# Outstanding PFS results support Vittangi graphite development

- Pre-feasibility Study for Talga's wholly-owned Vittangi Graphite Project in north Sweden **delivers outstanding project economics** including:
    - Pre-tax project **$NPV_8$ of US$1,056 million** and strong pre-tax **IRR of 55%**
    - Rapid post Stage 2 commissioning **payback period of 1.5 years**
- Economics based solely on the **Ore Reserve** of **1.9 million tonnes at average grade of 23.5% TGC** as a portion of the current global Indicated Mineral Resource Estimate of 10.7Mt @ 25.7% Cg
- **22-year life of mine supports reliable, long-term supply** of fully purified, shaped and coated li-ion battery graphite anode product (Talnode®-C) to emerging European battery supply chain
- **Staged development approach** to meet near term market demand at low initial estimated capital expenditure of US$27 million in Stage 1
- Annual estimated **revenue of US$210m** from Stage 2 steady state **Talnode-C production of 19,000 tpa** via integrated concentrator and refinery in north Sweden
- Stage 2 estimated capital expenditure of US$147 million (including ~20% contingency) for full-scale **mine-to-anode strategy with growth potential**
- Vertically integrated project captures full anode material production margins with conservatively discounted, independently assessed **Talnode-C price of US$11,250/t** at estimated **US$1,852/t production cash cost**
- Commencement of **Stage 1 planned for mid-2020** with initial production in early 2021

Australian advanced materials technology company Talga Resources Ltd ("Talga" or "the Company") (ASX:TLG) is pleased to announce highly positive results of the Company's Preliminary Feasibility Study ("PFS" or "Study") for its 100% owned Vittangi Graphite Project ("Vittangi" or "the Project") in Sweden.

The Study confirms the Project is technically and financially robust with outstanding economic returns as a market focused, high margin vertically integrated operation producing a high-performance fully engineered and coated lithium-ion (li-ion) graphite battery anode product, Talnode®-C, for the global li-ion battery supply chain.

The PFS proposes a staged conventional open-pit mining operation with on-site concentrator and coastal anode refinery to produce, at final design, approximately 19,000 tonnes per annum (tpa) of Talnode-C. The initial stage is designed as a low capex toll processing operation over 2 years to feed the Stage 1 anode refinery for output of approximately 2,500 tpa Talnode-C prior to scaling up to steady state full-scale production in Stage 2.

Key project metrics include an estimated pre-tax Net Present Value (NPV) of US$1,056 million at an 8% discount rate and a pre-tax Internal Rate of Return (IRR) of 55%, with a rapid pay-back period of 1.5 years from commencement of Stage 2 commissioning.

**Talga Managing Director, Mark Thompson:** *"The outcomes of the PFS support Talga's move to produce fully value-added graphite products for li-ion batteries. This is the most immediate path to significant revenue for Talga and aligns with our vertically integrated business that sets us apart from peers. Next steps include a Stage 1 Definitive Feasibility Study (DFS) to further optimise scale, in line with growing li-ion battery anode demand, and progress discussions with customers and potential strategic partners toward the targeted 2020 commencement of Stage 1."*

**Pre-feasibility Study Estimated Key Outcomes (All in USD)**

| PARAMETER | UNITS | OUTCOME |
|---|---|---|
| **Annual ore mining rate** | tonnes | 100,000 |
| **Average annual production of Talnode-C** | tonnes | 19,000 |
| **Life of Mine (LOM)** | years | 22 |
| **Pre-tax $NPV_8$ (real)** | $M | $1,056 |
| **Pre-tax IRR** | % | 55% |
| **Capex Stage 1** | $M | $27 |
| **Capex Stage 2** | $M | $147 |
| **Payback*** | years | 1.5 |
| **Talnode-C average price**** | $/t product | $11,250 |
| **Revenue (LOM)** | $M | $4,148 |
| **Cash cost of production of Talnode-C** | $/t product | $1,852 |
| **EBITDA (LOM)** | $M | $3,254 |
| **Net profit before tax (LOM)** | $M | $3,133 |

* From Stage 2 commissioning ** Pricing is based on a Talga commissioned report by Benchmark Mineral Intelligence, a globally recognised leader in research data specialising in independent price assessments of lithium-ion battery raw materials, including graphite anode. The price used is based on Talnode®-C high-performance specifications discounted by 20-30% to allow for long term offtake pricing and other marketing and agency costs.

Positive Project economics are driven by vertical integration capturing full margins of the anode supply chain, the Project's high resource grade and the high product performance. The PFS demonstrates an approximate life of mine (LOM) revenue of US$4,148 million over 22 years of steady state commercial production, with an estimated production cash cost of US$1,852 per tonne of Talnode-C.

The Project benefits further from its favourable location in the existing regional mining and processing infrastructure of north Sweden, with close access to modern roads, ample water supply, nearby container ports and low-cost, low-$CO_2$ hydropower.

The PFS pricing of Talnode-C, proposed to be sold directly to li-ion battery manufacturers, of US$11,250/t is based on discounting the recommended pricing provided by independent globally recognised product and market assessors Benchmark Mineral Intelligence. Testing over 12 months by independent institutes and potential customers, from the EU to Japan, supports the market suitability of Talnode-C and confirms high performance results akin to premium priced synthetic graphite.

The Study is underpinned by a maiden Nunasvaara South Ore Reserve of 1.9Mt at 23.5% TGC (Golder UK), which represents only 18% of the current global Indicated Nunasvaara JORC (2012) Mineral Resources Estimate (MRE) of 10.7Mt @ 25.7% Cg. The LOM extraction of an average of 100,000 tpa of graphite ore, and subsequent processing and refining into 19,000 tpa of Talnode-C, is based solely on the declared Ore Reserve.

**Pathway to production**

Talga will now move to initiate the Stage 1 Definitive Feasibility Study (DFS), aiming for completion by Q1 2020. The Company is continuing to progress all necessary project permitting and approvals, whilst working on a range of funding initiatives with customers and potential strategic partners to take the Project into production, targeting commencement of Stage 1 in 2020.

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## About Talga

Talga Resources Ltd is an advanced materials technology company enabling stronger, lighter and more functional products for the multi-billion dollar global coatings, battery, construction and polymer composites markets via graphene and graphite products. The company has significant advantages owing to its 100% owned unique high-grade graphite deposits in Sweden and inhouse processing and product technology. Company website: www.talgaresources.com

## Forward-Looking Statements

This ASX release has been prepared by Talga Resources Ltd. This document contains background information about Talga Resources Ltd and its related entities current at the date of this announcement. This is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this announcement. This announcement is for information purposes only. Neither this document nor the information contained in it constitutes an offer, invitation, solicitation or recommendation in relation to the purchase or sale of shares in any jurisdiction.

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## Competent Person Statement

The information in this announcement that relates to Reserve Estimation is based on and fairly represents information that has been compiled by John Walker. Mr Walker is a Principal Mining Engineer with Golder Associates Ltd. who act as consultants to the Company. Mr Walker is a Professional Member of the Institute of Materials, Minerals and Mining (Membership No.451845) a Fellow of the Institute of Quarrying (Membership No.22637) and a Fellow Member of the Geological Society (Membership No.1021044). He has been involved in the mining industry for 30 years acting in various roles including production, project development and consulting.

Mr Walker has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and to the activity to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves" ("JORC Code"). Mr Walker consents to the inclusion in this announcement of the matters based on this information in the form and context in which it appears.

The information in this announcement that relates to the Mineral Resource Estimate and metallurgical results for the Vittangi Graphite Project was first released to ASX on 27 April 2017 and 10 April 2019 respectively. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of the Mineral Resource Estimate, that all material assumptions and technical parameters underpinning the Mineral Resource Estimate continue to apply and have not materially changed.

# VITTANGI GRAPHITE PROJECT

## PRE-FEASIBILITY STUDY SUMMARY

## INTRODUCTION

Talga Resources Ltd ("Talga" or "the Company") has completed a Pre-Feasibility Study ("PFS") for the development of its wholly owned Vittangi Graphite Project ("Project") in the County of Norrbotten in northern Sweden - a highly developed resource and investment jurisdiction with a longstanding tradition of mineral extraction and processing.

The Project is based on the development of a graphite mining and mineral processing operation ("Mine") at Talga's Nunasvaara South deposit, located within the Vittangi Project (see Figure 6), and an integrated anode refinery ("Refinery") near the Port of Luleå, for the production of a coated high-performance lithium-ion (li-ion) battery graphite anode material, Talnode®-C, to be sold direct to battery customers.

Capturing the margins in the anode supply chain creates a competitive cost advantage and supports the strategic rationale for a vertically integrated graphite mine-to-anode product operation (Illustrated in Figure 1) as opposed to sales of graphite concentrate or purified graphite material.

To lower initial capital expenditure and capture near term market opportunities Talga proposes a staged project development. Commencement of Stage 1 is planned for 2020 with an expected output of approximately 5,000 tonnes of Talnode-C over two years, based on the trial mining of approximately 25,000 tonnes of ore processed via toll-processing and an early stage Refinery operation.

Once the exploitation concession has been received Talga intends to expand to Stage 2 full-scale production of approximately 19,000 tonnes per annum (tpa) of Talnode-C, with commissioning proposed for 2023.

**Figure 1** *Schematic overview of the Vittangi Graphite Project in Northern Sweden.*

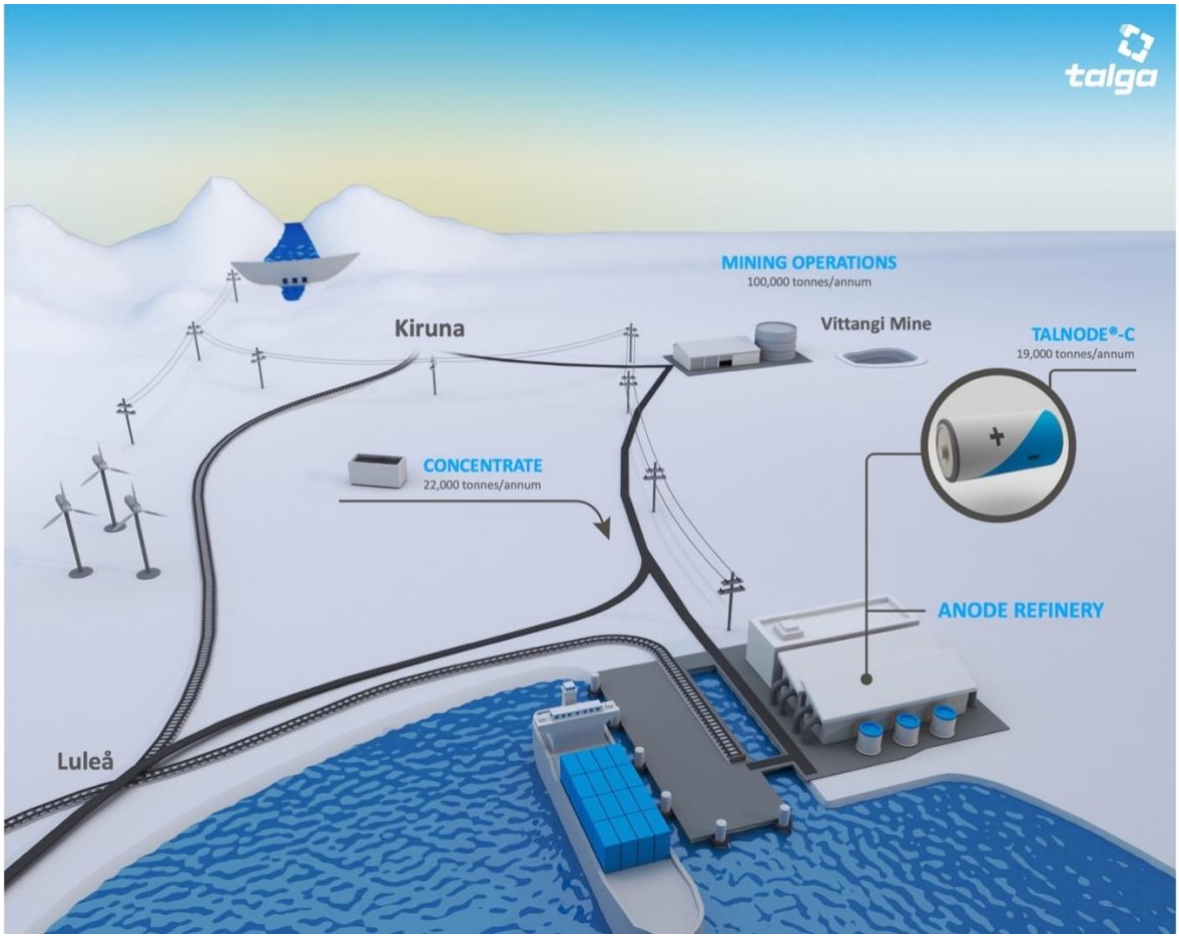


**Table 1** *Contributors to the PFS.*

| CONSULTANTS AND PARTNERS | SCOPE AREA |
|---|---|
| Golder Associates | Ore Reserve and Mine Design |
| Core Resources | Concentrator Technology |
| Centre Terre et Pierre (CTP) | Purification Process Technology |
| Core Resources | Process Design and Cost Estimates |
| ÅF Consulting | Infrastructure, Construction Planning and Cost Estimates |
| Recruit R&D Co. ltd, Benchmark Mineral Intelligence | Lithium-ion Battery Market Demand and Prices |
| GeoVista AB | Landowner and Tenements Consultant |
| Pelagia Nature & Environment AB | Ecological Consultant |
| Sweco Environment AB | Hydrogeology & Water Chemistry Consultant |
| Golder Associates AB | EIA Consultant |
| Swedish Geological AB | Social Economic Consultant |
| Sweco Environment AB | Natura 2000 Consultant |
| Bergskraft Bergslagen AB | Water Chemistry and Geochemical Characterisation |
| Jiri Herza | Tailings Consultant |
| Norrbottens Museum | Archaeology Consultant |
| Itasca, Golder Associates | Geotechnical Consultant |
| Mannheimer Swartling | Environmental Legal and Permitting |
| Golder Associates AB | Soil & Moraine Surveying |
| Christer Nordström | Mining Consultant |
| Graeme Campbell & Associates | Geochemical Analysis |
| ÅF Consulting, Twenty-one eleven Consultants | Logistics |

