

NextSource Materials Announces Robust Feasibility Study Results for Molo Mine Expansion to 150,000 Tonnes per Annum of SuperFlake(R) Graphite Concentrate

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Highlights

- Feasibility Study confirms highly attractive economics for a large-scale expansion of the Molo Mine and processing facility to a steady-state production rate of 150,000 tpa of graphite concentrate
- Estimated capital cost of US\$161.7 million (including contingency), with pre-tax NPV₈ of US\$424.1 million and a pre-tax IRR of 31.1%
- Expansion significantly de-risked through application of NextSource's all-modular construction approach and sharing of infrastructure with existing operations
- Discussions with OEMs and battery manufacturers indicate robust demand for the Company's product

TORONTO, December 12, 2023 - [Nextsource Materials Inc.](#) (TSX:NEXT)(OTCQB:NSRCF) ("NextSource" or "the Company") is pleased to announce the results of a Feasibility Study (the "FS") for a mine expansion of its 100%-owned Molo Graphite Mine in southern Madagascar.

The FS considers an expansion to the Molo Graphite Mine's current Phase 1 production capacity of 17,000 tonnes per annum ("tpa") through the construction of an additional and standalone processing plant that increases the steady-state production rate to 150,000 tpa of SuperFlake® graphite concentrate over a 25-year life of mine ("LOM"). The FS projects a capital cost of US\$161.7 million resulting in a pre-tax NPV using an 8% discount rate of US\$424.1 million and a pre-tax IRR of 31.1%.

The FS assumes the additional processing plant will be built adjacent to the current Phase 1 processing plant, presently in the ramp-up stage of production. The expansion will utilize the Company's unique, fully modular build approach used to construct its Phase 1 processing plant, which greatly reduced build time and associated costs in relation to conventional mine construction.

Craig Scherba, P.Geol., President, and CEO of NextSource commented:

"We are very pleased the FS confirms the strong financial potential of a larger scale operation and significant scalability of our Molo Graphite Mine to meet the robust market demand for flake graphite for use in electric vehicle batteries. This is especially timely given the recent announcement of export restrictions on flake graphite and graphite anode material from China. An expansion of this magnitude will position NextSource as a major global supplier and underpins our vertical integration strategy to offer an ample and secure supply of graphite flake for our planned battery anode facility, enabling direct supply to the electric vehicle battery market."

The production capacity of 150,000 tpa was established based on ongoing discussions with automotive manufacturers ("OEMs") and battery anode offtake partners, and on the expected demand forecasts for flake graphite that will need to be converted into spheronized and purified graphite ("SPG") and then into coated SPG ("CSPG") over the mid-term. CSPG is the final form of natural graphite required by OEMs to manufacture lithium-ion batteries for electric vehicles.

Ongoing discussions with numerous OEMs and battery anode offtake partners indicate market demand for CSPG over the long-term is expected to experience significant growth and could support additional expansions of the Molo's mine processing capacity.

The Company has not yet made a construction decision in respect to the expansion and will discuss the FS results with its strategic partners to determine the optimal timing and assess the funding options that are available with respect to this potential mine expansion.

RESULTS SUMMARY

The following summary highlights the financial metrics provided in the FS. All capital and operating costs estimates are prepared in line with a Class 3 estimate as per the American Association of Cost Engineers classification and are accurate to +/- 15 to 25%.

Key Estimates

Economic Highlights

Pre-tax

Net

Present

Value

(US\$) 24.1 million

("NPV")

(8%

discount

rate)

Post-tax

NPV

(US\$) 370.0 million

(8%

discount

rate)

Pre-tax

Internal

Rate

of 31.1

Return

("IRR")

29.0

IRR

Payback

Period

2.1 years

Project

Capital

Expenditure

(including

a US\$161.7 million

contingency

of

\$21.23

million)

Sustaining

Capital

Expenditure

US\$218.1 million

and

Closure

Costs

Minesite

Operating

Cost

EXW US\$392.59

(per

tonne

of

concentrate)

Total
Cash
Cost
FOB
\$ US638.53
(per
tonne
of
concentrate)

All-in
Sustaining
Cost
FOB
\$ US714.33
(per
tonne
of
concentrate)

Average
sales
price
of
US\$1,191
Superflake??
graphite
concentrate
(US\$/tonne)

Life
of 25 years
Mine

Operational Highlights

Waste
Mined
Total 19,198
(kt)

Mineralized
Material
Mined 58,266
Total
(kt)

Mineralized
Material
Mined 2,640
Steady-State
(ktpa)

