



THE FUTURE OF GRAPHITE

NEW FLAKE GRAPHITE SUPPLY CHAIN


BELL POTTER

UNEARTHED CONFERENCE

THE FUTURE OF GRAPHITE

DELIVERING GLOBAL SCALE TO THE USA IN PURIFIED
GRAPHITE/ANODE PRECURSOR MATERIAL



Australian Raw Material Supply



U.S. Process and Refining



Commercialisation and Sales



Sunlands Pure has locked in a multi-generational and scalable supply of flake graphite and will be positioned to control the supply of flake graphite to the USA (ex-China) LFP EV BAM.

LONG TERM U.S. PARTNERSHIP FOR CLEAN GRAPHITE SUPPLY

QGL will supply a minimum of 100,000tpa of flake graphite ore for 50+ years to the Sunlands Pure Concentrator in South Australia. An exploration plan has been developed to ensure supply to Sunlands Pure is guaranteed beyond 50 years. This plan consists of:

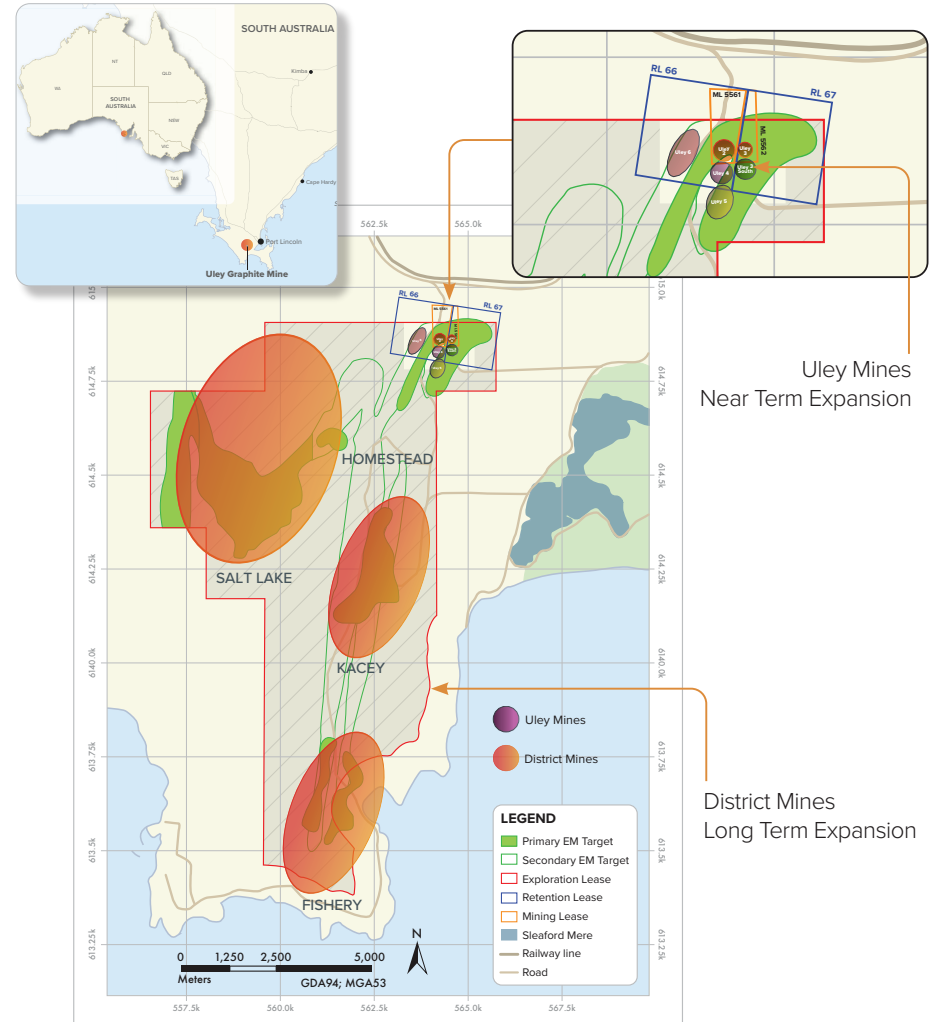
- Near Term Production Plan (30-50 years) that will exploit the Uley Mines region (Uley Mines 2, 3, 3-South, 4, 5 & 6)
- District Expansion Plan (beyond 50 years) that will exploit the extensive flake graphite mineralised envelopes within the 75km² Exploration Lease

