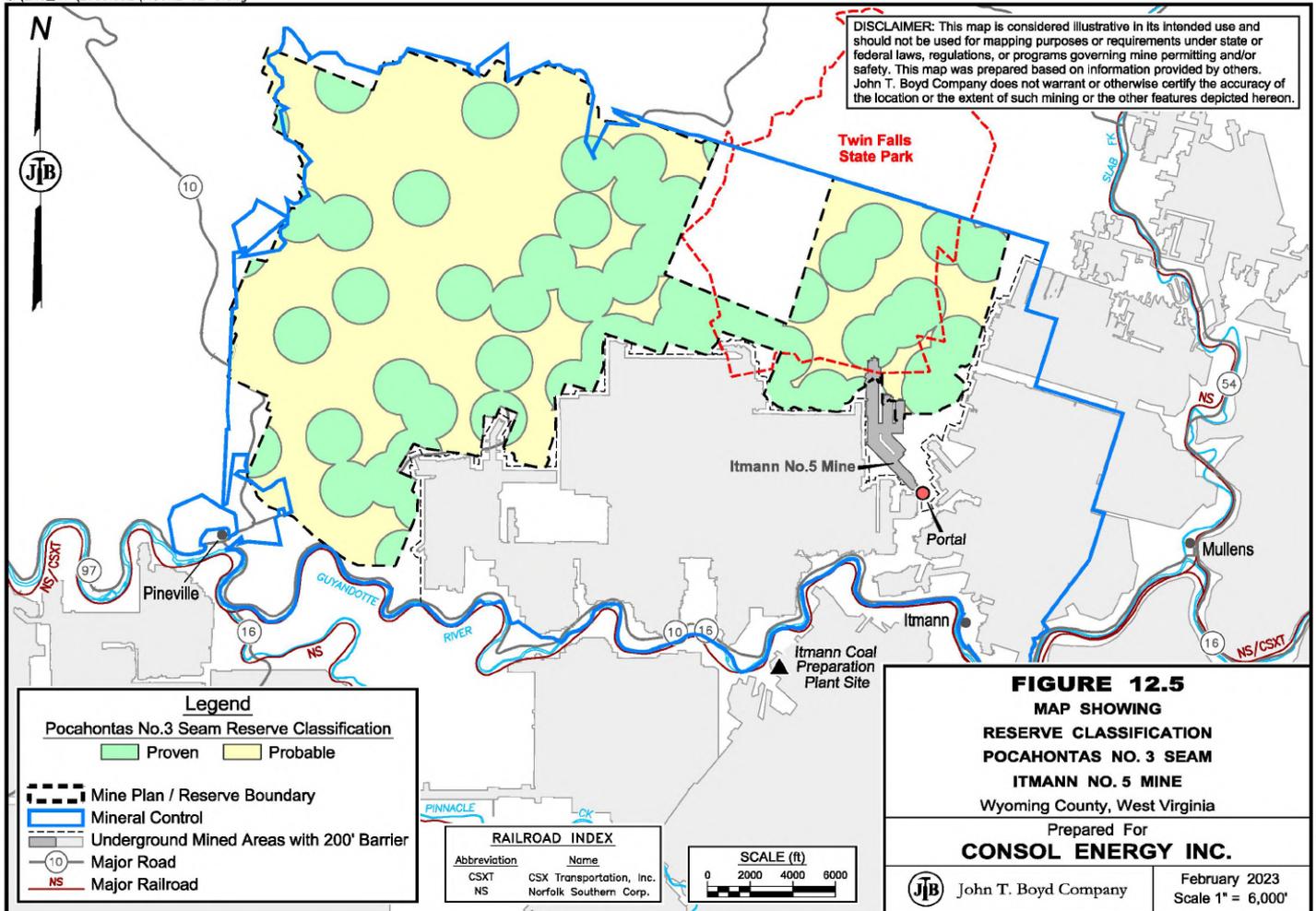
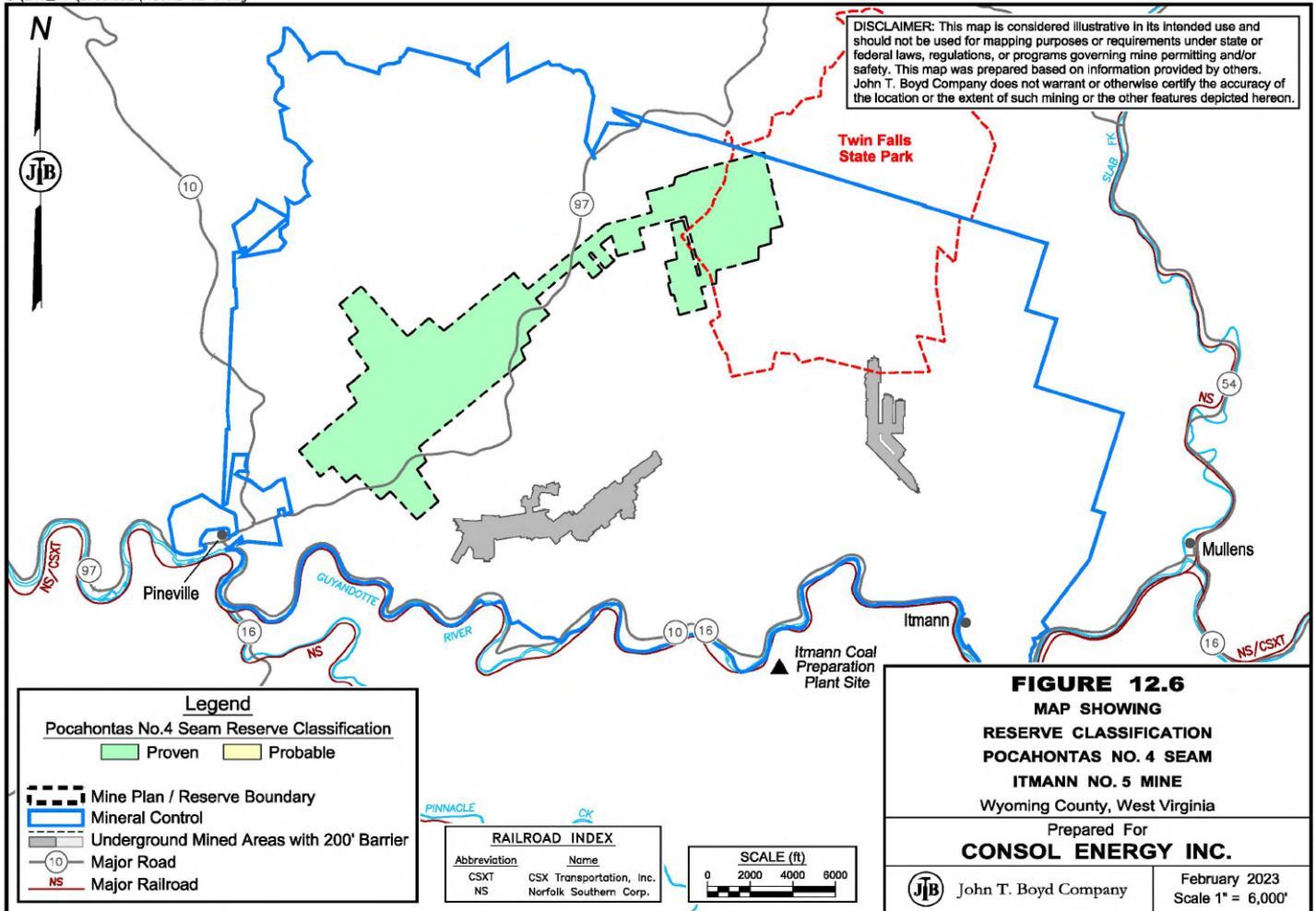


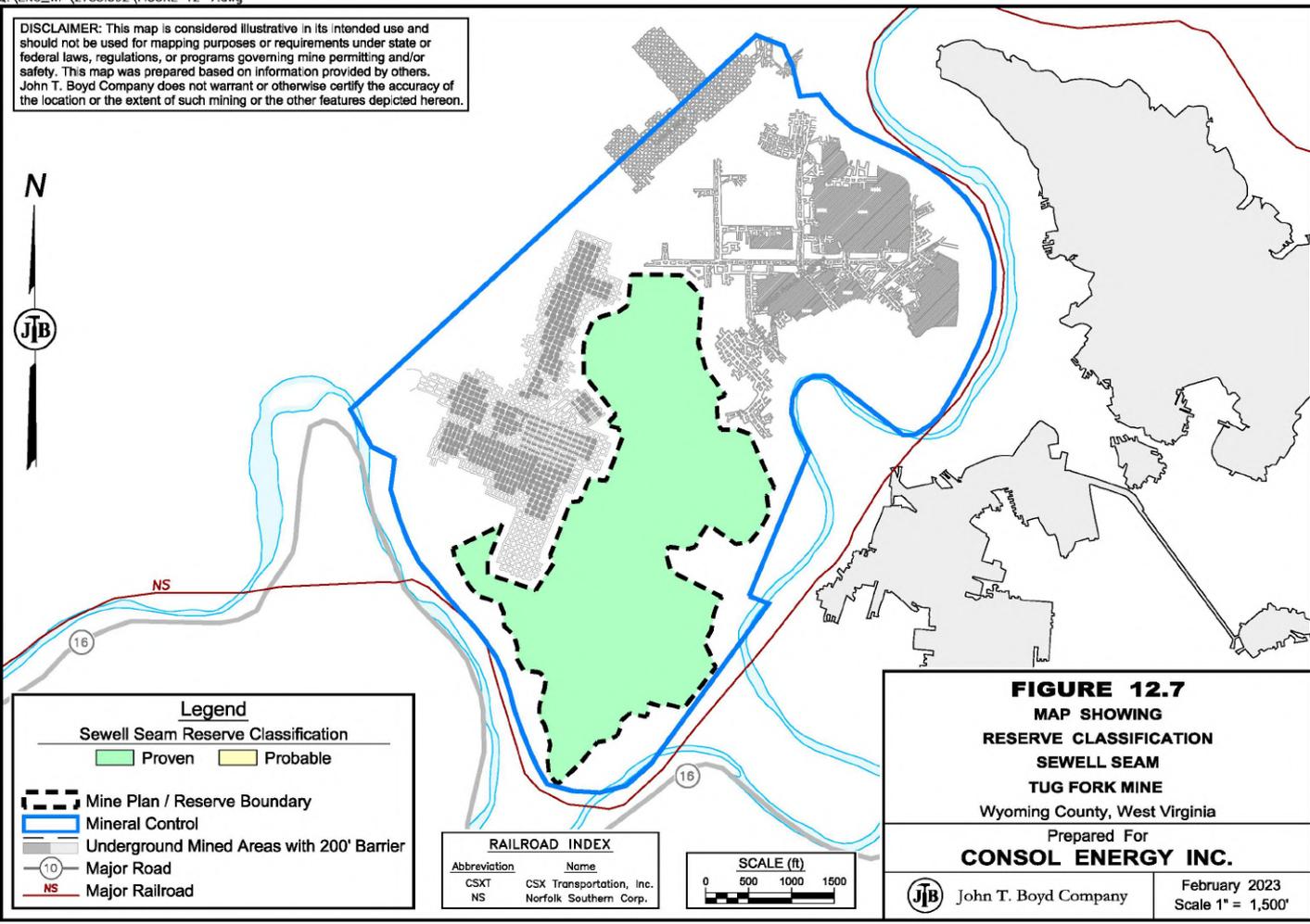
FIGURE 12.4
MAP SHOWING
PRODUCT YIELD ISOPLETHS
SEWELL SEAM
TUG FORK MINE
 Wyoming County, West Virginia
 Prepared For
CONSOL ENERGY INC.

John T. Boyd Company	February 2023 Scale 1" = 1,500'
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Legend

Sewell Seam Reserve Classification

Proven Probable

Mine Plan / Reserve Boundary

Mineral Control

Underground Mined Areas with 200' Barrier

Major Road

Major Railroad

FIGURE 12.7

MAP SHOWING

RESERVE CLASSIFICATION

SEWELL SEAM

TUG FORK MINE

Wyoming County, West Virginia

Prepared For

CONSOL ENERGY INC.

John T. Boyd Company

February 2023

Scale 1" = 1,500'

TABLE 12.1
ESTIMATED COAL RESERVES
AS OF 31 DECEMBER 2022 ITMANN MINING COMPLEX
West Virginia
Prepared For
CONSOL ENERGY INC.

