Speculative

See key risks on page 23 and early stage company risk warning on page 25. Speculative securities may not be suitable for retail clients

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Authorisation
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Talga Group Ltd (TLG)

Initiation of coverage

Recommendation
Buy (Initiation)
Price
$1.30
Valuation
$2.50 (unchanged)
Risk
Speculative

GICS Sector

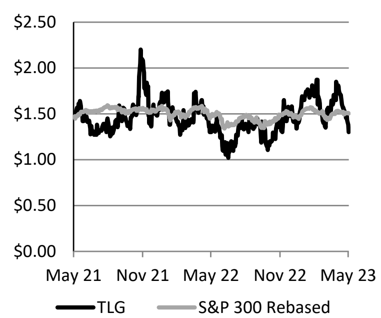
Materials

Expected Return	
Capital growth	92%
Dividend yield	0%
Total expected return	92%
Company Data & Ratios	
Enterprise value	$429m
Market cap	$469m
Issued capital	361m
Free float	93%
Avg. daily val. (52wk)	$1.2m
12 month price range	$1.00-$2.00

Price Performance

	(1m)	(3m)	(12m)
Price (A$)	1.65	1.81	1.38
Absolute (%)	-21.2	-28.2	-5.5
Rel market (%)	-19.7	-24.1	-7.4

Absolute Price



SOURCE: IRESS

High-grade, advanced graphite anode developer

We initiate coverage on TLG with a speculative Buy recommendation and a $2.50/sh valuation. TLG is the highest-grade and one of the most advanced (in terms of battery anode production) graphite developers on the ASX, with advanced offtake discussions with ACC + Stellantis and Verkor supported by advanced qualification testing within high-quality electric vehicles (EV's). TLG's vertically integrated Swedish graphite anode business offers customers a de-centralised supply chain with a lower environmental footprint than traditional synthetic and natural graphite production. TLG is leveraged to the EV thematic, with a comparatively short timeframe to production (BPe 3QFY25) supported by proven operations (qualification plant commissioned March 2022 with feedstock from trial mine).

Natural Graphite in demand

We anticipate demand for coated spherical purified natural graphite (CSPG) to grow to 2.4Mtpa by 2030 in-line with demand for EVs (4,623GWh by 2030) from 2021 levels of ~0.4Mtpa (BPe 2022 ~0.63Mtpa). On the supply side, we have assumed additions of ~830ktpa (natural graphite concentrate) to the end of the decade, however we note that there are significant hurdles for this material to find its way into a CSPG product/ battery anode, with limited study work completed on most projects hampering an accurate assessment of viability. We anticipate a push towards de-centralised supply chains through efforts such as the US Inflation Reduction Act and EU Critical Raw Materials Act to be supportive of projects like TLG's, offering vertical integration in a stable jurisdiction.

Investment thesis: BUY (Spec), valuation $2.50/sh

We initiate coverage on TLG with a speculative Buy rating and a $2.50/sh fully diluted and funded valuation. Key milestones over the next 12 months which will support our thesis for TLG include 1) Binding offtake for ~75% of production to align with debt funding, 2) project funding of ~A$860m, (BPe 60/40 debt/equity), 3) construction commencement (BPe 1HFY24), and 4) production (BPe 3QFY25).

Earnings Forecast

Year end 30 June	2022a	2023e	2024e	2025e
Sales (A$m)	0	0	0	23
EBITDA (A$m)	-36	-32	-26	-13
NPAT (reported) (A$m)	-37	-37	-47	-52
NPAT (adjusted) (A$m)	-37	-37	-47	-52
EPS (adjusted) (¢ps)	(12.1)	(10.8)	(7.8)	(8.7)
EPS growth (%)	82%	-11%	-28%	12%
PER (x)	0.0 x	0.0 x	0.0 x	0.0 x
FCF Yield (%)	-12%	-6%	-44%	-1%
EV/EBITDA (x)	-12.7 x	-13.2 x	-35.3 x	-77.1 x
Dividend (¢ps)	-	-	-	-
Yield (%)	0%	0%	0%	0%
Franking (%)	0%	0%	0%	0%
ROE (%)	-110%	-74%	-13%	-17%

