



**NEXTSOURCE**  
materials

## **Molo Graphite Project**

MADAGASCAR

The only project with **SuperFlake®** graphite.

TSX : NEXT

OTCQB : NSRCF



# Qualified person & forward looking statements

Mr. Craig Scherba, P.Geo., President and CEO of NextSource Materials, is the qualified person who reviewed and approved the technical information provided in this presentation.

Safe Harbour: This presentation contains statements that may constitute “forward looking statements” within the meaning of applicable Canadian and United States securities legislation. Readers are cautioned not to place undue reliance on such forward-looking statements. Forward-looking statements in this presentation relate to the results of the Feasibility Study, funding of the development of the Molo Project, implementation and commencement of the build-out of the Molo Project, commencement of production at the Molo Project, commencement of procurement for mine infrastructure, the procurement of equipment to construct a mine, value engineering, any and all product test results and product analysis, and the permit application. These are based on current expectations, estimates and assumptions that involve a number of risks, which could cause actual results to vary and in some instances to differ materially from those anticipated by the Company and described in the forward-looking statements contained in this press release. No assurance can be given that any of the events anticipated by the forward-looking statements will transpire or occur or, if any of them do so, what benefits the Company will derive there from. The forward-looking statements contained in this presentation are made as at the date of this presentation and the Company does not undertake any obligation to update publicly or to revise any of the forward-looking statements, whether as a result of new information, future events or otherwise, except as may be required by applicable securities laws.

Other forward looking statements relate to growth of the lithium-ion market, graphite demand in the future, electric vehicle projections and other market demands for graphite. These are based on current expectations, estimates and assumptions that involve a number of known and unknown risks, uncertainties and other factors that could cause actual results to vary and in some instances to differ materially from those anticipated by the Company and described in the forward looking statements contained in this presentation. These risks include, but are not limited to access to sufficient capital, governmental and political risks in Madagascar, legal and accounting risks, compliance with various regulators, potential loss of key personnel, no certainty as to commercial production of the Molo mine, inherent changes in mineral exploration and development, delays, external market factors, negative operating cash flows, lack of demand for graphite, cost overruns, permitting issues, fluctuations in the price of graphite, labour issues, title disputes and fluctuations in currency. Criteria of these risks and other risks are outlined in the companies 2019 Molo Technical Report, available at SEDAR.com, which investors are highly encouraged to review. No assurance can be given that any of the events anticipated by the forward looking statements will transpire or occur or, if any of them do so, what benefits the Company will derive there from.

# GRAPHITE+

A worker wearing a respirator mask and dark clothing is bent over, handling large, dark, rectangular bags of graphite in a dimly lit industrial facility. The floor is covered with more bags, and the walls are dark and textured. Sunlight streams in from above, creating strong shadows and highlighting the dust or particles in the air. The overall atmosphere is gritty and industrial.

IT'S ESSENTIAL.

IT'S COMPLICATED.

**IT'S HAS A HUGE FUTURE.**





The graphite market is opaque.

Lots of misinformation.

Need to do your homework.



# We have done our homework

Management has had extensive face-to-face interaction with global end buyers in order to understand the graphite market.



- Refmin China Ltd.
- Hans Capital
- Guangdong Guangxing
- BYD
- Dalian Bolong Group
- Shenzen Bak
- Guangdong Materials
- Chengdu Tianqi
- Sinotech Minerals
- BTR New Energy Materials
- Beijing OuHuaLian Ltd.
- Chemphy's Chem



- Panasonic
- Hitachi Chem
- Mitsubishi Chem
- Nissan Renault
- Showa Denko
- Toyota Tsusho
- Marubeni Tetsugen
- Marubeni Corp.
- Mitsui & Co. Ltd.
- Iwatani Corp.
- Sojitz
- Tokyo Boeki Group
- JFE Shoji Trade Corp.
- Shinagawa Refractories
- Nippon Crucible Ltd.
- Krosaki Harima Corp.
- Simul International Inc.
- JOGMEC
- Honda



- Posco Chemtech
- Seah Holdings



- Imerys
- Sibelco
- AMG (GK) Mining
- ThyssenKrup
- Cronimet
- George H. Luh GmbH
- Noble Europe
- SGL Carbon Group
- Wogen Resources



- SGL Carbon USA
- Superior Graphite
- Vesuvius
- Graftech
- PRCO
- Asbury Carbon



Flake is the only type of graphite that can be used in all demand applications

**675,000** tonnes per year



#### Graphite Mining (Flake)

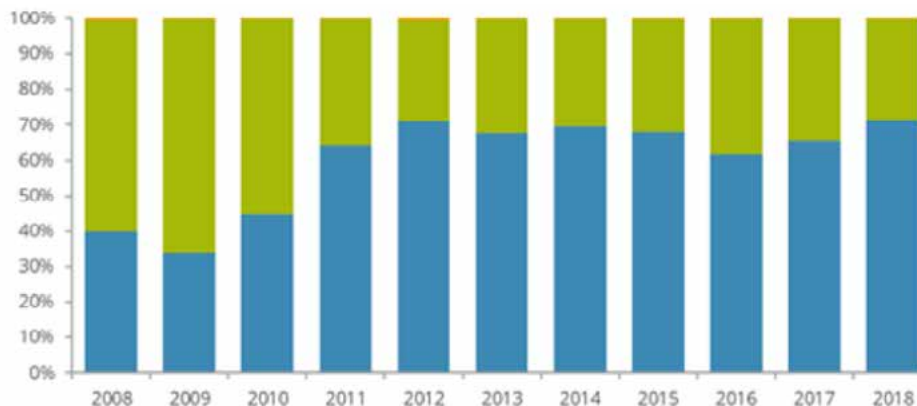
China 56%

Mozambique 17%

Brazil 14%

India 4%

Madagascar 2%



Flake Amorphous Vein





# #1 REFRACTORIES

~65%

Majority of graphite demand tied to traditional steel market.



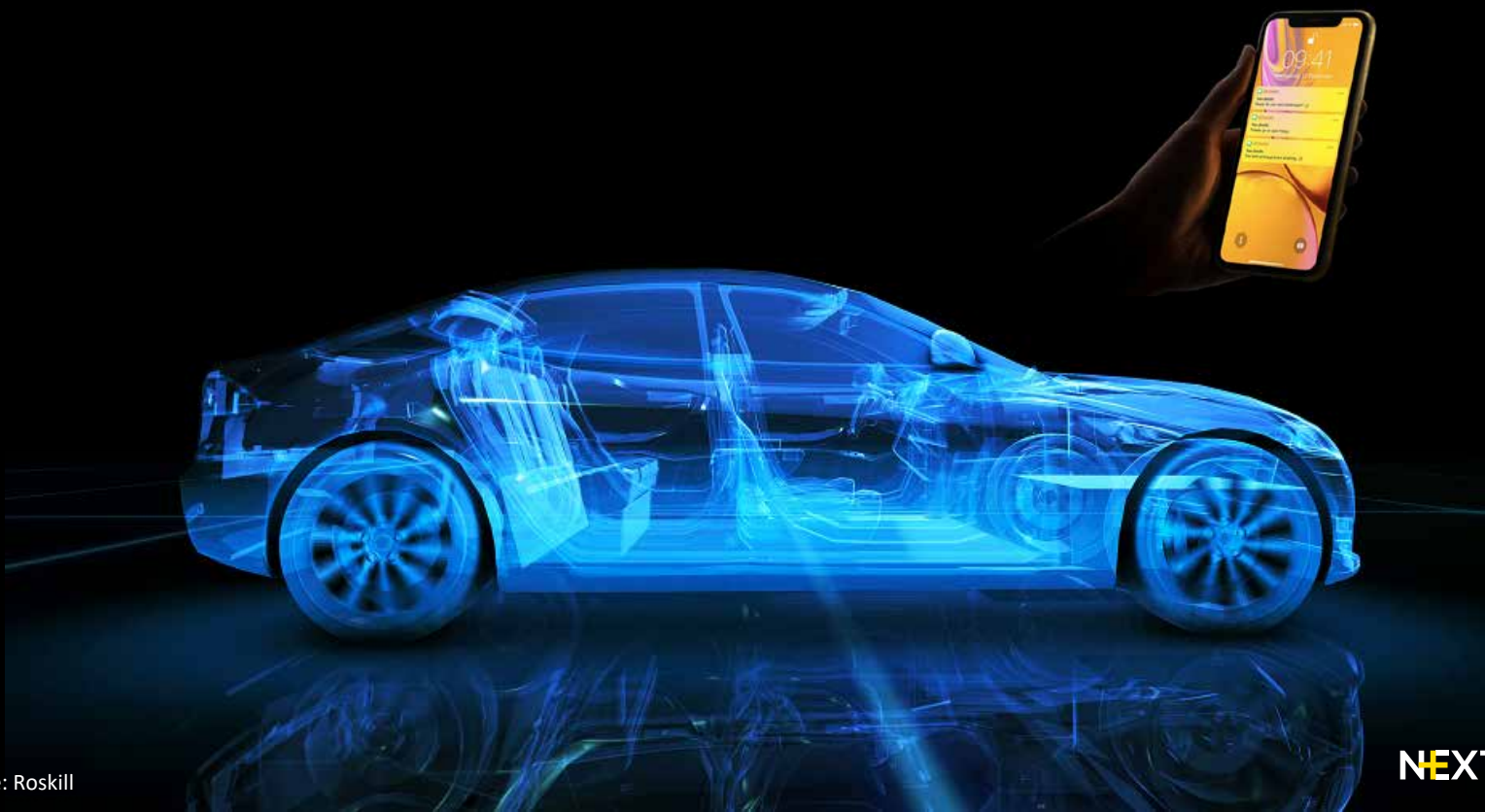


## #2 BATTERIES

~20%

Experiencing **largest** growth.