By
John T. Boyd Company
Mining and Geological Consultants
February 2023

Control	Classification	Product Tons (thousands)		Average Product Quality (Dry Basis)					
		Total	By Permit Status		%			Heating Value (Btu/lb)	Free Swelling Index
			Permitted	Not Permitted	Ash	Volatile Matter	Sulfur		
Itmann No. 5 Mine - Pocahontas No. 3 Seam									
Owned	Proven	517	-	517	6.5	19.6	0.99	14,328	7.9
	Probable	1,231	-	1,231	6.7	19.6	0.98	14,326	7.8
	Subtotal	1,748	-	1,748	6.7	19.6	0.99	14,326	7.8
Leased	Proven	11,561	3,706	7,855	7.6	19.1	0.99	14,405	7.8
	Probable	10,547	868	9,679	7.7	19.5	1.06	14,391	7.7
	Subtotal	22,108	4,574	17,534	7.7	19.3	1.02	14,398	7.7
Total	Proven	12,078	3,706	8,372	7.6	19.2	0.99	14,401	7.8
	Probable	11,778	868	10,910	7.6	19.5	1.05	14,384	7.7
	Total	23,856	4,574	19,282	7.6	19.4	1.02	14,393	7.7
Itmann No. 5 Mine - Pocahontas No. 4 Seam									
Owned	Proven	344	-	344	4.4	18.5	0.70	14,880	6.3
	Probable	95	-	95	4.5	18.6	0.71	14,885	6.3
	Subtotal	439	-	439	4.4	18.5	0.70	14,881	6.3
Leased	Proven	3,483	-	3,483	4.9	18.6	0.75	14,728	6.8
	Probable	454	-	454	4.9	18.8	0.73	14,855	6.5
	Subtotal	3,937	-	3,937	5.4	18.7	0.75	14,742	6.8
Total	Proven	3,827	-	3,827	5.4	18.6	0.75	14,741	6.8
	Probable	549	-	549	4.9	18.7	0.72	14,860	6.5
	Total	4,376	-	4,376	5.3	18.7	0.75	14,756	6.7
Tug Fork Mine - Sewell Seam									
Leased	Proven	447	447	-	5.3	20.3	0.84	14,899	8.0
	Probable	1	1	-	5.4	20.2	0.83	14,898	8.0
	Subtotal	448	448	-	5.3	20.3	0.84	14,899	8.0
Total	Proven	447	447	-	5.3	20.3	0.84	14,899	8.0
	Probable	1	1	-	5.4	20.2	0.83	14,898	8.0
	Total	448	448	-	5.3	20.3	0.84	14,899	8.0
Total - All Mines and Seams									
Owned	Proven	861	-	861	5.6	19.2	0.87	14,548	7.2
	Probable	1,326	-	1,326	6.6	19.5	0.96	14,366	7.7
	Subtotal	2,187	-	2,187	6.2	19.4	0.93	14,438	7.5
Leased	Proven	15,491	4,153	11,338	7.1	19.1	0.94	14,491	7.6
	Probable	11,002	869	10,133	7.6	19.5	1.04	14,410	7.6
	Subtotal	26,493	5,022	21,471	7.3	19.3	0.98	14,458	7.6
Total	Proven	16,352	4,153	12,199	7.0	19.1	0.93	14,494	7.5
	Probable	12,328	869	11,459	7.5	19.5	1.03	14,406	7.7
	Total	28,680	5,022	23,658	7.2	19.3	0.98	14,456	7.6

Q:\ENG_WPI\2755.092 CEI - Itmann 22\WPI\REPORT\Table 12.1.xlsx|Table 12.1

Coal reserves for the IMC are summarized in Table 12.2.

Table 12.2: Coal Reserves Summary

Mine	Seam	Product Tons (thousands) by Classification		
		Proven	Probable	Total
Itmann No. 5	Pocahontas No. 3	12,078	11,778	23,856
	Pocahontas No.4	3,827	549	4,376
	Subtotal	15,905	12,327	28,232
Tug Fork	Sewell	447	1	448
Total		16,352	12,328	28,680

The reported reserves include only coal which is reportedly leased or owned as of December 31, 2022. CONSOL controls leases for approximately 26.5 million product tons, or 92.4% of the coal reserves.

At the time of reporting, approximately 5.0 million product tons (approximately 18% of the reported reserves) are permitted for mining by appropriate federal and state regulatory authorities. The remaining 23.7 million product tons are not permitted; however, it is expected that all necessary permits to recover the remaining coal will be obtained in advance of mining.

The coal reserves of the IMC are well-explored and defined. It is our conclusion that approximately 57% of the stated reserves can be classified in the proven reliability category (the highest level of assurance) with the remainder classified as probable. Given the relative uniformity of the subject coal seams in and around the IMC properties, it is reasonable to assume that further exploration and testing will confirm the occurrence of coal reserves and increase the percentage reportable as proven.

Table 12.3 below summarizes the washed coal quality for the IMC. The reported coal reserves generally consist of premium quality low-volatile metallurgical coal.

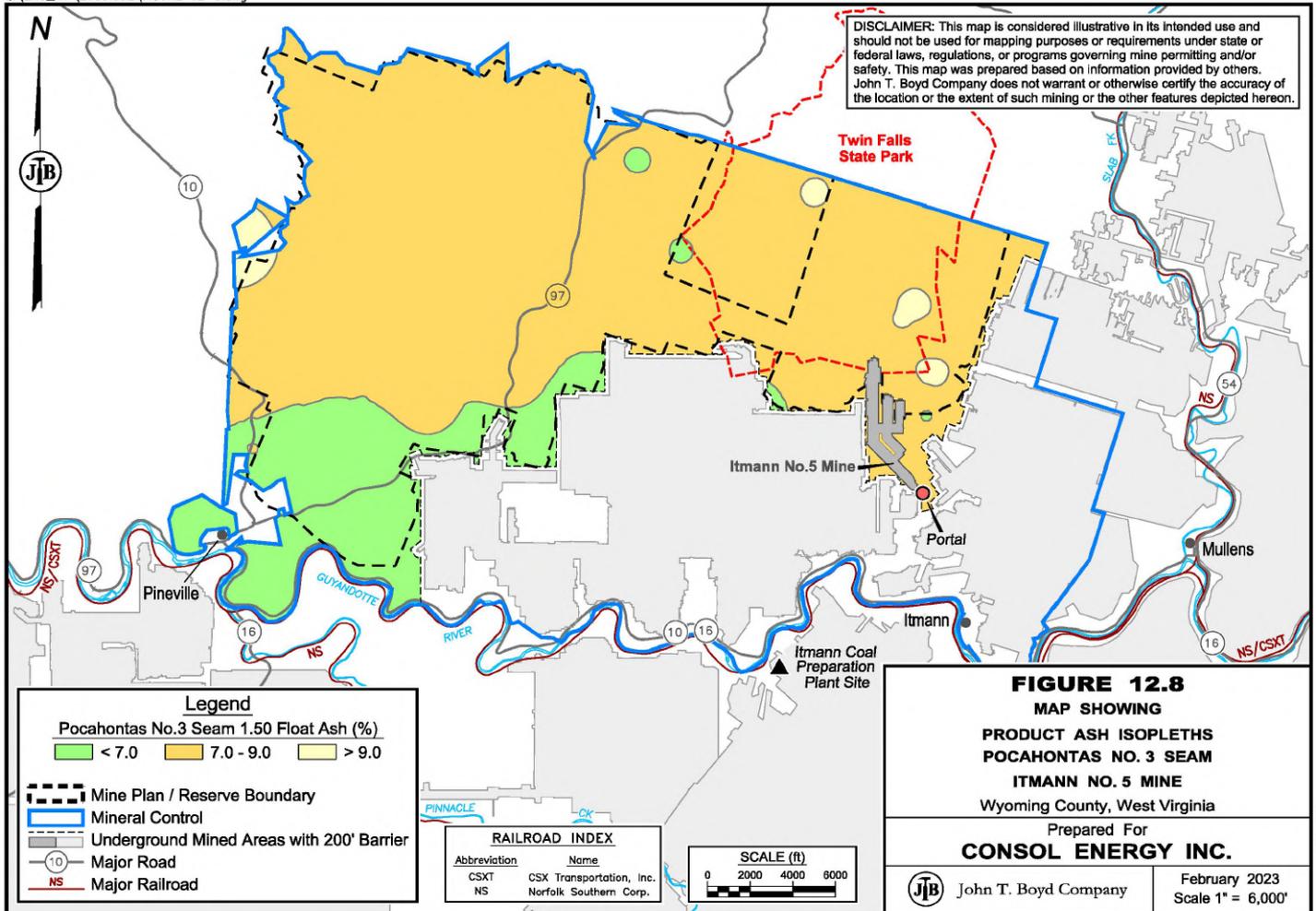
Table 12.3: Coal Reserves Product Quality Summary

Mine	Seam	Average Product Quality (Dry Basis)				
		%			Heating Value (Btu/lb)	Free Swelling Index
		Ash	Volatile Matter	Sulfur		
Itmann No. 5	Pocahontas No. 3	7.6	19.4	1.02	14,393	7.7
	Pocahontas No.4	5.3	18.7	0.75	14,756	6.7
Tug Fork	Sewell	5.3	20.3	0.84	14,899	8.0
Average		7.2	19.3	0.98	14,456	7.6

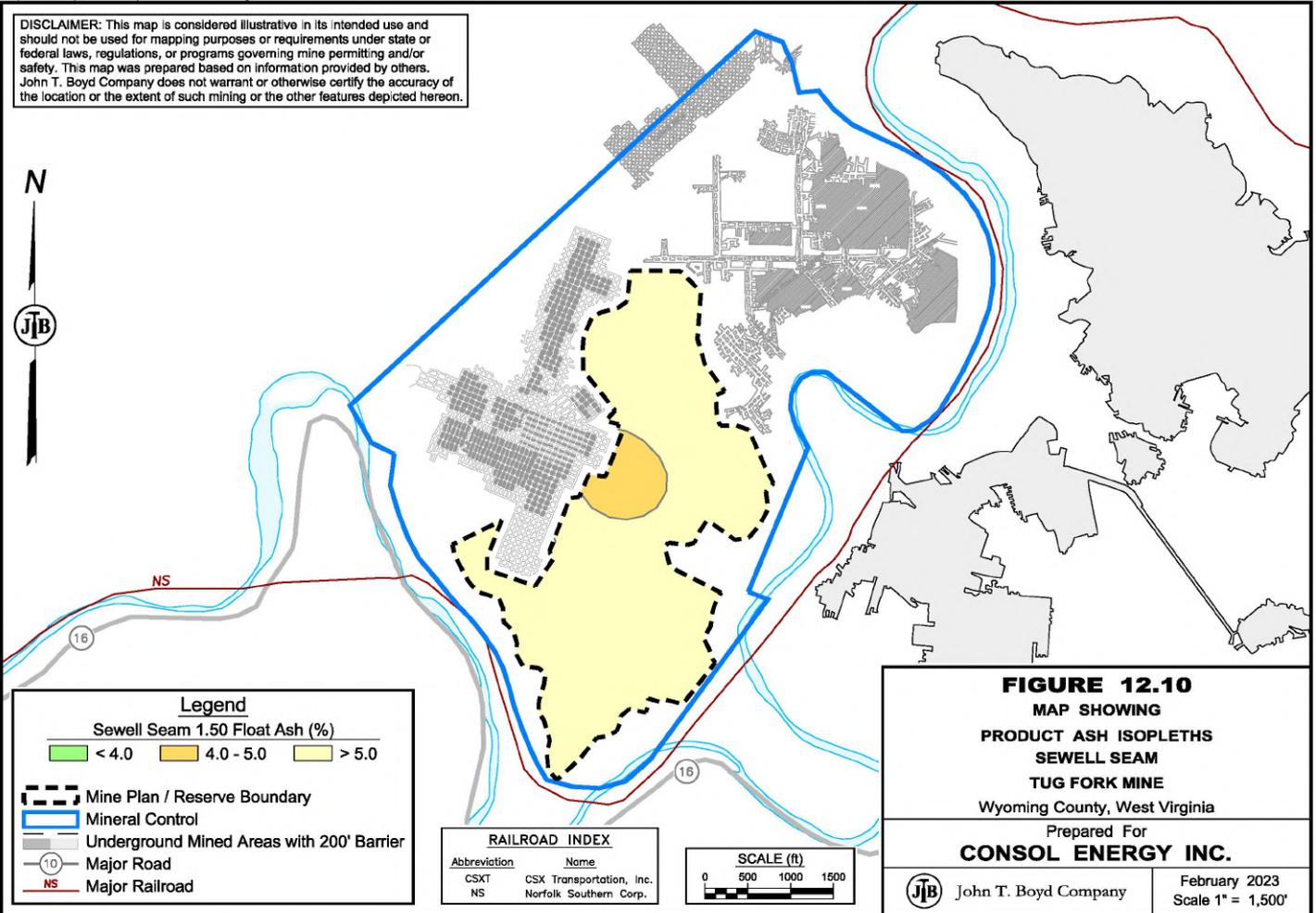
Figures 12.8–12.10 illustrate the product ash of the P3, P4, and Sewell seams, respectively. Figures 12.11–12.13 illustrate the product sulfur content of the P3, P4, and Sewell seams, respectively.

The Itmann properties and surrounding areas have a well-established history of underground coal mining. CONSOL also has a well-established history of mining and marketing coal from the region, having operated four previous mines in the immediate vicinity of the Itmann No. 5 Mine. BOYD has concluded that sufficient studies have been undertaken to enable the coal resources to be converted to coal reserves based on current operating methods and practices. Changes in the factors and assumptions employed in these studies may materially affect the coal reserve estimate.

The extent to which the coal reserves may be affected by any known geological, operational, environmental, permitting, legal, title, variation, socio-economic, marketing, political, or other relevant issues has been reviewed as warranted. It is the opinion of BOYD that CONSOL has appropriately mitigated, or has the operational acumen to mitigate, the risks associated with these factors. BOYD is not aware of any additional risks that could materially affect the development of the reserves.



