



ASX: MRC

8 December 2020

MRC Graphite Anodes Conference – PRESENTATION

Mineral Commodities Ltd (“MRC” or “the Company”) was pleased to present online as part of the Benchmark Week – Graphite Anodes Conference on Monday 7 December 2020. A copy of the presentation from the Company’s Chief Technology Officer, Dr Surinder Ghag is provided herein.

ENDS

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About Mineral Commodities Ltd:

Mineral Commodities Ltd (ASX: MRC) is a global mining and development company with a primary focus on the development of high-grade mineral deposits within the mineral sands and battery minerals sectors.

The Company is a leading producer of zircon, rutile, garnet and ilmenite concentrates through its Tormin Mineral Sands Operation, located on the Western Cape of South Africa. In October 2019, the Company completed the acquisition of Skaland Graphite AS, the owner of the world’s highest-grade operating flake graphite mine and is the only producer in Europe. The planned development of the Munglinup Graphite Project, located in Western Australia, builds on the Skaland acquisition and is a further step toward an integrated, downstream value-adding strategy which aims to capitalise on the fast-growing demand for sustainably manufactured Lithium-Ion Batteries.

MRC



**SKALAND
GRAPHITE
AS**

December 2020

**GRAPHITE
ANODES**
2020

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The information, if any, in this presentation which relates to Exploration Results, Mineral Resources or Ore Reserves for Tormin is based on information compiled by Mr Bahman Rashidi, who is a member of the Australian Institute of Mining and Metallurgy (“AusIMM”) and the Australian Institute of Geoscientists (“AIG”). Mr Rashidi is Exploration Manager and a full-time employee of the Company and has over 22 years of exploration and mining experience in a variety of mineral deposits and styles. Mr Rashidi has sufficient experience which is relevant to the style of mineralisation and types of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person in accordance with the JORC Code 2012.

The information from Mr Bahman Rashidi was prepared under the JORC Code (2012). Mr Rashidi consents to inclusion in the report of the matters based on this information in the form and context in which it appears

The information, if any, in this presentation which relates to Mineral Resources for Munglinup is based on information compiled by Mr Chris De Vitry who is a member of the AusIMM and an independent consultant to the Company. Mr De Vitry is the Director and Principal Geologist of Manna Hill GeoConsulting Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity he is undertaking to qualify as a Competent Person as defined by the JORC Code (2012). The information from Mr De Vitry was prepared under the JORC Code (2012). Mr De Vitry consents to inclusion in the presentation of the matters based on this information in the form and context in which it appears.

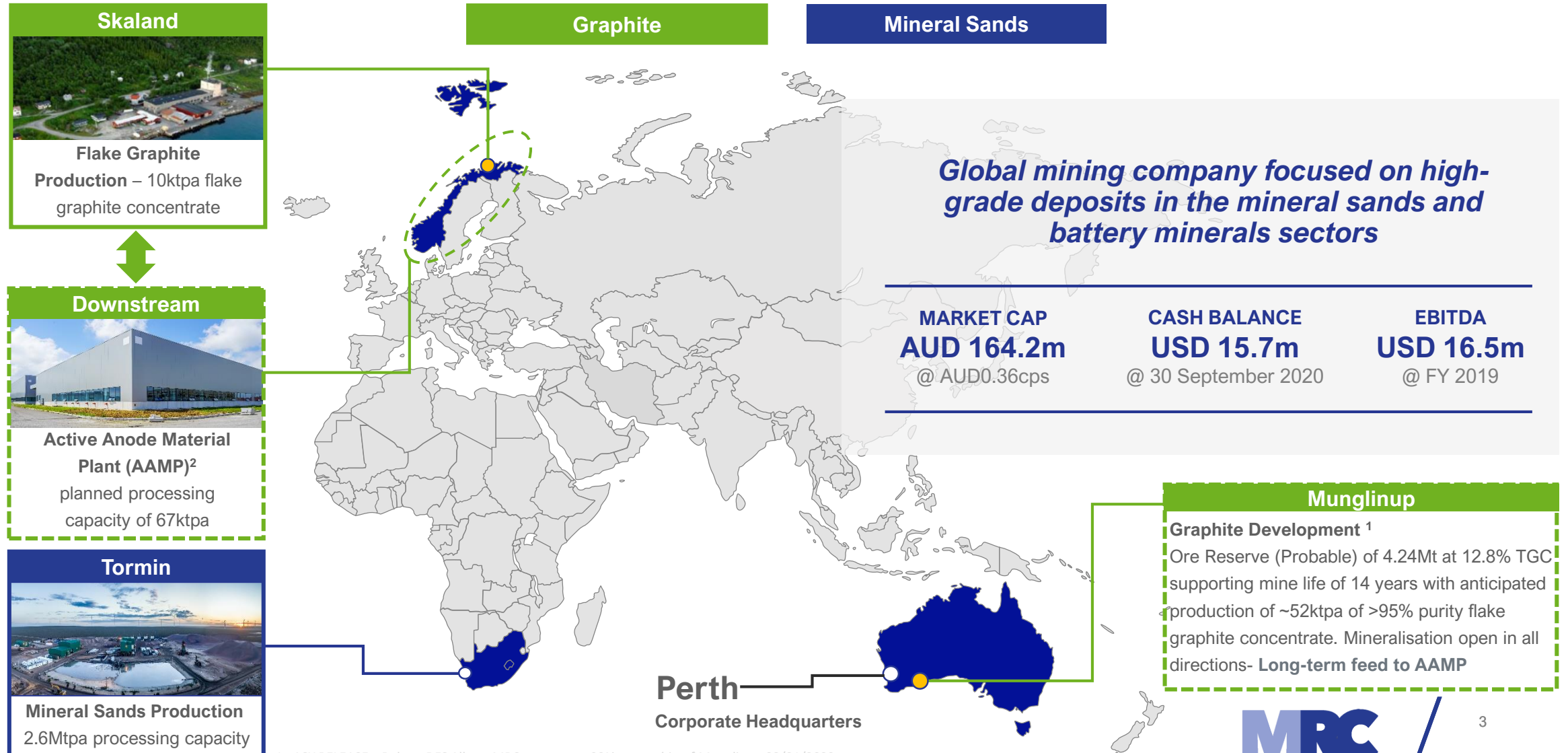
The information, if any, in this presentation which relates to the Ore Reserve for Munglinup is based on information compiled by Mr Daniel Hastings, who is a Member of the AusIMM. Mr Hastings is an employee of Hastings Bell Pty Ltd and a consultant to the Company. Mr Hastings has sufficient experience relevant to the type of deposit under consideration to qualify as a Competent Person as defined by the JORC Code (2012). Mr Hastings consents to the inclusion in the presentation of the matters based on the reviewed information in the form and context in which it appears.

The information, if any, in this presentation which relates to Exploration Results, Mineral Resources or Ore Reserves for Xolobeni is based on information compiled by Mr Allen Maynard, who is a Member of the Australian Institute of Geosciences (“AIG”), a Corporate Member of the AusIMM and independent consultant to the Company. Mr Maynard is the Director and Principal Geologist of Al Maynard & Associates Pty Ltd and has over 38 years of exploration and mining experience in a variety of mineral deposit styles. Mr Maynard has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the Australasian Code for reporting of Exploration Results, Exploration Targets, Mineral Resources and Ore Reserves (“JORC Code (2004)”). This information was prepared and first disclosed under the JORC Code (2004). It has not been updated to comply with the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (“JORC Code (2012)”) on the basis that the information has not materially changed since it was last reported. Mr Maynard consents to inclusion in the presentation of the matters based on this information in the form and context in which it appears.