Forecasted to be **#1** this decade.







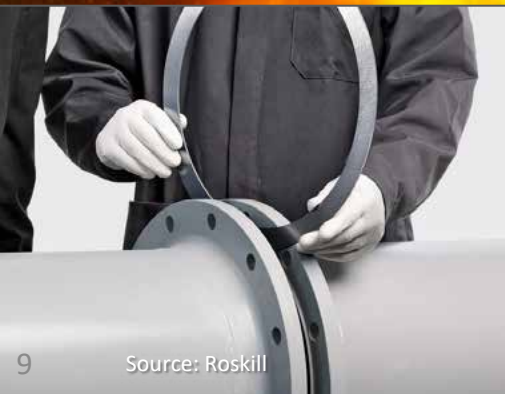
# #3 GRAPHITE FOILS\*

~10%

Experiencing **fastest** growth

- Fire resistant material
- Heat sink and thermal management
- Gaskets and sealants

\*Made exclusively with jumbo flake  
(+50mesh)





## Graphite pricing

The larger the **flake size**,  
and higher the **purity**,  
the higher the **price**.



# Graphite pricing explained

Two factors at play: flake **SIZE** and flake **PURITY** (carbon content)

MESH SIZE		PRICE
Classification	Size	
LUMPS	1	↑
	8	
JUMBO FLAKE	32	\$\$\$
LARGE FLAKE	50	\$\$\$
MEDIUM FLAKE	80	\$\$\$
	100	\$
	150	
FINES	200	\$
	300	

CARBON CONTENT		PRICE
Classification	C%	
HIGH PURITY/SPHERICAL (>99%)	99.9999%	↑
VEIN (90-99%)	99%	\$\$\$\$
	98%	\$\$\$
	97%	\$\$\$
	96%	\$\$\$
	95%	\$\$\$
	94%	
	93%	
	92%	\$\$\$
	91%	
	90%	
FLAKE (85-97%)	89%	\$
	88%	
	87%	
	86%	\$
	85%	
AMORPHOUS (60-85%)	60%	\$

Additional processing costs required to achieve this

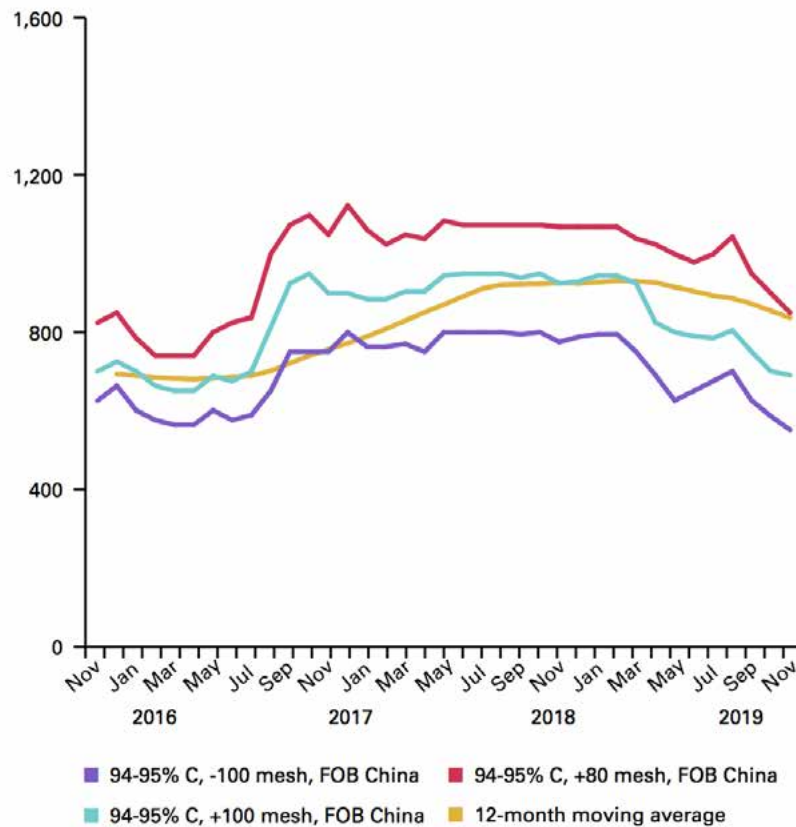
Less commonly traded  
More commonly traded  
Less commonly traded



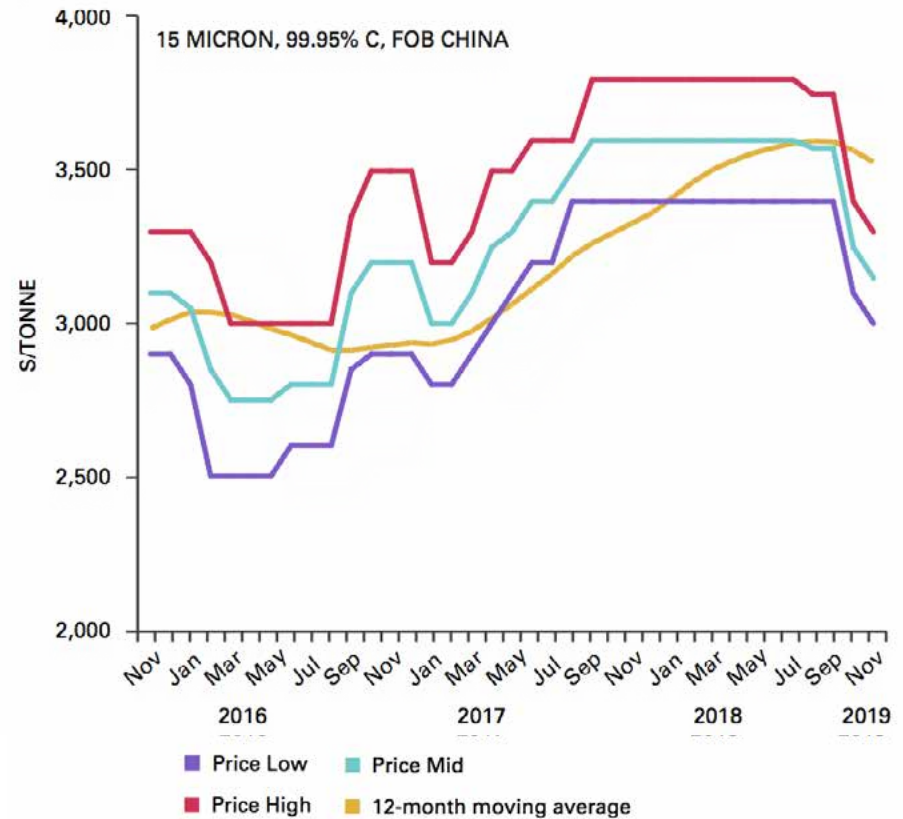


# Graphite prices

## Flake graphite



## Uncoated spherical graphite



\* Prices prior to Jan 18 recorded as 10-15 micron



# Paradigm shift in automotive



Volvo to go electric starting 2021



Ford to invest \$11 billion, 40 EVs by 2022



GM to go all-electric by 2026



VW to invest \$40 billion, 70 EVs by 2028

# Major OEM investments into battery factories







# EV sales expanding rapidly

- 2018 was another record-breaking year for global electric car sales (1.98 million), raising total global stock to 5.12 million.
- Global EVs to hit **130 million by 2030**