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Legend

Sewell Seam 1.50 Float Ash (%)

 < 4.0	 4.0 - 5.0	 > 5.0
---	---	--

- Mine Plan / Reserve Boundary
- Mineral Control
- Underground Mined Areas with 200' Barrier
- 10 Major Road
- Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

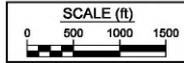
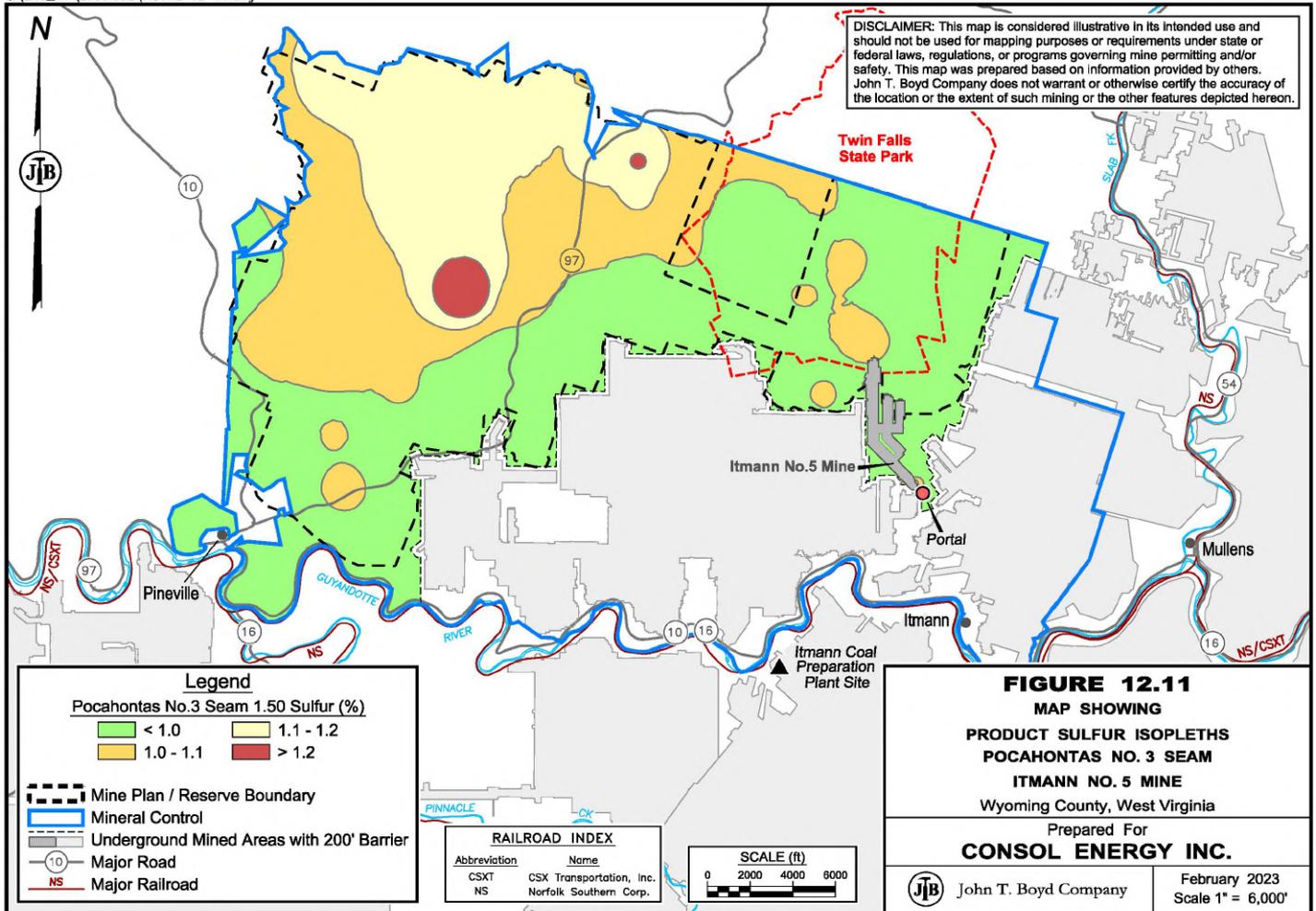
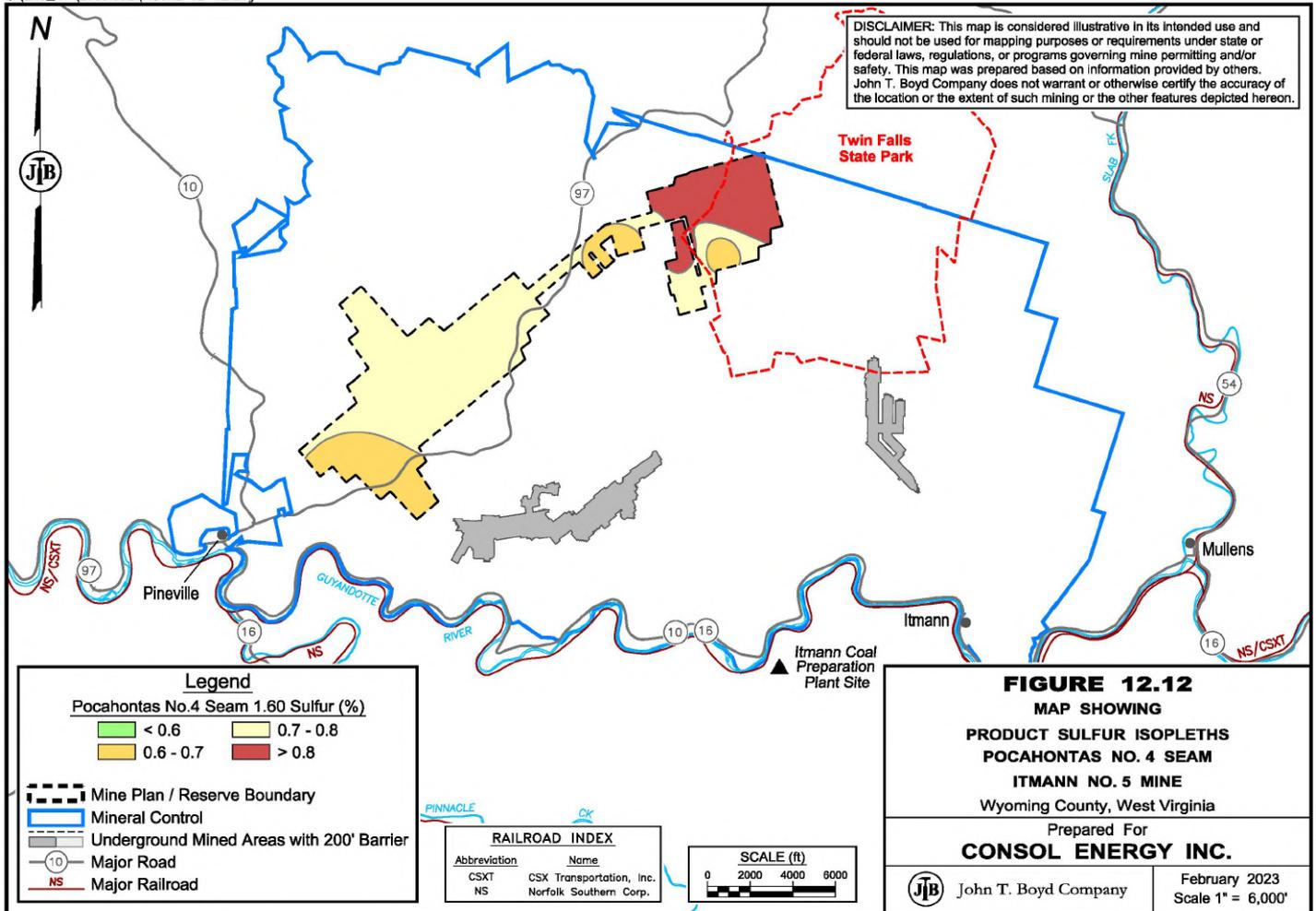


FIGURE 12.10
MAP SHOWING
PRODUCT ASH ISOPLETHS
SEWELL SEAM
TUG FORK MINE
 Wyoming County, West Virginia
 Prepared For
CONSOL ENERGY INC.

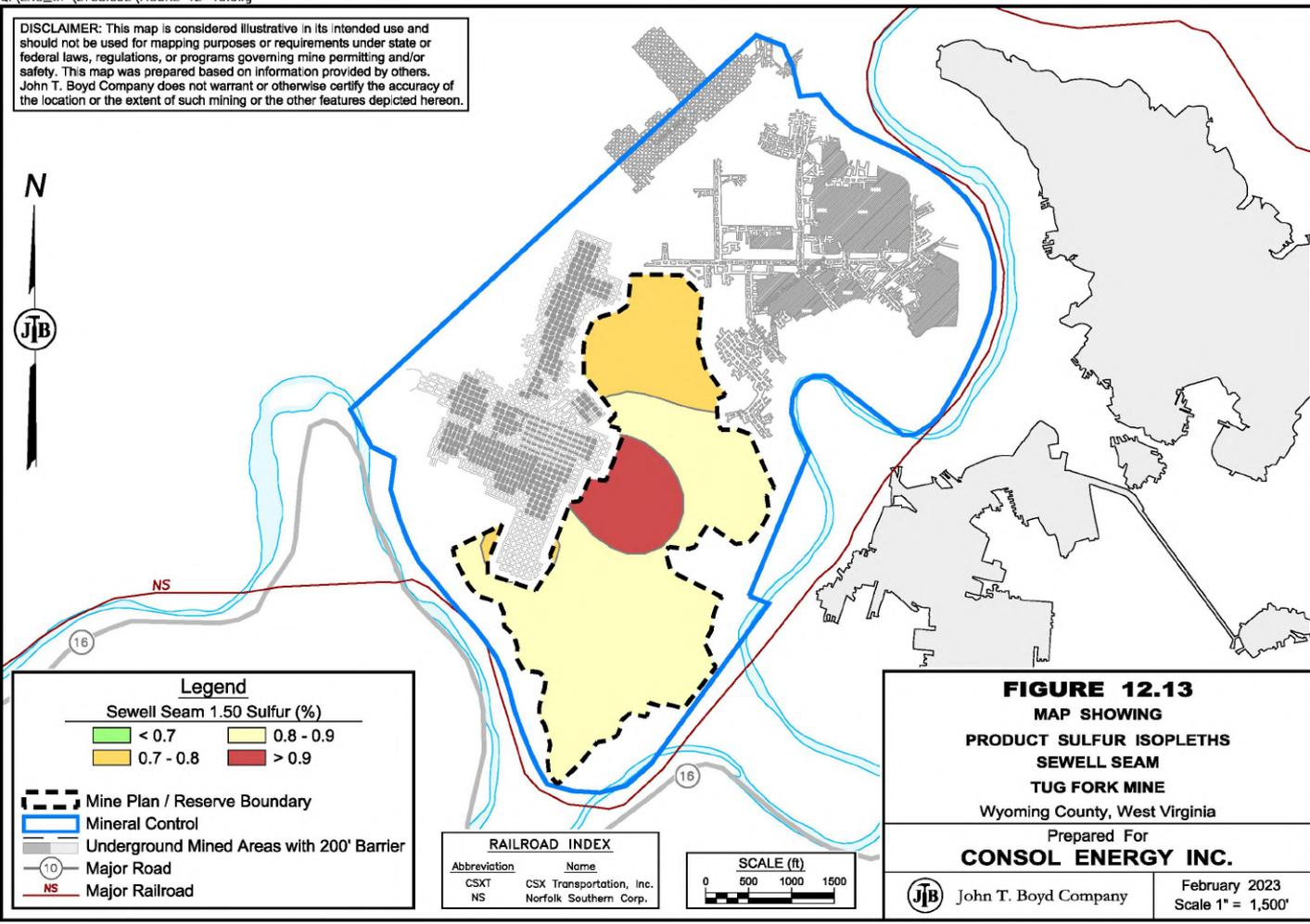
John T. Boyd Company

February 2023
 Scale 1" = 1,500'





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Legend

Sewell Seam 1.50 Sulfur (%)

■ < 0.7	■ 0.8 - 0.9
■ 0.7 - 0.8	■ > 0.9

- Mine Plan / Reserve Boundary
- Mineral Control
- Underground Mined Areas with 200' Barrier
- 10 Major Road
- NS Major Railroad

RAILROAD INDEX

Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

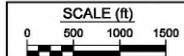


FIGURE 12.13

MAP SHOWING

PRODUCT SULFUR ISOPLETHS

SEWELL SEAM

TUG FORK MINE

Wyoming County, West Virginia

Prepared For

CONSOL ENERGY INC.

John T. Boyd Company

February 2023
Scale 1" = 1,500'

Based on our audit review, we have a high degree of confidence that the estimates shown in this report accurately represent the available coal reserves controlled by CONSOL, as of December 31, 2022.

12.2.5 Reconciliation with Previous Estimates

When comparing CONSOL's coal reserve estimates for the IMC as of December 31, 2022, with those reported as of December 31, 2021, we note a net increase resulting predominantly from the re-evaluation of the P3 Seam mine plan, the inclusion of the P4 Seam, and inclusion of Sewell Seam reserves contained within the Tug Fork lease area. Figure 12.14 illustrates the effect of these changes.