The supporting information relating to the Skaland foreign estimate has not materially changed since the initial market announcement (4 April 2019 – MRC Acquires World’s Highest Grade Flake Graphite Operation). Foreign estimates are not reported in accordance with the JORC code and a competent person has not done sufficient work to classify the foreign estimates as mineral resources or ore reserves in accordance with the JORC code. It is uncertain that following further work that the foreign estimates will be able to be reported as mineral resources or ore reserves in accordance with the JORC code.

MINERAL COMMODITIES

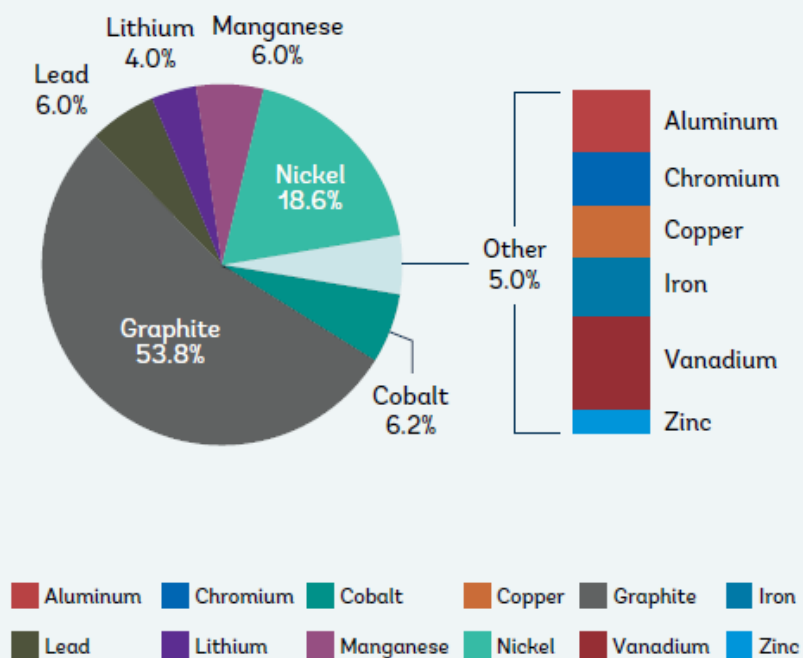
Building a Natural Graphite based Active Anode Material Plant (“AAMP”) in Norway



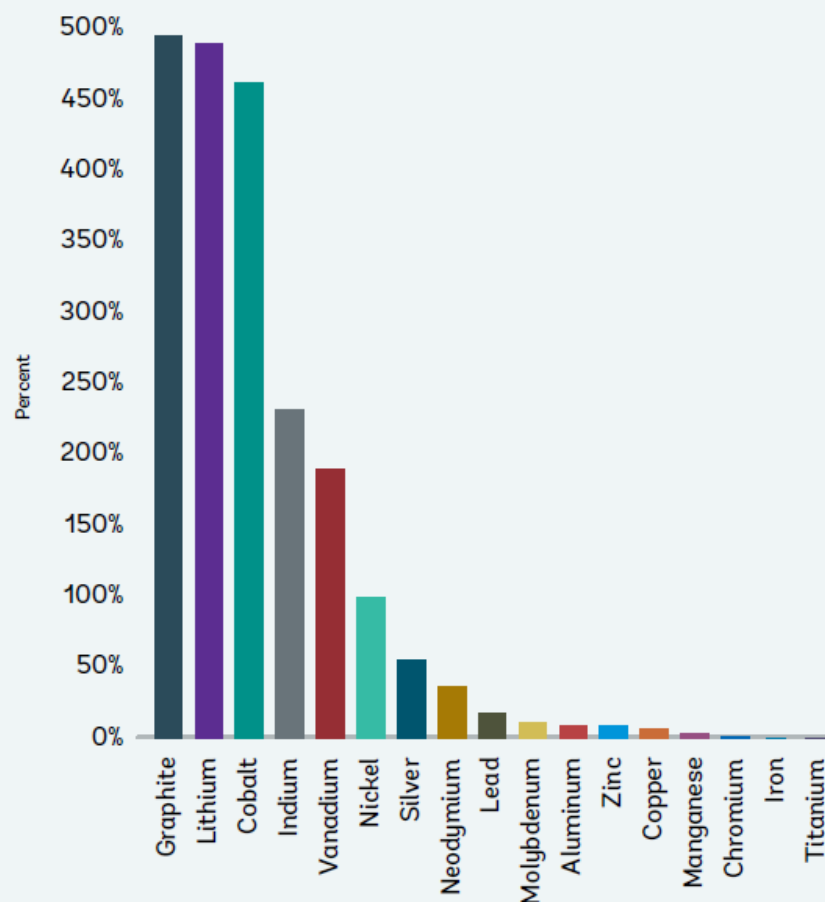
1 - ASX RELEASE – Robust DFS Allows MRC to move to 90% ownership of Munglinup 08/01/2020

2- ASX RELEASE - MRC Completes PFS for Active Anode Material Plant in Norway 21/09/2020