## MINERAL RESOURCES AND ORE RESERVE ESTIMATE

The bedrock geology of the Vittangi Graphite Project area is dominated by greenstones (basalts to andesites), metasediments (quartzite, schist, marble) and metadolerites which form part of the Vittangi Greenstone Group.

The graphite mineralisation of the Nunasvaara Resource comprises sub-vertical, 20-30m+ wide lithologically continuous units of very fine-grained grey to black graphite rock units containing up to 48% graphitic carbon.

The graphite at Nunasvaara consists of exceptionally evenly distributed, very fine flakes (classified as micro-crystalline) forming the highest grade known JORC compliant graphite mineral resource estimate in a global context (see ASX:TLG 27 Apr 2017).

### Mineral Resource

The Ore Reserve used in the PFS for mine design is based on a portion of the Nunasvaara Mineral Resource Estimate (MRE), calculated by Oliver M Mapeto (Geological Consultant) and Albert Thamm (Geological Consultant) and published to the Australian Securities Exchange (ASX) on 27 April 2017. This MRE, including Appendix 2 Table 1 Sections 1-3, have not changed.

The total Nunasvaara MRE stands at 12.3Mt @ 25.5% Cg for 3.1Mt of contained graphite based on a 17% Cg lower cut-off with 87% of the resource in the JORC Indicated category. The MRE includes a higher-grade domain of 2.0Mt @ 32.6% Cg based on a 30% Cg lower cut-off (see Table 3).

### Vittangi Project Nunasvaara Mineral Resource Estimate

**Table 2** *Nunasvaara MRE by Deposit (17% Cg lower cut-off grade, April 2017).*

| DEPOSIT | RESOURCE CATEGORY | TONNES | CG [%] | CONTAINED GRAPHITE [TONNES] |
|---|---|---|---|---|
| **Nunasvaara South** | Indicated | 8,900,000 | 25.0 | 2,225,000 |
| | Inferred | 1,500,000 | 23.0 | 345,000 |
| | Total | 10,400,000 | 24.8 | 2,579,200 |
| **Nunasvaara North** | Indicated | 1,800,000 | 29.4 | 529,200 |
| | Inferred | 100,000 | 27.4 | 27,400 |
| | Total | 1,900,000 | 29.2 | 554,800 |
| | TOTAL | 12,300,000 | 25.5 | 3,136,500 |

*Note: Due to rounding totals may not reconcile exactly.*

**Table 3** *Nunasvaara MRE-High Grade Domain (30% Cg lower cut-off grade, April 2017). Note that the Inferred Resource at a lower cut-off grade of 30% Cg is less than 50Kt in all areas and is excluded.*

| DEPOSIT | RESOURCE CATEGORY | TONNES | CG [%] | CONTAINED GRAPHITE [TONNES] |
|---|---|---|---|---|
| **Nunasvaara South** | Indicated | 1,100,000 | 32.2 | 354,200 |
| **Nunasvaara North** | Indicated | 900,000 | 33.0 | 297,000 |
| | TOTAL | 2,000,000 | 32.6 | 652,000 |

*Note: Due to rounding totals may not reconcile exactly.*

**Ore Reserve Statement**

A portion of the Nunasvaara South MRE was chosen for updating to an Ore Reserve by Golders Associates (UK) (Mining Consultants) (14 May 2019) based on various impact preferences and defined Talnode-C production targets. The Probable Ore Reserve Statement used in the PFS stands at 1.9Mt @ 23.5% TGC and a mine life of 22 years.

The Ore Reserve is fully diluted for mining purposes and uses conservative parameters, optimised for decreased early stage capital expenditure and lowered site impact. Optimisation for the high-grade component has not been conducted at this stage. Table 1 JORC reporting for the Ore Reserve Statement is included in the Appendix titled 'JORC 2012 Table 1, Section 4'.

**Table 4** *Vittangi Project Nunasvaara Probable Ore Reserve Statement.*

| RESERVE CATEGORY | TONNES | TGC [%] | TGC [TONNES] |
|---|---|---|---|
| Proven | 0 | 0 | 0 |
| Probable | 1,935,000 | 23.53 | 455,305 |
| **Total** | **1,935,000** | **23.53** | **455,305** |

*Note: Due to rounding totals may not reconcile exactly. Pit 5 is not included in the Ore Reserve or the forward-looking forecast.*

The Ore Reserve underpinning the production target and forecast financial information in this announcement has been prepared by a Competent Person in accordance with the requirements in Appendix 5A (JORC Code).

The information required by Listing Rule 5.9.1 is set out in the Appendix titled 'JORC 2012 Table 1, Section 4'.

## MINE DESIGN AND PRODUCTION

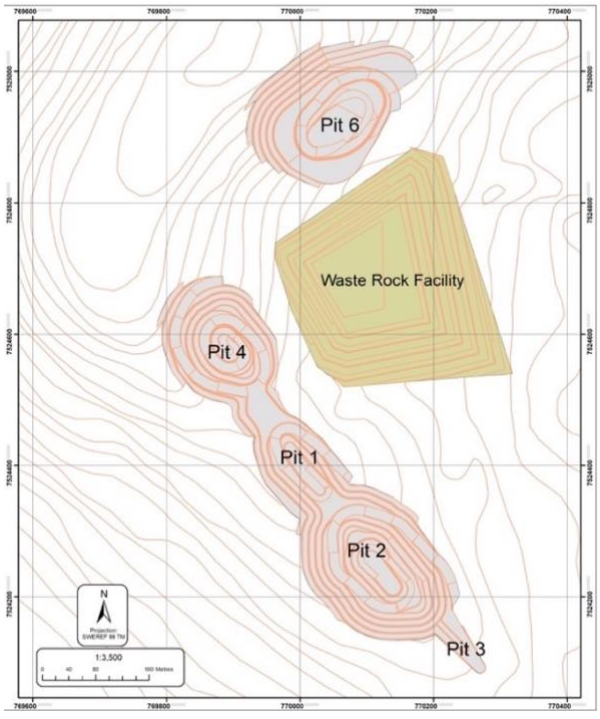
The PFS proposes a mining contractor will be utilised for conventional open-cut mining. The mining strategy is to start at the south end and to progress northwards across five pits, numbered 1,2,3,4 and 6 as shown in Figure 2, with mining operations active during the second and third quarter of the year.

The ultimate pit design will have multiple access points, established along the highwall pit limits, designed in such a way that surface hauling distances to the dump, stockpiles and crusher are minimised.

The proposed annual rate of extraction of the ore to be sent for processing is approximately 100,000 tpa with the deepest part of the pit to reach 80 meters in Stage 2. Mining volumes are relatively low and will utilise 40-tonne articulated trucks.

The estimated quantities of ore from each stage of pit development is shown in Table 5 below.

**Figure 2** *Pit Layout – Mining Strategy*




Drilling and blasting is proposed to take place on a 5m bench height and the material loaded into 2 flitches of equal height, which will nominally be 2.5-3.0m high, after allowing for swell from blasting. Ore recovery and dilution factors used are 80% and 10% respectively.

### Waste

The total waste estimated to be extracted is 6.9Mt and the average strip ratio for over life of mine is 3.16. Waste from pits 1, 2 and 3 will be used as construction material and will be stacked in a waste dump. Waste from pits 4 and 6 will be backfilled into pits 1, 2 and 3. This approach reduces haul distances, waste dump footprint and reclamation expenses at the end of mine life.

**Table 5** *Production Profile by Pit – Mining.*

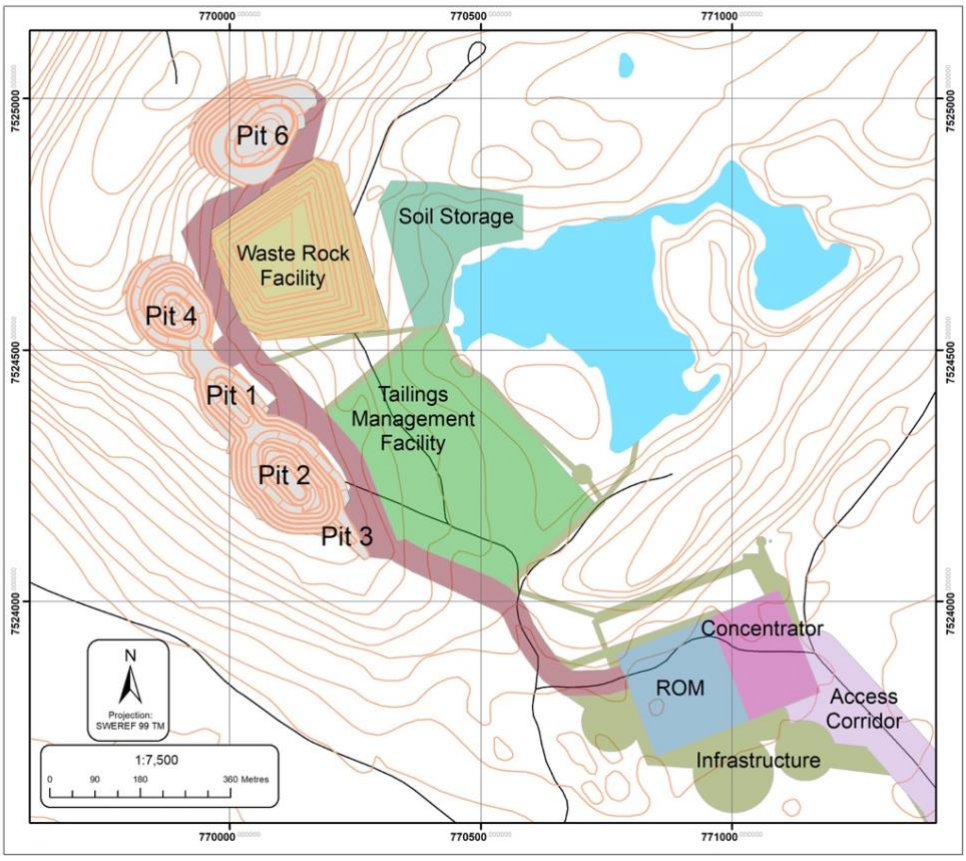
| PIT | ORE [KT] | WASTE [KT] | STRIPPING RATIO | CG GRADE [%] |
|---|---|---|---|---|
| 1 | 306 | 754 | 2.47 | 24.98 |
| 2 | 754 | 2931 | 3.89 | 25.97 |
| 3 | 23 | 32 | 1.41 | 24.58 |
| 4 | 412 | 1547 | 3.76 | 27.32 |
| 6 | 704 | 1690 | 2.40 | 25.10 |
| **TOTAL** | **2198** | **6954** | **3.16** | **25.79** |

*Note: Pit 5 is not included in the Ore Reserve or the forward-looking forecast.*

### Tailings

The total tailings generated from the concentrating process is approximately 1.5Mt. Numerous tailings management strategies and locations were evaluated by Tailings Engineer, Jiri Herza, who conducted the Tails Storage Facility options selection study. Local input into the location study was provided by Tailings Consultants Scandinavia AB. The outcome of the options study was the recommendation to dewater the tails and store at an on-site dry tailings storage facility. Core Metallurgy conducted tailings thickener and filtration tests to demonstrate suitability of the dewatering process for the dry tailings storage facility.