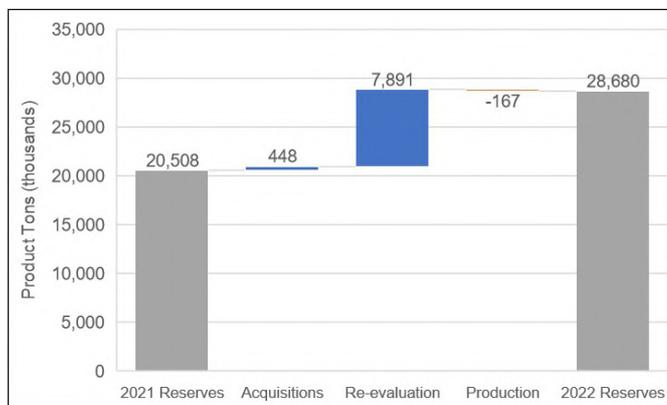


Figure 12.14: Reconciliation with Previous Coal Reserves Estimate

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13.0 MINING OPERATIONS

13.1 Mining Method Description

The IMC consists of two underground room-and-pillar mines located in CAPP; the Itmann No. 5 Mine, which operates in the P3 and P4 Seams, and the planned Tug Fork Mine, which will mine the Sewell Seam. The complex is expected to produce between 800,000 to 1.0 million product tons annually once full production is reached. In terms of mining methodology, the application of room-and-pillar mining techniques at IMC is viewed as a prudent operating decision based on: (1) the extent of the mine's overall coal reserve base, (2) CONSOL's targeted annual production levels, (3) the mine's expected mining conditions and seam orientation, and (4) the successful application of room-and-pillar technology at nearby historical and active mining operations. The use of room-and-pillar mining at IMC is further justified based on CONSOL's previous experience operating room-and-pillar mines and their reputation for having extensively refined the technical, operational, and financial elements of this mining technique over the years. Production from the Tug Fork Mine, which will be operated as a satellite contract operation, will be shipped for processing at the Itmann coal preparation plant.

Room-and-pillar mining is a partial extraction technique that recovers a portion of a coal seam via the systematic development of interconnected underground entries or openings. Rectangular roadways are driven in the coal seam and are typically supported by roof bolts installed in the immediate roof. The parallel mine entries are connected by crosscuts which result in a series of mine openings separated by solid coal pillars that support the main roof. Room-and-pillar mining systems, which generally utilize CMs, can be used primarily for coal production (similar to IMC) or as a development technique to support longwall (LW) production. This flexible mining system is widely used across the US coal industry, at large and small mines with varying seam thicknesses and mining conditions. In regions of thinner coal seams, such as the CAPP or Central Pennsylvania coal fields, room-and-pillar mining is the prevalent form of underground production.

A typical room-and-pillar production section will include one or two CM units, one or two roof bolting machines, and between two and four coal haulage machines (most commonly shuttle cars [SC]) per CM. The main piece of equipment is the CM, which is a heavy, steel framed machine (often over 40 tons) mounted on cat tracks, that operates on electric power. Key components of a CM include:

- Electric and hydraulic motors which power the CMs operation.
- A tram mechanism that propels the machine.

- A horizontally mounted, cylindrical cutting head used to cut the coal seam.
- A pair of gathering arms that pick-up/clear away the mined material.
- An internal conveyor system used to load the mined product into a haulage vehicle.

Although there have been ongoing advances in CM equipment technology, the basic room-and-pillar mining process has been utilized for decades and has remained largely unchanged over that time. The CM is used to extract the coal seam by mining a rectangular opening or “cut”. The cut typically ranges from 18 ft to 20 ft in width and extends the height¹ of the coal seam plus some increment of extraneous non-coal roof and floor material extracted during the mining process (known as “out-of-seam dilution” [OSD]). The depth that the CM cuts into the coal seam (i.e., the cut length) is dependent upon mining conditions, regulations, operating practices, etc. but is generally in the range of 15 ft to 40 ft. Shorter cuts are taken in areas where there are difficult roof conditions.

A critical element of room-and-pillar mining is the interaction between the CM, the roof-bolting machine and supporting haulage units. Known as “place-changing”, the following steps will typically occur during a mining cycle:

1. The CM penetrates the cut. As the coal and associated OSD are extracted, the CM unit loads the broken material into one of the haulage vehicles/SCs.
2. Once fully loaded, the SC carries the product from the CM to a “feeder,” where the coal is discharged from the car and gradually metered onto a conveyor belt for transport out of the mine. The empty SC then trams back to the CM to be reloaded. While this is taking place, the second SC is subsequently loaded. If additional SCs are utilized, these units follow in sequence. This operating pattern continues until the coal volume within the cut is fully extracted.
3. The CM then backs out of the cut and trams to the next location where the mining process is continued.
4. After a cut is completed, the exposed roof in the cut (just completed by the CM) must be supported. A roof bolting machine trams into the freshly mined area, drills holes into the roof and installs roof bolts—steel rods that strengthen the integrity of the roof. The principle of roof bolting is to physically tie together the weaker individual layers of roof strata to create a single “laminated” unit of rock that is stronger than the unsupported strata.

Place-change mining is an efficient form of room-and-pillar mining, although the process will routinely incur delays during a production shift (perhaps 5 to 20 minutes per occurrence, depending upon site-specific considerations). Where roof conditions permit

¹ In instances where a CM is operating in thick seam conditions (i.e., the coal thickness is greater than 8 ft), the height of the cut may be less than the full thickness of the seam.

(and approval is granted by regulatory agencies), mine operators will employ "deep cut" mining plans to reduce the impact of place-changing delays. Longer cuts (usually 30 ft to 40 ft in length) enable the CM to spend a greater portion of available shift time in cutting and loading activities.

Place-changing CM equipment has steadily evolved over the years via technological breakthroughs to become sophisticated, productive, and durable. Today's state-of-the-art CM units are equipped with efficient motors, computer diagnostics, solid-state electronics, advanced remote-control systems, and scrubbing mechanisms (which preserve underground air quality by capturing a significant percentage of respirable dust that is generated by the breaking/grinding of coal and rock during the mining process). Ever-improving technological gains have resulted in dramatic improvements in productivity, machine availability, employee safety, and unit operating costs over the past four decades.

A room-and-pillar mine may operate a single production section, or several sections. This is dependent upon the size of the reserve, supporting infrastructure, capitalization, markets, etc. A variation of the traditional room-and-pillar place-changing method is the "super-section". Under this system, the CM production section is equipped with two CM machines. After a cut is completed, the SCs are then routed to the other side of the production section, where a second CM is prepared to start loading from another cut location. As mining operations are relocated to the second CM, the first CM machine backs out of the cut and trams to the next cut location.

Room-and-pillar extraction may be performed as either "first mining" or "secondary extraction". First or "advance-only" mining is where a system of entries or openings are driven/advanced and the remaining coal pillars are left intact. Under this system, after a section has reached its intended advance distance, the section equipment is recovered and relocated to a new area, leaving the developed pillars untouched (i.e., no secondary mining of the pillars occurs). Reasons for employing this type of room-and-pillar mining may include equipment specifications, geological conditions, subsidence restrictions, operator preferences, etc.

Secondary extraction or "retreat mining" is the process whereby, after the mine workings have reached the end of the advance stage of mining, the direction of mining is reversed (i.e., the mine operator retreats towards the mouth of the production section, employing a prescribed series of cuts to sequentially recover coal from the pillars). Retreat mining systems can be complex and may include partial or full pillar extraction (which allows the

roof to systematically collapse and subsequently results in subsidence of the overlying surface).

Reserve recovery (extraction ratio) varies at room-and-pillar mines. Generally, 50% extraction of the in-place coal is typical, with extraction ratios ranging from 30% to 70%. Retreat mining may or may not offer higher extraction ratios than advance only mining; actual recoveries are dependent upon pillar dimensions and a variety of operational considerations.

13.2 Mine Equipment and Staffing

13.2.1 Mine Equipment

Mining equipment utilized by the IMC is commonly used in the underground mining industry and is similar to the equipment used by competitor room-and-pillar mines in the CAPP region, as well as in other domestic coal field regions. The major production equipment typically used at the Itmann No. 5 Mine is shown in Table 13.1:

Table 13.2: Summary of Production Unit Equipment

Equipment Type	Quantity
Continuous Miner	2
Shuttle Car	3-4
Double Boom Roof Bolter	2
Scoop	2
Power Center	1
Feeder	1

The planned Tug Fork Mine is expected to operate similar equipment.

In BOYD's opinion, the IMC mining equipment is well suitable for mining in the P3, P4, and Sewell Seams and is expected to meet or exceed proposed rates of production.

13.2.2 Staffing

The IMC is staffed with workers that primarily reside in the surrounding southern West Virginia area. Future workforce requirements for mining operations and the preparation facility will likely also be sourced from the same geographical location. The workforce is currently comprised of both hourly and salary employees (in similar fashion to those of other operating mines within the region) and has no labor affiliation (i.e., mine operations employ a union-free workforce). Given CONSOL's ability to hire and retain employees, staffing is not expected to hinder the IMC's ability to achieve forecasted production levels.

13.3 Mine Production

13.3.1 Historical Mine Production

Historical mine production data for the Itmann No. 5 Mine, based on publicly available information reported by the MSHA, are detailed in Table 13.2.

Table 13.2: Historical Production Data - Itmann No. 5 Mine

Year	Q1		Q2		Q3		Q4	
	Tons	TPEH	Tons	TPEH	Tons	TPEH	Tons	TPEH
2019	—	—	—	—	—	—	—	—
2020	—	—	7,868	1.29	—	—	12,364	1.91
2021	18,867	2.35	20,691	2.12	30,179	2.42	31,701	1.56
2022	47,519	1.59	34,632	1.06	41,243	0.97	44,659	0.72

Source: MSHA

Note:

TPEH = Tons per employee-hour.

Employee Hours for each operation includes Underground, Surface at Underground, and Office

Workers employees as listed by MSHA.

Tons reported as Product Tons.

Itmann No. 5 Mine obtained its official MSHA ID number (4609569) in June of 2019. After site development, including the construction of a box cut, offices, warehousing, water supply infrastructure, ventilation fan, and various other surface infrastructure, the mine achieved first coal production in Q2 of 2020. The operation's relatively low productivity figures (expressed in tons-per-employee-hour (TPEH)) during the 2020 to 2022 period is indicative of new mine development and not necessarily reflective of expected production/productivity at full capacity.

13.3.2 Forecasted Production

LOM production for the IMC includes output from the current Itmann No. 5 Mine, supplemented by production from the planned Tug Fork operation. Forecasted annual

production reflects: (1) BOYD's experience with CM room-and-pillar mines operating in the CAPP region, (2) utilizes generally accepted engineering practices, and (3) aligns with historical and industry norms of operating metrics of similar mines.

In the aggregate, BOYD projects the IMC will produce approximately 28.7 million tons of clean coal over its operational horizon (including production from the Tug Fork Mine). Once full production is reached, the mine is expected to produce approximately 900,000 product tons per year.

In general, IMC's annual clean coal yield and quality will remain relatively consistent over the LOM plan; this consistency is generally in line with the local geology of the primary target seams and is aided by the geographical distribution of production across multiple CM sections.

13.3.3 Mining Recovery and Dilution Factors

The IMC operations are typical of CAPP regional underground room-and-pillar operations relative to development/mining of mains, sub-mains, and panels. Consequently, mining recoveries for the IMC will be comparable to other regional operators (e.g., mining recovery for main and sub-main entry development will be approximately 40 to 50 percent, while panel mining (including first and secondary mining) will have 60 percent mining recovery). It is BOYD's opinion that the projected mining recoveries are reasonable and align with general engineering principles.

Estimated mining heights for IMC will generally range from 4 ft to 5.5 ft in aggregate and vary from year-to-year depending on coal seam thickness and distribution of CM section locations (mains, sub-mains, or panels). BOYD views these mining heights as reasonably accurate and acceptable within the CAPP underground room-and-pillar mining industry.

13.3.4 Expected Mine Life

The depicted general layout and coal control for the Itmann No. 5 Mine P3 and P4 Seams are shown in Figures 3.1 and 3.2. After producing approximately 28.2 million product tons, the Itmann No. 5 Mine is expected to exhaust its coal reserves in 2054. Production from the Itmann No. 5 Mine will be supplement by output from the Tug Fork Mine (see Figure 3.3 for the mine's general layout and coal control in the Sewell Seam). Over the course of its life, the Tug Fork Mine is expected to produce approximately 450,000 product tons.

13.4 Other Mining Considerations

13.4.1 Mine Design

The CAPP region utilizes a wide range of mining techniques for the extraction of coal including both surface and underground mining methods. Surface mining in the form of contour strip, auger mining, highwall mining, etc., as well as underground mining in the form of LW and room-and-pillar, are present within current and historical operations neighboring the IMC. The region's large variation in extents of reported coal reserves, mining conditions, coal seam consistencies, depths of cover, and population densities on the overlying surface (low population density being vital to minimizing the impact of mine subsidence and the costs associated), result in a large array of mining methods being implemented in the region.

Given the large extent of reported coal reserves, overall good mining conditions, general coal seam consistency, variable depth of cover, large interburden to overlying mine workings, and relatively low population density on the overlying surface, the IMC is well suited for underground room-and-pillar mining with secondary extraction. Mining plans for room-and-pillar mines with secondary extraction are relatively simple yet highly flexible. Unlike LW operations (having a rigid system), the IMC's mine plans can be altered to avoid specific areas with adverse mining conditions (such as thin coal, poor roof, etc.) or poor coal quality (such as high sulfur, etc.). Mains and sub-mains are typically established in areas where confidence is highest regarding good mining conditions, roof conditions, coal thicknesses, etc. Panels are then developed to a desired length until adverse mining conditions or poor coal quality warrant the cessation of development. When the mine panels reach the end of their advance stage of mining, the mine operator begins to retreat towards the mouth of the production panel (i.e., secondary mining is implemented). While retreating, a series of cuts to recover portions of the coal from the pillars is implemented where feasible.