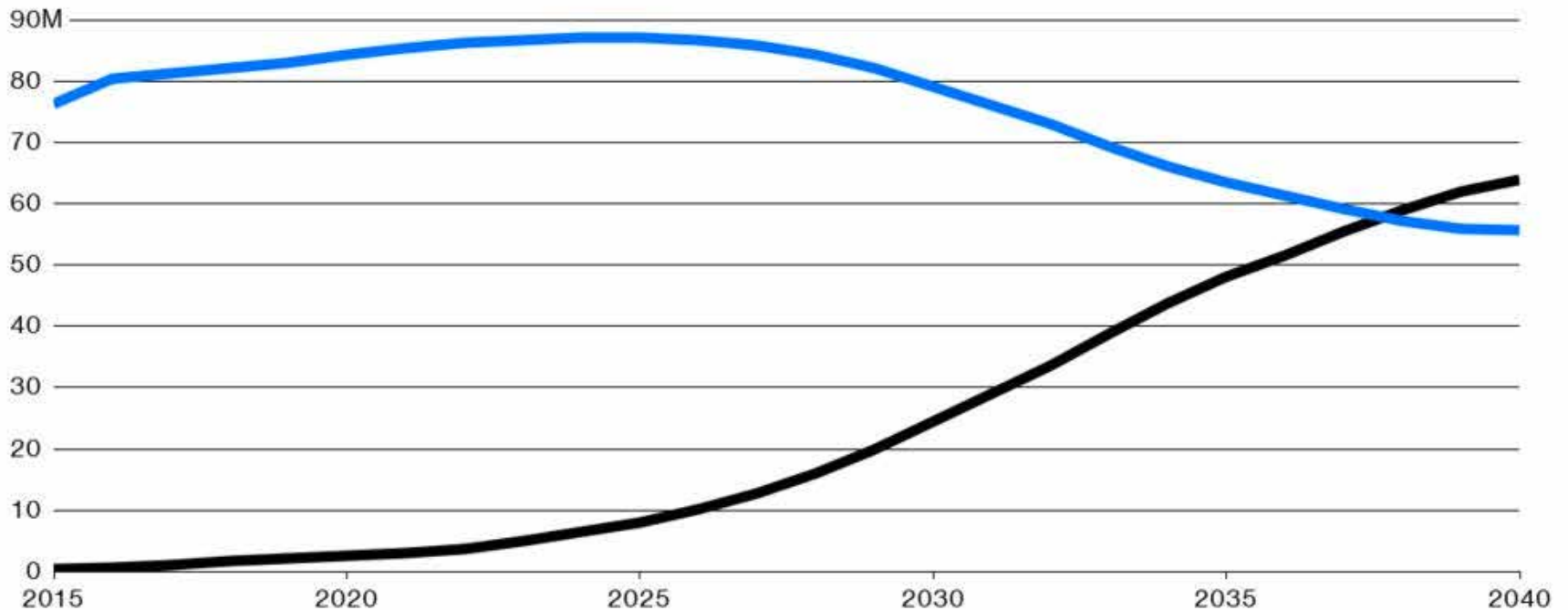


# The tipping point for EV mass penetration is approaching

## Overtaking Lane

Electric vehicle sales will surpass internal combustion engine sales by 2038

■ Electric vehicles ■ Internal combustion engine



Source: Bloomberg New Energy Finance



# The four horseman of the ICE\* apocalypse...



**Graphite**

**Cobalt**


**Lithium**

**Nickel**





## Graphite's VITAL role

A photograph of Elon Musk speaking at a podium. He is wearing a dark blue blazer over a black t-shirt and has a small microphone clipped to his ear. He is looking slightly to his right with a focused expression. The background is dark with some blue lighting.

“Our lithium ion batteries should be called **nickel-graphite**, because primarily the cathode is nickel and the anode side is graphite with silicon oxide.”

- Elon Musk



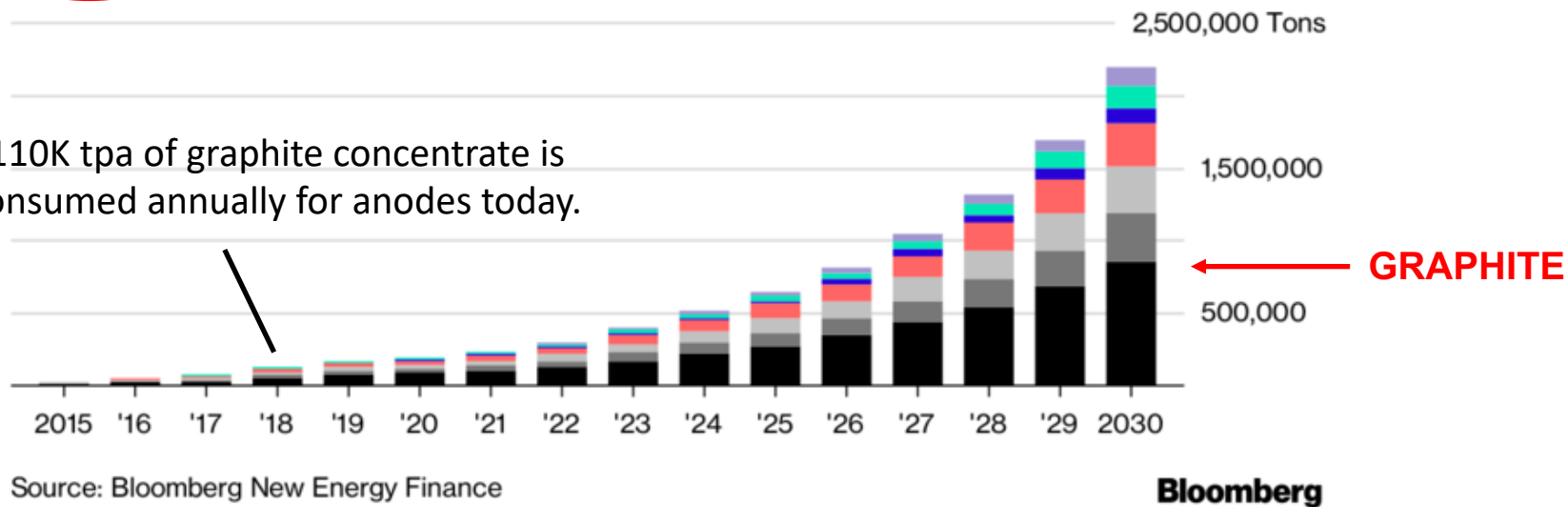
# Graphite is the largest raw material in Li-ion batteries by volume

## Metal Winners

Cobalt to lithium demand is forecast to soar as electric vehicle markets expand



~110K tpa of graphite concentrate is consumed annually for anodes today.