**Figure 3** *Summary Layout – Mining and Ore Processing*



## PROCESS FLOWSHEET DEVELOPMENT

A comprehensive range of pilot and laboratory metallurgical programs, testing a variety of ore samples from the Vittangi Graphite Project, commenced in 2017.

The purpose of these testwork programs was to add value to the micrographite materials generated from Vittangi ore and to compare the feasibility of different downstream process flowsheets.

The overall metallurgical testwork program was successful and allowed subsequent downstream processing testwork and marketing studies for micrographite, primarily into the li-ion battery sector.

**Mineralogy**

Vittangi graphite typically forms aggregates comprised of fine-grained individual graphite particles complexly intergrown with silicate and sulphide minerals. The characteristics of the ore identified in metallurgical programs were:

- High bulk density of ore and high-grade of graphite amenable to either crushing, or cutting of the ore into slabs;
- High conductivity of ore as mined amenable to electro-chemical exfoliation methods; and
- High crystallinity of aggregates amenable to ultra-fine grinding methods with excellent liberation and size distributions suitable for li-ion battery applications.

Recently completed metallurgical testing (see ASX:TLG 10 Apr 2019) revealed Vittangi ore produces anode material with high recovery and purity using industry standard crush-grind-flotation equipment.

**Figure 4** *Schematic illustration of where Talnode®-C is used in a cylindrical lithium-ion battery.*

**Ore Processing Test Work**

A sample of 600kg of ore extracted from the trial mine at Vittangi was subjected to crushing-grinding-flotation test work.

The first program conducted grinding tests on the Vittangi composite material to determine the grinding times needed to achieve P80 of 75 µm, 150 µm and 250 µm in a laboratory scale rod mill ahead of flotation. Regrind and cleaner flotation was also tested. The test produced a high concentrate grade of 95.1% Cg at a high recovery rate of 91%, at premium sub-10 micron graphite flake size.

A second program was completed with grinding and flotation test work on samples from the resource with the objective of producing high-grade graphitic carbon (Cg) samples and collect specific ultra-fine grind (UFG) regrinding energy requirements at different grind sizes. The energy requirement of 200kW/t was determined for the PFS design criteria.

**Ore Processing Pilot Scale**

The pilot plant was run for a period of roughly two weeks to demonstrate the process flowsheet and capability to produce a final concentrate with very minimal carry-over impurities at 150kg/hr. During the pilot plant operation key flotation and regrinding operating conditions from the test work were tested successfully.

**Anode Refinery Test Work**

The Vittangi concentrates were characterised by microcrystalline flakes graphite of <10 micron produced by wet-grinding techniques developed in the pilot concentrator. The resultant anode processing step for graphite micronisation using jet-milling and other grinding technologies was not required in the flowsheet. Significantly it is otherwise common for flake graphite concentrates to lose approximately 50% mass during these dry milling techniques. This is not the case in the Talga ore wet-grinding technique.

Testwork on alkali roasting and thermal purification has been completed and both processes show that concentrates can be successfully refined to >99.5%C purity for anode products. The metallurgical test results for alkali roasting purification confirmed graphite recovery of 88% from concentrate to final anode product.

The total recovery of product in this PFS is 80%.

Testwork on spheronisation of the high purity graphite flakes has been completed and has shown that the shaping into spherical-aggregates achieves narrow size distribution. Surface coating technology has also been developed to produce a fully engineered coated li-ion battery anode material (Illustrated in Figure 4).

**Anode Refinery Pilot Scale**

Talga has piloted its chemical refining process in a semi-continuous operation in Belgium. Vittangi concentrates of varying grades and size distributions produced from the pilot concentrator at Core in Australia and from Talga's Rudolstadt test facility have been processed into battery grade graphite material. The pilot processing is in current use and is processing in 15 kg batches. This pilot operation has formed the design basis for the PFS.

Talga will pilot thermal purification in the next stage of project development to provide a design basis for a thermal purification plant located in Luleå, Sweden.

## PROCESSING FACILITIES

### Concentrator

The 25% Cg ore will be crushed in the pit during 6 months of the year with the crushed ore being trucked to a climate-controlled on-site concentrator building. The concentrator will operate year-round, where crushed ore is fed through a secondary crusher and to a ball mill until 80% passing 75um.

The ground ore is fed to rougher flotation circuit with selective reagents to collect a rougher concentrate in the froth and a gangue is collected in the tailings, which is sent to the thickener. The rougher concentrator is fed to regrinding mills and then further froth flotation cleaning to reduce the gangue minerals and produce a 92% Cg concentrate material.

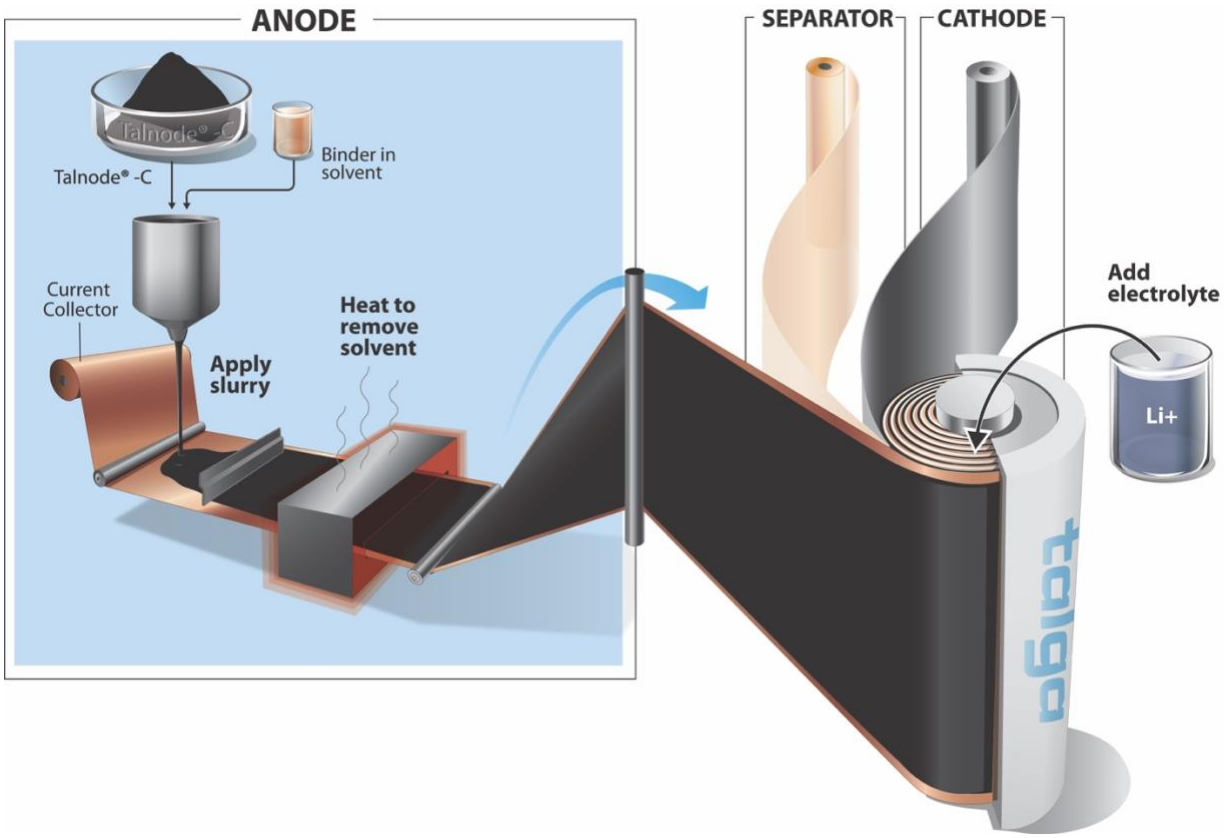
The cleaner tailings is combined with the rougher tailings in the thickener before being pumped to a filter for dewatering. The dry tails is trucked to a facility where it is stacked and stored above ground. The concentrate is filtered and stored in bags for trucking to the Refinery in Luleå.

### Refinery

The 92% Cg concentrate is then roasted together with alkali reagents to react with the graphite impurities. The impurities form salts during roasting and these are soluble in low pH solution and then washed from the graphite flakes using water.

The filtrate wash water is collected and treated. The battery grade graphite product is then dried to produce uncoated, purified graphite material. All of the graphite material is made into coated anode material according to customer requirements by processing each batch through a range of spheronising and coating equipment before being packaged and dispatched to customers in powder form.

**Figure 5** *Schematic illustration of Talnode®-C incorporation into lithium-ion battery production process.*



## INFRASTRUCTURE AND LOGISTICS

### Location

The Vittangi Graphite Project is located in Sweden, a highly developed resource and investment jurisdiction with a long standing tradition of mineral extraction and processing, a well-educated workforce, significant infrastructure and competent logistics throughout the mineral value-chain. The Nunasvaara Resource is situated in the County of Norrbotten, 15km west from the town of Vittangi, and 20km northeast of LKAB's iron ore mine and railhead at Svappavaara (see Figure 6).

The deposits are easily accessible using highway E10 from Luleå, via local highways E45 and roads which connect to the Project area.

Both the Mine and Refinery are located in areas well connected to relevant existing infrastructure such as an extensive highway network, a state owned railway, nearby deep-sea ports allowing for container shipments, high quality optic fibre networks and accessible low-cost, low-$CO_2$ hydroelectrical power.

Furthermore, the Swedish Government has signalled it is a high priority to develop every part of the value chain for 'innovation minerals' in Sweden.

### Site Access

The Mine is located 5 km along existing local unsealed roads off highway E45, which connects to highway E10 to Luleå and the state road network. The access road route is shown in Figure 7.

The proposed Refinery location sits within an industrial area currently under development near Luleå port. The area is connected to the state road network via public roads all owned and fully maintained by Luleå Municipality.

Rail transport is proposed to be used for safe transport, in purpose-built containers, of any liquid hazardous goods to the Mine site.

### Power Supply

The Mine will be connected to the regional grid power, requiring a new power line to be added from Svappavaara to the proposed mine substation. The grid is operated by JBF (Jukkasjärvi Sockens Belysningsförening) who confirmed that there is sufficient power that can be delivered from a local substation to the Project site via a minor upgrade to the existing overhead lines from the E45 highway.

At the Refinery in Luleå, a connection will be made to the grid that is operated by Luleå Energi who are planning the installation of an additional substation for the new area development near the port facility.