Secondary mining is expected to be employed at the IMC throughout its LOM plans. There remains public and environmental group opposition to mining in general, particularly to LW mining and secondary mining (retreat mining) and the effects of subsidence on surface structures and, more recently, perennial streams. While there are likely to be some instances of heightened environmental and communal concern regarding IMC's use of secondary mining (e.g., mining in the Twin Falls State Park or near perennial stream areas, etc.); CONSOL has historically demonstrated the ability to apply for and obtain the necessary permits for continued mining within their controlled coal reserves.

There is inherent geologic risk in coal mining, and mine operators must therefore contend with periodic adverse or variable geological conditions that cannot be fully anticipated in advance of actual mining activity. While the occurrences of these physical conditions are beyond the control of site management, it should not be interpreted that coal mining is inherently risky. On the contrary, there are established measures that mine operators utilize to minimize the operational and financial impacts associated with such encounters. Coal mining operators, such as CONSOL, have demonstrated a long-term record of accomplishment of sustaining consistent and predictable levels of performance on an annualized basis.

13.4.2 Mining Risk

Underground room-and-pillar mines face two primary types of operational risks:

1. Daily variations in physical mining conditions, mechanical failures, and operational activities can temporarily disrupt production activities. Several examples are as follows:
 - Roof control problems and roof falls.
 - Water accumulations/soft floor conditions.
 - Ventilation disruption and concentrations of methane gas.
 - Variations in seam consistency, thickness, and structure.
 - Failures or breakdowns of operating equipment and supporting infrastructure.
 - Weather disruptions (power outages, inability to load barges due to flooding of rivers, etc.).

The above conditions/circumstances can adversely affect production on any given day but are not regarded as “risk issues” relative to the long-term operation of a mining operation. Instead, these are considered “nuisance items” that, while undesirable, are encountered on a periodic basis at virtually all mining operations. Engineered mining plans and projections for the IMC appear to incorporate generally-accepted industry and CONSOL historical performance levels as a basis, and thereby mitigate the likelihood that the mines will experience such disruptions to production operations to the extent that they have previously occurred. BOYD does not regard the issues listed above as being material to the IMC mining operations or otherwise compromising its forecasted performance.

2. “Event risk” includes major fires or explosions, floods, or unforeseen geological anomalies that disrupt extensive areas of underground mine workings and require alterations of mining plans. Such an event can result in the cessation of production activities for an undefined but extended period (measured in months, and perhaps years) and/or result in the sterilization of coal reserves. Events in this category are

rare but can have a pronounced impact on production activities and corresponding financial outcomes.

The US mining industry has made tremendous strides in enhancing employee safety and reducing the likelihood of fires, explosions, and other dramatic events over the past several decades. Underground room-and-pillar mining is largely a predictable and safe industry.

BOYD does not regard the IMC mining operations and its mine plans as being particularly risky, inadequately managed, or otherwise susceptible to major events. There is no basis to predict or otherwise anticipate major operational shortfalls and/or extraction of coal reserves at the subject mining operation.

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JOHN T. BOYD COMPANY

14.0 PROCESSING OPERATIONS

14.1 Overview

The Itmann CPP is comprised of a ROM truck dump, ROM coal storage area, a CPP, clean coal storage area, and a rail loadout facility. The processing complex (including initial refuse fill area) is located at the site of the original Itmann CPP which operated from 1950 to 1986 and washed coal from CONSOL's previous operations in the P3 Seam. CONSOL holds permits for the CPP site and intends to expand the permit area by approximately 116 acres for additional refuse fill capacity. All the surface permit area is controlled by CONSOL. Raw coal produced by the operating Itmann No. 5 Mine² and planned Tug Fork Mine is/will be processed at the Itmann CPP.

14.2 Plant Description

The Itmann CPP is a state-of-the-art PLC controlled heavy media plant with a rated raw coal capacity of 600 TPH. While the facility is the newest CPP complex within the CAPP region, the CPP is based on similar, proven technology utilized by other preparation plants within CAPP over past decades. Processing circuits consist of heavy media bath, heavy media cyclones, hydro-spirals, and froth flotation. Rudimentary when compared to many other mineral processing techniques, the coal process is largely based on separating rock material from coal material contained in the raw coal feed by mechanically reducing the size of the feed and utilizing the materials' different densities to gravitationally separate one from the other. Largely, the process requires water, magnetite, and frothing agents.

ROM coal is transported by truck to the CPP and handled/stored at a raw coal receiving and ground storage area. The raw coal is then collected by reclaim feeders and conveyed to a raw coal screening tower. The oversized (rock) material is segregated and conveyed to a storage bin for hauling to the refuse site, while the undersized (screened raw coal) is metered and conveyed into the CPP for processing.

The refuse resulting from the coal processing is sent to one of two plate press buildings where the moisture content within the fine refuse is reduced and a "cake" like refuse material is formed. This refuse is transferred to the refuse bin (where it is combined with the coarse rock refuse material) for transport by truck to the refuse site.

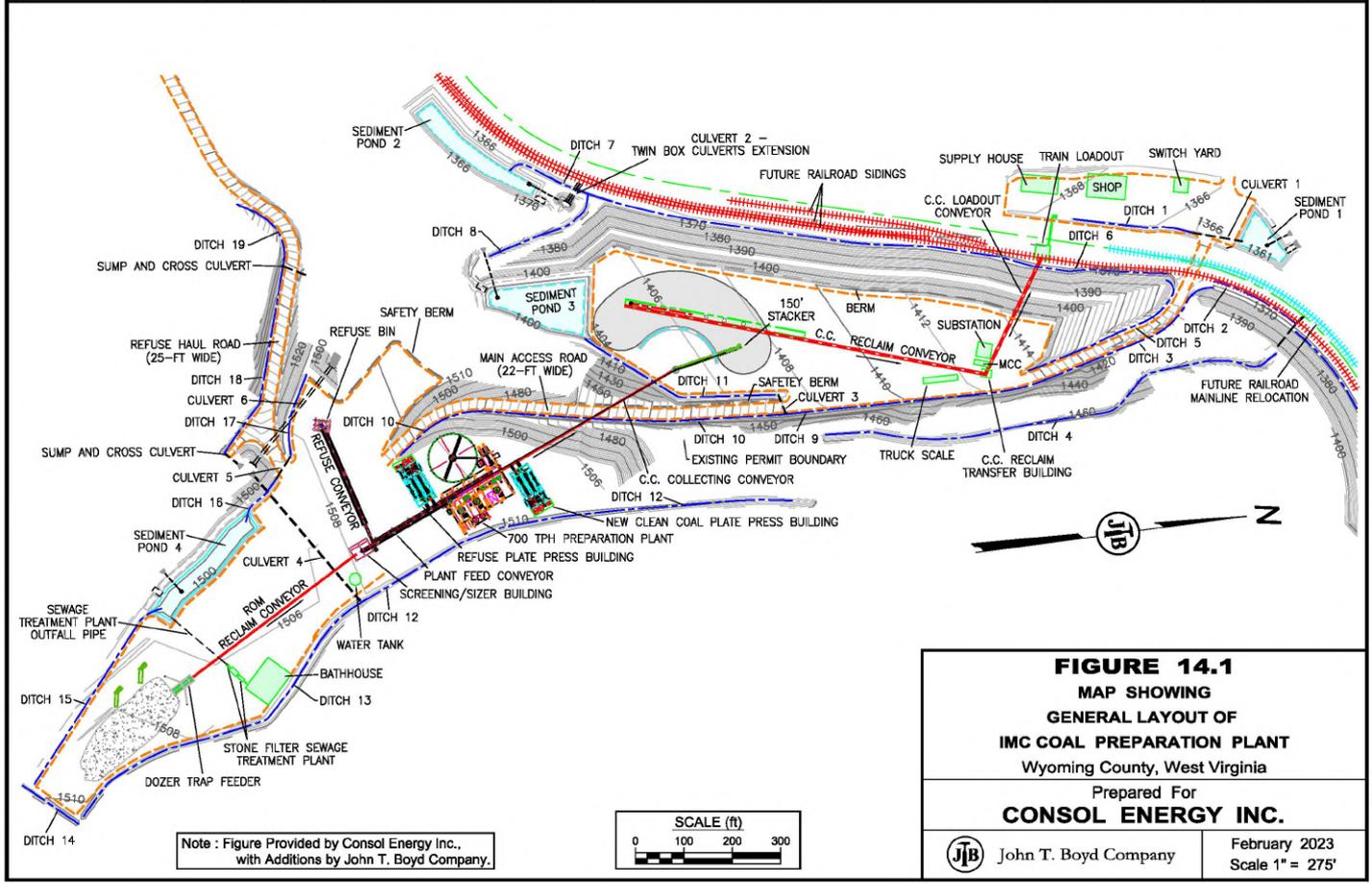
² Coal from the Itmann No. 5 Mine is trucked approximately 2.5 miles to the CPP.

The clean coal product is dried with screen-bowl centrifuges and clean coal plate presses. Processed product is conveyed to a clean coal ground storage area and stacked via a 150-ft radial stacker. Clean product is reclaimed from the clean coal pile and conveyed³ to the over-the-track flood load out where it is loaded into unit trains. The loadout, which has three rail sidings to facilitate railroad transportation logistics, can accommodate a single unit-train.

The general site layout and coal processing flow sheet for the Itmann CPP are shown in Figures 14.1 and 14.2, following this page. The existing and future permit areas for the Itmann CPP and supporting refuse disposal area is shown in Figure 14.3.

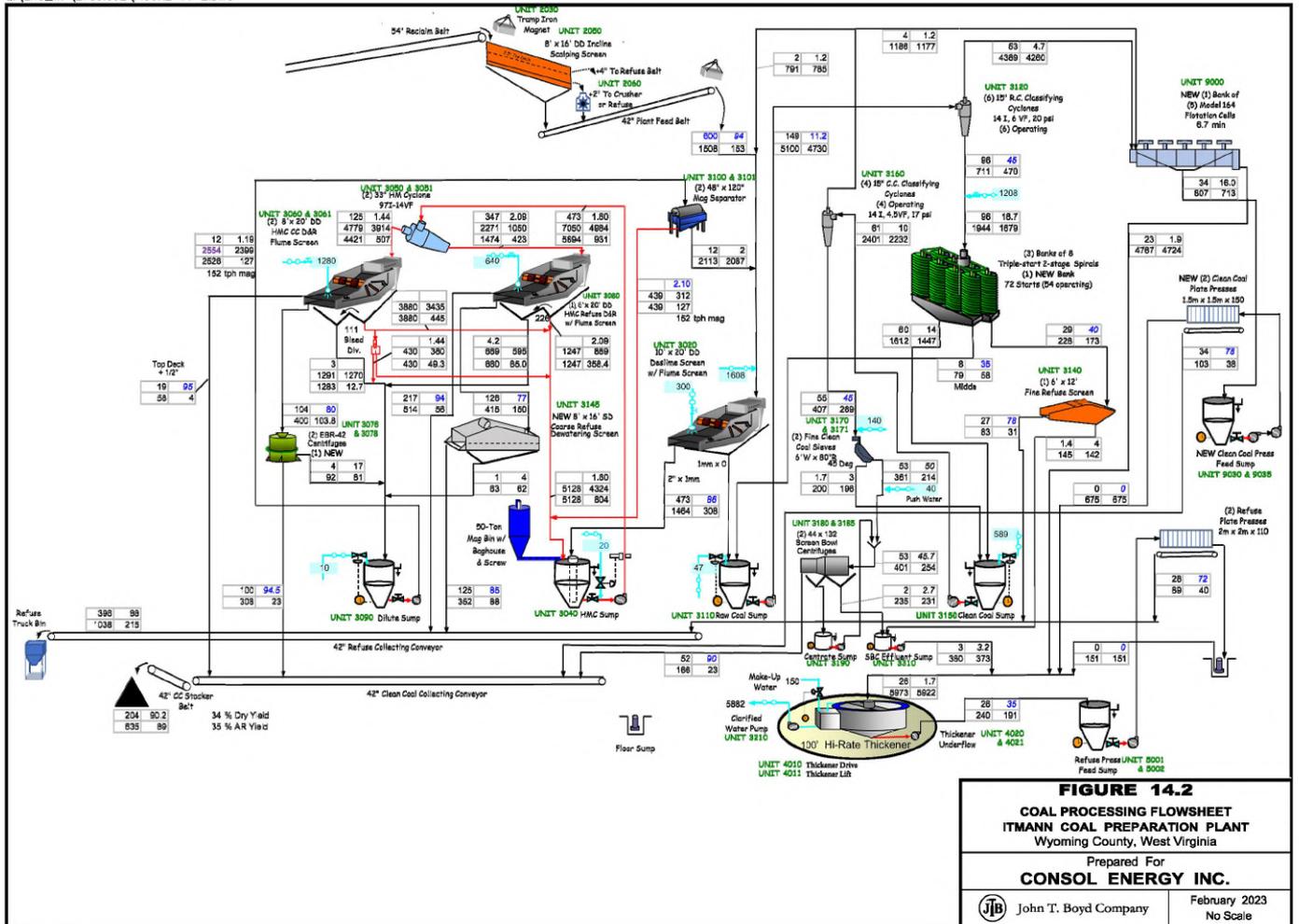
³ An inline mechanical sampling system is integrated on the clean coal conveyor system for coal quality analysis.