ULEY MINES - NEAR TERM EXPANSION PLAN IMPLEMENTED

- Permitting has been obtained for Uley 2 and Uley 3 extension drilling
- Contractual arrangements with drill crews will be settled by mid-November 2024 and crew mobilisation scheduled for mid-January 2025
- Significant increase in the certified flake graphite mineral reserves and resources will be issued by the Company by the end of Q1 2025

DISTRICT MINES - LONG TERM EXPANSION PLAN DEPLOYED OVER NEXT DECADE

- Large-scale geophysical survey of the whole Exploration Lease completed and drill targets to be finalised by November 2024
- Mobilisation of drill-crew scheduled for Q2 2025



Uley Mines Near Term Expansion

District Mines Long Term Expansion

The Uley Mines comprise several discrete, highly mineralised envelopes all located within a 1200-metre radius representing a potential certified resource of more than 5 million tonnes of natural flake – equivalent to 15 times the annual global flake graphite production.

ULEY 2 - EXISTING PROJECT (2026 - 2038)

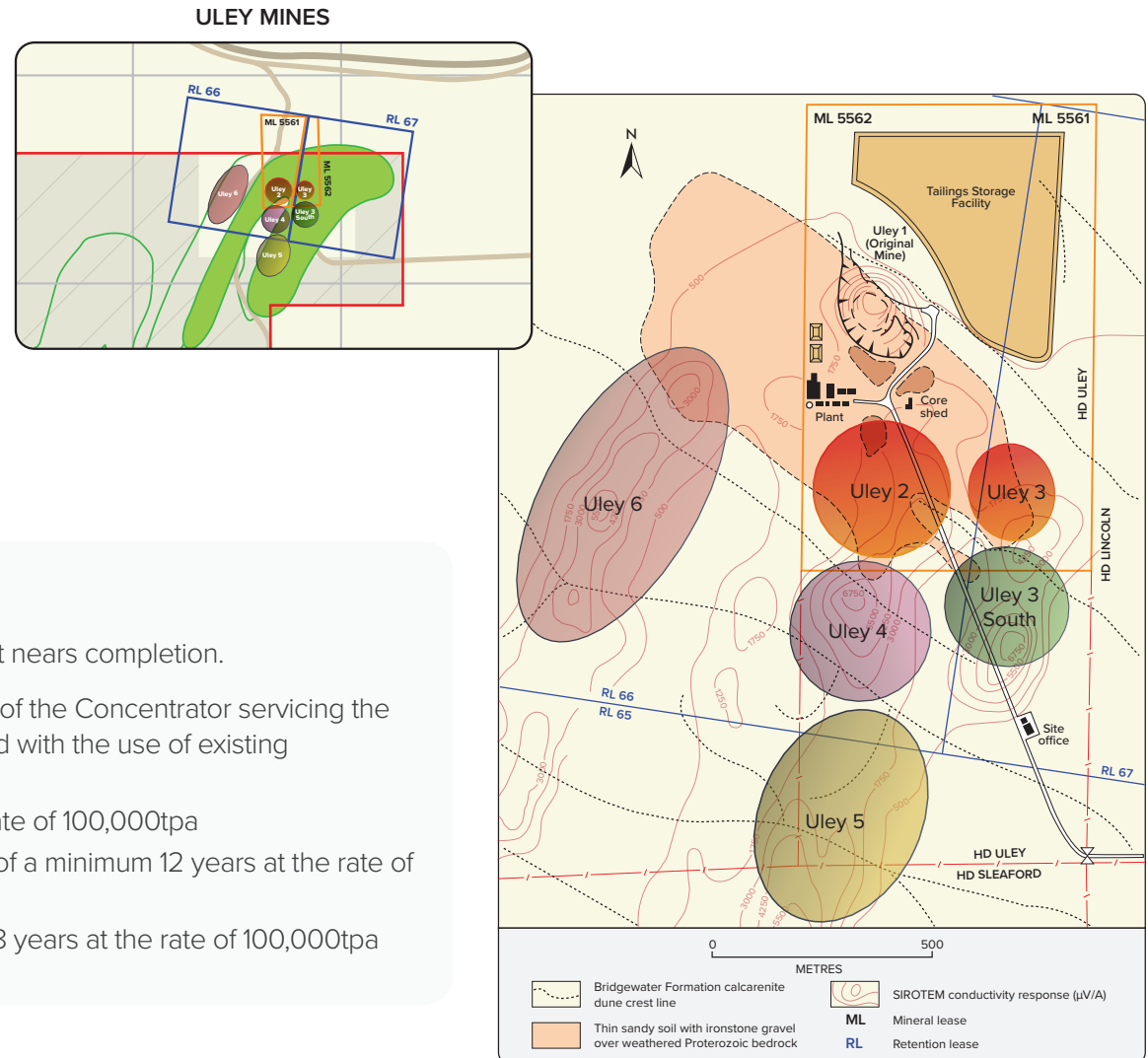
The Uley 2 Project includes the Uley 2 Mine and the Uley 3 Mine.