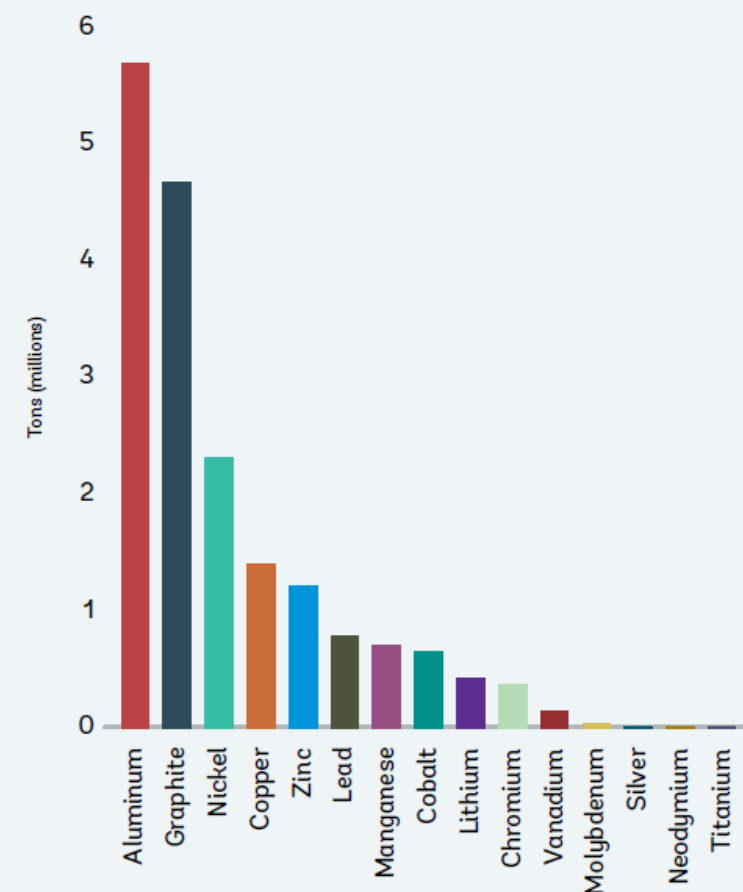
SHARE OF MINERAL DEMAND FROM ENERGY STORAGE UNDER IEA 2DS THROUGH 2050

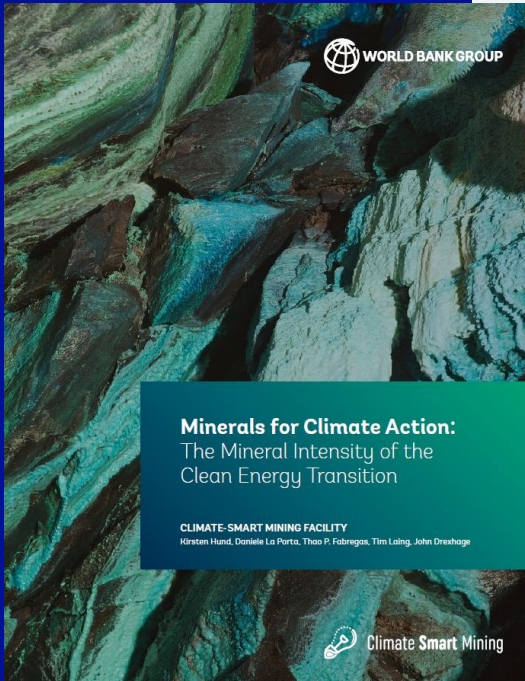


a. 2050 annual demand from energy technologies as percentage of 2018 production

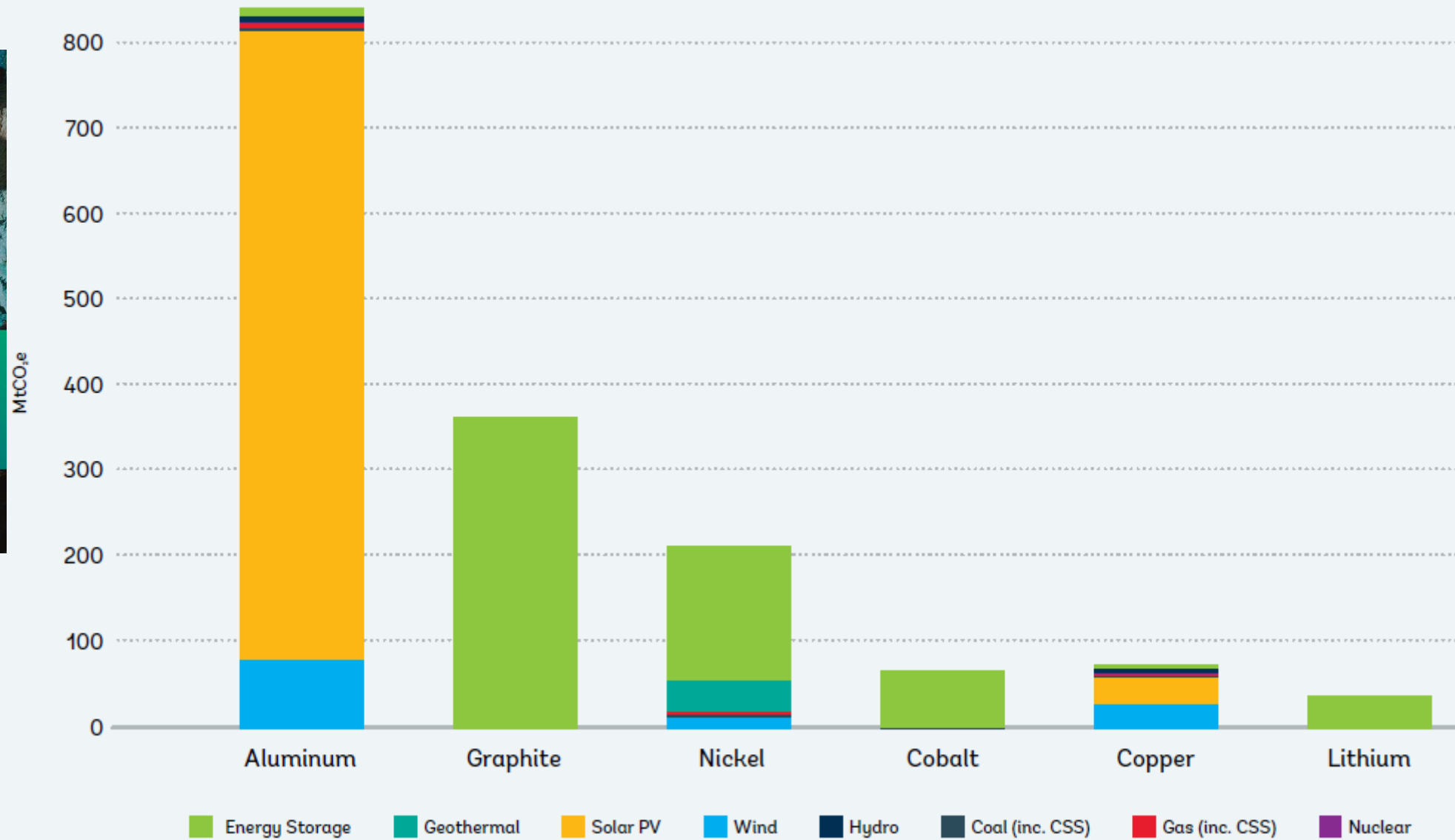


b. Annual demand from energy technologies in 2050





Cumulative Global Warming Potential from Extraction and Processing of Minerals, Not Including Operations, Using Cradle-to-Gate Through 2050 Under 2DS



A low-carbon future will be very mineral intensive because clean energy technologies need more materials than fossil-fuel-based electricity generation technologies.

WHY EUROPE – European Green Deal

Horizon Europe

THE NEXT EU RESEARCH & INNOVATION
INVESTMENT PROGRAMME (2021 – 2027)

Enshrined in Law

Climate Neutrality by 2050

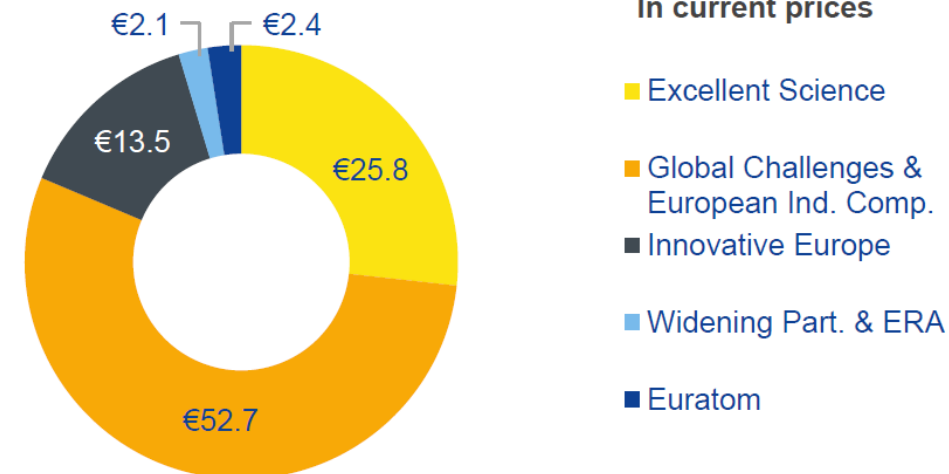
Reduce emissions by 55% by
2030

Sector Integration Plan –
Decarbonise Transport, Heating
and Industry

Support EU Industry through
transition - EU border tax to
prevent imported carbon

**Drive the Energy
Transition – Sustainable
Europe Investment Plan
= €1 Trillion**

**Commission proposal for budget: €100
billion* (2021-2027)**



* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.