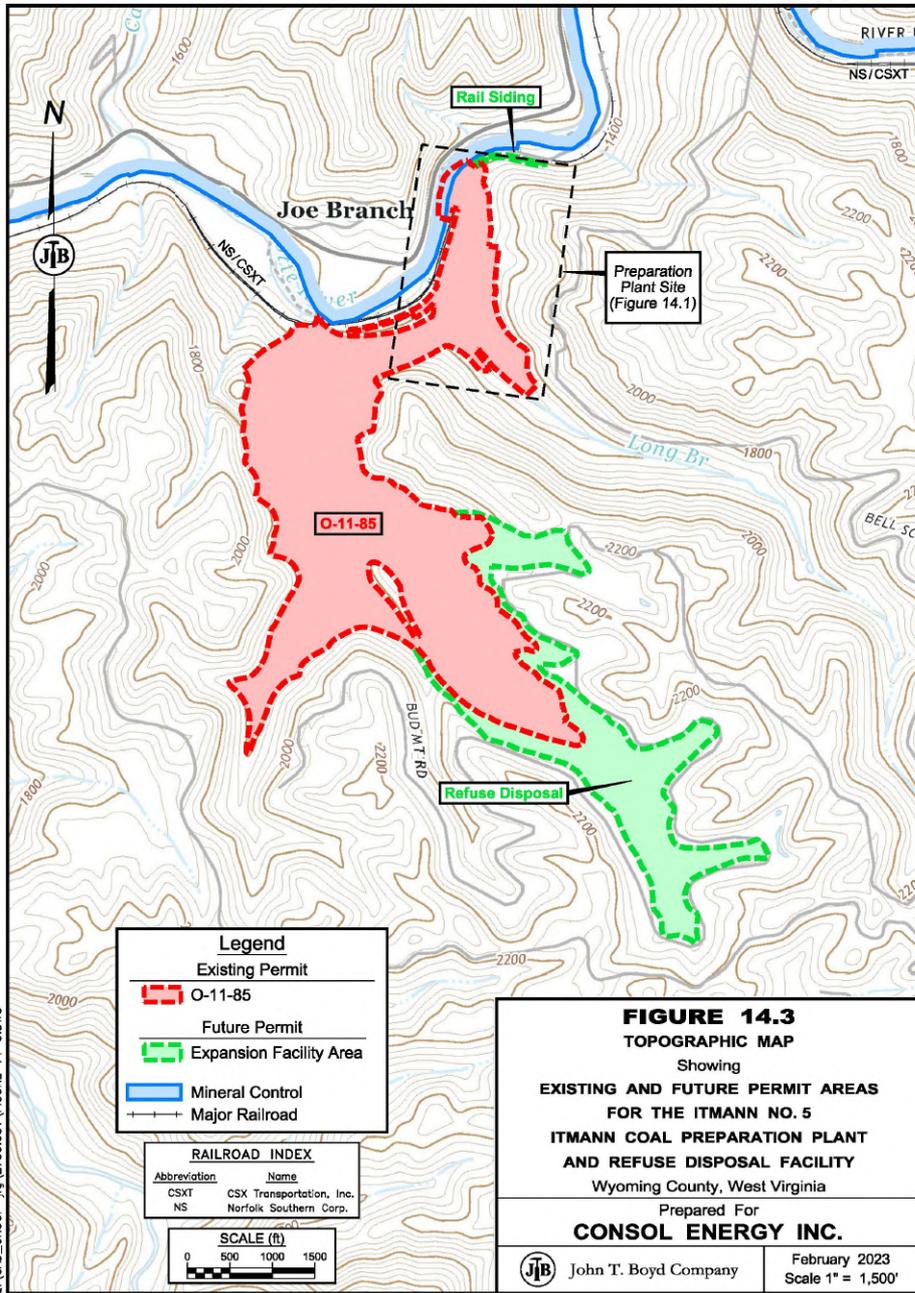
PROJECT	ITMANN COAL PREPARATION PLANT	CLIENT	CONSOL ENERGY INC.	DRAWN BY	DATE	JOB NO.				
	GENERAL SITE LAYOUT		ITMANN, WEST VIRGINIA							
RAW RESOURCES GROUP P.O. BOX 5099 PRINCETON, WEST VIRGINIA 24740 OFFICE: 304-716-9160 FAX: 304-716-9161				CHECKED BY: [] DATE: 8/11/2022 DESIGNED BY: [] DATE: 8/11/2022 SCALE: 1"=275' APPROVED: [] DATE: 8/11/2022 JOB NO. Q200409 CODE NO. GA1 DWG. NO. 101 REV. A						



Note : Figure Provided by Consol Energy Inc.,
 with Additions by John T. Boyd Company.

14-3





Legend

Existing Permit

O-11-85

Future Permit

Expansion Facility Area

Mineral Control

Major Railroad

RAILROAD INDEX	
Abbreviation	Name
CSXT	CSX Transportation, Inc.
NS	Norfolk Southern Corp.

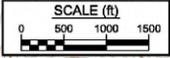


FIGURE 14.3
TOPOGRAPHIC MAP
 Showing
EXISTING AND FUTURE PERMIT AREAS
FOR THE ITMANN NO. 5
ITMANN COAL PREPARATION PLANT
AND REFUSE DISPOSAL FACILITY
 Wyoming County, West Virginia
 Prepared For
CONSOL ENERGY INC.

John T. Boyd Company	February 2023 Scale 1" = 1,500'
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C:\CAD_GROUP\fig\2755.081\FIGURE 14-3.DWG

14.3 Itmann No. 5 Refuse Facility

The Itmann No. 5 refuse facility area (also known as the Joe's Branch refuse area) serves as the disposal location for all refuse (combined coarse waste rock and dried, pressed fine coal refuse) produced during the processing of ROM coal from the IMC. The current CPP and refuse facility encompasses approximately 233.5 permitted and bonded acres.

The refuse placement method employs side embankment fills utilizing combined (coarse and fine) refuse material. By using this refuse placement method, slurry cells or impoundment structures will not be required. This is viewed by BOYD as an advantage for obtaining future refuse disposal permits in a timely manner.

CONSOL representatives indicated that the refuse disposal plan (started in 2022) is based on proven practices and approaches. CONSOL has historically demonstrated the ability to steadily acquire the required land for other refuse facilities, associated permits, and to execute construction of disposal areas in a timely fashion. It is BOYD's opinion that CONSOL's future staged refuse disposal will meet or exceed the practices demonstrated by other industry peers.

14.4 Historical Operation

The CPP has no historical operating metrics or production records to report.

14.5 Future Operations

The 600 TPH preparation facility, which will be utilized over the IMC's 30-plus year LOM plan, is sized to meet future clean coal production forecasts. Forecasted clean coal qualities coincide with the range of expected coal washing capabilities prescribed for the CPP.

14.6 Conclusions

Based on our review of the plant's engineering design and layout, observations from the CPP site, and conversations with CONSOL personnel, it is BOYD's opinion that the Itmann CPP will be sufficient for future processing of coals from the IMC.

15.0 MINE INFRASTRUCTURE

15.1 Mine Surface Facilities

Operation of the IMC is supported by several surface facilities located near the southeastern reserve boundary of the Itmann No. 5 Mine. Major surface infrastructure elements include: engineering and business offices, personnel bathhouses, parking areas, supply yards, warehouse facilities, ventilation fan structures, high voltage power distribution stations, ROM coal conveyor belt structure, and primary underground access points, including four drift access tunnels that provide underground ventilation, are used to transport supplies and personnel underground, and contain the ROM coal conveyor belt to the surface. In terms of industry standards, the IMC's surface infrastructure is comparable to facilities found within the CAPP mining region.

The IMC's current surface facilities are well constructed and have the necessary capacity/capabilities to support the complex's near-term mining plans. Longer term, as operations progress beyond near-term mine plans and the location of future mining activities is centered outside the physical and/or operational limitations of the existing infrastructure, additional surface facilities, such as ventilation shafts, will likely be required to support continued mining (refer to Chapter 18 for a discussion regarding projected capital expenditures).

Given CONSOL's demonstrated ability to steadily construct and support their historical coal operations in a timely fashion (relative to underground mine production), IMC's need for future surface facilities (primarily ventilation shafts) is not seen as a hindrance for execution of LOM plans.

In addition to the surface infrastructure mentioned above, the operation is supported by a CPP and rail loading facility designed to process metallurgical coal production from the Itmann No. 5 and Tug Fork operations. Construction and commissioning of the Itmann CPP was completed in the second half of 2022.

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16.0 MARKET STUDIES

16.1 Product Specifications

The primary product produced by CONSOL's IMC is a low volatile, bituminous rank metallurgical coal, which is sold into both domestic and export markets. CONSOL reports indicative coal quality specifications for the Itmann No. 5 Mine metallurgical product as summarized in Table 16.1 below:

**Table 16.1: Indicative
Metallurgical Coal Quality**

Parameter	Units	Value
Ash	%, db	8.0
Volatile Matter	%, db	19.0
Fixed Carbon	%, db	75.0
Sulfur	%, db	0.9–1.0
P2O5	% in Ash	0.33
Reflectance	% Ro	1.61
Max Fluidity	DDPM	75-220
HGI		95
Predicted CSR		60
FSI		8

Source: CONSOL Fact Sheet

BOYD notes that these indicative specifications reasonably reflect the estimated product coal quality of the coal reserves reported herein. The proximate analysis indicates that the Itmann P3 Seam coal exhibits intermediate ash content by US or any other coking coal standards. The coal is a strong low volatile bituminous coal by ASTM ranking criteria. The sulfur content is low and considered good for metallurgical coal. Additionally, a very low (i.e., desirable) phosphorous level is exhibited. The free swelling index (FSI) is considered favorable (excellent) and the Geisler plasticity test results indicate high (excellent) fluidity for a low-volatile coal of this rank. In general, BOYD views the Itmann No. 5 Mine product as a premium low-volatile metallurgical coal that should be well-received by the domestic and export markets.

16.2 Coal Transportation Options

Operations are supported by a nearby, dedicated coal preparation facility capable of processing coal from the Itmann No. 5 and Tug Fork underground operations, as well as purchased coal trucked to the facility from third-party suppliers. Coal processed by the Itmann CPP is directed onto the NS railroad for further dispatch to domestic steelmakers and/or to the NS's Lamberts Point export terminal located near Hampton Roads, Virginia or to the CONSOL Marine Terminal in the Port of Baltimore, for onward delivery to international steelmakers. In support of coal train loading operations, a unit train-ready rail car siding is located adjacent to the Itmann CPP. The facility's train loading capacity is approximately 3,500 TPH.

16.3 Primary Markets

Metallurgical ("met") coal is used to make metallurgical coke (metcoke), which in turn is used to make hot metal or "pig iron" in the steelmaking process; only select, higher-rank coals exhibiting necessary coking properties are suited for metallurgical coal use. Compared to thermal coal, metallurgical coal receives a market premium due to its specialized characteristics, limited availability/accessibility, and the additional processing costs associated with its production.

Metallurgical coal produced in the United States is sourced from a variety of coal mines located in the Appalachian coal fields:

- **Northern Appalachia (NAPP)** includes Pennsylvania, Maryland, Ohio, and northern West Virginia. Most of the metallurgical coal produced in this region originates from mines in central Pennsylvania and northern West Virginia, with lesser amounts coming from Maryland, and occasionally from mines operating in the Pittsburgh No. 8 Seam.
- **Central Appalachia (CAPP)** region, which is comprised of southern West Virginia, eastern Kentucky, Virginia, and Tennessee, is the primary metallurgical coal source within the United States. Most of the region's metallurgical coal output is from mines in southern West Virginia and Virginia (including the Itmann operations).
- **Southern Appalachia (SAPP)** metallurgical production is sourced primarily from select operations found within the Alabama bituminous coal fields.

A relatively fixed portion of US metallurgical coal output (approximately 15 to 18 million tons annually) is consumed domestically while the remainder is directed into the international market via port facilities located on the Atlantic or Gulf coasts. Enhancing the US metallurgical coal industry's reputation in the export market is its diversity of suppliers, range of coal qualities, world-class transportation infrastructure, and historical

reliability—factors that are recognized and valued by global consumers of seaborne traded metallurgical coal.

Table 16.2, below, provides a general guideline regarding the ideal quality characteristics⁴ for US met coal by volatile matter content:

	High Volatile	Medium Volatile	Low Volatile
Volatile Matter (% db)	31-34	23-28	>18 to <21
Ash (% db)	<6	<6	<6
Sulfur (% db)	≤0.8	≤0.8	≤0.8
Oxidation Test	≥ 94	> 97	> 98
FSI	≥ 8	> 8	8 to 9
Fluidity	≥ 20,000	> 1,000	> 70
Plastic Range	≥ 95	>80	> 60
Dilation	≥ 180	≥ 200	> 50
Sole Oven	> -20	> -3	< +5
HGI	≥ 55 to < 80	> 60 to < 90	88 to 94
Ash Fusion Temp*	≥ 2,580°F	≥ 2,580°F	≥ 2,580°F
P2O5 % (in ash)	≤0.5	≤0.5	≤0.5
Reflectance	> 0.98	1.2 to 1.4	1.47 to 1.62
CSR Potential	> 56	≥ 60	> 56

* softening temperature

db - dry basis

Source: CoalTech Petrographic Associates, Inc.