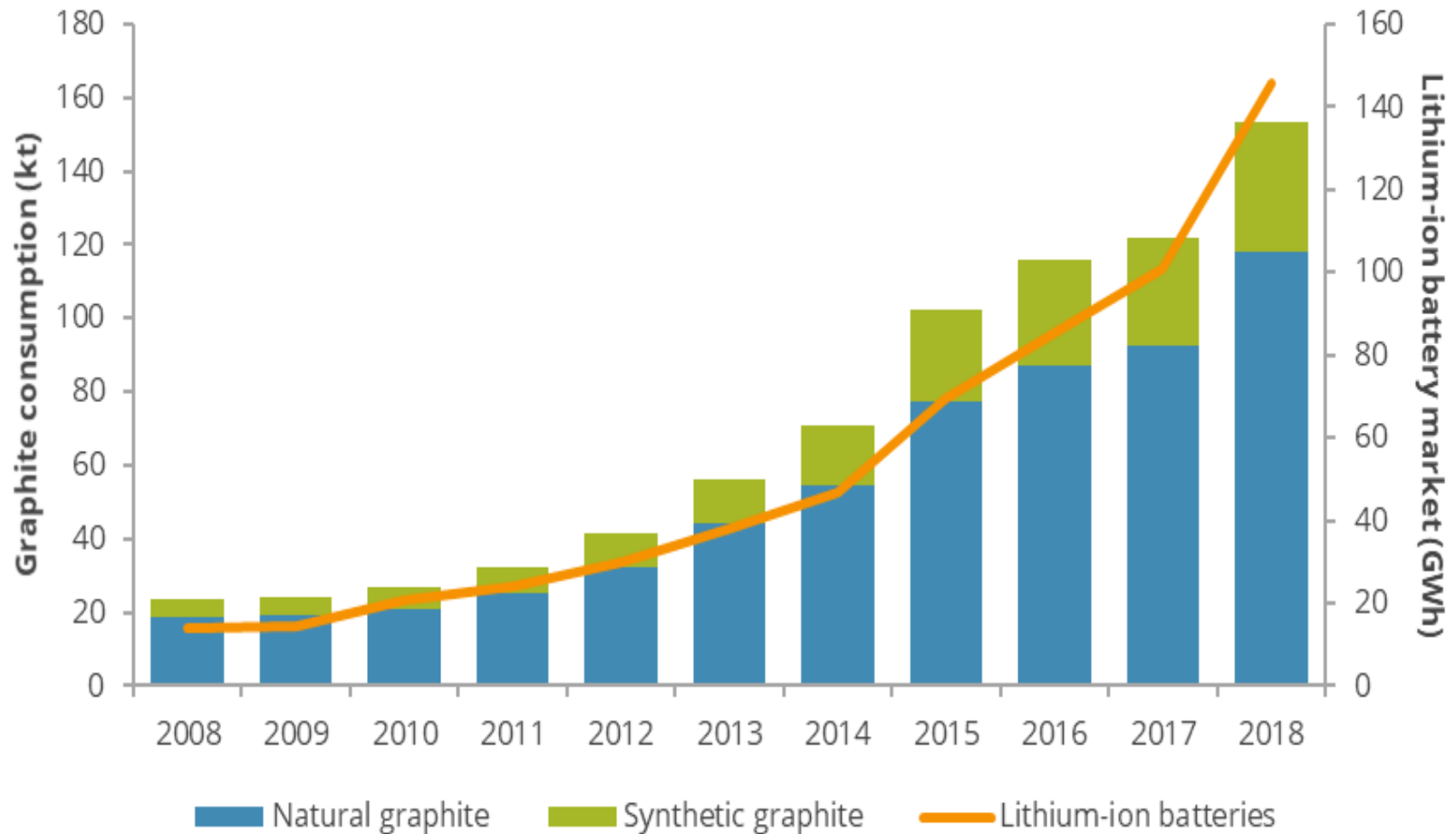


**7X demand growth for graphite expected over next decade.**



# Graphite will remain the anode material of choice for Li-ion batteries

Consumption of raw graphite and lithium-ion battery market, **2008-2018**

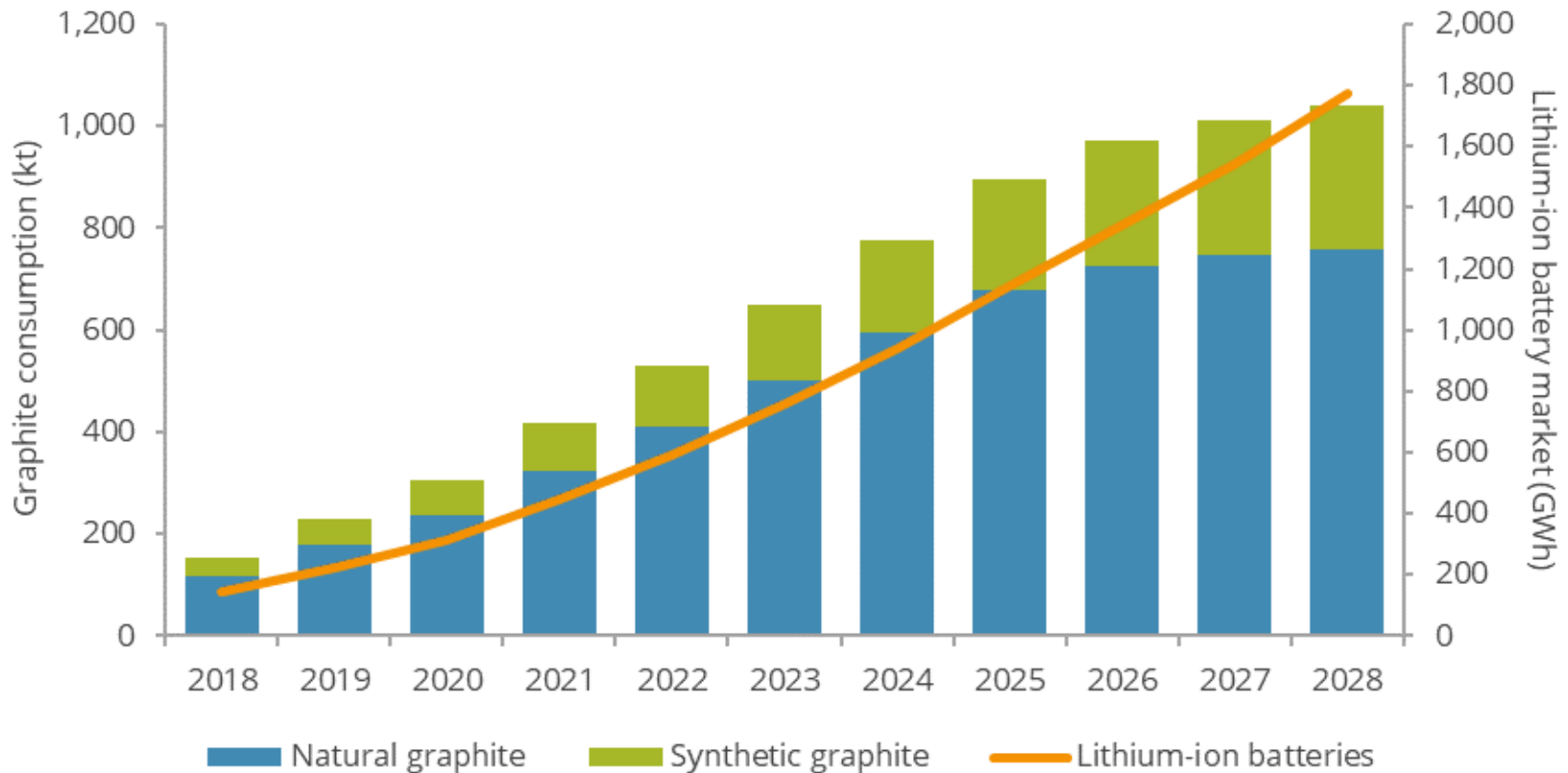






# Graphite to face scaling issues with expected EV demand

Forecast consumption of raw graphite and lithium-ion battery market<sup>1</sup>, **2018-2028**



# EVs require *significant* amounts of graphite



Each 100kWh EV requires **~250 pounds** of flake graphite.

*Rule of Thumb: 2.5 lbs of flake graphite per kWh, all li-ion chemistries combined*

# Rise of the megafactories – Rapid and relentless

84 megafactories in the pipeline.



1,227.8 GWh

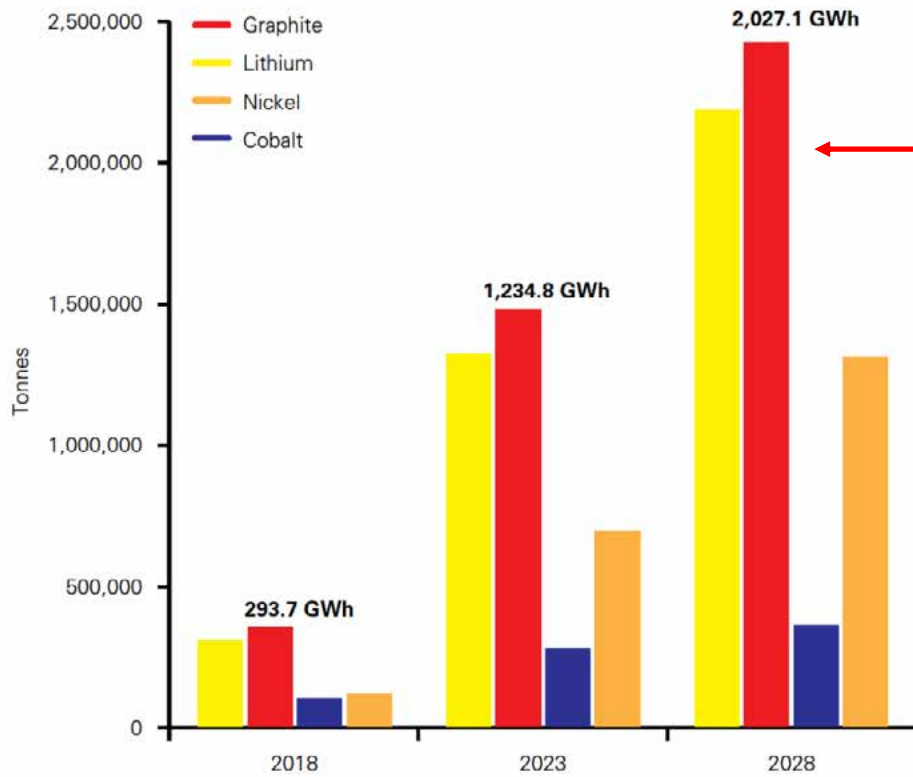
Total battery megafactory  
capacity in pipeline to 2023