Head
Grade:
Cg 6.07 %
(%)

Strip
Ratio:
Average
(waste
to
ore)

Recovery:
Cg
(% 88.1 %
wt
:
wt)

Mass
 Pull
 to
 Superflake®
 Concentrate %
 55.5
 (%
 wt
 :
 wt)
 Superflake®
 Concentrate
 Produced:
 Total
 (kt)
 Superflake®
 Concentrate
 Produced:
 Steady-State
 (ktpa)
 Superflake®
 Concentrate
 Grade %
 67.3
 Cg
 (%)

Notes:

1. Assumes Molo Graphite Mine is financed with 100% equity. Unless otherwise noted, all monetary figures presented throughout this news release are expressed in real US dollars (US\$) as of 1 September 2023. No above-inflationary cost escalations have been applied.
2. Based on cumulative undiscounted free cash flows associated with the expansion as measured from the date of first concentrate production.
3. Project Capex includes process equipment, civil & infrastructure, mining, buildings, electrical infrastructure, project & construction services. Includes capitalised operating costs. Excludes working capital, sustaining capital and closure costs.
4. Assumes all concentrate will be sold on a FOB basis at the Port of Tulear, Madagascar.
5. Based on the weighted average prices of the various size fractions of Superflake® concentrate, as informed by Benchmark Mineral Intelligence and includes a premium associated with an above 94%-95% concentrate grade as advised by Fastmarkets.
6. The LOM measured in terms of actual operating years, where the mined produces 240ktpa of ROM for ~3 years, which increases by 2.64Mtpa of ROM for a further ~22 years.
7. Assumes a mineral reserve cut-off grade of 3% Cg has been applied, with all material below this cut-off grade treated as waste. Over the LOM, 2,520 kt (4.5% of the total tonnes in the ROM production schedule) of inferred mineral resource material above this cut-off has been included in the LOM production schedule. The sensitivity analysis section of the FS considers the impact of excluding the inferred mineral resource from the LOM production schedule. Mineral resources are not mineral reserves and do not have demonstrated economic viability.
8. Steady-state is defined as the period during which the comminution circuits are fed at a combined ROM throughput rate of 2.64Mtpa (19 years).

CAPITAL COST SUMMARY

LOM TOTAL
 (US\$ '000, Real)
 Direct
 Capital
 Costs
 Open-Pit
 Mining
 Processing
 Plant

On-Site Infrastructure	33,675
Indirect Capital Costs	4,114
Project Management	18,395
Owner's Cost	20,325
Other Capital Cost	6,094
Provision	21,207
Contingency	21,207
TOTAL: PROJECT CAPEX	10,170

Note: Excludes working capital, sustaining capital and closure costs.

OPERATING COST SUMMARY

Based on discussions with our off-take customers, their preference is to purchase Molo graphite concentrate at the local Madagascar port at freight on board ("FOB") China prices. As such, operating costs ("OPEX") include the all-in FOB cost to deliver the graphite concentrate to the local port of Tulear.

LOM TOTAL (US\$M, Real)	UNIT COST (US\$ / t ore mined)	UNIT COST (US\$ / t concentrate)
Open-Pit Mining	3.38	61.41
Processing	8.06	146.66
On-Site Infrastructure	7.65	139.13
G&A (Site)	2.50	45.39
Minesite Operating Cost (EXW)	21.58	392.59
Royalties	5.34	97.14
Selling Cost	8.18	148.80
Total Cash Cost (FOB)	35.10	638.53
G&A (Corporate)	0.29	5.31
Reclamation & Closure Cost	0.23	4.13
Sustaining Capex	3.65	66.36
All-in Sustaining Cost (FOB)	39.27	714.33

MINERAL RESOURCE AND MINERAL RESERVE STATEMENTS

The FS includes the following mineral resource estimates for the Molo Graphite Mine, which remains open along strike and to depth:

Molo Mineral Resource Statement - 1 September 2023

Classification	Material Type	Resource Tonnes Grade Contained Carbon Graphite		
		(kt)	(% Cg)	(kt)
Measured	"Low-Grade"	13,048	4.64	605
Measured	"High-Grade"	10,573	8.40	888
Total Measured		23,622	6.32	1,493
Indicated	"Low-Grade"	39,539	4.73	1,871
Indicated	"High-Grade"	37,207	7.86	2,925
Total Indicated		76,746	6.25	4,796
Measured + Indicated	"Low-Grade"	52,588	4.71	2,476
Measured + Indicated	"High-Grade"	47,780	7.98	3,813
Total Measured + Indicated		100,367	6.27	6,289
Inferred	"Low-Grade"	24,233	4.46	1,081
Inferred	"High-Grade"	16,681	7.70	1,285
Total Inferred		40,915	5.78	2,366