In addition to volatile matter, other quality parameters that are important in assessing metallurgical coal characteristics include: ash, sulfur, alkali oxides, and phosphorous content, as well as fluidity, reflectance, coke stability, coke strength after reaction (CSR), and FSI. Consumers of metallurgical coal have developed selective blending requirements and procedures. Coke makers use of appropriate proportions of low-, mid-, and high-volatile coals enables them to produce met coke with acceptable chemical and physical properties at optimized raw material costs.

High-volatile coals are more plentiful in the United States (in terms of potentially mineable deposits) than low- and mid-volatile coals. Low- and mid-volatile coal deposits in the United States are generally more expensive to mine than high-volatile coal deposits due to their unfavorable mining conditions (e.g., thinner seams and/or deeper

⁴ The ideal quality characteristics listed reflect the opinion of US coke makers and metallurgical coal producers and may not reflect the quality requirements desired in the international market.

mining depths). The relative availability of high-volatile metallurgical coals tends to make low- and mid-volatile coals of particular interest to coke producers. Accordingly, premiums are placed on low- and mid-volatile metallurgical coals, particularly those with low ash and sulfur contents and other favorable characteristics. Of particular interest to coke producers is the availability of low-volatile metallurgical coal. Low-volatile coal is one of the most critical ranks of metallurgical coal used to produce coke. High-volatile coals, when utilized alone, generally do not produce met coke with acceptable physical properties to attain the strength needed to resist abrasion or degradation as coke moves down the blast furnace column.

Low-volatile metallurgical coals, while producing adequate coke strength, cannot be coked alone because they expand and may generate excessive pressure during coking that can damage coke oven walls and/or the resultant coke cannot be "pushed" from an oven. Consequently, technology has been developed which enables the controlled and selective blending of low, medium, and high-volatile coals to produce met coke with acceptable chemical and physical properties for blast furnace and foundry use. Low-volatile metallurgical coal, when blended with high and medium-volatile coals in amounts ranging from 15% to 30% of the blend, aids in increasing coke strength (stability) and improves coke yield and coke shatter for blast furnace use.

In foundry use, a premium is placed on large size coke that is produced by using more low-volatile metallurgical coal in the oven compared to blast furnace coke production. Foundry blends generally contain from 40% to 50% low-volatile coal. In both blast and foundry coke production, premiums are placed on low-volatile metallurgical coal with low ash and low sulfur contents.

16.4 Future Sales

CONSOL directs the Itmann metallurgical coal product into both the domestic and export markets, with sales being evenly distributed between both sectors. Based on its introduction/use to date, BOYD anticipates Itmann metallurgical coal will continue to garner market acceptance among domestic and international steelmakers. As it becomes an established source of low vol met coal for use in various steelmakers' coke oven blends, premium coal from the operation will likely be sold at realizations at or above prevailing benchmark pricing for premium US low-vol metallurgical coal products. Additionally, as a new operation the IMC should enjoy generally lower costs versus its US peer operations, thus enabling it to compete longer-term in overseas markets.

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17.0 PERMITTING AND COMPLIANCE

17.1 Permitting

Numerous permits are required by federal and state law for underground mining, coal preparation and related facilities, and other incidental activities. CONSOL reports that necessary permits to support current operations are in place or pending approval. Typical of longer-term mining operations, new permits or permit revisions will most likely be necessary from time to time to facilitate future operations. Given sufficient time and planning, we believe that CONSOL should be able to secure new permits, as required, to maintain its planned operations within the context of the current regulations.

Continuously increasing efforts are required to obtain permits for underground coal mining and related activities in West Virginia. The primary contributing factors are the effects of subsidence on overlying streams and the ability to permit refuse sites.

Please refer to Section 3.3 for additional information.

17.2 Compliance

CONSOL reports having an extensive environmental management system.

In its 2021 corporate sustainability report, CONSOL reports:

- Maintaining an environmental compliance record exceeding 99.9% for the ninth consecutive year, as measured by the rate of compliance with permit effluent limits.
- CONSOL Marine Terminal achieved a 100% environmental compliance record, with zero violations in 2020.
- The company announced its greenhouse gas emissions reduction targets, seeking to achieve a 50% reduction in Scope 1 and 2 emissions in a 5-year period (or by 2026), and net zero Scope 1 and 2 emissions by 2040.

Based on our review of information provided by CONSOL, it is BOYD's opinion that CONSOL has a generally typical coal industry record of compliance with applicable mining, water quality, and environmental regulations. BOYD is not aware of any regulatory violation or compliance issue which would materially impact the coal reserve estimate.

17.3 Socio-Economic Impact

CONSOL's 2021 corporate sustainability report outlines the components of its core sustainability initiatives. It's stated financial priorities include continued support of local economic prosperity, regular stakeholder engagement, and creation of opportunities for the local communities.

BOYD is not aware of any community or stakeholder concerns, impacts, negotiations, or agreements which would materially impact the coal reserve estimate.

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18.0 CAPITAL AND OPERATING COSTS

18.1 Introduction

BOYD independently developed a discounted cash flow analysis to determine in BOYD's opinion that extraction of the coal reserves of the Itmann No. 5 Mine are economically viable. BOYD's calculations and determinations included in this chapter are based on what BOYD believes to be reasonable, appropriate, and relatively conservative investment and market assumptions and estimates, including all assumptions made about future prices and market conditions, production and sales volumes, operating costs, capital expenditures and other results and measures that are necessary and are used to determine the economic viability of the reported coal reserves.

BOYD's assumptions and estimates have been calculated and presented in this report solely for the purpose of confirming that future extraction of the IMC coal reserves are economically viable as required under S-K 1300. BOYD's estimates and assumptions underlying the discounted cash flow analysis and other calculations are based on future estimates of spot prices, the mine's historic performance (from 2019 through December 31, 2022), BOYD's experience in the CAPP region, projected production at the Itmann No. 5 and Tug Fork Mines, as well as other assumptions and estimates detailed in this chapter. Actual future operating results and investment and market conditions may differ significantly from the Itmann No. 5 Mine's historic results or from the estimates of future investment and market conditions as well as from the mine's future performance assumed by BOYD in the discounted cash flow analysis as a result of various factors and risks, some of which may be outside of CONSOL's control. CONSOL, as with all coal mining companies, actively evaluates, changes, and modifies business and operating plans in response to various factors that may affect IMC's production, operations and financial results. Actual future results (i.e., production levels, operating expenses, number of operating CMs, sales realizations, etc.) could significantly vary year to year from the assumptions and estimates used by BOYD.

The following section provides a review of recent historical operating costs and capital expenditures for the IMC. A discussion of BOYD's outlook for the operation over the 2023 to 2027 five-year period, including projected production and sales, operating costs, and capital expenditures, is also provided.

18.2 Historical Operating Cost

The Itmann No. 5 Mine achieved operational status in late 2022 following the commissioning of the Itmann CPP. Currently, there are no meaningful historical operating costs.

18.3 Historical Capital Expenditures

Capital expenditures recorded since 2019 are summarized in Table 18.1:

2019	2020	2021	2022
10,364	10,445	25,959	48,635

The level of capital spent on the mine development and equipment in 2022 was approximately \$23 million greater than the previous year. This reflected a significant increase in underground equipment purchases and preparation plant capital spending.

18.4 Projected Five-Year Mine Plan

BOYD's five-year mine plans are based on engineered mine layouts⁵ which were designed for optimum reserve recovery, using efficient mining methods and practices. Generally accepted industry operating performance parameters and mining rates were applied to the mine plan to develop coal production and mining schedules. Financial budgets were then prepared (based on mine plan outputs and labor requirements), resulting in operating cost projections (based on constant 2023 dollars). BOYD's mining plan recognize the impact of variations in physical mining conditions, mechanical failures, and operational activities that can temporarily disrupt production activities. BOYD considers the projected mine plan to be reasonable and achievable, provided no major abnormalities are encountered.

Forecasting performance based on the continuation of consistent mining conditions, excluding impacts from unforeseen events, increases the risk of underperformance versus the mine plan. BOYD's approach does not directly account for situations that can

⁵ The mining plans for room-and-pillar operations are relatively simple and highly flexible when compared to LW mines. The entire foundation of the mining plan is based upon locating mains and sub-mains in areas of the deposit where coal quality and mining conditions are most suitable. Panels are then developed out to a desired length or until adverse mining conditions (or poor coal quality) warrant the cessation of development. This results in the opportunity to alter the mining plan so as to avoid specific areas with adverse mining conditions (such as thin coal, poor roof, etc.) or poor coal quality (such as high sulfur, etc.).

occur in underground coal mining, such as fire, water inundations, geological anomalies, etc. Risk mitigation is factored into the forecasted production schedule by projecting production from multiple CM sections in various locations throughout the mine reserve. The geographical distribution of mining sections throughout the area of the mine plan mitigates the likelihood that all CM sections will experience adverse mining conditions at a given time. Each CM section also utilizes production contingency factors (10%), which are incorporated into the mining forecast.

BOYD's mine plan, including development strategy, projected production and productivity, planned capital expenditures, and total cash cost projections, assumes no major abnormalities are encountered within the coal market or at the mine level. BOYD's five-year forecasted operating and capital costs per saleable ton align with industry standards for newly developed underground room-and-pillar coal mines operating in the CAPP region. Subject to the guidelines outlined in S-K 1300, BOYD believes the extended LOM projection of operating and capital costs to be accurate to within $\pm 25\%$ of the operating and capital costs of other similarly capitalized room-and-pillar mines operating in the CAPP region. We did not assign a contingency budget to the extended mine life projection estimates.

18.4.1 Forecasted Production and Sales

The five-year financial projections reflect an increase in sales tonnage from IMC as the mining operations reach full commercial production status. The forecast reflects a stable revenue stream, driven by BOYD's view that IMC's P3, P4, and Sewell Seam reserves and operations are in a strong competitive position to take advantage of improved coal pricing and demand. BOYD's IMC production forecast is summarized in Table 18.2.

Table 18.2: Projected Saleable Production

2023	2024	2025	2026	2027
10,364	10,445	25,959	48,635	975

Once fully operational, future production from the IMC is expected to reach a stable level of approximately 800,000 to 1.0 million tons annually between 2024 and 2027. BOYD views these saleable tonnages estimates to be within the complex's achievable output levels and in line with projected infrastructure capacities and capabilities.

18.4.2 Forecasted Operating Costs

Operating costs and sales pricing on a per ton basis for the forecasted period of 2023 to 2027 are as shown in Figure 18.1:

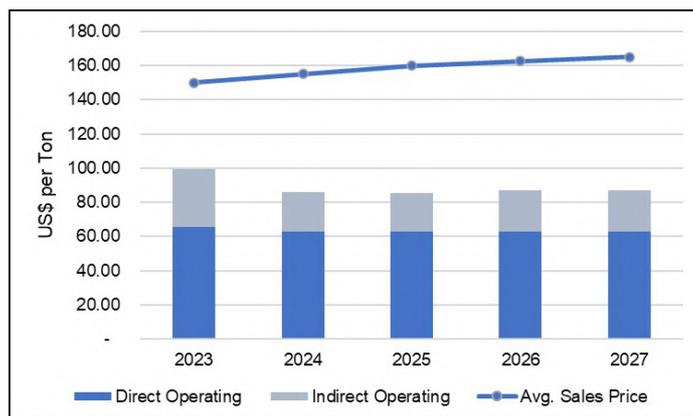


Figure 18.1: Projected Cash Costs and Sales Pricing

Notes: Indirect costs include SG&A, but exclude interest expense and DD&A.
 Forecasted pricing is conservative compared to January 2023 market conditions.

From 2023 to 2027, average annual sales pricing is expected to strengthen, driven by continued strong demand in metallurgical coal market. Once fully operational, total cash unit costs are expected to remain relatively constant over the 2024 through 2027 period, as the Itmann operations achieve full commercial production and cost improvements gained via the processing of coal through the complex's dedicated CPP are realized.

In general, the projected operating costs within the IMC five-year forecast are consistent with the forecasted LOM plan. While current markets at the time of this report are substantially higher than the sales realization shown above, BOYD views the use of these lower coal prices as a conservative way to demonstrate the economic viability of the reported coal reserves. The operating cash costs and resultant cash margins appear to align with expectations for similarly capitalized metallurgical coal mining room-and-pillar operations in the CAPP.

18.4.3 Forecasted Capital Expenditures

IMC is expected to continue its level of capital expenditures for the development and operation of the mine and CPP during the LOM plan. For the LOM business plan, BOYD developed capital schedules that align with projected production levels and factor in major equipment rebuild/replacement schedules. Equipment replacement was based on BOYD' experience and familiarity with mining

equipment life cycles as well as general industry practices. The following figure depicts the estimated capital for the IMC over the LOM plan:

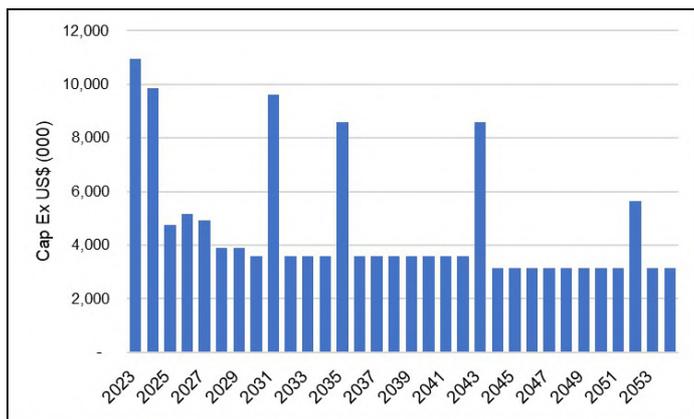


Figure 18.2: Projected Capital Expenditures

BOYD judges the capital projections to be at or above the level witnessed at other CAPP comparable operators. In general, the projected capital expenditures within the five-year forecast agree with general engineering principles and industry norms and are reasonably aligned with the forecasted LOM plans.