Based on the Commission Proposal for Horizon Europe, the common understanding between co-legislators and the Partial General Approach, both approved in April 2019

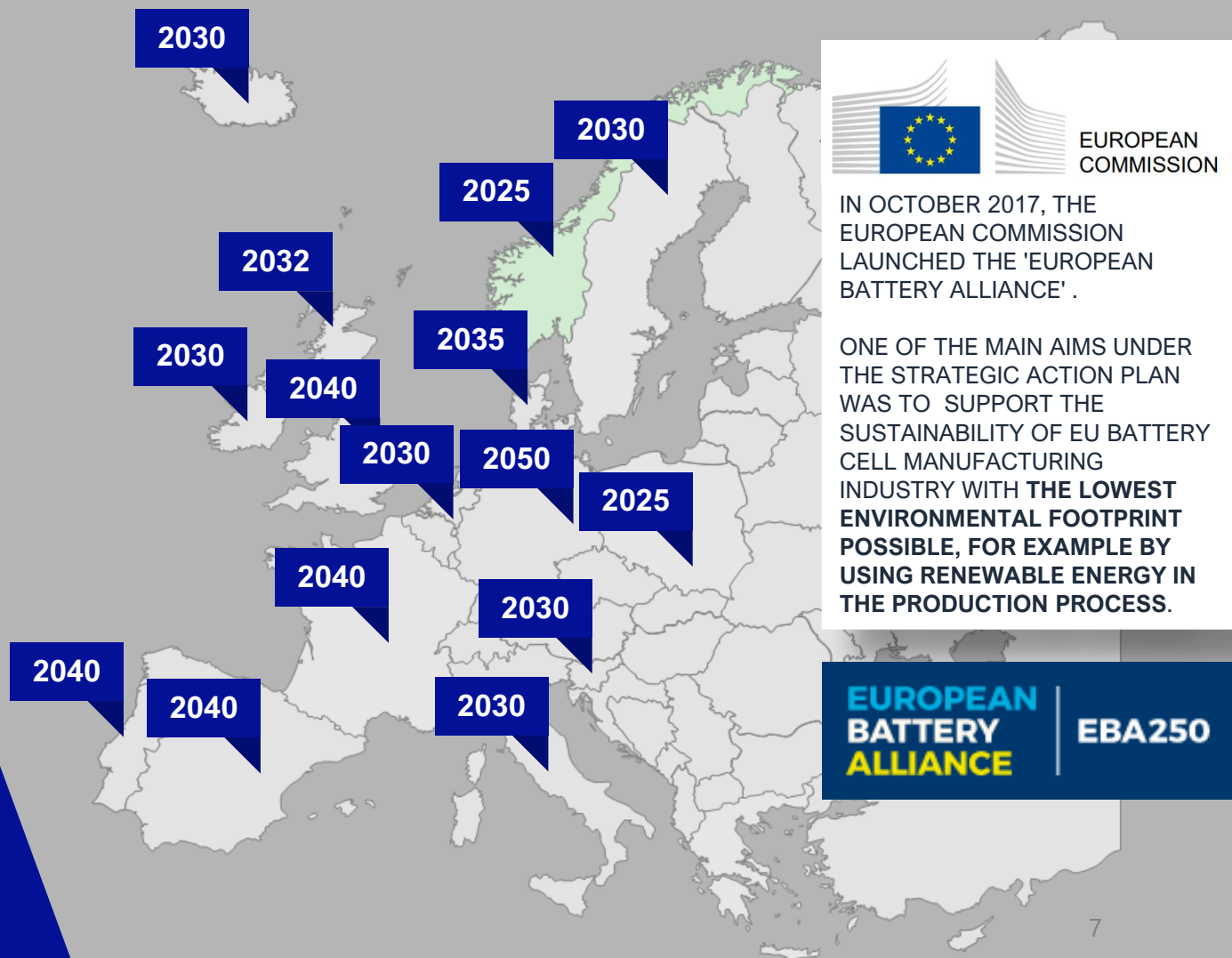


Country | Official Target

DECARBONISE TRANSPORTATION

Policy driven adoption

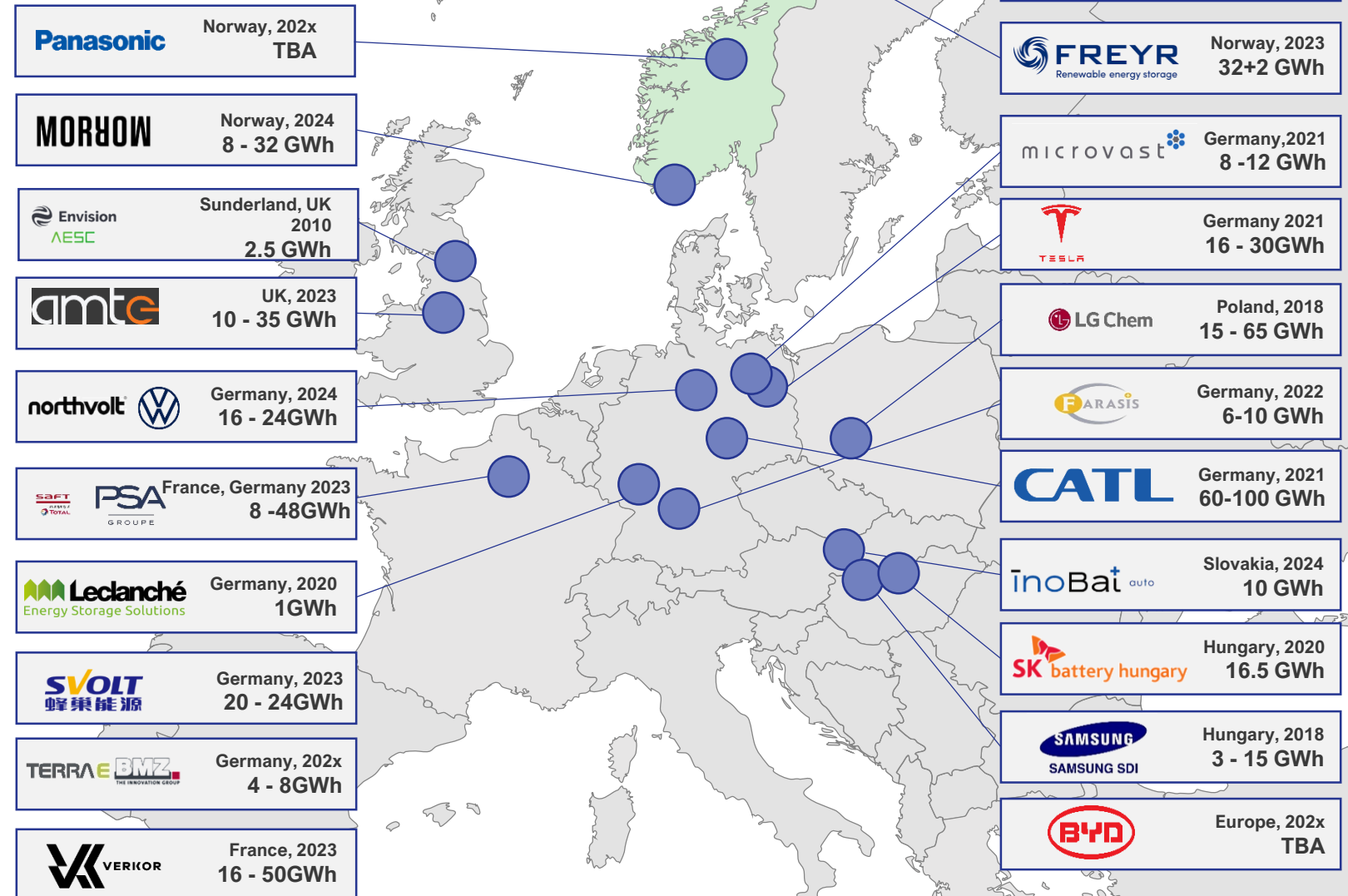
EU	13 million Zero Emission Vehicles 2025
Britain	No new ICE vehicles sold after 2040
Denmark	100% Zero Emission Vehicles 2035
France	No new ICE vehicles sold after 2040
Germany	100% Zero Emission Vehicles 2050
Ireland	No new ICE vehicles sold after 2030
Iceland	No new ICE vehicles sold after 2030
Italy	6 Million electrically powered vehicles 2030
Netherlands	100% Zero Emission Vehicles 2030
Norway	100% Zero Emission Vehicles 2025
Poland	1 Million EVs 2025
Portugal	No new ICE vehicles sold after 2040
Scotland	No new ICE vehicles sold after 2032
Spain	100% Zero Emission Vehicles 2040
Sweden	No new ICE vehicles sold after 2030



EUROPE

Right strategy - Right place - Right time.