Notes:

1. Mineral resources have been classified using the 2014 CIM Definition Standards.
2. Mineral resources are reported inclusive of mineral reserves.
3. "Low Grade" mineral resources are resources in a low-grade zone and stated at a cut-off grade of 2% Cg with no upper limit.
4. "High Grade" mineral resources are resources in a high-grade zone and stated at a cut-off grade of 4% Cg with no upper limit.
5. Eastern and western high-grade assays are capped at 15% Cg.
6. A relative density of 2.36 tonnes per cubic meter (t/m³) was assigned to the mineralized zones for the mineral resource tonnage estimation.
7. Totals may not represent the sum of the parts due to rounding.
8. Mineral resources are defined as surface mineable only.
9. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that any mineral resource will be converted into a mineral reserve.
10. % Cg = percentage Carbon Graphite.
11. The mineral resource estimates may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

The FS includes the following mineral reserve estimates for the Molo Graphite Mine:

Molo Mineral Reserve Statement - 1 September 2023

Classification	Material Type	Ore Grade Contained Carbon Graphite	
		(kt)	(kt)

(% Cg)

(kt)

	"High Grade"	15,489	7.00	1,085
Proven	"Low Grade"	5,845	4.25	248
	Total	21,334	6.25	1,333
	"High Grade"	24,734	6.64	1,642
Probable	"Low Grade"	7,677	4.32	331
	Total	32,412	6.09	1,973
Total Reserves		53,746	6.15	3,306

Notes:

1. Mineral reserves have been classified using the 2014 CIM Definition Standards
2. Assumes that all modifying factors have been applied, including mining losses of 5% and mining dilution of 3%.
3. Assumes a reserve cut-off grade of 3% Cg has been applied, with all material below this cut-off grade treated as waste.
4. "Low Grade" mineral reserves are classified as ore with a grade $\geq 3\%$ Cg and $\leq 5\%$ Cg.
5. "High Grade" mineral reserves are classified as ore with a grade $> 5\%$ Cg.
6. Totals may not represent the sum of parts due to rounding.
7. % Cg = percentage Carbon Graphite.
8. The estimate of mineral reserves may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues.

METALLURGY

The FS is based on a full suite of metallurgical test work performed by SGS Canada Metallurgical Services Inc. in Lakefield, Ontario, Canada. These tests included lab and bench scale process development work, a bulk sample/pilot plant program, and metallurgical variability testing. The overall graphitic carbon recovery into the final concentrate is 88.1% and the mass pull to concentrate is 5.5%.

Flake Size Distribution and Product Grade

Product Size Distribution (%)	Product Grade (% Cg)
+50 mesh	96.9
-50 to +80 mesh	97.0
-80 to +100 mesh	97.2
-100 mesh	97.6

PRICING

The LOM average selling price of US\$1,191/t of concentrate (Real) used in the FS is the volume weighted average sales price for the various flake sizes and grades of SuperFlake® graphite concentrate that are expected to be produced from the Molo Graphite Mine. Prices used are based on current market prices

provided by UK-based, commodity price reporting agencies Benchmark Minerals Intelligence and Fastmarkets, who are recognized as leaders in providing independent and unbiased market research, pricing trends, and demand and supply analyses for the natural flake graphite market.

Current market prices in real US dollar terms were used through to 2028 and flatlined from that point forward over the rest of the LOM. A pricing premium for increased carbon grade was applied based on recent market trends for products exceeding 94% carbon. No other premiums were applied.

The FS does not consider any potential for downstream value-added processing of the flake graphite concentrate such as conversion into SPG and CSPG, thermal expansion for use in foils, and other specialty graphite applications.

TECHNICAL REPORT FILING

This FS will be filed under the Company's profile on SEDAR+ at www.sedarplus.ca and will be posted on NextSource's website at www.nextsourcematerials.com within 45 days of this news release.

DATA VERIFICATION

Data verification programs have included review of QA/QC data, re-sampling and sample analysis programs, and database verification. Validation checks were performed on data, and comprise checks on surveys, collar coordinates and assay data. Sufficient verification checks were undertaken on the database to provide confidence that the database is appropriate to support the technical information contained herein.