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19.0 ECONOMIC ANALYSIS

19.1 Introduction

BOYD independently developed a discounted cash flow analysis to determine whether, in BOYD's opinion, extraction of the IMC coal reserves are economically viable. BOYD's calculations and determinations included in this chapter are based on what BOYD believes to be reasonable, appropriate, and relatively conservative investment and market assumptions and estimates, including all assumptions made about future prices and market conditions, production and sales volumes, operating costs, capital expenditures and other results and measures that are necessary and are used to determine the economic viability of the reported coal reserves.

BOYD's assumptions and estimates have been calculated and presented in this report solely for the purpose of confirming that future extraction of the IMC coal reserves are economically viable as required under S-K 1300. BOYD's estimates and assumptions underlying the discounted cash flow analysis and other calculations are based on future estimates of spot prices, the mine's historic performance from 2019 through December 31, 2022, BOYD's experience in the CAPP region, assumed future production at the Itmann No. 5 Mine and planned Tug Fork operation, as well as other assumptions and estimates detailed in this chapter. Actual future operating results and investment and market conditions may differ significantly from historic results or from the estimates of future investment and market conditions as well as from the mine's future performance assumed by BOYD in the discounted cash flow analysis as a result of various factors and risks, some of which may be outside of CONSOL's control. CONSOL, as with all coal mining companies, actively evaluates, changes, and modifies business and operating plans in response to various factors that may affect IMC's production, operations, and financial results. Actual future results (i.e., production levels, operating expenses, number of operating CMs, sales realizations, etc.) could significantly vary year to year versus the assumptions and estimates used by BOYD.

Results of our financial analysis for IMC, which encompasses the economic contribution/impact of the mine and CPP operations over the 32-year period (2023 to 2054), are discussed below.

19.1.1 Production Schedule

The following table summarizes the LOM production for the complex over distinct time periods:

**Table 19.1: Projected
Saleable Production**

Period	000 Tons
2023 - 2027	4,150
2028 - 2032	4,650
2033 - 2042	9,000
2043 - 2052	9,000
2053 - 2054	1,880
Total	28,680

The total saleable coal production (28.7 million tons) over the life of the operations, includes approximately 450,000 tons which were mined from the Tug Fork property between 2024 and 2029. For the purposes of this analysis, BOYD assumed tons produced are sold in the year of production (i.e., annual saleable production equates to total tons sold). The production schedule and mine plan are described in more detail in Chapter 13 of this report.

19.1.2 Coal Pricing

The projected average price realized by IMC (FOB mine) over the forecast period is shown in Table 19.2 below.

**Table 19.1: Projected
Saleable Production**

Period	US\$ per Ton FOB Mine
2023 - 2027	159.60
2028 - 2032	161.00
2033 - 2042	161.40
2043 - 2052	161.40
2053 - 2054	161.40
Average	161.10

* Constant 2023 dollars

Prices for coal used in our analysis are based on BOYD's internal price forecast for low volatile metallurgical coal meeting the Itmann quality specification for the period 2023 through 2027. BOYD's forecasted sales pricing is conservative compared to January 2023 market conditions. For the purposes of this analysis, BOYD conservatively held pricing in the \$160 per ton range from 2028 forward.

19.1.3 Cash Production Costs

As described in Chapter 18, cash production costs include direct and indirect mining costs, including labor, material and supplies, processing, royalties and production taxes, insurance, and administrative costs. Administrative costs include sales and mine administration and corporate overhead allocations but exclude interest expense and DD&A. Total cash production costs are shown in Table 19.3 below.

Table 19.3: Projected Cash Operating Costs

Period	\$ (000)	\$/Ton
2023 - 2027	365,140	88.00
2028 - 2032	398,930	85.80
2033 - 2042	764,450	84.90
2043 - 2052	798,460	88.70
2053 - 2054	169,630	94.30
Total/Average	2,496,610	87.30

The operating costs are based on BOYD's experience with room-and-pillar mines operating in the CAPP and our expectations for mining the IMC coal reserves. As noted in Chapter 18.1 of this report, BOYD reviewed the mine's historical costs and found them to be reasonable.

19.1.4 Capital Expenditures

Capital expenditures are generally for sustaining capital, with spending focused on mine infrastructure expansion (air shafts, buildings, belt systems, etc.), maintenance of production equipment (new equipment purchases and/or rebuilds) and refuse area infrastructure. Total capital expenditures are shown in Table 19.4 below.

Table 19.4: Projected Capital Expenditures

Period	\$ (000)
2023 - 2027	35,660
2028 - 2032	24,600
2033 - 2042	41,000
2043 - 2052	39,450
2053 - 2054	6,300
Total	147,010

The long-range capital forecast for the IMC reflects BOYD's experience with room-and-pillar mines operating in the CAPP.

19.2 Pre-Tax Net Present Value Analysis

BOYD's LOM economic analysis for the IMC reflects the discounted cash flow-net present value (DCF-NPV) on a pre-tax basis, discounted at 12% (full year basis) over the life of the project. For reporting purposes, the cumulative DCF-NPV is shown for 10-year, 20-year, and LOM periods in Table 19.5:

**Table 19.5: Cumulative NPV
by Timeframe (US\$ 000)**

10-Year	20-Year	LOM
348.1	480.3	524.3

The primary assumptions which were utilized in the pre-tax NPV analysis are as follows:

- Recoverable Reserves – We utilized CONSOL's recoverable reserves estimates for the mine after performing our analysis of the available geologic data. The IMC's estimated coal reserves are expected to be fully depleted by 2054. BOYD's methods for mine planning are conservative, but pragmatic, and align with industry standards for forecasting as well as actual mine recoveries experienced by regional operators.
- Annual Mine Output –BOYD determined the annual output based on the characteristics of the reserve, including: seam thickness, OSD amounts, overall size, optimum mine life, capabilities of mining equipment, expected coal quality, and our view of the potential markets and demand for the metallurgical grade product.

In addition to the assumed base case coal pricing, BOYD also ran sensitivities with optimistic (+10%) and pessimistic (-10%) pricing scenarios. Table 19.6 provides a comparison of 10-year, 20-year, and life of mine NPVs at different discount factors and pricing scenarios:

Timeframe/Scenario	Pre-Tax DCF NPV (\$ million) by Discount Factor			
	10%	12%	15%	18%
10-Year				
Optimistic (+10%)	469	434	390	352
Base	376	348	312	282
Pessimistic (-10%)	283	262	234	211
20-Year				
Optimistic (+10%)	675	596	503	433
Base	545	480	405	347
Pessimistic (-10%)	415	365	306	262
LOM				
Optimistic (+10%)	760	650	532	448
Base	613	524	428	360
Pessimistic (-10%)	466	398	324	272

- In both the pessimistic and optimistic sensitivity cases, no adjustments were made by BOYD to the base operating scenario. While CONSOL would likely adjust production in the short-term to minimize the impact of low coal pricing and/or maximize the opportunity of high coal pricing, execution of such production fluctuations was deemed immaterial to the assessment of economic mineability of reserves over the LOM plan extending to 2054.
- Direct Operating Costs –BOYD developed line-by-line projections of cash operating costs for the LOM plan. We considered fixed and variable components within the overall mine plan, historical costs experienced, and operating cost structures of regional mine operators when making these estimates. The primary unit costs included: hourly and salary labor and benefits, mine operating supplies, and equipment maintenance costs.
- Capital Expenditures – BOYD considers the near-term detailed capital expenditure schedule to be reasonable and representative of the capital necessary to continue development of the IMC operations and CPP, as well as to operate and maintain operations. Most expenditures are associated with the new CPP facility, purchase of underground production equipment (new equipment purchases and/or rebuilds), and refuse area development. To more accurately portray capital expenditures incurred to sustain long-term production, BOYD made assumptions for airshaft capital expenditure timing corresponding to the LOM plan. Additionally, BOYD made

assumptions of annual capital expenditures consistent with historical and near-term forecasted capital expenditures ranging between \$3.00 and \$4.00 per clean ton to account for sustaining capital.

- Coal Processing –The mine's total output is processed through the Itmann CPP for the remainder of the LOM plan. Within the near-term operating cost forecast, BOYD made corresponding assumptions regarding in-house processing and coal refuse disposal. We consider these assumptions to be reasonable and to align with general engineering principles and industry standards.
- Refuse Disposal – As previously discussed, the current refuse disposal plan provided by CONSOL utilizes combined refuse (waste rock combined with dried fine coal refuse) for disposal in side embankment fills. There is currently a portion of the proposed refuse disposal area that is permitted, and an additional area which is being targeted for future permitting. In discussions with CONSOL, the company plans to continue acquiring and permitting adjacent properties for expansion of the refuse facility.
- In-Direct Mining Costs – Unit costs for in-direct line items, such as royalties, taxes, penalty fees and fines, insurance, real estate taxes, selling and general administration expenses, and miscellaneous expenses, were developed based on BOYD's experience.
- Revenue for the washed metallurgical grade product is based on the Itmann free-on-board (FOB) CPP price forecast for the LOM plan. Additional costs beyond the preparation plant for transportation, loading, and unloading at railroads, river terminals, and/or ocean terminals are assumed to be incurred by the customer (or added as a pass-through to FOB, mine prices). BOYD's price forecast is reasonable and in alignment with the market outlook for comparable metallurgical grade coals.
- BOYD has applied a portion of the estimated closure costs for the underground mine within the LOM forecast period as mine reserves are depleted. While we acknowledge that these costs are usually accrued over the life of a mine/project, we have shown a portion of estimated mine closure costs as a lump sum operating cost during the last year of the project during the cash flow periods when mineable reserves have been exhausted. In our opinion, this is a conservative approach to estimating the costs for mine site closure and reclamation.

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20.0 ADJACENT PROPERTIES

As illustrated in Figure 3.1, the P3 Seam has been extensively mined south and east of the operating Itmann No. 5 Mine. CONSOL has observed a 200-ft barrier around identified P3 Seam mine workings.

Previous mine workings have been mapped in areas near the Itmann mines; however, these operations were in coal seams overlying the P3 Seam coal. Some of these old mine workings overlap the southeastern-most portions of the Itmann Property. Stratigraphically, the closest overlying mine workings are noted in the Pocahontas No. 6 (P6) Seam, which lies at least 200 ft above the P3 Seam according to drill records. Other previous mine workings are centered in coalbeds overlying the P6 Seam. Within the Itmann Property, there are no known mine workings located below the P3 Seam.

As illustrated in Figure 3.2, the Sewell Seam has been mined west, north, and east of the proposed Tug Fork Mine. CONSOL has observed a 120-ft barrier around identified Sewell Seam mine workings.

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21.0 OTHER RELEVANT DATA AND INFORMATION

BOYD is not aware of any additional information which would materially impact the coal reserve estimates reported herein.

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22.0 INTERPRETATION AND CONCLUSIONS

22.1 Audit Findings

BOYD's independent technical audit was conducted in accordance with S-K 1300 and concludes:

- Sufficient data have been obtained through various exploration and sampling programs and mining operations to support the geological interpretations of seam structure, thickness, and quality for the portions of the P3, P4, and Sewell seams situated within the bounds of the IMC properties. The data are of sufficient quantity and reliability to reasonably support the coal resource and coal reserve estimates in this technical report summary.
- Estimates of coal reserves reported herein are reasonably and appropriately supported by technical studies, which consider mining plans, revenue, and operating and capital cost estimates.
- The 28.7 million tons of underground mineable coal reserves identified on the properties are economically extractable under reasonable expectations of market prices for metallurgical coal products, estimated operation costs, and capital expenditures.

There is no other relevant data or information material to the IMC that is necessary to make this technical report summary not misleading.

22.2 Significant Risks and Uncertainties

The purpose of CONSOL's periodic mine planning exercises is to collect and analyze sufficient data to reduce or eliminate risk in the technical components of the project and to refine economic projections based on current data. There is a high degree of certainty for this project under the current and foreseeable operating environment. A general assessment of risk is presented in the relevant sections of this report.

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23.0 RECOMMENDATIONS

BOYD makes no recommendations regarding the IMC as the operation is currently in production at this time.

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24.0 REFERENCES

There are no citations in this technical report summary. Therefore, there are no references to list.

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25.0 RELIANCE ON INFORMATION PROVIDED BY REGISTRANT

In the preparation of this report BOYD has relied, without independent verification, upon information furnished by CONSOL with respect to: property interests; exploration results; current and historical production from such properties; current and historical costs of operation and production; and agreements relating to current and future operations and sale of production.

BOYD exercised due care in reviewing the information provided by CONSOL within the scope of our expertise and experience (which is in technical and financial mining issues) and concluded the data are valid and appropriate considering the status of the subject properties and the purpose for which this report was prepared. BOYD is not qualified to provide findings of a legal or accounting nature. We have no reason to believe that any material facts have been withheld, or that further analysis may reveal additional material information. However, the accuracy of the results and conclusions of this report are reliant on the accuracy of the information provided by CONSOL.

While we are not responsible for any material omissions in the information provided for use in this report, we do not disclaim responsibility for the disclosure of information contained herein which is within the realm of our expertise.

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