# Megafactory impact on raw materials

Raw material demand vs global lithium ion cell/Megafactory capacity

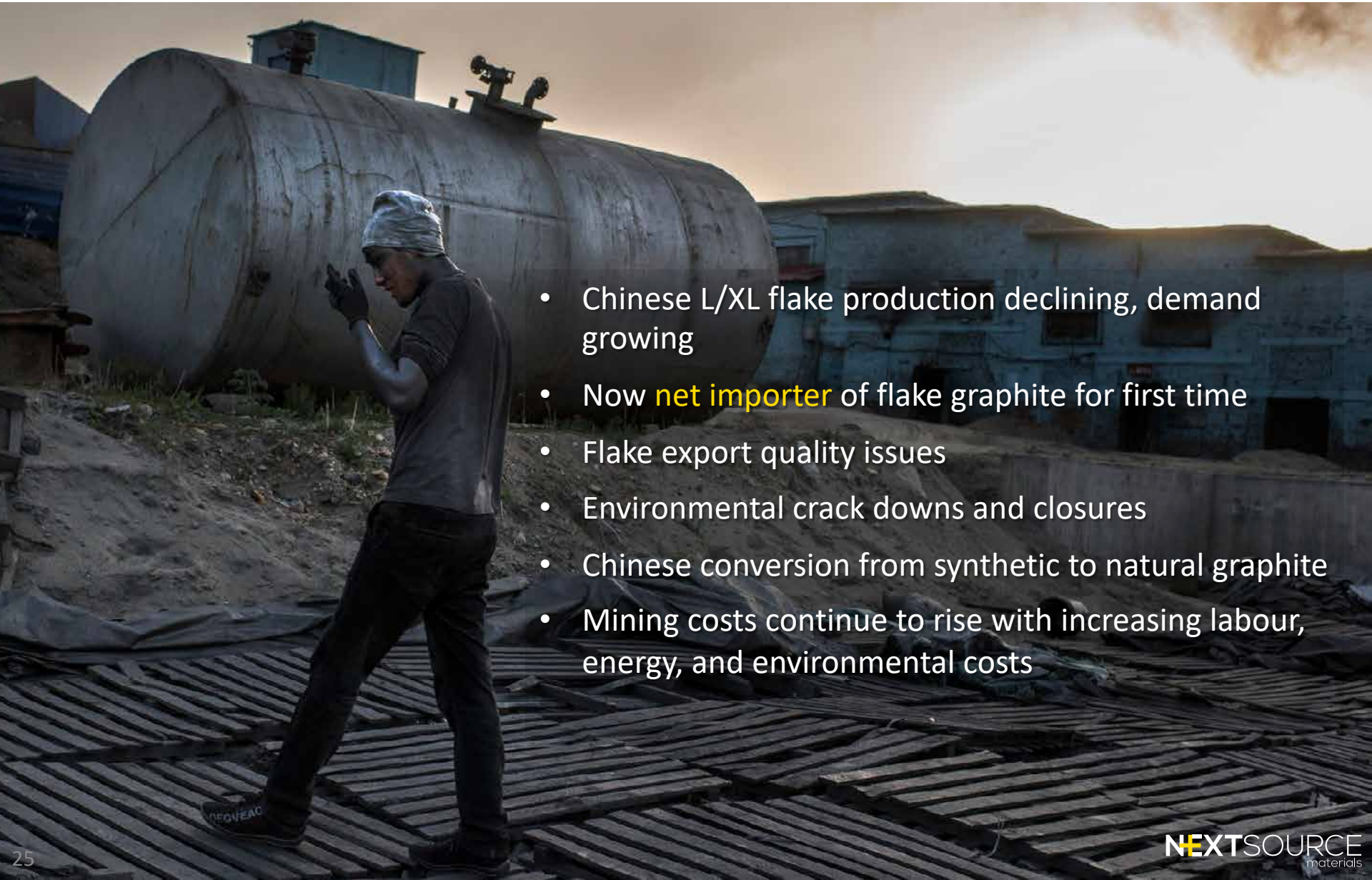


The data in this chart does not constitute a forecast, and assumes 100% utilisation rates  
Benchmark's forecast numbers are available via a separate subscription, please contact [info@benchmarkminerals.com](mailto:info@benchmarkminerals.com) for further information

MATERIAL	2018	2023	2028
LITHIUM	305,577	1,323,842	2,190,361
GRAPHITE ANODE	352,440	1,481,736	2,432,496
COBALT	98,141	277,912	360,380
NICKEL	116,616	694,523	1,314,677
TOTAL GWh	293.7	1,234.8	2,027.1

More graphite mines will be needed to meet EV demand.

# China and graphite



- Chinese L/XL flake production declining, demand growing
- Now **net importer** of flake graphite for first time
- Flake export quality issues
- Environmental crack downs and closures
- Chinese conversion from synthetic to natural graphite
- Mining costs continue to rise with increasing labour, energy, and environmental costs



Market reality check.





Refractories will remain largest  
consumption market for the next  
5-10 years.



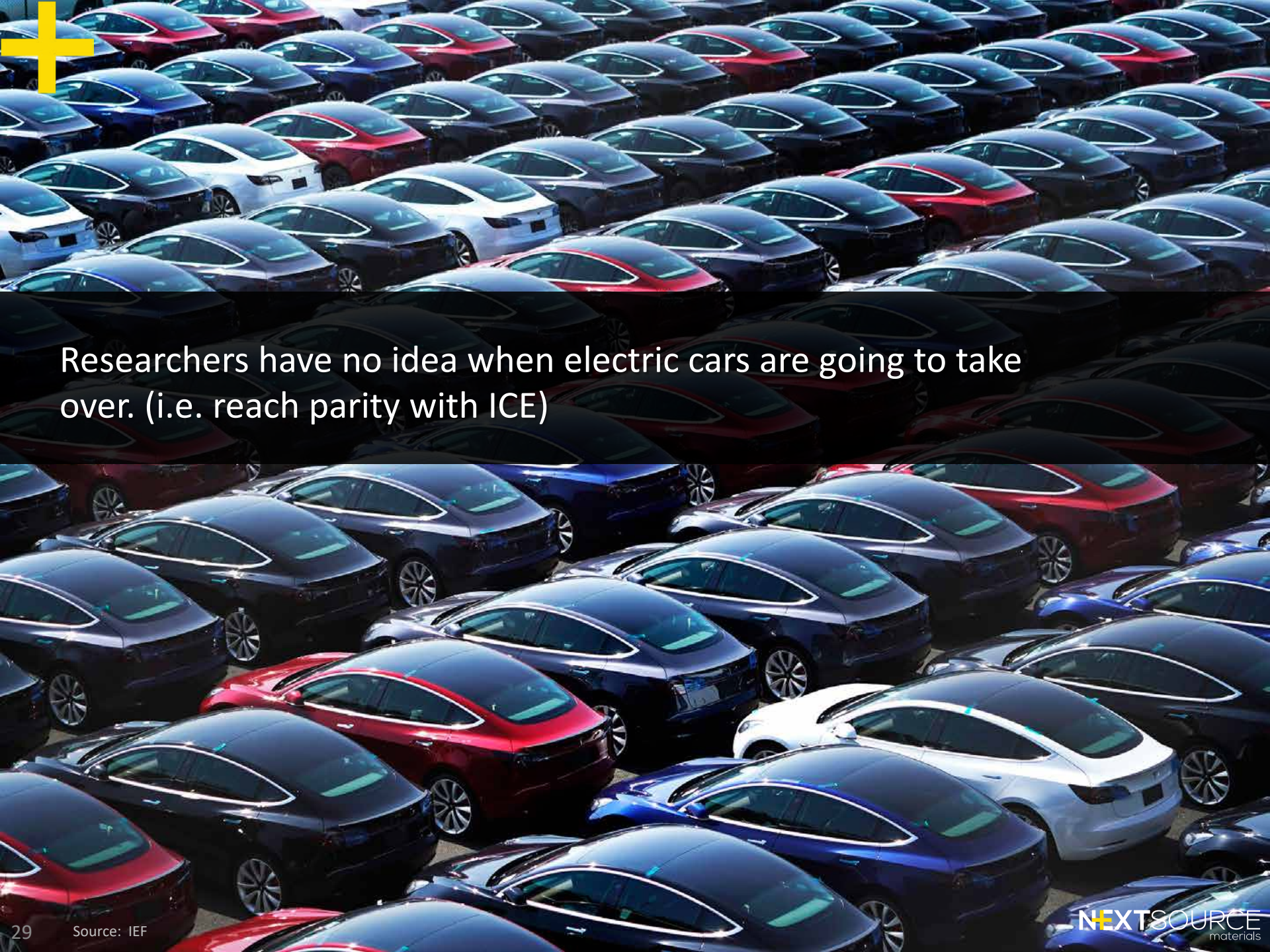


Battery anodes still a relatively  
small market for natural graphite  
...for now.

18% Charged  
**Full charge in 5-10 years**







Researchers have no idea when electric cars are going to take over. (i.e. reach parity with ICE)



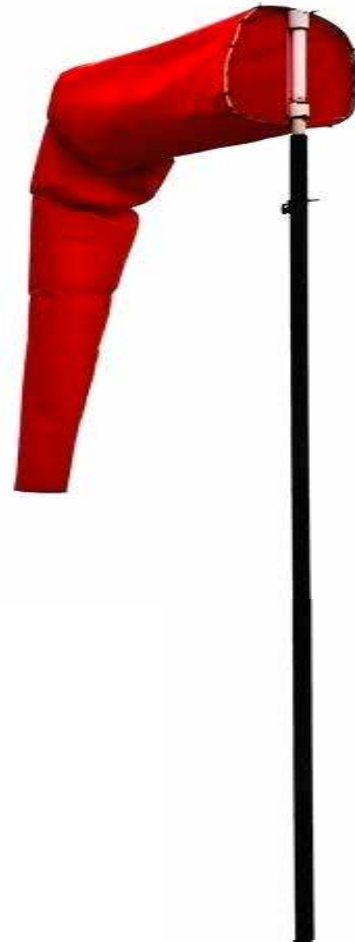


## Beware projects that:

Relying solely on a battery or graphene story.

Promote overly-large production volumes in order to state a low operating cost.

Make metallurgical / economic claims without a technical Feasibility Study to back them up.