SOURCE: BELL POTTER SECURITIES ESTIMATES

Contents

Investment thesis

Recommendation – Speculative Buy $2.50/sh

We initiate on TLG with a Speculative BUY rating and a $2.50/sh valuation. Our investment thesis is based on:

1. **Natural Graphite in deficit over the next decade as demand outstrips supply**
    a. **Demand:** We estimate the demand for batteries in EVs to be 4,632 GWh by 2030 and 14,128 GWh by 2040 (BPe 2022 ~528 GWh). At an average EV basis of 72kWh, this assumes EV sales CAGR of 20% out to 2040, at which point EV's as a proportion of total vehicle sales is roughly 95%. To reach these expectations, we estimate the demand for natural coated spherical purified graphite (CSPG) to expand to 2.4Mt by 2030 and 3.6Mt by 2040 from 2021 levels of ~0.4Mt (BPe 2022 0.63Mt). As graphite makes up ~90% of the volume of the anode, the translation through to anode demand is similar.
    b. **Supply:** We estimate the current supply of natural graphite concentrate at 1.1Mt. Furthermore ~70% of natural graphite concentrate supply currently resides in China with greater concentration (~99%) in downstream purification, spheroidization and refining into anode material. A push towards decentralized supply routes for EV manufacturers should support ex-China processing, however we note that the road to market for battery anode material is long and, for most may be an uneconomic one, due to the characteristics of the underlying orebody, processing costs and qualification process. Whilst we have assumed supply additions of ~830ktpa of graphite concentrate to the end of the decade makes its way through to the EV market we view most projects as being inherently risky, with limited commercial studies underpinning production estimates.
    c. **Outlook, pricing and volume:** With both supply and demand considered, we anticipate a growing supply deficit in natural graphite and by extension anode material, supporting prices out to the end of the decade. Anode pricing is currently opaque, with a wide variety in price points dependent upon EV specifications. High-grade synthetic graphite prices (which feed into top tier European EV's) are forecasted by Benchmark Minerals Intelligence to reach US$20,000/t by 2025.
2. **TLG, most advanced, High-grade battery anode business**
    a. TLG's core business is the mining and concentrating of graphite at its 100% owned Vittangi mine in Northern Sweden. Graphite concentrate will then be trucked 280km south to Luleå, where further refining, spheroidization, purification and coating produces a battery anode product for direct sales into the European car manufacturing sector.
    b. **Downstream business supported by high-grade, unique deposit –** the unique characteristics of the Vittangi ore-body (being highly-crystaline 100% fine flake graphite) supports the production of premium natural graphite anode material with minimal yield losses (9%) through to a final product. The location of the business (adjacent to hydro-power infrastructure) helps to reduce operating expenses whilst simultaneously minimising environmental impact. TLG's high-quality, low-impurity anode product is suited to high-performance EV's and battery products and is likely to be priced at a premium, similarly to synthetic graphite anodes.

c. **<u>Nunasvaara, & Luleå Stage 1 –</u>** With the environmental permit approved on 6th April 2022, TLG can advance Stage 1 of its vertically integrated graphite business. Stage 1 anticipates 19.5ktpa of TLG's patented battery anode material (Talnode-C). We have assumed construction beginning in 2H CY23 with an 18-to-24 month build time, which should see production beginning in 3QFY25 (Mar-25). We have assumed a 12 month ramp up period, to a steady state production level of ~19.5ktpa on average over a 24 year mine life. We have assumed total capital cost of US$571m (TLG DFS US$484m) and operating costs of US$2,647/t Talnode-C, with a LOM sales price for Talnode-C of US$12,295. We have risked our post tax $NPV^{10\%}$ by 10% to arrive at a current equity valuation in AUD (utilising a $0.74 exchange rate) of A$341m.

d. Stage 2 takes capacity to over 100ktpa, of anode production, supported by an underground mining operation of the Niska deposit. For Stage 2, we have assumed production beginning in CY28, with a capital cost of US$1,353m (TLG Scoping study US$1,246m), operating costs of US$2,625/t Talnode-C and LOM sales price for Talnode-C of US$12,295 and Talphene-Si US$15,000/t. We have risked our post tax $NPV^{10\%}$ by 50% to arrive at a current equity valuation in AUD (utilising a $0.74 exchange rate) of A$878m. Advancing through funding, offtake, permitting and the performance of Stage 1, will warrant an unwinding of our risk discount for Stage 2.