- Over **557GWh** of battery manufacturing capacity in the pipeline requiring over 450ktpa of anode material
- Battery manufacturers will operate under a policy framework that makes them **accountable for the carbon footprint of their supply chains**
- Sustainability factors** including the amount and type of energy used, the distance material is transported, and the chemical processes, will all become **increasingly more important** when choosing suppliers



SKALAND GRAPHITE

Largest flake graphite producer in Europe and the highest grade flake graphite mine in the world

Presently the world's highest grade operating flake graphite mine with mill feed grade averaging around 28%C

Skaland is the largest flake graphite producer in Europe and the fourth largest producer globally outside China

- Current production ~10ktpa of graphite concentrate accounts for ~2% of global annual natural flake graphite production
- Ore grades of 25%-33%C delivered to the plant
- Fully permitted operations allows for expansion to 16ktpa production
- Low-cost hydro power allows for expansion of operations and downstream processing
- Plant currently operated at 60% capacity. An increase to 85% utilisation rate increases production to 15-16ktpa
- Opportunity to improve current flowsheet to produce high grade, high value product. Initial testwork resulted in upgrading to 96%-99% TGC with additional attritioning and flotation



SKALAND OPTIMISATION

MRC will establish an anode manufacturing business and brand in Norway using graphite concentrate from Skaland

LOM PLAN - Skaland LOM plan is an internal long-term mine plan for the Traelen mine, based on the recently completed mineral resource estimate¹ of two main ore shoots with resource upside potential. Ore supply until 2038.

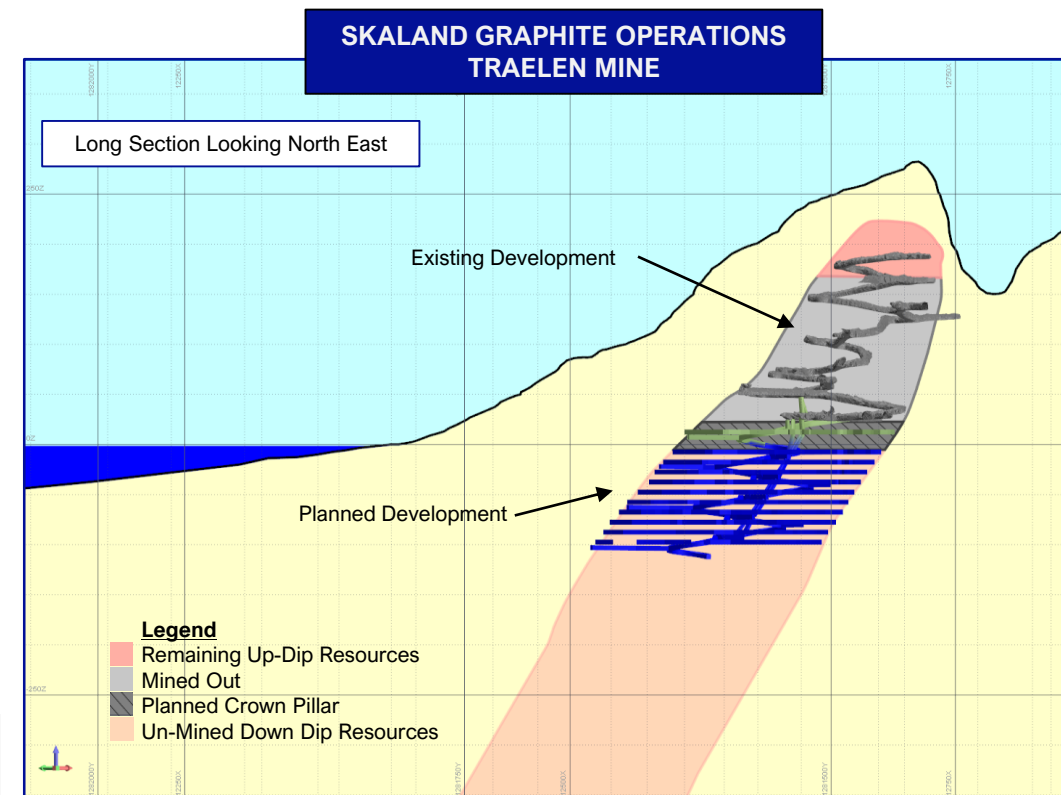
PLANT UPGRADE - Skaland plant is optimised to maximise the grade of the -150µm fines fraction in the concentrate from the current ~87%C to 96%-98% by the installation of the fourth stage cleaning circuit. The circuit is expected to be operational in late Q1/early Q2 in 2021.

INCREASE PRODUCTION - Ramp-up from ~10ktpa in 2020-2022 towards the 16ktpa limit in 2023 to supply Module 1 of the AAMP.

FUTURE UPSIDE - Investigating options to increase production and lower the environmental footprint including:

- Ore sorting at the Traelen mine to increase the ROM grade
- Tailings optimisation at the processing plant to produce tails for backfilling into the mining void, either at Traelen or the old Skaland mine adjacent to the processing plant.
- Plant debottlenecking and increased operating hours - Skaland currently operates on a 5 days/week roster

VALUE ADDED PRODUCTS – Investigating micronisation and spheranisation circuit to produce higher value products and larger sample sizes for future test work.



Total Mineral Resources for the Trælen Graphite Deposit (10% cut-off grade)¹

Classification	Tonnes Kt	Total Graphitic Carbon (TGC)	Tonnes Contained Graphite Kt
Indicated	409	26%	106
Inferred	1,376	21%	291
Total¹	1,785	22%	397

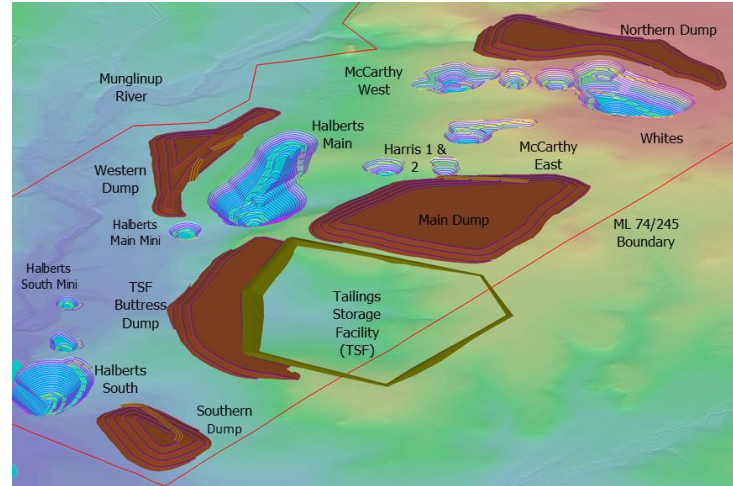
75% of the total contained tonnes reporting at 25% TGC at a 20% cut-off

Evaluating opportunities for resource expansion on Senja. MRC entered into a landowners' agreement for exploration of the Bukken deposit identified by the Geological Survey of Norway as the largest known graphite anomaly in Norway. Located approximately 20km to the east of Skaland. Initial drill program expected to commence in 2020.