- All permitting including environmental approvals have been obtained
- All infrastructure requirements have been met, including power (33kVa supply) and water
- Provides the initial 12-years' supply of flake graphite ore to the Sunlands Pure Concentrator

ULEY 3 SOUTH, 4, 5 AND 6 (2038 - c2070)

These mines will be progressively developed as the Uley 2 Project nears completion.

- Uley 6 is likely to be the next development in light of proximity of the Concentrator servicing the Uley 2 Project (Uley 2 & Uley 3), and the efficiencies associated with the use of existing infrastructure
- Uley 6 Mine Life is estimated at a minimum of 15 years at the rate of 100,000tpa
- Uley 3 South and Uley 4 will follow with a combined Mine Life of a minimum 12 years at the rate of 100,000tpa
- Uley 5 will follow with an estimated Mine Life of a minimum of 8 years at the rate of 100,000tpa



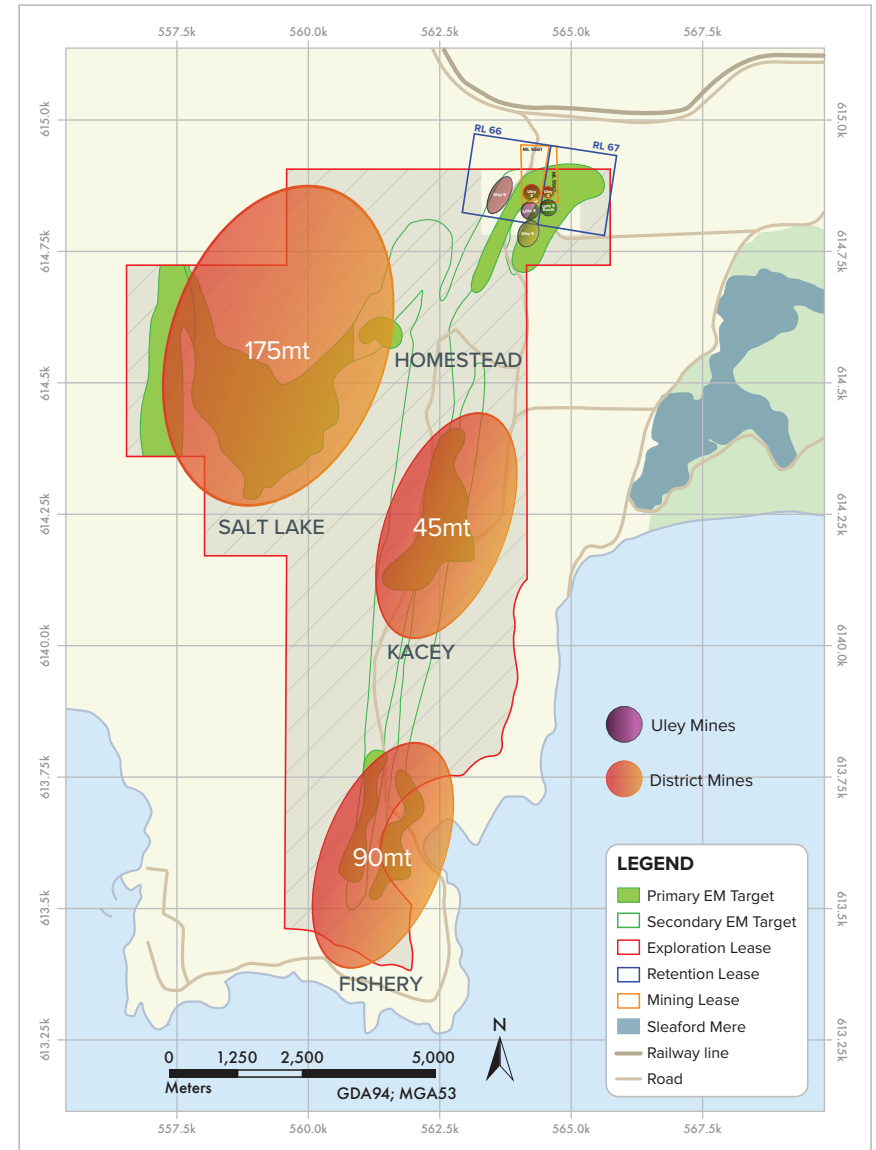
The Uley Mines (Near Term Resource Expansion) Plan represents approximately 20% of the total graphite potential in mineral tenements.



The District Mines Expansion Plan supports a further 50+ years supply of graphite ore from the Salt Lake, Kacey and Fishery prospects.

The combined potential graphite resources from these prospects are approximately 6 times larger than the Uley Mines.

	Potential Graphite Resources (mt)	
	CRA Explorations (Rio Tinto) 1985 Estimated @ 7.5% gC	QGL/SP 2024 Exploration Target @ 8% gC
District Mines		
Fisheries	107	90
Salt Lake/Homestead	150	175
Kacey	69	45



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The Sunlands Pure integrated processing and refining operations create an end-to-end supply chain supporting a South Carolina, USA high purity graphite (HPG) hub, ensuring a scalable and independent (ex-China) supply for the US LFP EV BAM sector.

SOUTH CAROLINA REFINERY - HPG FACILITY AND U.S. INVENTORY HUB

Sunlands Pure will construct a Refinery that will further process the -196 concentrate to produce -199 HPG.

- Product will be of sufficient quality to satisfy multiple markets – thermal management products e.g. refractory, isostatic graphite and high-value feed stock for the production of LFP EV BAM
- Process utilises proven technologies and readily available plant and equipment available in the USA
- The quality of the concentrate ensures that the process has a minimal environmental impact – confirmed by Dorchester County Business Development and Environmental Officials
- Sunlands Pure will maintain a secure warehouse to hold inventories of HPG. The facility will include a laboratory for testing and sampling of product and independent certification capabilities.

SOUTH AUSTRALIA CONCENTRATOR - PROCESS FACILITY AND U.S. FEED STOCK RESERVE

Sunlands Pure will construct a Concentrator to process graphite ore supplied by the Uley Mines.