### Water Supply

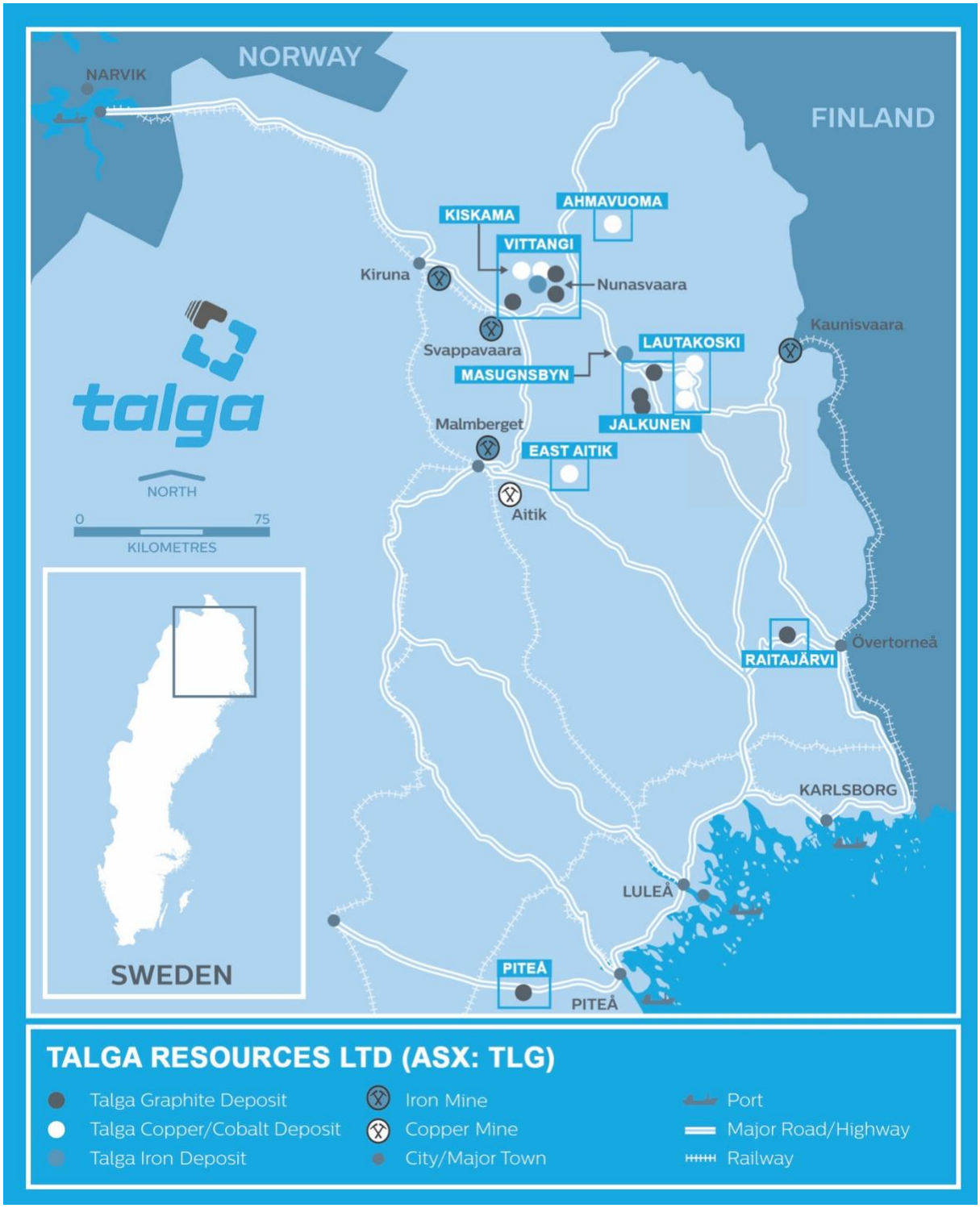
Raw water supply to the Mine site will comprise recovery from groundwater inflow, pit seepage and recycling. If need be, water can also be supplied via a pump station located at Hosiojärvi lake.

The planned mining activities will take place east of a local watershed and extensive hydrological, hydrogeological, chemical and other surveys have been completed.

### Water Treatment

Mine pit dewatering will be maintained with pumping to a clearing dam before being used in the process plant for make-up water. All excess water from the Mine operation will be treated for extraction of metals and particulates to match or exceed environmental standards.

**Figure 6** *Map showing the location of Nunasvaara mine area, within the Vittangi Graphite Project, and the coastal anode refinery location at the Port of Luleå, south of the Project.*



### Communication

Fibre Optic Cable (ICT, optic fibre, 100/100 Mbps) is available 5km from road E45 to the Mine site where there is overhead as well as underground high-quality network availability (e.g., IT Norrbotten which connects the Country of Norrbotten's 14 municipalities and Skanova which operates Sweden's largest open network).

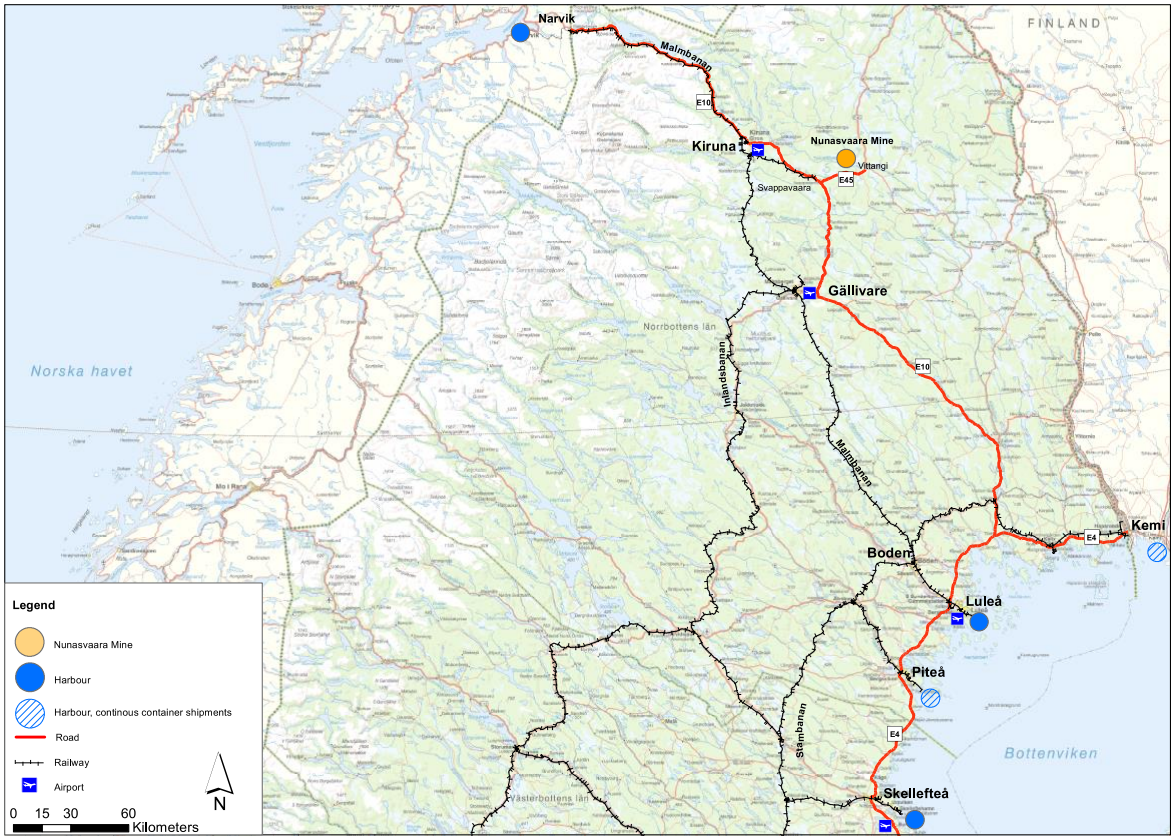
### Mine Logistics

Road transport will be used to transport concentrate between the Mine and the Refinery and to import reagents and consumables to the Mine and the Refinery. Road transport in and out of the Mine area is proposed to be carried out 5 days per week involving an average of 2 loads of concentrate per day.

### Product Transport

Products will be packaged and containerised on-site at the Refinery for distribution to customers. There is easy access to road and rail transport as well as to the Port of Luleå, located right next to the proposed Refinery site, and to the Port of Piteå, the largest container port available for export with regular container shipments and year around weekly shipments to Germany (Hamburg) and the UK (Hull).

**Figure 7** *Map of General Logistics Infrastructure*




### Information Technology Systems

The Information Management Infrastructure required to support the Project has been assessed and will include an Enterprise Resource Planning (ERP) system, all necessary hardware, software and licensing systems to support communications by audio, video and data connectivity for the project and operations workforce.

## OWNERSHIP AND TENURE

### Nunasvaara Concession Holders

Nunasvaara Nr. 2 is the exploration concession where the Mine is located and is 100% owned by Talga's Swedish subsidiary. The mineral exploration permit for Nunasvaara was issued by the Mining Inspectorate (Bergsstaten) in accordance with Swedish mineral law (Minerallag (1991: 45)) and provides the holder rights to explore for minerals and first right to apply for an exploitation concession (mining lease) to mine identified mineral resources for a 25-year period.

Talga is planning to apply for a trial mine permit to extract 25,000 tonnes of ore in Stage 1 followed by an exploitation concession at Nunasvaara South to mine and process ore in Stage 2.

### Nunasvaara Landowners and Other Right Holders

The mining operation is on freehold property held by both private individuals and entities with surface rights held by the owners of the property. The area is utilised by landowners for forestry land uses.

Within the area there are established indigenous rights to practice reindeer herding during winter with two reindeer herding cooperatives (Sameby) operating in the area; one over the Nunasvaara South Resource area and another over the access road area to the south. The two herding cooperatives are currently preparing the Reindeer Herding Impact Assessments required.

## ENVIRONMENTAL AND SOCIAL

### Environmental Studies

Talga is planning to apply for environmental approvals at Nunasvaara South to mine and process ore. The Company is in the process of preparing and submitting a detailed Environmental Impact Assessment (EIA) of the mining and processing operation. The Mine parameters outlined in the PFS focus on a high-grade low-volume operation designed to leave a minimal environmental foot-print upon closure.

The environmental studies to date, along with upcoming studies and the completion of the EIA, intends to ensure that environmental concerns are integrated into the proposed development, focusing on preventing, minimising, mitigating and/or compensating for possible adverse environmental impacts which may arise due to the proposed development. The required EIA is currently underway with planned timing for submission being Q3 2019, in conjunction with the planned exploitation (mining) permit application. The waterways in the vicinity of the Mine area contain species protected under Natura 2000 and the Company will address these impacts in the EIA.

The Company is also preparing an EIA to assess the potential environmental impacts of the proposed Refinery operation.

### Social and Socio-economic Studies

Talga is committed to being a responsible operator and neighbour who creates value for local communities and stakeholders, while maintaining environmental integrity. Positive stakeholder and community relations on all levels - local, regional and national – are key to achieving and maintaining the legal and social licence necessary for the success of the Project.

The Company has been working proactively with the local community and other Project stakeholders since exploration commenced in 2011. Talga has already completed a socio-economic study, and is engaged closely with local community groups, regional and national government representatives to receive feedback and form economic co-operations. An extensive stakeholder engagement plan has also been created and is to be implemented by the Company's local full-time employees working from the Kiruna and Luleå offices.

### Closure Planning

Project completion is aligned with the Company's pursuit of continual improvement in environmental performance issues, such as water stewardship, energy use and climate change.

Talga completed trial mining operations in 2015 and 2016 after which successful rehabilitation, approved by the relevant government agency, resulted in a timely return of paid mining bonds. Further work on revegetation that specifically support reindeer herding is planned. This supports Talga's dedication to achieving sustainable outcomes that benefit our stakeholders, partners and the environment from exploration to closure.

## MARKETING

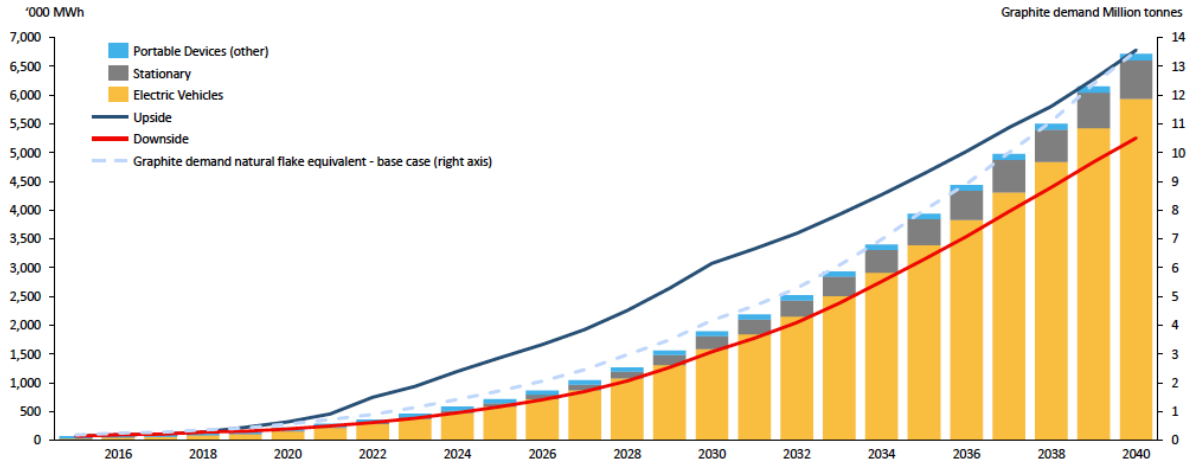
Talga intends to produce and market a fully engineered coated li-ion battery graphite anode material, trademarked as Talnode-C, via a vertically integrated approach that includes mine, ore processing and anode refinery, to capture the full value of its high-grade graphite deposits.

Evaluation tests and market qualification work over the last 12 months has demonstrated Talnode-C's suitability as an anode electrode, confirming it has outstanding electrochemical properties for premium performance, namely, fast charge and high power (see ASX: TLG 15 May 2018, 21 Mar 2019 and 26 Mar 2019), and is well suited for use in li-ion battery anode products for the growing energy storage market.