MUNGLINUP

Skaland concentrate in the first stage, before expansion through two additional modules to process Munglinup concentrate

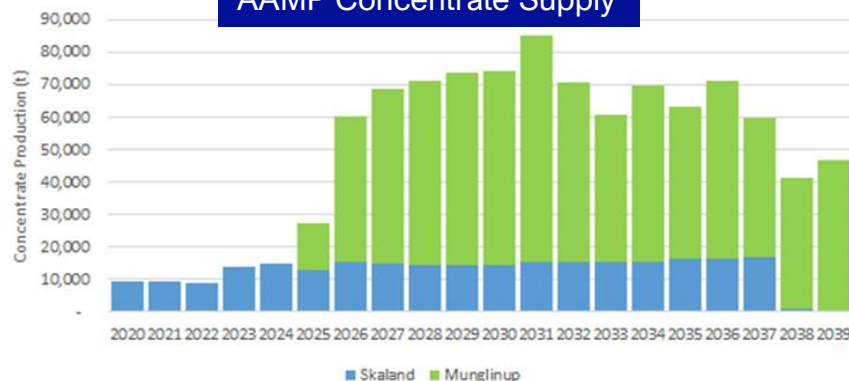
- The AAMP will be expanded through two additional modules to process Munglinup concentrate.
- Anticipated Munglinup production in 2025, with targeted annual concentrate production of 14.2ktpa in 2025 to 45ktpa in 2026, before gradually increasing towards 60ktpa, prior to a 70ktpa peak in 2032. Thereafter, concentrate production declines to an average of 48ktpa from 2033 to 2039.¹
- Concentrate transported by container to the main port in Western Australia (Fremantle) and shipped to Norway via Rotterdam.
- Three modules in the AAMP have planned throughput processing capacity of 67ktpa. With Skaland production of 16ktpa, surplus capacity for processing Munglinup concentrate is 51ktpa.



- Definitive Feasibility Study (DFS) completed in January 2020, outlining a robust and economically justifiable project.
- Ore Reserve of **7.9Mt at 12.2% TGC** (10% cut-off) with mineralisation open in all directions ¹
- **Coarse flake (+150µm)** distribution accounting for **43% to 48% of the concentrate**
- **Coarse flake concentrate grades of 95.7% - 97.7% TGC**
- **Fine flake (-150µm) concentrate grades of up to 98.3% TGC**
- 105km west by sealed road from the port of Esperance
- Mining Lease granted to 2031 on designated Mining Reserve
- Final Permitting expected Q1 2021



AAMP Concentrate Supply



Munglinup is open along strike and at depth, with geophysics also indicating that graphite resources extend into the surrounding MRC exploration leases.

ACTIVE ANODE MATERIAL PLANT

Creating a Natural Graphite based Active Anode Materials business in Norway



Leveraged from
current production
and near-term
development

- Existing concentrate sales with **steady cash flow** from traditional graphite markets provide de-risked transition to downstream production.
- **Vertically integrated production** is important to control variability of specific impurities and **ensure high quality, consistent product delivery**.



High sustainability
credentials

- **Two environmentally friendly, non hydrofluoric (“HF”) graphite purification technologies** carried through study.
- AAMP to be **built in Norway with access to low cost renewable energy**, central to low emission anode production strategy, in fastest growing battery manufacturing region globally.



Staged, risk
management-based
approach

- **Staged modular approach using Skaland concentrate to scale up production**, with technology de-risking decision points, before expansion.
- **Accelerated production growth and capacity expansion** incorporating graphite concentrate from MRC’s Munmlinup Project in Australia.



Supported by strong
macro factors –
battery market is a
megatrend

- **AAMP delivers a plan for sustainable, vertically integrated supply of crucial, clean energy anode materials from within the EU trade area.**
- High growth **European battery industry is diversifying supply lines and encouraging development of local critical raw material supply.**

AAMP MODULES

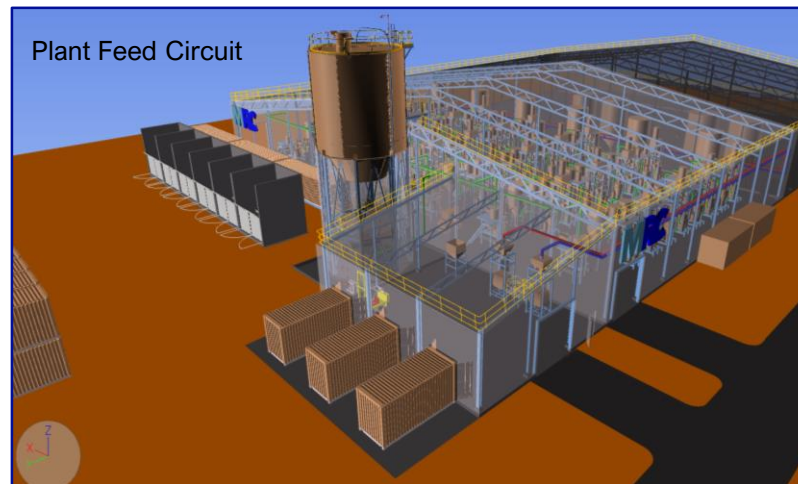
Access to low cost and low carbon footprint renewable power, proximity to emerging European gigafactories

Three Modules in AAMP :

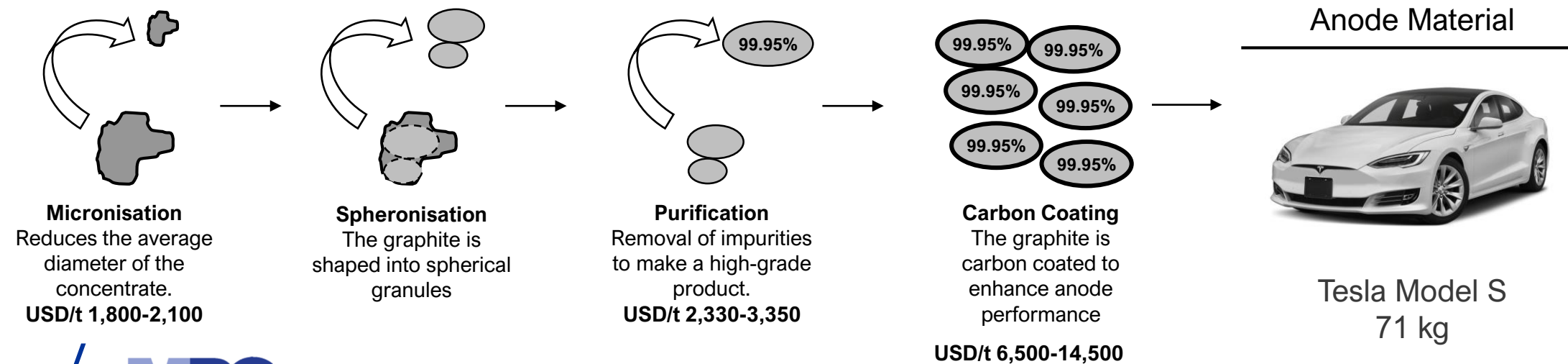
- Each processing 20ktpa
- Each micronisation sub-plant consists of 6 trains of a micronising mill and eight spheronising mills