3. Ticking the boxes for institutional investors

a. We believe TLG will appeal to institutional investors for the following reasons:

i. TLG's vertically integrated mine to anode business model reduces intermediary overheads, whilst attracting premiums for the high-quality product for use in Tier-1 European EV's. Whilst margins may compress over-time with the entrance of additional anode capacity, we see TLG being better positioned to protect margins.

ii. TLG boasts a strong management team who have grown the business and are directly aligned with the performance of the shares. CEO Mark Thompson is the largest individual holder on the register with 4% of shares on issue.

iii. Proximity to customers, and low-cost hydroelectricity reduces TLG's carbon footprint, appealing to ESG conscious investors as well as auto manufacturers requiring visibility of environmental footprint for components.

Potential catalysts

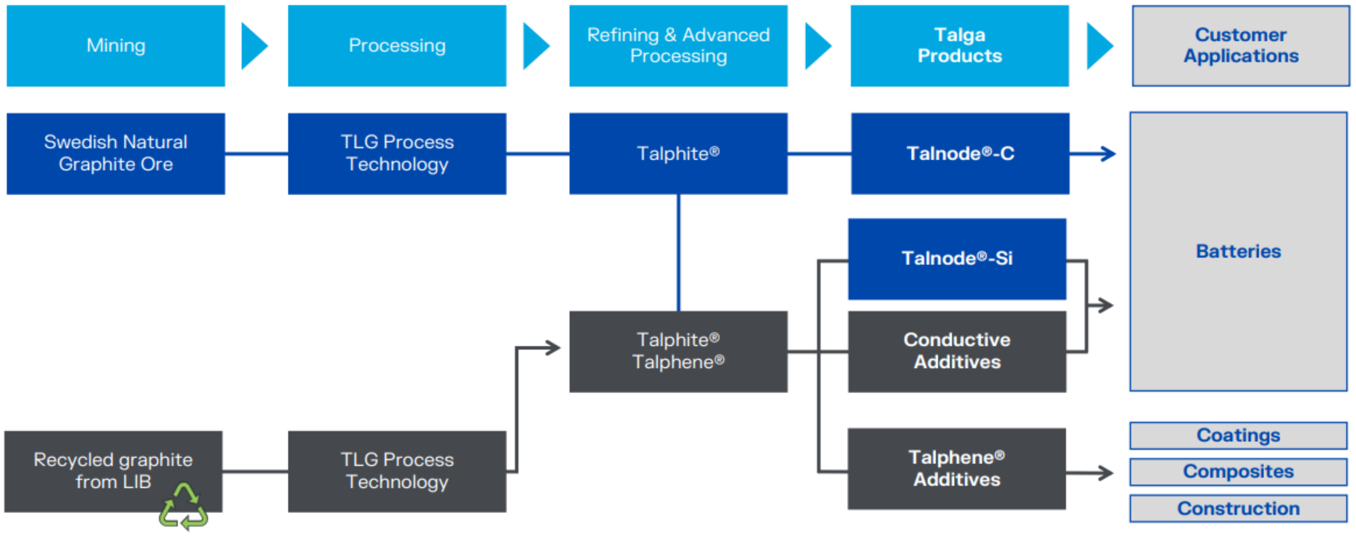
1. Construction commencement (1HFY24)
2. Binding offtake (Now to 1HFY24)
3. Funding (1HFY24)
4. Production (Stage 1) (BPe 3QFY25)
5. Production (Stage 2) (BPe CY28)

Company overview

Overview

Talga Group Ltd (TLG) is an ASX listed prospective battery anode producer and graphite miner, with a mining operation and associated downstream anode processing facilities located in Northern Sweden. TLG offers a vertically integrated solution to electric vehicle (EV) manufacturers in Europe, de-coupled from the traditional China dominated supply chain, and with a lower carbon footprint. TLG's unique Vittangi graphite deposit is one of the highest-grade graphite deposits (Ore Reserve 24.1% Total Graphitic Carbon) with unique characteristics (highly crystalline, fine flake) that are well suited to high-quality battery anodes. TLG plans to develop its mine to anode project in two stages. Stage 1 begins with a smaller (100ktpa ore throughput) operation producing ~19.5ktpa of Talnode-C (TLG's patented battery anode product). Stage 2 further increases processing by 400ktpa (500ktpa in aggregate) via the development of a high-grade underground operation. Talnode-C production under Stage 2 increases by ~85ktpa (>100ktpa in aggregate).