### Global Demand of Li-ion Battery Anode Material

The long-term global demand growth of graphite anode material for li-ion battery demand, as forecasted by Benchmark Mineral Intelligence - a globally recognised leader in research data, is detailed in Figure 8. The major growth area is for Electrical Vehicles (EVs), followed by stationary (grid) applications. The base case scenario forecasts that demand will grow to 6,700GWH by 2040. As a result, graphite demand for li-ion battery applications (shown on the right-hand axis) rises from 123,000 tonnes in 2018 to just over 13.5 million tonnes by 2040.

**Figure 8** *Global lithium-ion battery demand - growth forecast of graphite anode material*




*Source: Benchmark Mineral Intelligence*

### European Demand of Li-ion Battery Anode Material

The proposed number of European gigafactories is expected to increase from 22GWhr in 2018 to 286GWhr by 2028 with CAGR of 30% (Source: Benchmark Mineral Intelligence). It is estimated that after 2020 the demand of natural graphite could reach 40% or 50% of the total demand. Therefore, it is reasonable to assume that the market for li-ion batteries will consume 400,000 – 500,000 tpa of natural graphite, with Benchmark Mineral Intelligence estimating graphite consumption of >2M tpa by 2028.

**Talnode-C Product Positioning and Marketing Strategy**

Positioned as a global vertically integrated operation with a strong European based battery technology Sales team and energy storage Product Development arm, Talga will market Talnode-C as a fully engineered coated li-ion battery anode material, in powder form, direct to battery customers.

During 2019, the Company has been scaling up its capability to supply larger quantities of Talnode-C (20-50kg samples) to potential end-users during initial project development. Positioning itself downstream in the li-ion battery supply chain the Company plans to further qualify its material with customers and enter into commercial arrangements to capture near term market opportunities in Stage 1, before scaling up in Stage 2.

**Talnode-C Product Pricing**

Currently, contracts are often negotiated between consumers and producers based upon the performance of the anode relative to other materials, and ranges for pricing of the same material can vary greatly.

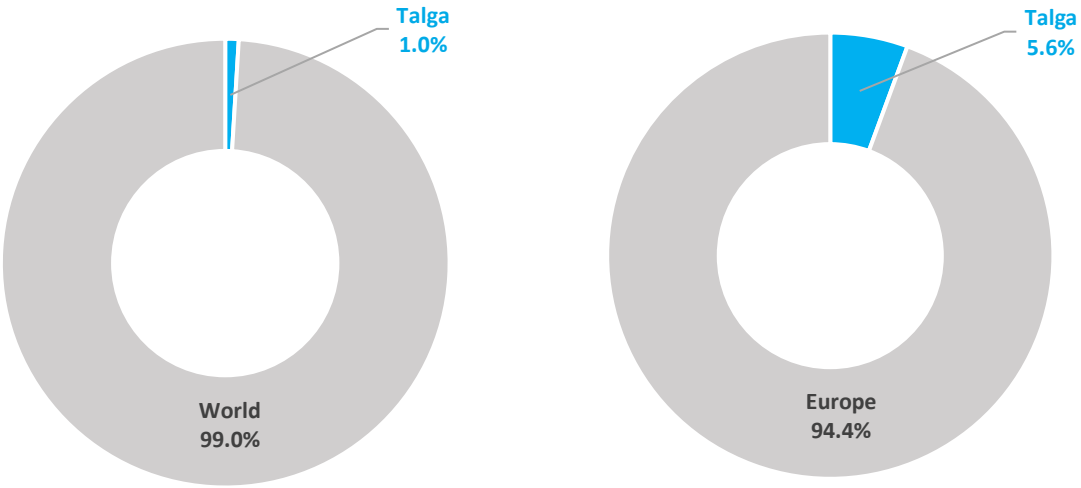
Talnode-C pricing in the PFS is based on a Talga commissioned report by Benchmark Mineral Intelligence, a globally recognised leader in research data specialising in independent price assessments of li-ion battery raw materials, including graphite anode. The price assumed for Talnode-C, taking into account its high-performance specifications and applying a 20-30% discount to take account of long-term offtake pricing and other marketing costs, is US$11,250 per tonne of product. This price is supported by li-ion battery market interactions and customer feedback received.

**Global Supply of Anode Material**

Talga's proposed steady state full-scale production of Talnode-C as a percentage of global demand is shown in Figure 9 and shows ample surplus for product expansion and future growth. Asia is a major supplier of battery anode materials and is planning to increase production in graphite processing capacity by 2020, to meet li-ion battery industry demand (Source: Benchmark Mineral Intelligence).

Chinese firms Shanshan Technology, BTR New Energy Materials and LuiMao Graphite (in association with BAIC Automotive) are building li-ion battery graphite anode megafactories with a total processing capacity of 260,000 tpa of anode product. In Japan, Hitachi Chemical is planning another facility to process 100,000 tpa to add to an estimated capacity of around 200,000 tpa.

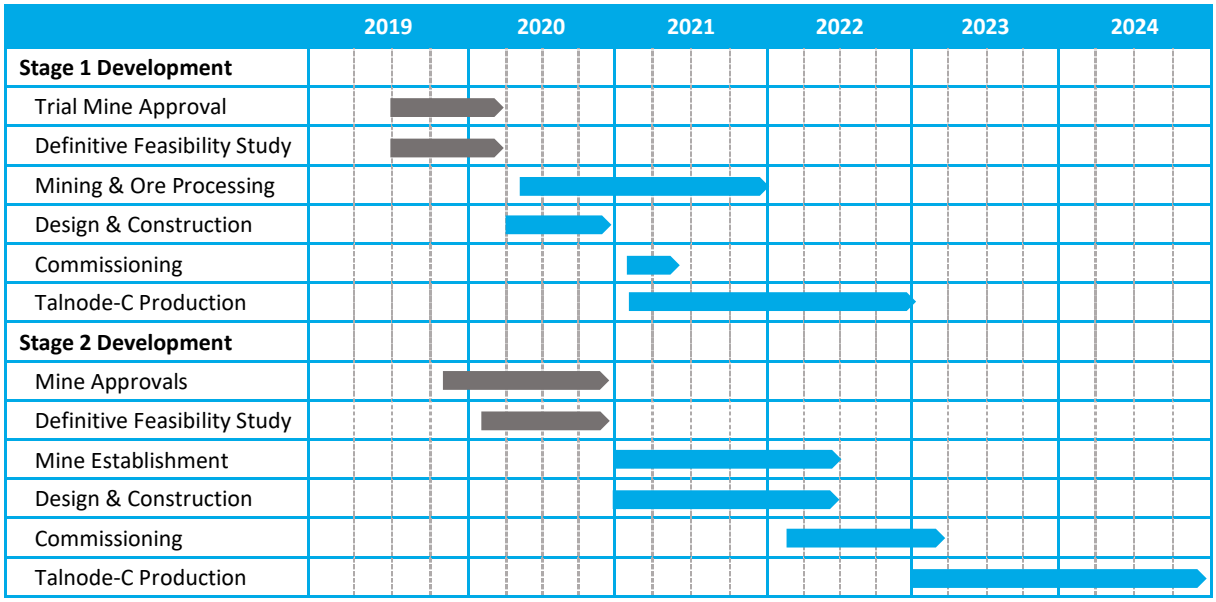
**Figure 9** *Talnode-C production as percentage share of forecast World (left) and Europe (right) lithium-ion battery graphite anode material demand in 2028. (Source: Benchmark Minerals Intelligence)*



## DEVELOPMENT SCHEDULE

The PFS has evaluated a staged development plan with an initial smaller capital investment toward Stage 1 trial mine permitting with toll processing and a small refinery operation for near term marketing of Talnode-C, followed by a Stage 2 capital investment to move to full scale production after receipt of the Nunasvaara exploitation concession and environmental approval. The proposed development schedule is shown in Figure 10. The Company notes the development schedule is indicative only and subject to funding, completion of DFS, obtaining relevant permits and approvals, and the Company making a decision to mine as discussed in this announcement.

**Figure 10** *Indicative Development Schedule for Stage 1 and Stage 2*




### Stage 1 Development Plan

The development plan for Stage 1 to install capacity to produce 2,500 tpa of Talnode-C include:

- submitting a trial mine permit application for extraction of 25,000 tonnes of ore with approval targeted to be received in Q1 2020;
- submitting an application for construction of Stage 1 Refinery in Luleå and associated operating licences, including environmental permits. In parallel, completing the DFS along with preliminary mine development in Q1 2020;
- completing a detailed design and construction of the Stage 1 Refinery during 2020 while commencing trial mining and toll-processing of ore; and
- commissioning of Stage 1 Refinery at Luleå in 2021 and commence production of 2,500 tpa of Talnode-C.

### Stage 2 Development Plan

The development plan for Stage 2 to install capacity to produce 19,000 tpa of Talnode-C include:

- submitting applications for a full-scale 100,000 tpa mining and ore processing operation with approvals targeted to be received in Q1 2021 and completing the DFS in Q4 2020;
- completing the detailed mine design, and construction of the concentrator and the Stage 2 Refinery during 2021 while establishing the mine and associated infrastructure; and
- commissioning of the full-scale Stage 2 Refinery in 2023 and commence production of 19,000 tpa of Talnode-C.

## FINANCIAL EVALUATION

The PFS financial assessment of the Vittangi Graphite Project, encompassing a maiden JORC 2012 Ore Reserve (Probable) of 1.9Mt at 23.5% TGC, clearly demonstrates the economic robustness of the Project with an estimated $NPV_8$ of US$1,056M (Real, pre-tax) and IRR of 55% (pre-tax).

The key financial and physical performance indicators of the Project are outlined in Table 6 below.

**Table 6** *Estimated Key Financial and Physical Outcomes (All in USD)*

| PARAMETER | UNITS | OUTCOME |
|---|---|---|
| **Annual ore mining rate** | tonnes | 100,000 |
| **Average annual production of Talnode-C** | tonnes | 19,000 |
| **Life of Mine (LOM)** | years | 22 |
| **Pre-tax $NPV_8$ (real)** | $M | $1,056 |
| **Pre-tax IRR** | % | 55% |
| **Capex Stage 1** | $M | $27 |
| **Capex Stage 2** | $M | $147 |
| **Payback*** | years | 1.5 |
| **Talnode-C average price**** | $/t product | $11,250 |
| **Revenue (LOM)** | $M | $4,148 |
| **Cash cost of production of Talnode-C** | $/t product | $1,852 |
| **EBITDA (LOM)** | $M | $3,254 |
| **Net profit before tax (LOM** | $M | $3,133 |

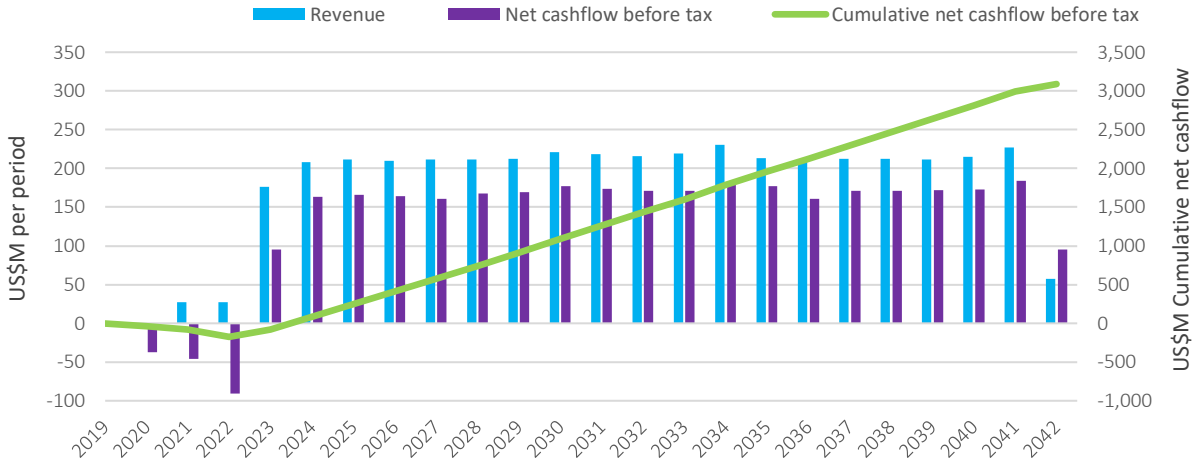
* From Stage 2 commissioning

** Pricing is based on a Talga commissioned report by Benchmark Mineral Intelligence, a globally recognised leader in research data specialising in independent price assessments of lithium-ion battery raw materials including graphite anode. The price used is based on Talnode®-C high performance specifications discounted by 20-30% to allow for long term offtake pricing and other marketing and agency costs.