Projects ***must be economical*** based on selling to traditional markets at ***realistic*** volumes and prices TODAY.





# The Molo Project

# Molo flake graphite project Fotadrevo, Madagascar



Madagascar is no stranger to mining.



>\$8 Billion Ambatovy Nickel & Cobalt Mine



\$1 Billion QMM Rio Tinto Ilmenite Mine





## Ideally located to key demand markets





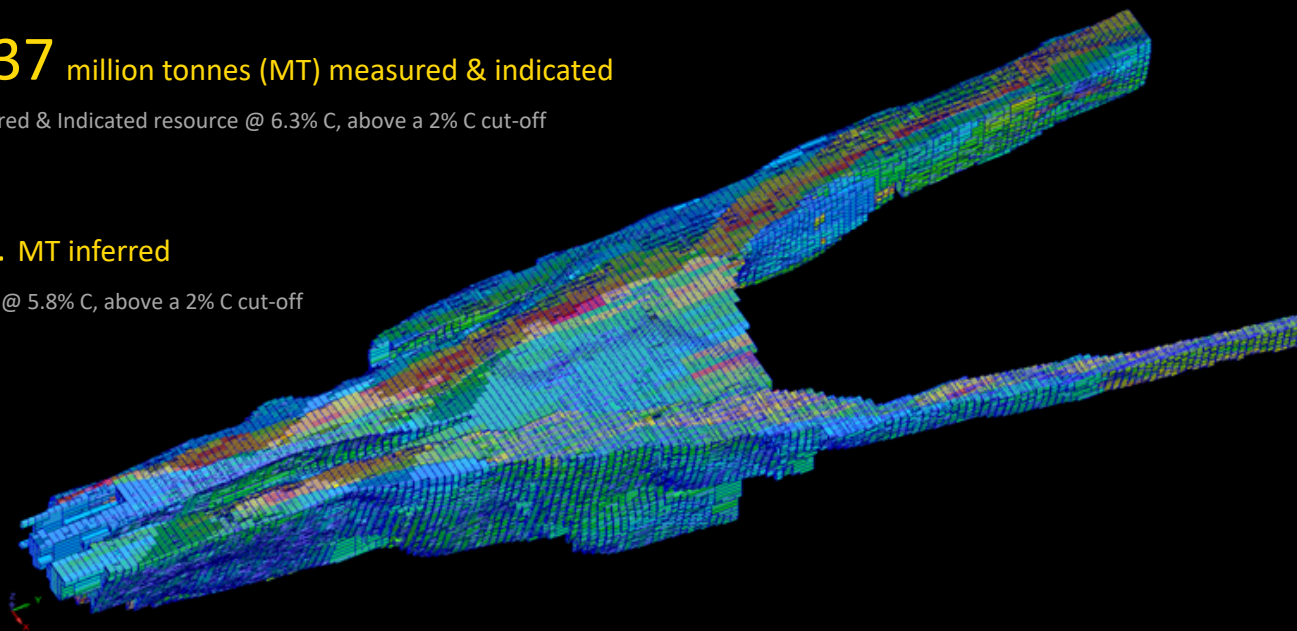
# Very large resource

**100.37** million tonnes (MT) measured & indicated

Combined Measured & Indicated resource @ 6.3% C, above a 2% C cut-off

**40.91** MT inferred

Inferred resource @ 5.8% C, above a 2% C cut-off



## **RESOURCES;** above a 2% C cut-off

- 23.62 Mt) *Measured* @ 6.32%,
- 76.75 Mt *Indicated* @ 6.25% C
- 40.91 Mt *Inferred* @ 5.78% C

## **RESERVES;** above a 4.5% C cut-off

- 14.17 Mt *Proven* @ 7.00% C,
- 8.37 Mt *Probable* @ 6.25% C
- 22.44 Mt *Proven & Probable* @ 7.02% C

\*Please refer to the Company's 2019 technical report titled "Molo Feasibility Study" under the Company's profile at [www.sedar.com](http://www.sedar.com) for certain other details and assumptions relating to the above mineral resource and reserve estimates and data verification procedures.



With graphite, grade is **NOT** king.

There is strong evidence that there is an *inverse* relationship between head grade and flake size.



# Molo SuperFlake® is a very high-quality concentrate

- **13 tonnes** of flake graphite produced in full-scale pilot plant
- Almost 50% is premium large (+80mesh) & jumbo (+48mesh) flake
- 97%C-98%C achieved with simple flotation

## SuperFlake® Distribution

Mesh Size	% Distribution	Grade % Carbon (t)
+48 (jumbo flake)	23.6	96.9
+65 (coarse flake)	14.6	97.1
+80 (large flake)	8.2	97.0
+100 (medium-large flake)	6.9	97.2
+150 (medium flake)	15.5	97.3
+200 (medium-small flake)	10.1	98.1
-200 (small / fine flake)	21.1	97.5

**46.4%** large/jumbo flake



Molo pilot plant produced 13 tonnes of **SuperFlake®** at SGS Canada Inc.



# + Verified for all top demand markets by end-users



## SuperFlake®

- **98%** carbon (C) purity achieved with simple flotation
- Excellent thermal expansion (>500x) for graphite foil applications
- Easily upgraded to 99.97% C (battery grade)
- Verified by end users for **ALL** top demand markets for graphite



Steel Making / Refractories



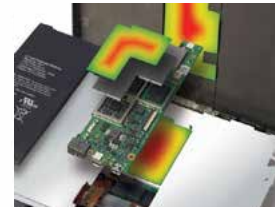
Lithium Ion Batteries for  
Electric Vehicles



Graphene Inks



Fire Resistant Material



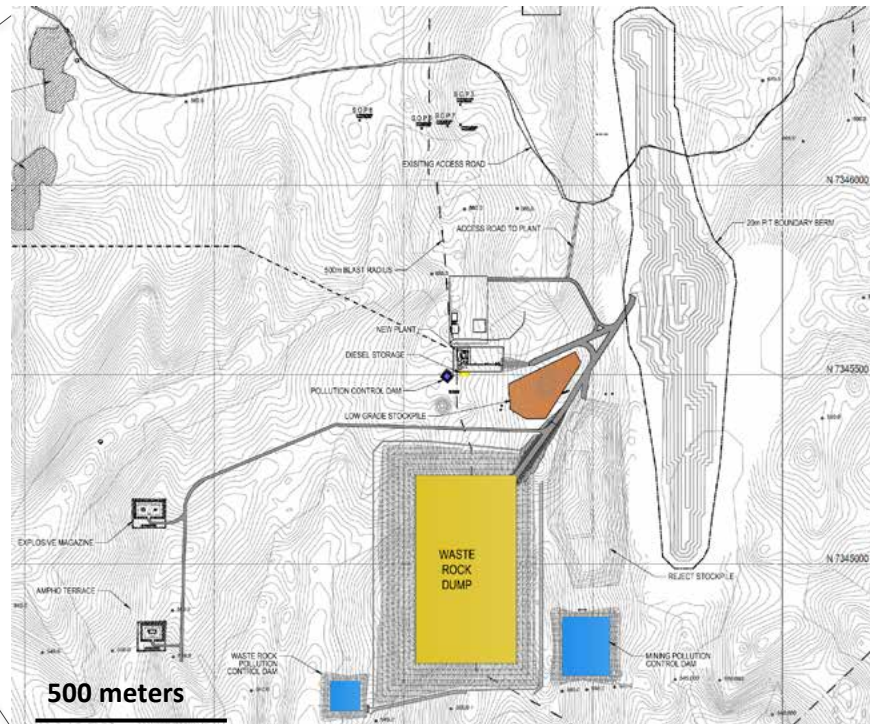
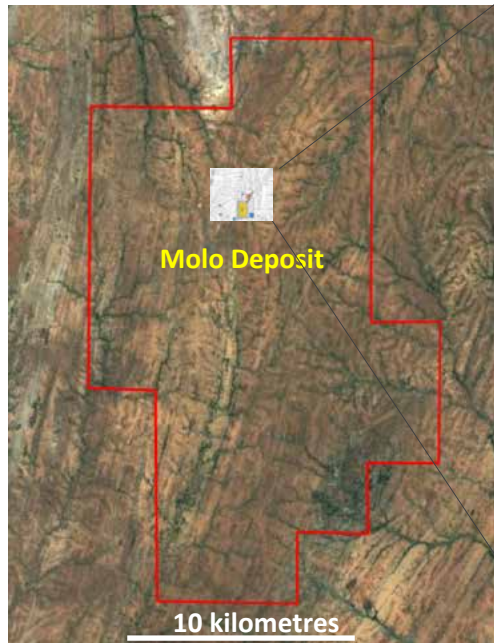
Expanded Graphite Foils for Consumer Electronics