Figure 1 - Talga business model



SOURCE: COMPANY DATA

Table 1 - TLG Ore Reserves and Mineral Resources

Reserves	Tonnage - Mt	Average grade - TGC %	Graphite (m tonnes)
Proved	-	0.0%	-
Probable	2.3	24.1%	0.54
Resources	**Tonnage - Mt**	**Average grade - TGC %**	**Graphite (m tonnes)**
Measured	-	-	-
Indicated	27.8	23.8%	6.61
Inferred	9.0	21.2%	1.91
Total	**36.9**	**23.1%**	**8.53**

SOURCE: COMPANY DATA

Talga – Key considerations

Offtake:

- **Broad offtake strategy -** TLG have expressed an interest in ~3 main offtake partners and securing ~75% under binding offtake to support debt funding strategies. In terms of pricing, the reference price is yet to be announced, however we believe it to be a formula based off an underlying graphite price with an inbuilt floor and ceiling mechanism in order to satisfy debt financing.
- **ACC non-binding offtake 60kt –** ACC is an automotive group co-owned by Stellantis (Alfa Romeo, Chrysler, Citroen, Fiat, Jeep, Peugeot & Maserati) and Mercedes-Benz. The offtake, signed Sept-22, is for the supply of 60kt of Talnode-C over 5 years beginning in 2026 with a ramp-up period from 2023-2025. Pricing for the contract includes a floating mechanism tied to a reference price. The current status remains non-binding, TLG anticipate conversion to binding status ahead of a financing decision in 1HFY24.
- **Verkor, non-binding letter of intent -** In Jan-23, TLG signed a non-binding letter of intent (LOI) with Verkor, the battery supplier to Renault. The Verkor LOI is intended to supply Talnode-C over a 4-8 year period.
- **Qualification –** TLG has been progressing through qualification stages for both ACC and Verkor over the past few years. The process began with coin cell level testing, up to now where bulk samples are being provided to customers through the EVA plant which produces tonnes of material monthly for customer testing. Depending on customer demands, the final saleable product is an active anode material (Talnode-C) sold as a dry powder.

Funding

- TLG have expressed an interest in a debt led funding strategy for Stage-1. For the purpose of our modelling, we have assumed a 60/40 debt/equity strategy. TLG are currently advancing funding discussions in-line with conversion to binding status for offtake parties.
- In Nov-22 TLG announced it had passed preliminary screening for debt financing of up to Euro300 million from European Investment Bank (EIB), the lending arm of the European Union. The commitment is foreseen to compliment debt funding discussions, subject to further due-diligence, credit approvals and agreements.
- In the DFS, TLG had highlighted letters of intent with two parties, Luossavaara-Kiirunavaraa Aktiebolag (LKB) and Mitsui & Co Europe. In late March 2023, TLG informed the market that the engagement with Mitsu was mutually agreed to not extend the relationship.

Permitting

- TLG received the environmental permit for the Nunasvaara South graphite project, which will feed into the Luleå anode refinery (see announcement “Environmental permit approved for Talga’s Swedish Natural graphite mine” 6-Apr-23).
- The Nunasvaara South Natura 2000 permit (Swedish environmental mining permit) was granted on 4th of April 2023 subject to a period of appeal, which is currently set to close on the 7th of June 2023.
- The Luleå anode refinery has received building permits, however, is still subject to an environmental permit approval. TLG are anticipating granting of this permit in 1HFY23. The Luleå refinery permit is awaiting a decision from the Swedish Land and Environment court on the 21st June 2023.