### Cashflows over LOM

Figure 11 provides the revenue and net cashflow position of the Vittangi Graphite Project over the proposed life of the mine (US$3.1 billion cash cumulatively).

**Figure 11** *Vittangi Graphite Project Estimated Cashflows*

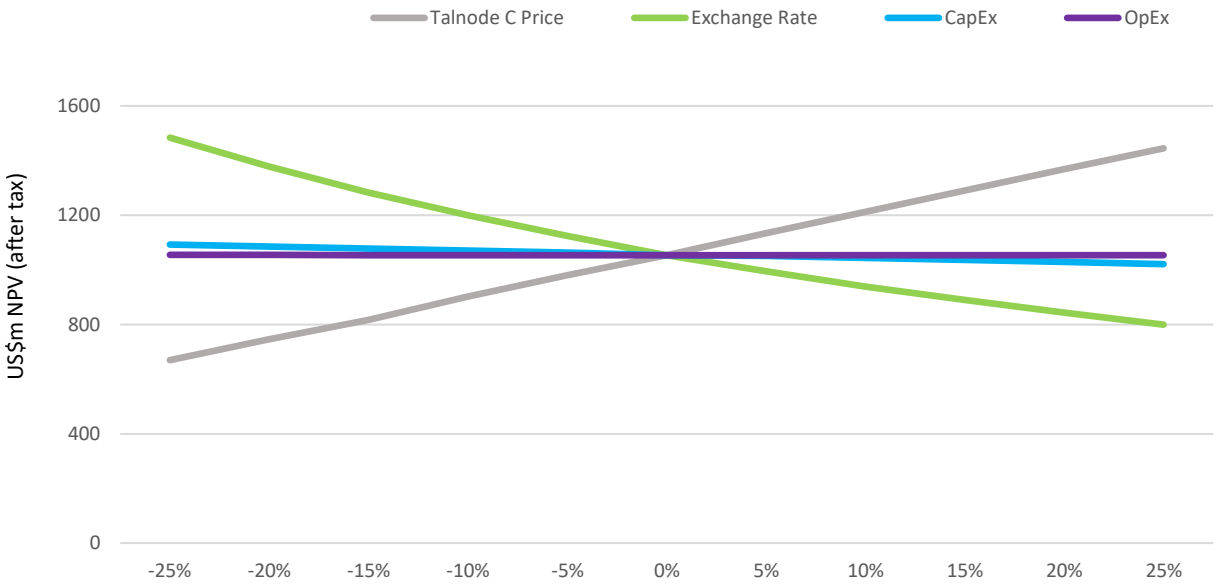


**Project Sensitivities**

A financial sensitivity analysis was undertaken to evaluate the potential impact on the Vittangi Graphite Project economics (from the base case pre-tax $NPV_8$ of US$1,056 million) by varying the key project parameters of capital costs, operating costs, AUD:USD exchange rate and price of Talnode-C.

The results of the analysis are shown in Figure 12. This chart highlights the Project's higher sensitivity to the US$ exchange rate and the Talnode-C price, while being less sensitive to capital and operating costs.

**Figure 12** *Vittangi Graphite Project Sensitivities*




A sensitivity analysis was also conducted on the base case pre-tax NPV of US$1,056 million for a range of discount rates. The base case discount rate of 8% used in the PFS was considered prudent and suitable taking into account the location of the Project and the discount rates used by peer graphite companies around the world.

The results of the sensitivity analysis at a range of discount rates are shown in Table 7 below.

**Table 7** *Discount Rate Sensitivity Analysis*

| DISCOUNT RATE | PRE-TAX NPV (US$M, REAL) |
|---|---|
| 4.0% | $1,761 |
| 6.0% | $1,356 |
| 8.0% | $1,056 |
| 10.0% | $834 |
| 12.0% | $664 |

### Capital Costs

Total capital costs for Stage 1 and Stage 2 have been estimated at US$174M as detailed in Table 8. These have been prepared on the basis of ± 25% and include contingencies of 20% of direct costs.

**Table 8** *PFS Capital Cost Estimate.*

| CAPITAL COST (US$M) | | STAGE 1 | STAGE 2 | TOTAL |
|---|---|---|---|---|
| **Mine & Ore Processing** | Mining & Crushing | - | $5.0 | $5.0 |
| | Concentrator | - | $27.3 | $27.3 |
| **Refinery Plant** | Purification | $10.8 | $29.5 | $40.3 |
| | Coating | $3.2 | $11.2 | $14.4 |
| **Indirect Costs** | Purification | $4.6 | $22.1 | $26.8 |
| | Coating | $1.1 | $4.3 | $5.4 |
| **Contingency** | | $4.9 | $25.0 | $29.9 |
| **Sub-total Mine and Processing Plants** | | **$24.7** | **$124.4** | **$149.1** |
| **Infrastructure** | | **$2.2** | **$23.1** | **$25.3** |
| **TOTAL** | | **$26.9** | **$147.5** | **$174.4** |

### Operating Costs

Operating costs have been prepared on the basis of ± 30% and are detailed in Table 9 below.

A 15% contingency has been applied to individual components of the operating costs for selective undefined areas or elements of cost which will be incurred within the defined scope of operating costs that cannot be explicitly foreseen or described at the time of the estimate.

**Table 9** *PFS Production Operating Cost Estimate.*

| CASH COSTS (US$M) | STAGE 1 | STAGE 2 | TOTAL |
|---|---|---|---|
| **Overburden** | $0.5 | $84.0 | $84.5 |
| **Mining** | $0.6 | $49.2 | $49.8 |
| **Mineral Processing** | $13.7 | $141.3 | $155.0 |
| **Anode Processing** | $13.2 | $389.1 | $402.3 |
| **Transport** | $1.1 | $47.8 | $48.9 |
| **TOTAL** | **$29.1** | **$711.4** | **$740.5** |

**Funding**

The staged development plan aims to minimise initial capital, operating expenditures and funding requirements whilst generating revenue prior to full scale commercial production. It also provides an avenue for a rapid payback period of only 1.5 years following commencement of Stage 2 commissioning.

There is an increasing focus in the energy mineral industry on sustainable battery materials. This bodes well for the Company and its anode production plans, as more importance is being placed around sustainable and ethical sources with the traceability and auditing of the supply chains all the way down to the mine level. This has resulted in various partnership, strategic and commercial models between industry players which continue to evolve and provides funding opportunities that the Company have and continue to investigate.

The Project's financial, economic and marketing metrics are robust, and the reported Mineral Resource and Ore Reserve has the potential to deliver a multi-decade production opportunity. In addition, the Project's location in Sweden is within a mature, low sovereign risk mining jurisdiction.

Furthermore, the global trend in clean energy storage gathers pace as governments announce bans on internal combustion engines in the near future, reinforcing the expected demand for li-ion battery anode material.

At the date of this announcement the Company has a market capitalisation of around AUD$120M, cash of approximately AUD$9.1M, no debt and a proven track record of attracting new capital.

With the assistance of the Company's corporate adviser, Sternship Advisers, the Company is in advanced discussions with third parties regarding funding for the Project.

Whilst pursuing funding initiatives, Talga will look to optimise and reduce the estimated capital and operating costs, including evaluating the option using thermal purification, further validation of Talnode-C with potential customers and building the relevant qualified management team to ensure the successful design and construction of the mine and processing facilities.

Based on the above, the Company has formed the view that there are reasonable grounds to assume the likelihood of successfully raising finance sufficient to cover the estimated capital and working capital costs for the Project as and when required.

Going forward, the Company will continue to assess all possible commercial mechanisms to determine the optimum financing solution for the Project.

# JORC 2012

## TABLE 1, SECTION 4

# VITTANGI GRAPHITE PROJECT PROBABLE ORE RESERVE STATEMENT

**Summary of basis for Ore Reserve Statement by Golder Associates**

(Information provided in accordance with ASX listing rule 5.9.1)

## MATERIAL ASSUMPTIONS

The Ore Reserve statement prepared by Golder Associates is based on modifying factors including geotechnical, hydrogeological, hydrological, ecological, socioeconomic and cost estimates that describe the development of the Vittangi Graphite Project. Material assumptions and outcomes derived from the completed Preliminary Feasibility Study and applied in the estimation of the Probable Ore Reserve are outlined below.

A portion of the Nunasvaara South Indicated Mineral Resource has been converted to a Probable Ore Reserve subject to detailed mine planning and economic evaluation based on modifying factors determined as part of the Preliminary Feasibility Study. The status of the modifying factors are considered sufficient to support the classification of the Probable Reserve when based upon the Indicated Resource. Approximately 18% of the Nunasvaara South Indicated Mineral Resource has been converted to a Probable Ore Reserve.

The PFS production target is based solely on the reported Ore Reserve estimates.

***Material assumptions applied for the Ore Reserve estimate***

| INPUT PARAMETERS | | UNIT | VALUES |
|---|---|---|---|
| **Financial** | Currency | $ | US$ |
| | Discount rate | % | 8 |
| | Graphite product | US$ basket price/t product | 4,000 |
| | Selling price net | US$/t product | 3,860 |
| | Sell price net per t Cg | US$/t Cg | 3,879 |
| | Total royalties | % | 3.5 |
| | Product grade | % | 99.5 |
| **Mining** | Cut-off Grade (COG) | % Cg | 12 |
| | Mining Dilution | % | 10 |
| | Ore Recovery | % | 80 |
| | Fixed mining costs | US$/t | Incl. in mining costs |
| | Mining cost base | US$/t | 9.86 |
| | Mining cost adjustment factor | US$/t per 5m depth | 0.01 |
| | Fuel cost | US$/l | Incl. in mining rates |
| | Rehabilitation of waste dump | US$/t of waste | 0.10 |
| **Overall Slope Angles** | Oxide | W, NW Degrees / E, SE Degrees | 40, 40 |
| | Transitional | W, NW Degrees / E, SE Degrees | 40, 40 |
| | Fresh | W, NW Degrees / E, SE Degrees | 40, 40 |
| **Processing** | ROM Feed rate | Tonnes per annum | 100,000 |
| | Head Grade | % Cg | 25 |
| | Process recovery | % | 80 |
| | Processing cost | US$/t product | 2,478 |
| | Processing cost | US$/t Ore (after losses) | 492 |

## CRITERIA FOR CLASSIFICATION

The Mineral Resource estimate used as a basis for the conversion to an Ore Reserve was calculated by the Competent Persons and published to the Australian Stock Exchange (ASX) on 27 April 2017. The Mineral Resource classification, which forms the basis of the Ore Reserve classification, was determined by the Competent Persons in accordance with the JORC 2012 Code.

The current global Mineral Resource Estimate across Nunasvaara is 12.3Mt @ 25.5% Cg for 3.1 Mt of contained graphite. A 17% cut-off was applied. The Resource extends from surface to ~220m depth. 87% of the Resource is classed as Indicated.

A portion of the Indicated Mineral Resource was classified as a Probable Ore Reserve after consideration of the appropriate modifying factors and results reflect the Competent Person's view of the deposit. Only Indicated tonnes are used in conversion to Ore Reserves. Inferred tonnes are excluded from the design and/or labelled as waste.

No Measured Mineral Resources are included in the Probable Ore Reserves category.

## MINING METHOD

The PFS considers an open pit mining scenario that will extract ore using conventional drill and blast processes due to the relatively simple structural and shallow nature of the 0.8 RF shell in the deposit. The operation is planned to use standard small-scale truck and shovel equipment on a contractor basis and operate 6 months of the year. The process plant will operate 12 months per year.

This proposed mining method is considered appropriate for the deposit style.

Approximately 100,000 tonnes of ore will be hauled annually to a stockpile area (ROM) proximal to the processing plant located centrally to the pit and waste material hauled to the waste emplacements located in close proximity to the pit. During periods where the quantity of ore mined exceeds the quantity processed, temporary long-term stockpile areas may be utilised.

A full review of the site geotechnical operations and design parameters was completed by Golder Associates in January 2019. Recommendations were developed for the mine design for factors of safety above 1.5 for an overall Slope Angle range of 45 to 49°. The mine design was then based inside these limits using an overall slope angle of 40°. Minimum mining bench width is 10-15 m due to implementation of small equipment and depending on situation. All Inferred material is considered as waste.