- Production will consist of 100,000tpa of -196 (flake graphite having a maximum particle size of 150µm and a purity of 96%)
- The process utilises readily available conventional plant and equipment available in the USA
- Sunlands Pure will maintain a secure warehouse to hold sufficient concentrate inventories to ensure continuous supply to the South Carolina, USA Refinery.
 - The secure warehouse is the base of a centralised inventory management and logistics facility that will coordinate its activities with the South Carolina, USA Refinery operations
 - Certification and quality management capabilities of this facility forms part of an integrated Australia-USA technical & traceable supply chain

SOUTH CAROLINA REFINERY

Concentrate is shipped from the [Sunlands Pure](#) Concentrator in South Australia to its Refinery in Dorchester County, South Carolina.

SOUTH AUSTRALIA CONCENTRATOR

QGL mines and crushes graphite ore and delivers it to the ROM Pad supplying the [Sunlands Pure](#) Concentrator. Monthly ROM feed is 85,000 tonnes (1,000,000tpa).

Step 1. Plant Feed Preparation.

A blend of concentrate and caustic pearl (NaOH) is fed into the kiln, utilised at the appropriate ratio.

Step 2. Roasting.

The combined concentrate and caustic are roasted at 500°C. Silica within the concentrate reacts with the caustic to form certain compounds (sodium silicate and sodium alumino-silicate) that are able to be removed by a simple leach solution.

Step 3. Leaching & Filtration.

An initial solution of raw water removes sodium silicate followed by a light acid solution (H₂SO₄) leach that separates the sodium alumina-silicate from the graphitic carbon. Filtration utilising a membrane squeeze followed by a final wash of the filtrate delivers the purified product (i.e., HPG) to the dryer.

Step 4. Drying & Packaging.

HPG is dried with a rotary dryer, removing all moisture for bagging, sampling, testing and certification.

Step 5. Storage & Export from U.S. Inventory Hub.

Inventory stored in a 50,000ft secure warehouse at the Dorchester County site, for local supply and export shipment via Port of Charleston.

Step 1. Crushing & Grinding.

Ore is subject to primary/initial grind to deliver 600µm material to the flotation and polishing circuit.

Step 2. Flotation and Polishing Separation.

Milled ore is subject to a sequential flotation and polishing process that liberates graphitic carbon from waste material. This is achieved by a repetitive process of delamination, using the three-stage progressive flotation and polishing circuit.

Step 3. Drying & Bagging.

The final graphitic product (~96%gC) is dried and screened for bagging. Laboratory sampling, testing and certification is conducted for each 1 tonne bag on site.

Step 4. Storage of U.S. Feed Stock Reserves.