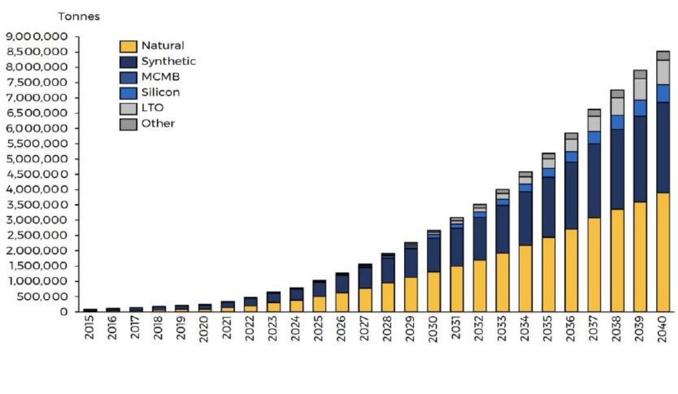
Timeline:

- Critical path items for TLG include; 1) Permitting, 2) Binding offtake and, 3) Financing. TLG is currently progressing permitting for the Vittangi mining operation and the Luleå refinery.
- Running concurrently with the permitting process is the conversion to binding status for the ACC and Verkor offtake agreements, which TLG anticipate prior to the advancement of debt funding discussions. We see the conversion to binding status as a key hurdle for TLG, noting that debt support will likely not be provided on a non-binding agreement.
- Assuming the targets are met withing the next six months, we anticipate TLG will begin construction for Stage-1 by the end of CY23, taking ~18 months to complete. We anticipate first production in 3QFY25 with a staged ramp up over ~12 months.
- Expansion to Stage-2 we estimate will occur towards the middle of CY28 and follow a similar construction / ramp up timeline to Stage-1. The timeline on Stage-2 is currently unknown, and we believe will largely be driven by demand for TLG's product from existing and new customers. We do anticipate the pathway to Stage-2 from a permitting and construction point of view to be less onerous. TLG has an option over land adjacent to the current Luleå processing site, which should provide a smooth expansion in operations.

Drivers of anode prices over the long-term

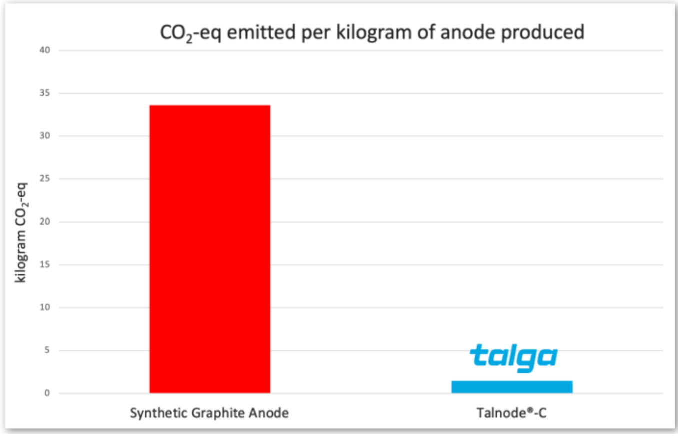
Long-term anode prices in our opinion are going to be driven by 1) global anode demand and processing capacity, 2) underlying natural graphite prices 3) end user demand specifications (including quality and environmental standards) and 4) demand for segregated supply chains. The last two points, we believe may drive demand and pricing premiums for TLG. As it stands, 99% of anode production resides in China. There is a global push towards de-centralised supply chains supported by the US Inflation Reduction Act and Europe's Critical Raw Materials Act (CRMA). The EU has listed Natural Graphite as one of several critical raw materials. We may see other anode manufacturers setup operations in Europe, however we would expect a lagged effect to progress through the qualification phase for each manufacturer (~2+ years) and we see substitutability (once the product is in use in a line of EV's) as low. In addition to this, growing political pressure and consumer demand for end-to-end transparency for EV components will bode well for products with traceable supply chains and a low environmental footprint.

Figure 2 - Battery anode growth in demand



SOURCE: COMPANY DATA, BENCHMARK MINERAL INTELLIGENCE

Figure 3 – Talnode-C CO_2 footprint Vs Chinese Synthetic Anode



SOURCE: COMPANY DATA

How have you estimated anode pricing over the long term?