Ore Reserves have been diluted by 10% and a process plant recovery at 80% was applied to the mining block model. Mining recovery has been factored at 80%

## PROCESSING METHOD

The graphite is present in formed aggregates comprised of fine-grained individual graphite particles complexly intergrown with silicate and sulphide minerals. The PFS sets out an initial two stage crushing process followed by grinding, rougher floatation, regrinding, cleaner floatation and concentrate dewatering to produce a high-grade concentrate.

The mining contractor will deliver ore, sized < 600 mm, to the ROM-pad where ore will be crushed in a primary crusher down to < 150 mm and stockpiled. Material from the stockpile will be fed into the secondary crusher, where it will be crushed down to < 35 mm size, and again stockpiled into an industrial tent. This material will be fed into the primary mill at a rate of 12.5 tonnes per hour.

After a primary grinding the pulp will be subjected to a primary rougher flotation. Approximately 60% of the mass will report to the primary concentrate. This mass will be re-ground followed by five stages of cleaning, producing a concentrate with 95% Cg. The cleaning circuit will employ a cleaner tail recycle to the preceding cleaning circuit. The final cleaner tails exiting from this cleaner. Rougher and cleaner tails will be dewatered in a common thickener, filtered and exit the concentrator as a moist filter cake.

No recovery factors or allowances have been made for deleterious elements.

Appropriate Ore and waste Metallurgical Characterisation work from representative 600kg of ore was completed by Core Metallurgy, CSIRO, Roger Townend and SGS in Canada. A number of testing programs and core processing simulation was used to develop the process flowsheets. Core Metallurgy Pty Ltd based in Queensland Australia undertook the design process and would be regarded as having an appropriate level of experience to determine the process design, recovery factors and product specification.

The metallurgical overall recovery factor applied is 91% Cg.

## CUT-OFF GRADES

For Ore Reserve estimation cut-off grades for ore have been calculated based on positive cash flow generation. The economic cut-off was determined as 12% Cg from a combination of Whittle optimisations and economic processing factors to produce regression lines.

## ORE RESERVE ESTIMATION METHODOLOGY

As part of the Resource estimate drill hole spacing was used to determine confidence levels for Measured and Indicated categories based on data availability. Results of this work were used to classify the reported Mineral Resources. Data quality was also factored into the classification process.

As part of the Mineral Resource modelling process a geological block model with parent block size 25mx4mx10m was developed from the drill hole database with the classification parameters set as a variable.

The geological model was adapted to produce a mining model which was then optimised using Whittle software. Golder Associates, in consultation with Talga, opted for the maximum discounted cashflow (NPV) selection criteria. A revenue factor (RF) of 0.80 for a Cg price of US$3,100/t was selected as the optimal shell.

The process took into account all revenues and costs and included mining and processing parameters. From this optimisation shell mine design was conducted at appropriate geotechnical design and modifying factors.

## MATERIAL MODIFYING FACTORS

The Vittangi Graphite Project comprises one exploration concession (Nunasvaara Nr.2). The mineral exploration permit for Nunasvaara Nr.2 was issued by the Mining Inspectorate (Bergsstaten) in accordance with Swedish mineral law (Minerallag (1991: 45)) and provides the holder rights to explore for minerals and first right to apply for an exploitation concession (mining lease) to mine identified mineral resources for a 25-year period. Nunasvaara Nr.2 intersects multiple individual land titles comprising freehold property, with surface rights held by the owners of the property.

**Native Title and Stakeholder Engagement**

Within the concession area there are established indigenous rights to practice reindeer herding during the winter season with two reindeer herding cooperatives (Sameby) operating in the area. Reindeer Herding Impact Assessments are currently being completed by the two herding cooperatives.

Stakeholder engagement has been undertaken since commencement of exploration in the area in 2011. Trial Mining campaigns and a number of drilling programs have occurred during this time, all receiving the relevant permits and stakeholder consent required to proceed. Further, an extensive Stakeholder Engagement Plan has been prepared for implementation as the project proceeds toward a Definitive Feasibility Study. This includes a Consultation Plan, already in place, for initial consultation for the Environmental permit and potential Nature 2000 permit.

**Environmental Permitting and Approvals**

The primary permits required to enable development of the mine are an Exploitation Concession (under the Minerals Act) and an Environmental Permit (under the Environmental Code). Due to the location of the mine within the catchment of the Torne and Kalix river system Natura 2000 conservation area, the Environmental Permit will consider potential impacts to the Natura 2000 area and if required will incorporate a Natura 2000 permit.

Applications for both the Exploitation Concession and Environmental Permit are on track for submission in calendar 2019 and assessment of the applications by agencies and the relevant court are expected to take, based on the timing of other assessments, 12 to 18 months.

**Infrastructure**

The required site infrastructure is attributed to three primary areas:

- Mining – open cut pit, waste rocks storage, haul roads, tails management facility, mining contractor area, soil storage and ROM pad.
- Ore Processing – processing plant, water storage and catchment of dams.
- Administrative Buildings – office and admin block, warehouse, security facilities, site access, road and carpark.

In addition to the standard infrastructure requirements, a new power line will need to be added from Svappavaara to the mine substation to connect the site to the regional power grid. A minor upgrade to the existing overhead lines from the E45 highway has been confirmed to deliver sufficient power from the local substation.

Recovery from groundwater inflow, pit seepage and recycling will comprise the raw water supply to the mine site and associated water supply pipelines are required. Hosiojärvi lake has been identified as an additional water supply source in which case a pump station would be required.

**Transport**

Product transport will take place in standard flatbed trucks for transport to the refinery in Luleå. The mine site is well supported by a linking road from the area to the main local roads network for transport of the concentrate to the refinery.

Facilities at the mine site relating to product transport will include the construction of a suitable storage area to store a number of weeks of production during times when trucking could potentially be limited. Similarly, there needs to be a storage area capable of accommodating the same quantity at the receiving end at the refinery.

# JORC CODE, 2012 EDITION

**Table 1 Section 4 Estimation and Reporting of Ore Reserves**

Criteria listed in section 1, and where relevant in sections 2 and 3 of Table 1, also apply to this section. Criteria from those sections that is not included is on the basis that the Company's Mineral Resource Estimate has not changed since 2017 and all relevant material is in the announcement of the Mineral Resource Estimate released to ASX on 27 April 2017.

| CRITERIA | JORC CODE EXPLANATION | COMMENTARY |
|---|---|---|
| ***Mineral Resource estimate for conversion to Ore Reserves*** | • *Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve.*<br>• *Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves.* | • The Mineral Resource estimate is described in the original report included in the PFS appendices entitled "Nunasvaara-Vittangi Graphite deposits, Norrbotten, Northern Sweden - resource update", dated 27th January 2017, and announced 27th April 2017.<br>• The current global Mineral Resource Estimate across Nunasvaara North and South is 12.3Mt @ 25.5% Cg for 3.1 Mt of contained graphite. A 17% cut-off was applied. The Resource extends from surface to ~220m depth.<br>• 87% of the Resource is classed as Indicated. Only Indicated tonnes are used in conversion to Ore Reserves. Inferred tonnes are excluded from the design and/or labelled as waste. |
| ***Site visits*** | • *Comment on any site visits undertaken by the Competent Person and the outcome of those visits.*<br>• *If no site visits have been undertaken indicate why this is the case.* | • Mr John Walker, (FGS, MIMMM, FIQ), Principal Mining Engineer for Golder Associates conducted a site visit to the Nunasvaara site, Vittangi, and core storage at SGU's Mineral Resources facility in Malå between 4th – 5th September 2018 accompanied by senior Talga personnel. The field visit reviewed the project setting and was used to determine any mine area constraints, suitable locations for storage facilities, haul roads and site access. The visit incorporated:<br>  • Review of historical local excavations;<br>  • General topography and land relief;<br>  • Environmental setting and constraints;<br>  • Previous trial mining area;<br>  • Restoration of previous trial mined area;<br>  • Exploration drillhole collars;<br>  • Stored sized stone from previous mining operations;<br>  • Review of existing infrastructure and proposed infrastructure for the mine; |

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| | | • Discussions with Talga geotechnical advisors; and<br>• Review of logistics for concentrate movements. |
| ***Study status*** | • *The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.*<br>• *The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.* | • A PFS study was conducted during 2018/2019. The existing PFS report has been fully reviewed as has the historical information. The PFS is currently being concluded after supporting study work in hydrogeology/ mining/ processing and environmental technical areas. The Ore Reserve estimate relates to the current updated position of work for the technical disciplines of geology, processing, hydrogeology, geotechnics, environmental in assessing the economic viability of mining the deposit. |
| ***Cut-off parameters*** | • *The basis of the cut-off grade(s) or quality parameters applied.* | • For Ore Reserve estimation cut-off grades for ore have been calculated based on positive cash flow generation. The economic cut-off was determined as 12% Cg from a combination of Whittle optimisations and economic processing factors to produce regression lines. |
| ***Mining factors or assumptions*** | • *The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).*<br>• *The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.*<br>• *The assumptions made regarding geotechnical parameters (e.g. pit slopes, stope sizes, etc), grade control and pre-production drilling.*<br>• *The major assumptions made and Mineral Resource model used for pit and stope optimisation (if appropriate).*<br>• *The mining dilution factors used.* | • As part of the Resource estimate drill hole spacing was used to determine confidence levels for Measured and Indicated categories based on data availability. Results of this work were used to classify the reported Mineral Resources. Data quality was also factored into the classification process.<br>As part of the Mineral Resource modelling process a geological block model with parent block size 25mx4mx10m was developed from the drill hole database with the classification parameters set as a variable.<br>The geological model was adapted to produce a mining model which was then optimised using Whittle software. Golder, in consultation with Talga, opted for the maximum discounted cashflow (NPV) selection criteria. A revenue factor (RF) of 0.80 for a Cg price of US$3,100/t was selected as the optimal shell.<br>The process took into account all revenues and costs and included mining and processing parameters. |

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| | • *The mining recovery factors used.*<br>• *Any minimum mining widths used.*<br>• *The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.*<br>• *The infrastructure requirements of the selected mining methods.* | From this optimisation shell mine design was conducted at appropriate geotechnical design and modifying factors.<br>• Due to the relatively simple structural and shallow nature of the 0.8 RF shell in the deposit conventional open pit mining has been selected as the method of extraction and for determining Ore Reserves at the Vittangi Project. The PFS sets out that the mine will utilise standard small-scale truck and shovel equipment on a contractor basis and operate 6 months of the year. The process plant will operate 12 months per year.<br>The PFS sets out primary access roads, waste rock /tailing storage area, and mine infrastructure for the operation.<br>• A full review of the site geotechnical operations and design parameters was completed by Golder Associates in January 2019.<br>For Hydrogeological factors the groundwater inflows to the open pit have been estimated to be an average of 1400m3/d. Pumping infrastructure has been sized based on the groundwater inflows and 1:100 year storm events. Recommendations were developed for the mine design for factors of safety above 1.5 for an overall Slope Angle range of 45 to 49°. The mine design was then based inside these limits using an overall slope angle of 40°.<br>• The project Resource was upgraded during 2017, to JORC 2012 classification, for a total Resource of 12.3Mt @ 25.5% Cg for 3.1Mt of contained graphite held within the Indicated and Inferred classifications. Of this total Resource Nunasvaara (South) Mine (Project area) reported a Resource (Indicated and Inferred) of 10.4Mt @ 24.8% Cg for 2.6Mt contained graphite. As part of the project development the Southern mine resource was identified as suitable for progression for mine design and mine planning. No inferred material was utilised for the Reserve estimate.<br>• Ore Reserves have been diluted by 10% and a process plant recovery at 80% was applied to the mining block model.<br>• Mining recovery has been factored at 80%<br>• Minimum mining bench width is 10-15 m due to implementation of small equipment and depending on situation.<br>• All Inferred material is considered as |