QUALIFIED PERSONS

The FS has an effective date of September 1, 2023 and was prepared by Erudite Strategies Ltd. ("Erudite") of South Africa, an independent engineering and consulting firm specializing in the mining and processing of commodities and battery materials and authored by the following "qualified persons" as defined under NI 43-101: Johann De Bruin, (Pr. Eng) (ECSA), Hector Mapheto, Pr.Eng. (ECSA), Schalk Pienaar, Pr.Eng. (ECSA) and Hercu Smit, Pr.Eng. (ECSA) (Erudite Strategies Ltd.), Philip John Hancox, PhD, Pr.Sci.Nat. and Desmond Subramani, Pr.Sci.Nat. (Caracle Creek International Consulting (Pty.) Ltd.), Oliver Peters, P.Eng. (PEO) (Metpro Management Inc.), Eugène de Villiers, Pr.Eng. (ECSA) (ECMA Consulting (Pty.) Ltd.), Nico Hamman, Pr.Tech.Eng. (ECSA) (Eco Elementum), Alkie Marais, M.Sc. (Geohydrology) (Geostratum Water Management Consulting), and Ruan Daffue, M.Sc.Eng. (Practara (Pty.) Ltd).

Scientific and technical information presented in this news release was reviewed and approved by the following FS "qualified persons" as defined under NI 43-101: Johann De Bruin, Pr.Eng. (ECSA), Hector Mapheto, Pr.Eng. (ECSA), Schalk Pienaar, Pr.Eng. (ECSA) and Hercu Smit, Pr.Eng. (ECSA) (Erudite Strategies Ltd.), Philip John Hancox, PhD, Pr.Sci.Nat. and Desmond Subramani, Pr.Sci.Nat. (Caracle Creek International Consulting (Pty.) Ltd.), Oliver Peters, P.Eng. (PEO) (Metpro Management Inc.), Eugène de Villiers, Pr.Eng. (ECSA) (ECMA Consulting (Pty.) Ltd.), Nico Hamman, Pr.Tech.Eng. (ECSA) (Eco Elementum), Alkie Marais, M.Sc. (Geohydrology) (Geostratum Water Management Consulting), and Ruan Daffue, M.Sc.Eng. (Practara (Pty.) Ltd).

About NextSource Materials Inc.

[Nextsource Materials Inc.](#) is a battery materials development company based in Toronto, Canada that is intent on becoming a vertically integrated global supplier of battery materials through the mining and value-added processing of graphite and other minerals.

The Company's Molo Graphite Mine in Madagascar is one of the largest known and highest-quality graphite resources globally, and the only one with SuperFlake® graphite. The Molo Graphite Mine has begun production, with Phase 1 mine operations currently undergoing ramp-up to reach its nameplate production capacity of 17,000 tpa of graphite concentrate.

The Company is also developing a significant downstream graphite value-add business through the staged rollout of Battery Anode Facilities capable of large-scale production of coated, spheronized and purified graphite for direct delivery to battery and automotive customers, outside of existing Asian supply chains, in a fully transparent and traceable manner.

NextSource Materials is listed on the Toronto Stock Exchange under the symbol "NEXT" and on the OTCQB under the symbol "NSRCF".

For further information about NextSource visit our website at www.nextsourcematerials.com or contact us at +1.416.364.4911 or email Brent Nykoliation, Executive Vice President at brent@nextsourcematerials.com or Aura Financial nextsource@aura-financial.com.

CAUTIONARY NOTE

This news release contains statements that may constitute "forward-looking information" or "forward-looking statements" within the meaning of applicable Canadian and United States securities legislation. Readers are cautioned not to place undue reliance on forward-looking information or statements. Forward-looking statements and information are frequently characterized by words such as "plan," "expect," "project", "intend", "believe", "anticipate", "estimate", "potential", "possible" and other similar words, or statements that certain events or conditions "may", "will", "could", or "should" occur. Forward-looking statements include any statements regarding, among others: anticipated results of the FS including in respect of financial metrics, capital and operating costs, mineral resource and mineral reserve estimates, metallurgy, and pricing; intended expansion and construction plans; demand for CSPG; discussion of the FS results with potential strategic partners; purchase preferences of off-takers; the staged rollout of Battery Anode Facilities; as well as the Company's intent on becoming a fully integrated global supplier of critical battery and technology materials. These statements 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 news 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 as a result. Although the forward-looking statements contained in this news release are based on what management believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with them. The forward-looking statements contained in this news release are made as at the date of this news release and the Company does not undertake any obligation to update publicly or to revise any of the forward-looking statements, whether because of latest information, future events or otherwise, except as may be required by applicable securities laws. These forward-looking statements are expressly qualified in their entirety by this cautionary statement.

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