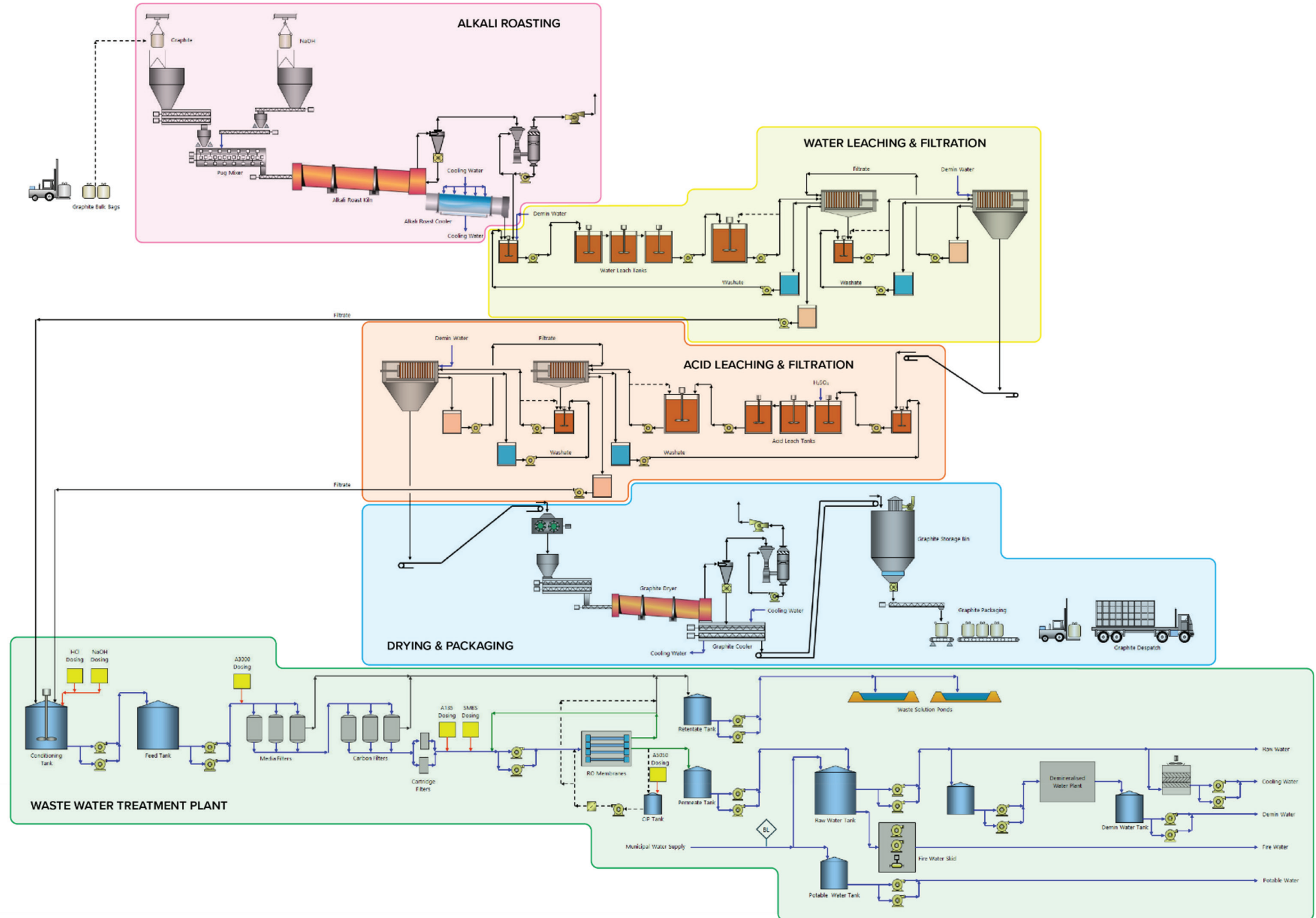
Certified inventory is stored at the Port Lincoln, South Australia warehouse, ensuring a reserve supply is permanently available for South Carolina.

Step 5. Shipment.

Inventory readied for shipment to Port of Charleston by way of standard shipping 40' containers. American President Lines (APL) or other US-flagged carrier transports the containers to Port of Charleston (~65 days).