Key areas of each AAMP module include:

- Concentrate storage and handling
- Micronisation and spheronisation
- Purification and coating
- Product bagging and handling



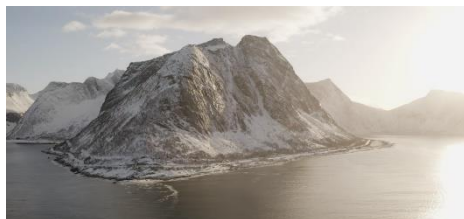
Parameter	Unit	Skaland	Munglinup	Downstream
Process throughput (initial)	Ktpa	37	400	8
Process throughput (capacity)	Ktpa	67	500	57
Average feed grade	% TGC	24	13	95
Recovery - graphite	%	92	88	93
Nominal grade	% TGC	94.93	95.00	99.95
Nominal production	Ktpa	15	52	51
Coated Purified Spherical Graphite	Ktpa	-	-	25.4



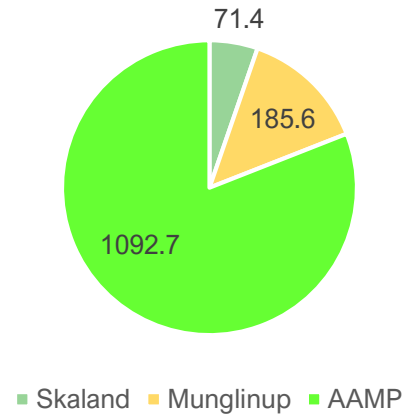
ECONOMICS

Two environmentally friendly, non hydrofluoric, purification outcomes modelled

Outcome	Unit	Skaland	Munglinup	Downstream (Caustic)	Downstream (Carbo)
Av. Graphite Production	(ktpa)	15	52	0	0
Mine Life	(years)	15	14	17	17
Operating Cost	(US\$/t sold)	396	538	1,610	1,206
Development Capex	(US\$M)	21	61	237	306
Accuracy Level ¹	(%)	+/- 20%	+15%/-5%	+/- 25%	+/-25%
LOM Revenue	(US\$M)	262	867	4,679	4,679
LOM Net Cashflow*	(US\$M)	90	264	1,666	1,835
LOM EBITDA	(US\$M)	158	466	2,483	2,803
Annual Av. EBITDA	(US\$M)	8	33	172	194
Pre-tax Project NPV ₇ *	(US\$M)	71	186	1,093	1,188
Pre-tax Project IRR*	%	-	42%	72%	63%
Post-tax Project NPV ₇ *	(US\$M)	52	124	821	891
Post-tax Project IRR*	%	66%	33%	67%	58%
Payback Period ²	(years)	NA	2.7	1.58	1.84
Average Annual EBIT *	(US\$M)	6	27	150	166

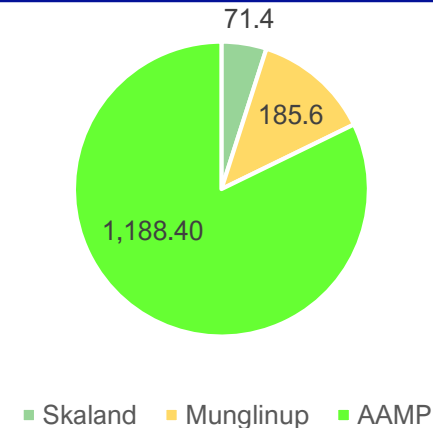


Caustic based AAMP NPV₇ (US\$M) (Pre -tax)



Integrated NPV₇ 1,350 (US\$M)
IRR 72%

Carbo based AAMP NPV₇ (US\$M) (Pre -tax)



Integrated NPV₇ 1,447 (US\$M)
IRR 63%



*Real, unlevered, discounted from anticipated Downstream Project construction commencement date of 1 July 2022 1- Development Capital Expenditure, Operating Cost Expenditure, 2- Post Construction

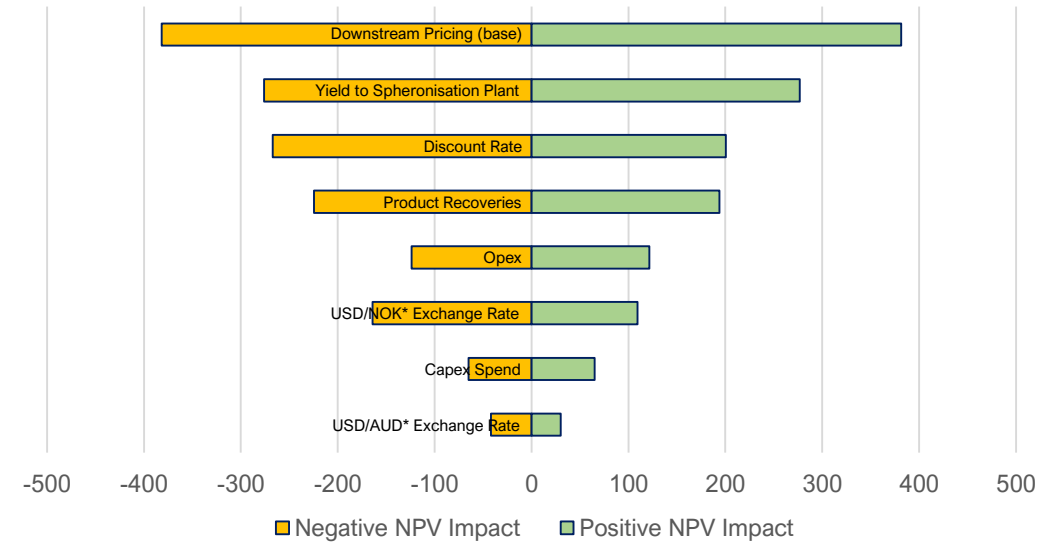
SENSITIVITY ANALYSIS

Integrated Project NPV is driven by downstream product pricing and spheronisation yield

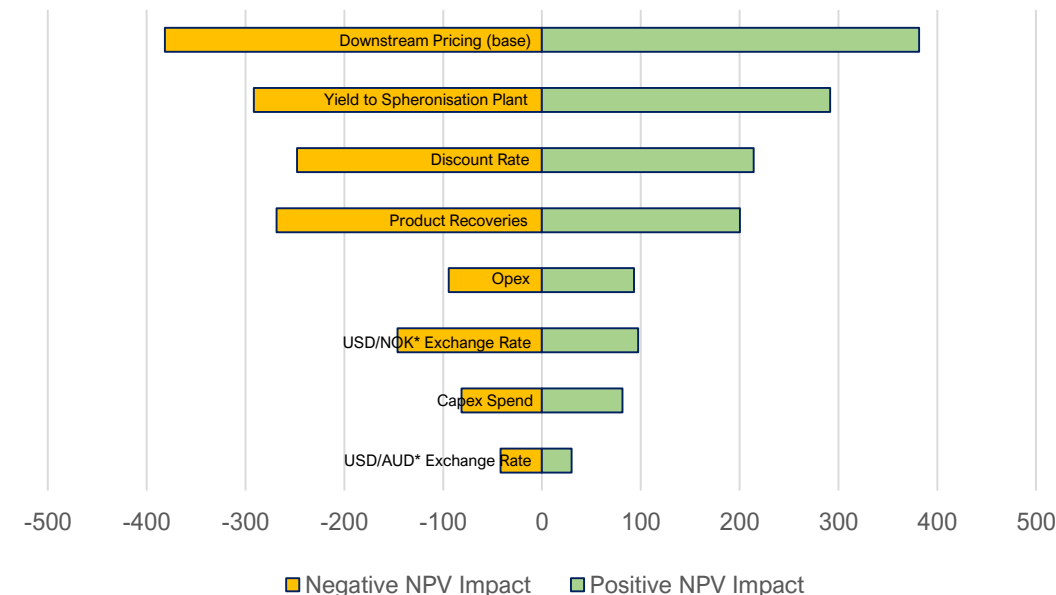
Assumption	Sensitivity	
Downstream Pricing (base)	80%	120%
Yield to Spheronisation Plant	-20%	+20%
Discount rate	10%	+5%
Product Recoveries	-10%	+10%
Opex	-20%	+20%
USD/NOK* Exchange Rate	8.00*	12.00*
Capex Spend	-20%	+20%
USD/AUD* Exchange Rate	0.80*	0.60*