We have taken two approaches to support the pricing provided in the TLG Stage 1 DFS (provided by Benchmark Mineral Intelligence). The first was to assess a margin for coating and purification based off historical anode pricing across low-quality (non-EV) anodes and high-quality (Tier 1 EVs) anodes and apply this margin to the Spherical graphite 99.95%, 15 µm, fob China price published by Fastmarkets. The average premium since 2015 was ~US$4,470/t for low-quality anodes and US$12,825/t for high-quality anodes. We then used an adjusted premium for TLG's product applied to an average long-term spherical graphite price to create a dynamic price deck which is responsive to capacity for anode production and underlying spherical graphite input costs. The second approach was to try and back-calculate the value of an EV anode based off broad estimates around EV battery pack costs. We did this by incorporating the suite of TLG's offtake partner vehicles, estimating an average battery pack cost based on market costs per kWh multiplied by the stated kWh capacity of each vehicle (or group of vehicles in Stellantis' case). Bloomberg New Energy Finance (BNEF) estimate the anode is roughly 12% of the total cost of the battery pack, providing a US$ anode cost for TLG offtake partners of roughly ~$1,893. We then derived from this the cost per kg and per tonne by dividing the total anode cost by the weight of the anode in the battery pack (on average 78kg). This resulted in an estimated cost of $24,272/t, which is substantially higher than the US$12,312/t utilised in the DFS.

Table 2 - Back calculating anode costs

	Unit			Source
Average EV battery cost	US$/kWh	$	151.00	Bnef 2022
Samples	kWh			
Mercedes-Benz EQE 500 4MATIC	90.56	$	13,675	EV specification
Mercedes-Benz EQE 300	89.00	$	13,439	EV specification
Mercedes-Benz AMG EQS 53 4MATIC	107.8	$	16,278	EV specification
Stellantis - STLA Small	59.5	$	8,985	Stelantis EV Day 2021
Stellantis - STLA Medium	95.5	$	14,421	Stelantis EV Day 2021
Stellantis - STLA Large	109.5	$	16,535	Stelantis EV Day 2021
Stellantis - STLA Frame	179.5	$	27,105	Stelantis EV Day 2021
		$	15,776	
Cost of Anode			12%	Bnef 2022
		$	1,893	
Average Weight of Anode			78	Graphite makes up 70kg of the Anode, representing 90% of the weight
Anode Cost per kg		$	24.27	
Anode Cost per tonne		$	24,272	

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES, EV SPECIFICATIONS, BNEF, VISUAL CAPITALIST

Does TLG face competition from graphite peers?

A) We see the risk from peers currently in the graphite sector as low, whilst there is a short list of advanced peers progressing further down the battery value chain, we view TLG as having greater leverage to the growing EV thematic and more advanced than most. We view TLG's vertically integrated business model offering ex-China supply, low CO_2 footprint driven by 100% hydro power accessibility and proximity to European auto manufacturers, as being positive characteristics for the business. Secondary to these elements, the high-grade, fine flake ore-body at Nunasvaara offers superior economics. For every tonne of ore processed, TLG will produce ~182kg of CSPG (or ~202kg battery anode). Compared to SYR and MNS, which for every tonne of ore processed could produce ~38kg and ~18kg of CSPG respectively. The drivers of this are 1) higher ore grade for TLG and 2) lower yield losses in the spherodisation phase. On a cost basis, SYR estimates costs through to a mid-quality active anode material (AAM) of US$3,020/t, which assumes operating costs at Balama of US$425/t (Q123 US$668/t). The margin on SYR's product could be in the range of US$1,980-US$3,980/t (~40-57%) assuming full capacity operating metrics at Balama. In comparison, TLG's high-quality Talnode-C product is likely to achieve prices around ~US$12,295/t with operating costs (from mine to anode) of US$2,647/t (BPe) equating to ~US$9,353/t margin (78%).

Table 3 - Highlighting the attractiveness of TLG's ore

		Talga Group Ltd (TLG)	Syrah Resources Limited (SYR)	Magnis Energy Technologies Ltd (MNS)
		1 t ore	1 t ore	1 t ore
Mining & Concentrating	TGC %	23.4%	10.0%	5.4%
	Recovery %	95%	80%	89.6%
	Product (kg)	222.3	80	48.4
Micronising & Spheridisation	Fine's portion %	100%	80%	59%
	BAM concentrate (kg)	222.3	64	28.5
	Yeild loss %	9%	40%	30%
Battery Anode Material	Conversion to CSPG	202	38	20
	Recovery %	90%	90%	90%
	Final AAM product	182	35	18
	Product uplift		5.3x	10.1x

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Nunasvaara South (Stage 1)

Details of stage 1 are provided below, based off the TLG DFS (1 July 2021) and where possible, have been compared to Bell Potter estimates. In comparison to TLG's DFS, we have taken a more conservative view on Capital expenditure +8.1%, operating costs +12.1% and average annual production -17.4%. As for Talnode-C pricing, over the life of mine our estimates are largely similar to TLG's and are driven by a range of factors outlined above. Our life of mine revenue and Ebitda are -4.3% and -3.8% lower respectively vs TLG's DFS estimates.