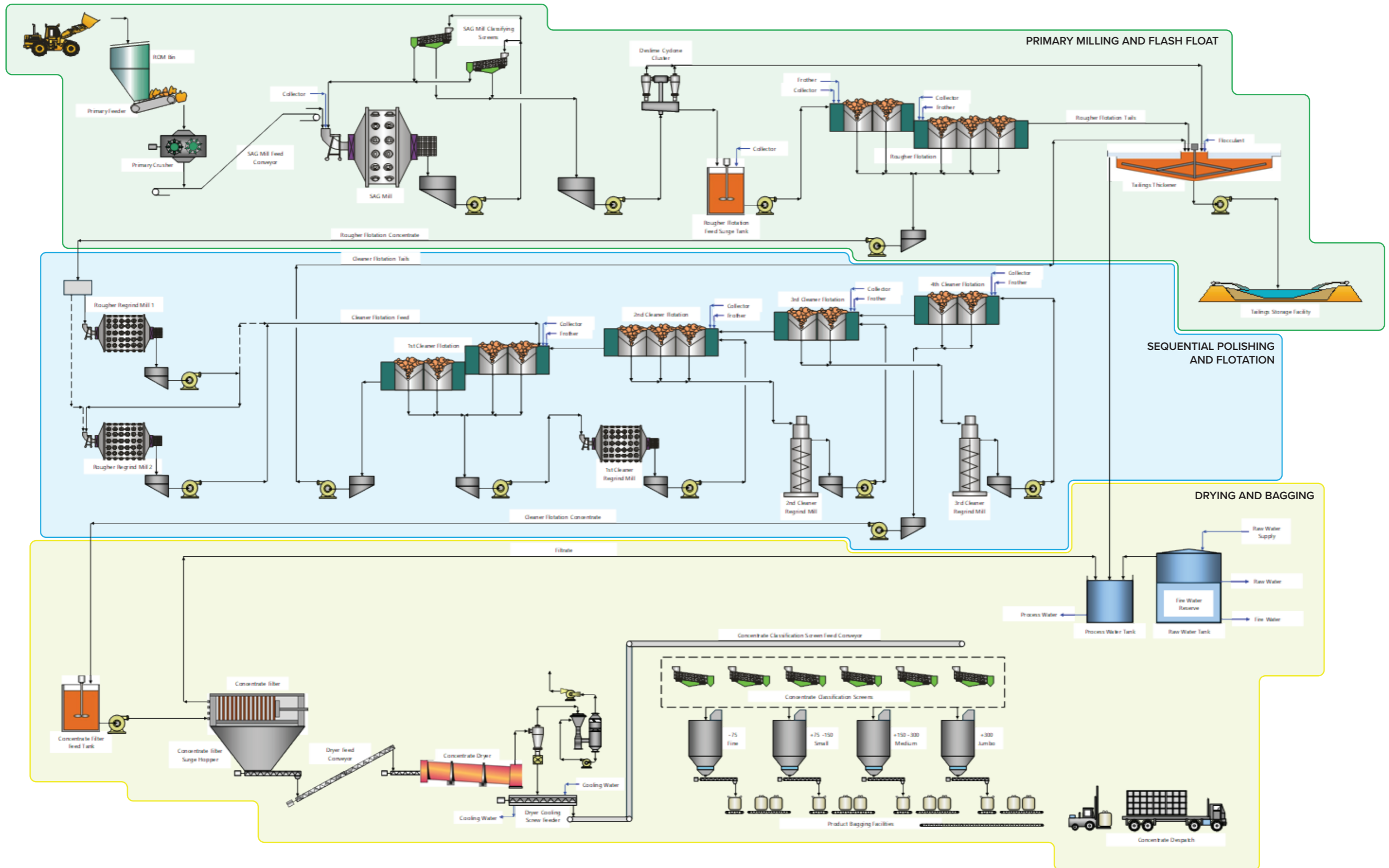
SCALABLE REFINERY FLOW SHEET

SOUTH CAROLINA REFINERY



SOUTH AUSTRALIA CONCENTRATOR

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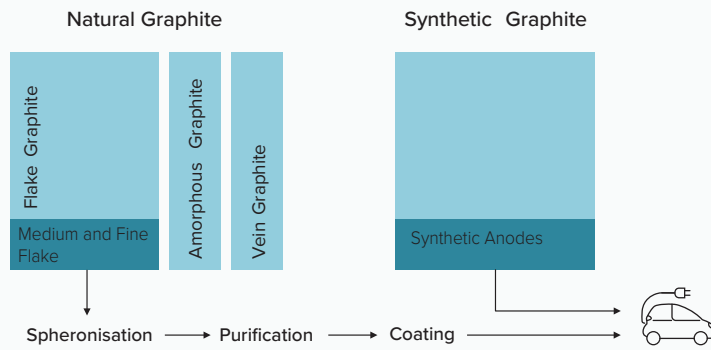


“This is a pivotal moment in the US graphite sector, with the US aiming to de-risk from China and become more self-sufficient in the graphite space, particularly for battery-grade materials,” Bennett said. “The combination of incredible growth and the impact of the IRA and Section 301 tariffs will by necessity prompt the development of a US pricing premium...”*