# Mining & Environmental permits in place for a large area

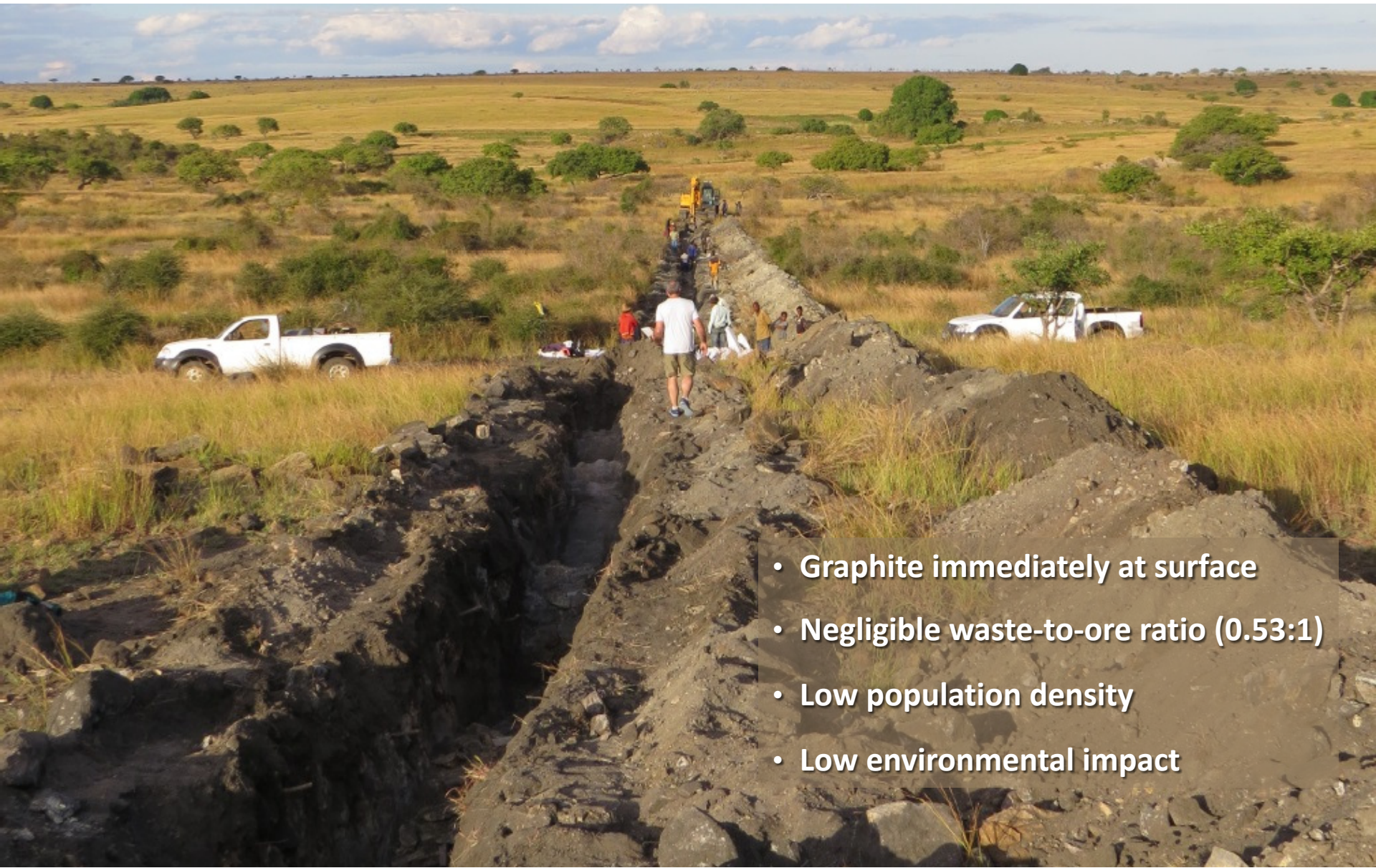
- Permitted area is very large
  - **176.4 km<sup>2</sup>** or 17,640 ha
  - **68.11 mi<sup>2</sup>** or 43,590 acres
- **>36 km of continuous graphite** mapped on permitted area
- Exploration permits have an **additional 200 km** of surficial graphite







## Easy extraction



- Graphite immediately at surface
- Negligible waste-to-ore ratio (0.53:1)
- Low population density
- Low environmental impact



## Low environmental impact

**All technical studies were undertaken/completed in accordance and partnership with:**

- Equator Principles
- World Bank & IFC requirements
- South African and Malagasy environmental consultancy firms,
  - GCS Water and Environment Ltd.
  - AGETIPA (set up by World Bank)





# Extensive community involvement & acceptance

Engaged in a multitude of community outreach programs.

- Training on how to improve agricultural yields
- Distribution and training of agricultural equipment selected by communities
- Training on how to effectively use organic fertilizers
- Establishment of 2 vaccination corridors; vaccination of 200 zebus
- Seeding of pastures for zebu grazing
- Construction of ponds for livestock
- Establishment of water wells in various communities
- Construction of community latrines
- Reconstruction of a local school



# All-modular build approach - GAME CHANGER



Actual representation of the all-modular Molo mine.

## 9-month build time

- Established and proven modular plant solutions fabricator currently supplying major CPG firms
- Entire plant is 35 modules
- Constructed off-shore (6 months) – at contracted prices with equipment guarantee
- Factory Assurance Tested (1 month) prior to sign off by process engineers
- Dismantled & shipped to site (1 month)
- Re-assembled at site (1 month) with minimal mine footprint

Source: 2019 Molo FS



# Phased buildout plan

A phased buildout using a modular design allows for easy expansion as market demand requires.

## Phase 1

- **17,000 tpa** production
- Supply refractory industry
- Supply expandable industry
- *Validate for Li-ion* supply chain with production-run material

## Phase 2

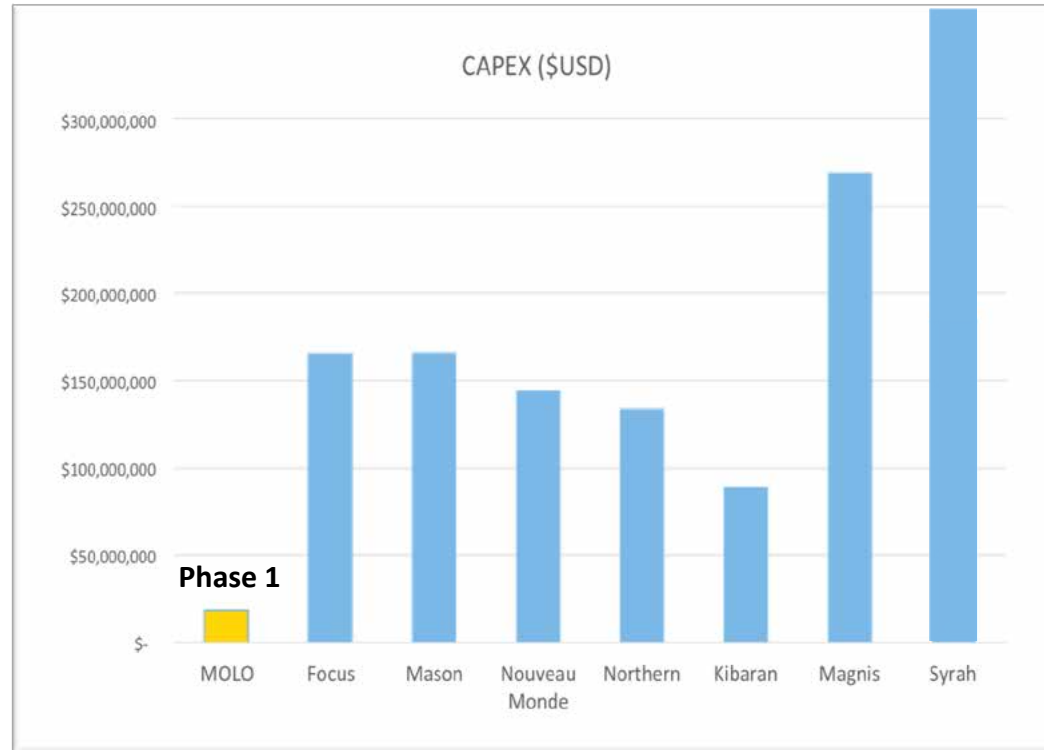
- **45,000 tpa** total production by adding 2 additional modules with 28,000 tpa capacity
- Supply refractory industry
- Supply expandable industry
- Supply Li-ion industry

## Phase 3

- **Expansion**
- Not quantified in FS; volume dictated by market demand
- Supply refractory industry
- Supply expandable industry
- Supply Li-ion industry
- Value-add processing



# Lowest CAPEX of any competing project



$$\begin{array}{ccccc} \text{US\$21 million} & + & \text{US\$39 million} & = & \text{US\$60 million} \\ \text{PHASE 1} & & \text{PHASE 2} & & \text{PHASE 1\&2} \end{array}$$