- Integrated Project NPV is driven by downstream product pricing and spheronisation yield.
- Reflects the production of high-value coated spherical graphite.
- Key to maximising NPV is securing coated spherical graphite offtake and maximising yield.
- Project is relatively insensitive to capital and operating costs and not dependent on purification technology used.

Tornado Diagram - Caustic



Tornado Diagram - Carbochlorination



DFS / SCALE UP

Risks-management based approach with DFS prior to AAMP Module 1

DEFINITIVE FEASIBILITY STUDY - Delivery 2021

Micronisation & Spheronisation

- PFS conducted lab to pilot scale micronisation & spheronisation tests
- DFS will build on these results to optimise process and finalise equipment selection
- Option of single line installation at Skaland in 2021 under investigation to fast track sample generation, value added sales and operational experience, whilst leveraging existing infrastructure

Purification & Coating

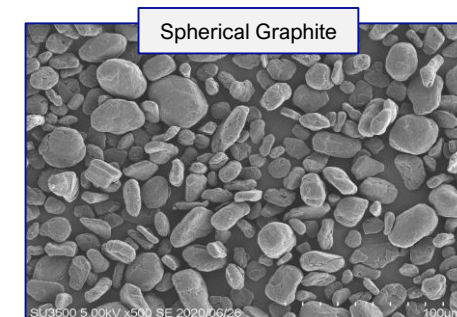
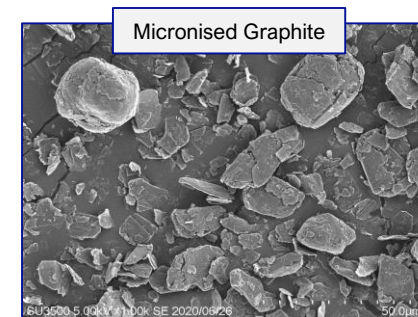
- Scale-up work continuing post completion of AAMP PFS on the two purification processes at mini-pilot scale
- Coating options and electrochemical performance evaluation underway
- Single purification technology decision to be based on anodes performance and economics
- Technology selection to drive pilot-scale system design and development

PILOT/DEMONSTRATION SCALE-UP

Micronisation & Spheronisation to consist of multiple trains. Initial equipment install at Skaland under investigation. First train for Module 1 to expand production and generate spherical graphite for demonstration scale purification.

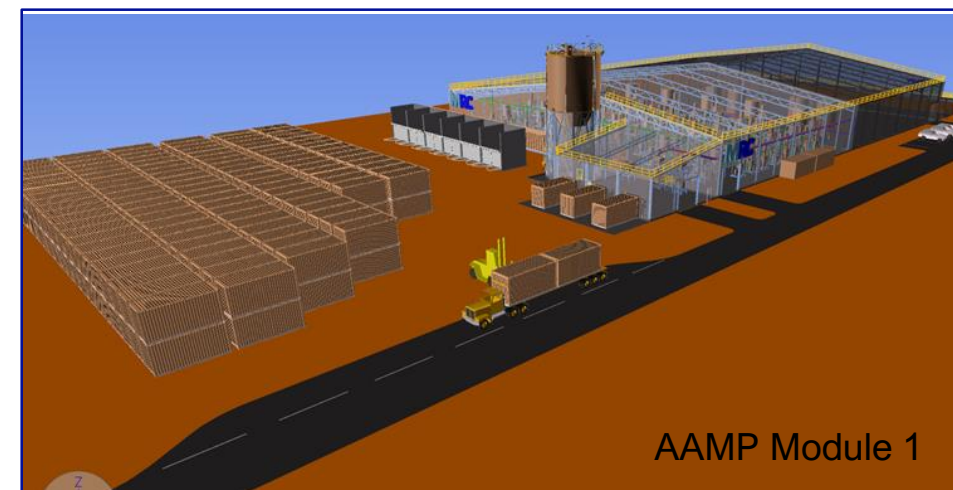
Purification – pilot-scale system to provide scale-up performance data for full-scale system for Module 1 and generate samples for customer qualification. Option for a single line system for demonstration in Module 1 to be evaluated.

Single Train (2GWh) - 2022



Skaland 897 flake summarised below.

Vendor	D50	D90/D10	BET (m2/g)	Tap Density (g/cm3)	Yield (%)
A	15.6	3.5	8.2	1.04	52.7
B	16.25	2.78	7.58	1.01	44
C	17.33	2.8	6.22	0.98	47



EXECUTION SCHEDULE

Risk management based development of the AAMP

Milestone	Completion Date
Integrated AAMP PFS	Q3 2020
Caustic Purification or Carbochlorination Continuation Decision	Q4 2020
AAMP Definitive Feasibility Study	Q4 2021
AAMP 2GWh Train Operational	Q3 2022
AAMP Module 1 Operational	Q2 2023
MGP Commissioned	Q3 2024
AAMP Modules 2 & 3 Operational	Q4 2024



2020

Skaland Down-dip development start
AAMP Purification decision, micro/spheronisation optimisation
FUNDING Internally funded

2021

Skaland Down-dip development in production
AAMP Definitive Feasibility Study complete, including pilot work
Munglinup First bulk sample trial through Skaland Processing Plant
FUNDING R&D Grant/Equity/Internal - secure funding for pilot plant

2022

Skaland De-bottlenecking complete
AAMP Demonstration - Single train (2GWh), Module 1 in development
Munglinup Second bulk sample run through Skaland and AAMP pilot line
FUNDING Equity/Clean Energy Debt Funding – EU or Partner Module 1

2023

Skaland Ramp-up to supply
AAMP Module 1 full scale production
Munglinup Third pilot run to support qualification, FID
FUNDING Clean Energy Project Debt – Munglinup/Modules 2 & 3

2024

AAMP Modules 2 & 3 construction
Munglinup Construction, final bulk run through Skaland and AAMP for qualification

2025

AAMP Three operational modules, supplied by Skaland and Munglinup



History of project delivery, mining since 2013



Total EBITDA
US\$87.3M¹
NPAT US\$ 49.3M¹



Distributed
AUD \$ 21,839,358



Predictable cash flow from a proven asset to drive graphite-based Anode Materials business



Acquired Skaland Graphite in 2019 – the highest-grade flake graphite producer globally, largest in Europe



Developing Active Anode Material Plant (AAMP) in Norway to **build environmentally friendly, vertically integrated** supply of crucial clean energy raw materials from within EU trade area, **using renewable energy**



Staged modular approach to Anode production, before accelerated production growth and capacity expansion incorporating graphite concentrate from MRC's Munglinup project in Australia



The high growth European battery industry is diversifying supply lines and encouraging development of local critical raw material supply to reduce dependence on China

QUESTIONS