- IEA states that 45% of EV and storage batteries are sold and installed outside of China. This represents 350,000 tpa of *refined* graphite content wholly supplied within China or by China controlled entities
- By 2030 the estimate of demand outside of China ranges from 2.2 million tpa to 3.5 million tpa of *refined* graphite. Chinese demand pressure on its existing supply chain dramatically increases U.S. supply risk
- Fastmarkets* estimates U.S. *refined* graphite demand is set to rise by more than 600% to 700,000 tpa within the decade. This represents 1.75 million tpa of high purity graphite (HPG) anode precursor material

Most battery producers globally are heavily reliant on China for graphite anodes. While sizeable natural graphite anode capacities exist outside of China, they depend almost entirely on refined graphite supply from China and exhibit low utilisation rates

Battery-Grade Graphite Supply

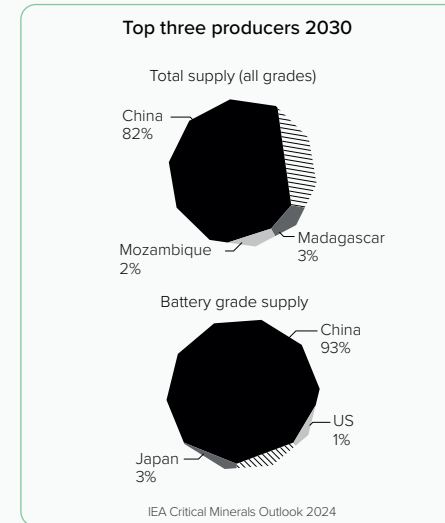


IEA Critical Minerals Outlook 2024

IEA. CC BY 4.0.

*Amy Bennett, Fastmarkets, 3 October 2024 www.fastmarkets.com

- QGL/SP is the only development ready natural flake graphite producer targeting US (ex-China) scalable production of anode precursor material for LFP Li-ion batteries
- U.S. development of an alternative/independant anode precursor supply chain is a priority to combat pre-existing market dominance



- LFP has emerged as the preferred Li-ion battery technology due to lower cost structure and least complex supply chain (i.e., no cobalt or nickel)
- LFP batteries are likely to drive a significant increase in the natural graphite share within anode from more than a quarter (**28% natural**, 72% synthetic) to half (**50% natural**, 50% synthetic) by 2030
- Within the next 5 years, based on these estimates, this translates to U.S. demand of more than 250,000 tpa of refined graphite or 625,000 tpa of HPG



Binding Offtake Agreement

- Binding off-take agreement executed with MRI Trading AG, leading Global Metals and Mining, Swiss based trading group for up to 55% (55,000 tpa) of total HPG production of 100,000 tpa
- Trading platform built upon more than 20 years of market intelligence
- 5 year term commencing from first delivery (est. Dec 2026)
- Ultimate customers include: Mitsubishi Chemicals Group, Marubeni Corp. and Sumitomo Corp.
- Minimum of 45% of HPG production reserved for U.S. domestic sales and marketing plan to ensure guaranteed long term supply of anode precursor material for U.S. anode manufacturers

Forecast Concentrate Prices - Unprecedented Upside

Commodity Prices (US\$/t) gC	2022	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	LT
94-97% +32 mesh	1,878	1,800	1,913	2,138	2,363	2,250	2,373	2,436	2,500	2,025
94-97% +50 mesh	1,444	1,545	1,700	1,900	2,100	2,000	2,110	2,165	2,222	1,800
94-97% +80 mesh	1,207	1,241	1,360	1,520	1,680	1,600	1,688	1,732	1,778	1,440
94-97% +100 mesh	984	996	1,107	1,235	1,365	1,300	1,371	1,407	1,444	1,170
94-97% -100 mesh	831	800	850	950	1,050	1,000	1,055	1,083	1,111	900
Purified spherical	3,576	3,720	4,229	4,750	5,250	5,000	5,274	5,413	5,555	4,500
Active Anode Material	7,576	7,720	8,229	8,750	9,250	9,000	9,274	9,413	9,555	8,500

Product Pricing Range

Source: Macquarie Bank, Fastmarkets 2023