## Lowest quartile operating costs



Port d'Ehola at Fort Dauphin

### Phase 1 OPEX:

FOB Mada Port      **\$566/T**

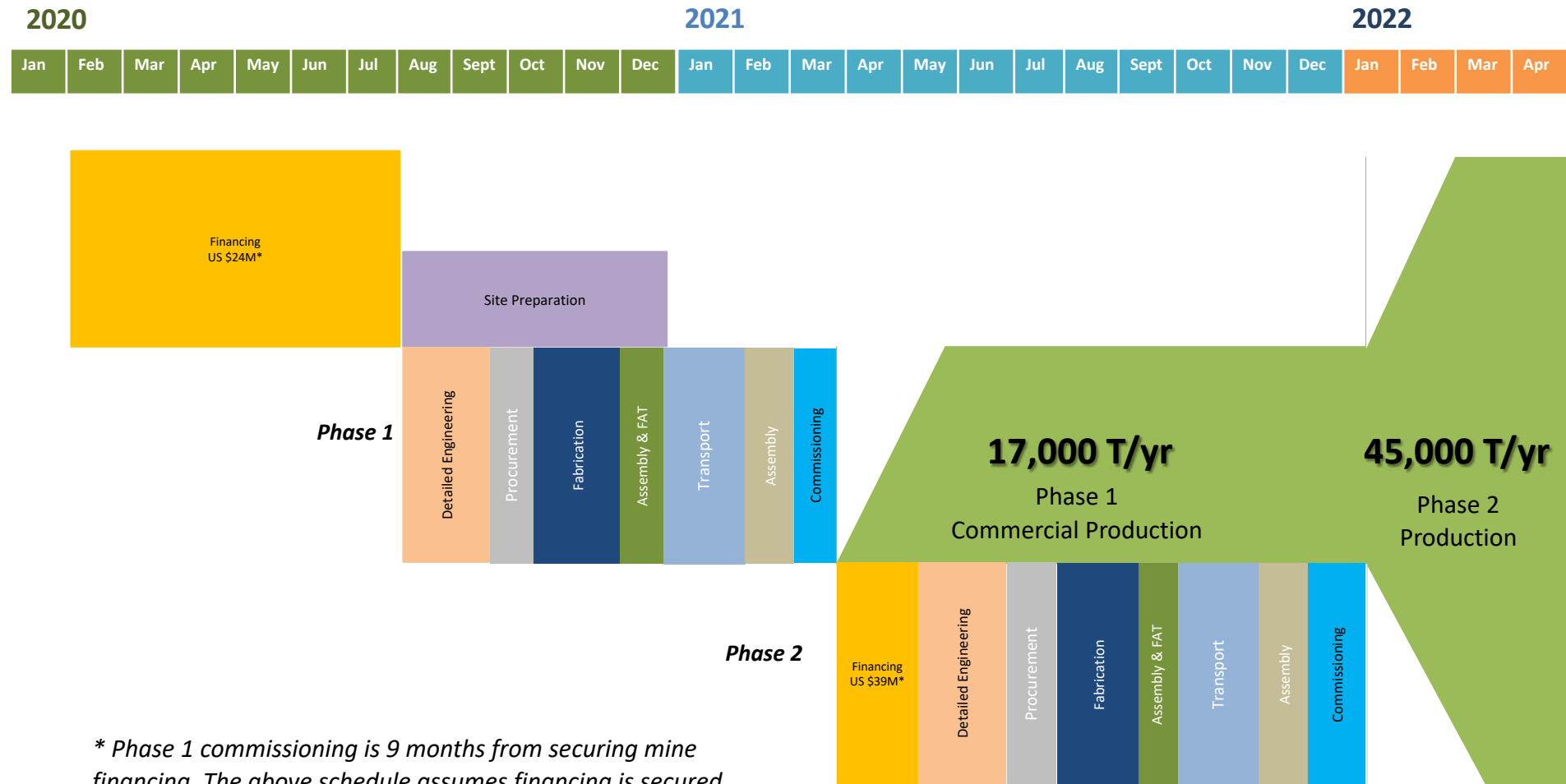
### Phase 2 OPEX:

FOB Mada Port      **\$515/T**

- Lowest quartile OPEX
- Competitive with Chinese pricing



# Accelerated scheduling due to phased modular build approach



\* Phase 1 commissioning is 9 months from securing mine financing. The above schedule assumes financing is secured by end of July 2020 and is subject to change based on when financing is actually secured.



# Feasibility Study Results - Phases 1 & 2

- Assumes expansion from 17,000 T/yr to 45,000 T/yr in third year of production
- 30 year mine life
- Assumes NO gearing

	Pre-tax	Post-tax
<b>NPV: 8% discount</b>	<b>US\$237.1M</b>	<b>US\$184.3M</b>
<b>IRR:</b>	<b>43.1%</b>	<b>36.2%</b>
<b>Payback:</b>	<b>3.4 years</b>	<b>3.8 years</b>

	Year 1-3	Year 3 Onward
Annual Production Graphite:	17,000 T/yr	45,00T/yr
CAPEX:	US\$21M	US\$46M
Working Capital	US\$3M	US\$7M
OPEX (Ex-plant):	US\$433/T	US\$381/T
OPEX (FOB Mada)	US\$566/T	US\$514/T
Average Head Grade:	8.05% (C)	7.0% (C)
Average Selling Price:	US\$1208/T	US\$1208/T

\*Please refer to the Company's 2019 technical report titled "Molo Feasibility Study" under the Company's profile at [www.sedar.com](http://www.sedar.com) for certain other details and assumptions relating to the above mineral resource and reserve estimates and data verification procedures.



# Off-Takes in place for Phase 1 and Phase 2

## 1) Primary graphite supplier to Japan's #1 EV anode producer



### Terms

- 2,000 tonnes Phase 1
- +18,000 in Phase 2
- 10-year period
- FOB China pricing (floating)
- FOB Madagascar port delivery

### Value-add Opportunity

- In discussions regarding potential JV collaboration on value-added, downstream products
  - graphite foils
  - anode plant (SPG -spheronized, purified graphite)

## 2) Finalizing offtake with major European steel maker and trader



### Terms

- 15,000 tonnes Phase 1
- 10-year period
- FOB China pricing (floating)
- FOB Madagascar port delivery







# NextSource also 100% owns Green Giant vanadium deposit

One of the largest delineated vanadium deposits in the world

Classification (at 0.5% $V_2O_5$ cut-off)	Tonnage (million tonnes)	$V_2O_5$ (million pounds)	Grade (% $V_2O_5$ )
Indicated	49.5	756.3	0.693
Inferred	9.7	134.5	0.632

- Separate from graphite resource
- Sedimentary deposit (i.e. NO magnetite)
- At surface
- Expandable as delineated over 50km trend

## Vanadium flow batteries competitive for grid-scale energy storage\*

- Store up to hundreds of MWh of energy
- May be charged by renewables or baseload power plants
- Deliver power near instantaneously
- Much longer life that Li-ion batteries can be easily scaled up



The "Other" Gigafactory; world's largest battery by Rongke Power.



# Strong operations team with extensive Madagascar experience



## **Craig Scherba**

President and Chief Executive Officer P.Geo.

- Discovered both the graphite and vanadium deposits as former head of exploration in Madagascar
- Former managing partner of Taiga Consultants Ltd. that developed Nevsun Resources' gold/copper/zinc Bisha project in Eritrea
- Extensive African experience, including Madagascar



## **Robin Borley**

Chief Operations Officer Pr.Tech Eng

- Former Director of Mine Operations for DRA Global
- 25+ years experience building and operating mines internationally
- Extensive operation experience in Madagascar (coal)



## **Johann de Bruin**

Senior Consultant, Operational Readiness PrEng

- Managing Director, Erudite Strategies
- Retired Managing Director of DRA Global Africas
- 30+ years of mining operations experience in Africa, Australia and Canada, including graphite mining



## **Dean Comand**

Non-Executive Director, P.Eng

- Former VP of Operations for Sherritt's Madagascar Ambatovy Project
- Mechanical engineering and modular plant expertise
- Extensive Madagascar mining operations experience



## **Oliver Peters**

Sr. Consultant, Process Engineering PrEng

- Head process engineer at SGS Minerals Canada (Lakefield)
- Former process engineer at DRA Global
- 25+ years of process engineering experience in Africa and Canada
- Extensive graphite processing experience

**NEWS RELEASE** – February 5, 2018

## **Top Graphite Processing Engineer to Commission NextSource Materials Madagascar Graphite Project**

Mr. Oliver Peters M.Sc., MBA, P.Eng., one of the graphite industry's top metallurgists and process engineers, will commission the Company's Molo graphite mine in Madagascar and act as the Company's principal process engineering consultant for Phase 1 of the Molo mine.

**NEWS RELEASE** – March 2, 2017

## **NextSource Materials Hires Former MD of DRA Africa to Head Operational Readiness for Molo Graphite Project**

Mr. Johann de Bruin, former Managing Director of DRA Africa (DRA), has joined NextSource Materials and will oversee all aspects regarding the operational readiness of the Molo Project as the Company prepares for the commencement of procurement for mine infrastructure.



The only project with **SuperFlake<sup>®</sup>** graphite.