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| | | waste.<br>• A suitable level of infrastructure exists as a basis for the proposed mining operations. The PFS sets out achievable infrastructure plans to support the project. The main constraint is noted as the 5MW power supply limit. Further expansion on this power supply has been developed and current power estimations in the PFS are <5MW. |
| ***Metallurgical factors or assumptions*** | • *The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.*<br>• *Whether the metallurgical process is well-tested technology or novel in nature.*<br>• *The nature, amount and representativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical recovery factors applied.*<br>• *Any assumptions or allowances made for deleterious elements.*<br>• *The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.*<br>• *For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?* | • The recovery process is regarded as appropriate and conventional for the style of mineralisation. The PFS sets out an initial two stage crushing process followed by grinding, rougher floatation, regrinding, cleaner floatation and concentrate dewatering to produce a high-grade concentrate. The concentrator process is set out as below.<br>  • The mining contractor will deliver ore, sized < 600 mm, to the ROM-pad.<br>  • Ore will be crushed in a primary crusher down to < 150 mm and stockpiled.<br>  • Material from the stockpile will be fed into the secondary crusher, where it will be crushed down to < 35 mm size, and again stockpiled into an industrial tent. This material will be fed into the primary mill at a rate of 12.5 tonnes per hour.<br>  • After a primary grinding the pulp will be subjected to a primary rougher flotation. Approximately 60% of the mass will report to the primary concentrate. This mass will be re-ground followed by five stages of cleaning, producing a concentrate with 95 % Cg. The cleaning circuit will employ a cleaner tail recycle to the preceding cleaning circuit. The final cleaner tails exiting from the first cleaner and is combined with the final rougher tails at the thickener.<br>  • Rougher and cleaner tails will be dewatered in a common thickener, filtered and exit the concentrator as a moist filter cake.<br>• The concentrate will then be transported to a purification plant where the Concentrate is processed into battery grade >99.5% material. Purification will be |

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| | | undertaken by alkali roasting with water/acid leaching, filtration and drying into purified graphite powder.<br>• Appropriate Ore and waste Metallurgical Characterisation work from representative core was completed by Core Metallurgy, CSIRO, Roger Townend and SGS in Canada. A number of testing programs and core processing simulation was used to develop the process flowsheets. Core Metallurgy Pty Ltd based in Queensland Australia undertook the design process and would be regarded as having an appropriate level of experience to determine the process design, recovery factors and product specification.<br>• To support the process design a bulk excavation was undertaken between June to September 2015 and August to October 2016. The test trial mine extracted 2,000m3 graphite rock from the Indicated Resource. Core Metallurgy carried out a Bulk Graphite Flotation Pilot Plant campaign to produce a high-grade graphite concentrate for further downstream processing test work.<br>• Bulk samples were also processed during 2016/2017. Samples used for this test work program were taken from the trial mine. The technical report 1080E by Core sets out the testing program undertaken.<br>• Further tests have been conducted to determine the tailings material characterisation. |
| ***Environmental*** | • *The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.* | • The project developer has implemented suitable stakeholder engagement over a period of 7 years. The project has also been consented with two trial mining campaigns (appropriately restored) and a number of drilling and other permits as the project develops. The review therefore concludes that an appropriate level of confidence has been demonstrated for the developer to reach economic potential by way of permitting and licensing for the project. The project however requires to be suitably developed towards licensing by way of further study to comply with equator principals etc.<br>• Design information and geochemical characterisation of waste rock storage, tailings management and water balance and associated discharges to the water |

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| | | environment are in early stages. The discharge from infrastructure will be key to characterise and establish possible impacts. Mitigation and management commitments are being developed as part of the next stage of study.<br>• An appropriate level of hydrogeological and hydro-chemical study has been conducted as part of the PFS study.<br>• Mine closure strategy will be addressed as part of future studies.<br>• Certain risks have been identified as a requirement for water discharge management and control for Mining infrastructure in context with the potential to impact on the Natura 2000 site (Torne and Kalix River). These areas are being addressed as part of the Environmental Management Plan as the project develops. |
| ***Infrastructure*** | • *The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.* | • Infrastructure by way of bulk water and power supplies in general would be deemed sufficient for the proposed operation but should be further supported during the next stages of Study level to better define requirements are fully supported.<br>• From the mining planning undertaken during the PFS an appropriate level of land is available to site and develop the supporting infrastructure to the mine.<br>• The project is well supported by a local road network to the point of export for the concentrate. There is a requirement to upgrade a linking road from the main local roads network to the mine area. This is being developed as part of the next stage of engineering study.<br>• Contract mining would be implemented and supported by local labour. Accommodation would be available in the local communities which currently support a reasonable level of mining activity.<br>• For the tailings a thickening and dry stacking method has been selected for tailings management. Testing has been undertaken on the tailings samples to confirm the sizes of the tailings thickener and filter press. ~1.5Mt of tailings material over the LOM has been incorporated in the mine planning phase of the PFS. |

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| ***Costs*** | • *The derivation of, or assumptions made, regarding projected capital costs in the study.*<br>• *The methodology used to estimate operating costs.*<br>• *Allowances made for the content of deleterious elements.*<br>• *The source of exchange rates used in the study.*<br>• *Derivation of transportation charges.*<br>• *The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc.*<br>• *The allowances made for royalties payable, both Government and private.* | • Capital costs have been estimated by Core Resources (responsible for Processing), ÅF Consulting (responsible for Infrastructure) and Freund-Turbo (responsible for the Refinery).<br>• Budget prices were obtained from single source equipment suppliers for all major items and vendor packages. Notable exceptions are the tanks, filters, thickeners and heat exchangers, where pricing was obtained from two suppliers. In the few instances where vendor quotes were not received for specific equipment, the costs were estimated from consultant databases of similar areas in similar projects or from recent vendor quotes and adjusted for flow or equipment capacity and currency movements.<br>• The estimate addresses both direct and indirect costs associated with Stage 1 and Stage 2 of the operation.<br>• Budget quotes and benchmark pricing have been used and based on appropriate designs consistent with a Class 4 (PFS) estimate as defined by the Association for the Advancement of Cost Engineering (AACE) and the AusIMM Cost Estimation handbook.<br>• Operating costs have been based on fixed and variable unit estimates sourced from contractor databases. The operating costs cover power, labour, water, reagents, transport, leasing and G&A (General and Administrative) costs for each activity.<br>• The costs, built from first principles and database unit costs, include all operational activity areas such as mining, processing, purification, waste treatment, and transport.<br>• No allowances for deleterious elements are expected to be required or have been accounted for.<br>• Exchange rates were developed using public-domain sourced forecasts from multiple sources.<br>• Transportation charges are based on calculated annual haulage requirements for mining, waste disposal, concentrate to anode plant, and product. Appropriate unit costs have been applied.<br>• Cash cost of production of Talnode-C US$1,852 per tonne of product.<br>• Total royalties (applied to the value of concentrate - 95% graphite purity, sub |

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| | | 20micron - ultra fine) of US$11.0m have been calculated using the following rates;<br>• 3% Net Smelter Royalty<br>• Government 0.05%<br>• Landowner 0.15% |
| ***Revenue factors*** | • *The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc.*<br>• *The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.* | • Ore production and grades are determined by an optimised mine production and haulage schedule.<br>• Recoveries are applied to the ore and concentrate as per the flowsheet to derive the Talnode-C product.<br>• Talnode-C pricing in the PFS is based on a Talga commissioned report by Benchmark Mineral Intelligence. The price assumed for Talnode-C, taking into account its high-performance specifications, and applying a 20-30% discount to take account of long-term offtake pricing and other marketing costs, is US$11,250 per tonne of product.<br>• US$11,250/t is on a FOB basis, flat and applied over the Life of Mine. |
| ***Market assessment*** | • *The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.*<br>• *A customer and competitor analysis along with the identification of likely market windows for the product.*<br>• *Price and volume forecasts and the basis for these forecasts.*<br>• *For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.* | • Talga commissioned Benchmark Mineral Intelligence to conduct a project and product-specific (Coated Lithium-ion Battery Anode material) market analysis.<br>• The report considered anticipated demand and supply from existing operations and planned projects (Highly Probable, Probable, Possible) up to 2030.<br>• Future price drivers and price forecasts (Real, 2018 basis) up to 2040 are included in the report and used as the basis for the financial model inputs. |
| ***Economic*** | • *The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc.*<br>• *NPV ranges and sensitivity to variations in the significant assumptions and inputs.* | • A discounted cashflow model was used which modelled anticipated revenue, capital and operating costs to a Class 4 (PFS) level.<br>• 8% discount rate was used.<br>• Exchange rates (below) were developed using public-domain sourced forecasts from multiple sources.<br>US / AUD 0.71<br>US / EUR 1.12<br>US / SEK 0.11<br>• The results were reported in real terms (i.e. no inflation applied), however inflation is included as an optional |

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| | | sensitivity to report nominal results.<br>• Project sensitivity (+/-25%) was conducted on Exchange rate, OPEX, CAPEX, and Talnode-C price. The results showed that variations to costs had little impact on project returns (pre-tax $NPV_8$) and the project was most sensitive to the AUD:USD exchange rate and price.<br>• Project sensitivity was also conducted on the Discount Rate used to calculate the pre-tax NPV using a range of discount rates of 4% to 12% resulting in corresponding pre-tax NPV's of US$1,761M to US$664M. |
| ***Social*** | • *The status of agreements with key stakeholders and matters leading to social licence to operate.* | • Consultation plan in place for initial consultation for the environmental permit and Nature 2000 assessment. Stakeholders identified.<br>• Reindeer herding baseline study being completed by the indigenous peoples group representative.<br>• The proponent has implemented a plan for stakeholder engagement and consent with the indigenous peoples identified as being potentially affected by the project.<br>• Key risks are achieving consent from the indigenous people and diligently minuting all interactions with these key stakeholders |
| ***Other*** | • *To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:*<br>• *Any identified material naturally occurring risks.*<br>• *The status of material legal agreements and marketing arrangements.*<br>• *The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the* | • See risks section undernoted.<br>• The primary permits required to enable development of the mine are an Exploitation Concession (under the Minerals Act) and an Environmental Permit (under the Environmental Code). Due to the location of the mine within the catchment of the Torne and Kalix river system Natura 2000 conservation area, the Environmental Permit will consider potential impacts to the Natura 2000 area and if required will incorporate a Natura 2000 permit.<br>• Applications for both the Exploitation Concession and Environmental Permit are on track for submission later in 2019 and assessment of the applications by agencies and the relevant court are expected to take, based on the timing of other assessments, 12 to 18 months. |

<table>
<tr><th>CRITERIA</th><th>JORC CODE EXPLANATION</th><th>COMMENTARY</th></tr>
<tr><td></td><td>materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.</td><td></td></tr>
<tr><td>Classification</td><td>• The basis for the classification of the Ore Reserves into varying confidence categories.<br>• Whether the result appropriately reflects the Competent Person's view of the deposit.<br>• The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).</td><td>• Indicated Mineral Resources were classified as Probable Ore Reserves after consideration of the appropriate modifying factors.<br>• Results reflect the Competent Person's view of the deposit.<br>• No Measured Mineral Resources are included in the Probable Ore Reserves category.<br><table><tr><th colspan="4">SUMMARY OF ORE RESERVES – Nunasvaara-Vittangi Graphite Project as at 14 MAY 2019</th></tr><tr><th>Category</th><th>Mt</th><th>TGC (%)</th><th>TGC (Mt)</th></tr><tr><td>Proven</td><td>0</td><td>0</td><td>0</td></tr><tr><td>Probable</td><td>1.935</td><td>23.53%</td><td>0.455</td></tr><tr><td>Total Ore Reserves</td><td>1.935</td><td>23.53%</td><td>0.455</td></tr></table></td></tr>
<tr><td>Audits or reviews</td><td>• The results of any audits or reviews of Ore Reserve estimates.</td><td>• No audits or reviews have been conducted.</td></tr>
<tr><td>Discussion of relative accuracy/ confidence</td><td>• Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.<br>• The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.<br>• Accuracy and confidence discussions should extend to specific discussions of any applied Modifying Factors that may have a material impact on</td><td>• The Ore Reserve estimate has been undertaken by John Walker, (FGS, MIMMM, FIQ), Principal Mining Engineer for Golder who is a full-time employee of Golder Associates. Mr. Walker has sufficient experience which is relevant to the style of mineralisation and type of deposit. Mr. Walker is a competent person, considered to meet JORC Code reporting standards.<br>• The accuracy of the estimates within this Ore Reserve are mostly determined by the order of accuracy associated with the Mineral Resource model, metallurgical input, and long-term cost adjustment factors.<br>• Some risks are associated with:<br>  • Long term site costs may increase with time.<br>  • Long term pricing may change although the future market for graphite looks stable.<br>  • Power supply is limited to ~6MW without significant new infrastructure.<br>  • Geotechnical risks due to unforeseen geologic conditions in the pit walls. The next study level will provide mitigation.<br>  • The next study level needs to reflect the EIA process<br>  • For permitting there are risks in</td></tr>
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| | *Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.*<br>• *It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.* | achieving consent from the indigenous people. Proper engagement by the developer has been undertaken throughout the project development.<br>• The current completed PFS is being updated to reflect additional work packages. This should be regarded as mitigation to some of the highlighted point above. |