Table 4 - Stage 1 - DFS Vs Bell Potter estimates

Table Comps	Units	TLG	BPe	% Var
Avg Annual ore mining rate	ktpa	100,000	94,271	-5.73%
Total ore mined	mt		2,250	
Avg Annual production Talnode-C	tpa	19,500	16,106	-17.41%
Total Talnode-C produced	t		402,641	
Life of mine	Years	24	24	0.00%
Revenue (LOM)	US$m	$5,352	$4,944	-7.63%
Revenue (Avg)	US$m		$195	
LOM average Talnode-C price	US$/t	$12,312	$12,295	-0.14%
Talnode-C production cost	US$/t	$2,363	$2,647	12.03%
Ebitda (LOM)	US$m	$4,081	$3,754	-8.02%
Ebitda (Avg)	US$m		148	
Capex	US$m	$528	$571	8.06%
Pre-tax NPV8	US$m	$1,054		
NPV10 post tax (unrisked)	US$m		$281	

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Niska (Stage 2)

Details of Stage 2 are provided below, based off the TLG Scoping study (7 December 2020) and where possible, have been compared to Bell Potter estimates. Stage 2 is anticipated to expand production of Talnode-C to over 100ktpa via underground mining of the Niska deposit (north of the Nunassvara deposit). The variation to our figures are largely driven by a staged approach to ramp up for underground operations. Operating costs are largely similar to Stage-1. TLG used a lower anode price in the scoping study (US$9,375/t Dec 2020) compared to the DFS for Stage-1 (US$12,312/t Jul 2021), which drives most of the variance in revenue. As with Stage-1, we have assumed a higher capex figure (+8.6%).

Table 5 - Stage 2 - Niska Scoping study Vs Bell Potter estimates

Table Comps	Units	TLG	BPe	% Var
Avg Annual ore mining rate	ktpa	400,000	343,000	-14.25%
Total ore mined	mt		5,145	
Avg Annual production Talnode-c	tpa	84,700	71,055	-16.11%
Total Talnode-c produced	t		969,911	
Avg Annual production Talphene	tpa	8,470	7,105	-16.11%
Total Talphene produced	t		96,991	
Life of mine	Years	14	14	0.00%
Revenue (LOM)	US$m	$11,700	$13,310	13.76%
Revenue (Avg)	US$m		$887	
Ebitda (LOM)	US$m	$8,850	$9,243	4.44%
Ebitda (Avg)	US$m		$616	
Capex	US$m	$1,246	$1,353	8.56%
Pre-tax NPV8	US$m	$3,500		
NPV10 post tax (unrisked)	US$m		$1,299	

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Valuation & Recommendation

Recommendation

We initiate on TLG with a **Speculative Buy recommendation and a $2.50/sh Valuation**. We see TLG's vertically integrated, mine to anode, business model as attractively capturing downstream margins.

Valuation

We have utilised a sum-of-the-parts discounted cash flow approach to value TLG, combining a discounted present valuation of the Nunasvaara South (Stage 1) and Niska (Stage 2) on a risked basis. We have included a present value for corporate overheads (-$90m) and nominal value for further exploration ($50m). To account for dilution, we have assumed a capital raise of A$342m @$1.35/sh, we have not factored in an assumed raise for Stage-2, rather we have risked our valuation to account for the potential of further dilution. We arrive at a risked, diluted + funded valuation for the business at $2.50/sh.

Table 6 - TLG sum-of-the-parts DCF valuation

Ordinary Shares (basic)	**m**	**361**
Options in the money	m	5
Diluted	**m**	366
Sum-of-the-parts	**A$m**	**A$/sh**
Nunasvaara South (Stage 1) - NPV 10%, 90% risked	$341	$0.95
Niska (Stage 2) - NPV 10%, 50% risked	$878	$2.43
Exploration/ Other	$50	$0.14
Corporate overheads	-$90	$(0.25)
Subtotal	$1,179	$3.27
Net cash (debt)	$40	$0.11
Total undiluted	**$1,219**	**$3.38**
Cash from options	$5.6	$0.02
Total diluted (unfunded)	**$1,225**	**$3.35**
Assumed raise - ($1.35 x 261m shares)	$342	627 m
Total diluted + funded	**$1,566**	**$2.50**

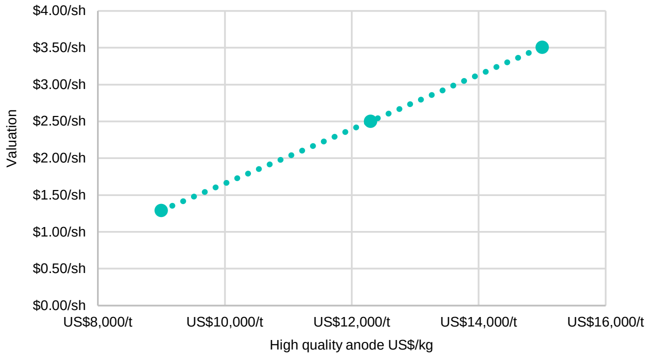
SOURCE: BELL POTTER SECURITIES ESTIMATES

Figure 4 – DCF valuation sensitivity (unfunded)

	Low	Bell Potter	High
Anode price deck	**US$9,000/t**	**US$12,295/t**	**US$15,000/t**
Nunasvaara South (Stage 1) - NPV 10%, 90% risked	**32**	**341**	598
Niska (Stage 2) - NPV 10%, 50% risked	**428**	**878**	1,252
Other	-40	-40	-40
EV (risked)	420	1,179	1,809
Net debt/(cash) + options	-46	-46	-46
Equity value	$465m	$1,225m	$1,855m
Diluted shares on issue	366m		
Assumed raise - ($1.35 x 261m shares)	$342m	627m	
Equity value (diluted & funded) $/sh	**$1.29/sh**	**$2.50/sh**	**$3.50/sh**
Share price	$1.30/sh		
Uplift	-1%	92%	170%

SOURCE: BELL POTTER SECURITIES ESTIMATES

Figure 5 - Valuation sensitivity graph (unfunded)



SOURCE: BELL POTTER SECURITIES ESTIMATES

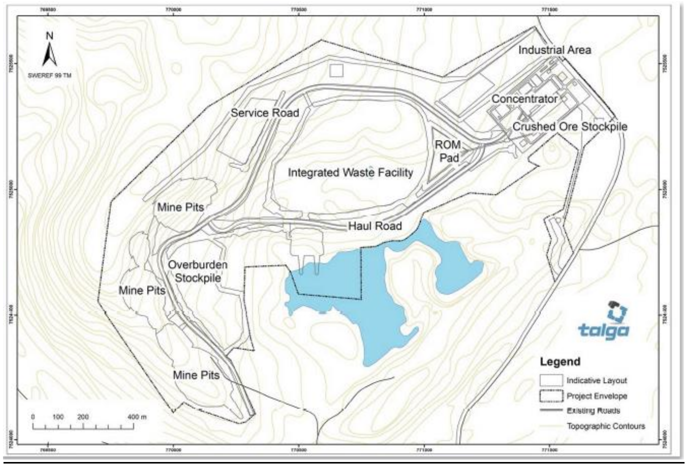
Asset overview

Nunasvaara South (Stage 1)

The Nunasvaara South Graphite project in Northern Sweden consists of a 400ktpa mining operation and an onsite concentrator producing ~100ktpa graphite ore (mined in 6-month intervals) over an initial mine life of 24 years. Nunasvaara is dominated by highly crystalline, fine, graphite flakes. The ore body is sub-vertical, 20-30+m wide stretching over a 1.2km strike length currently modelled down to a depth of ~220m from surface outcrops. Total graphitic carbon (TGC) grades at Nunasvaara reach up to 46%, with an average ore grade of 23%. ROM ore then enters a beneficiation circuit, consisting of crushing and grinding prior to entering a floatation circuit. Concentrate will be packed into bulka bags and loaded on trucks for transport to the anode processing facility.

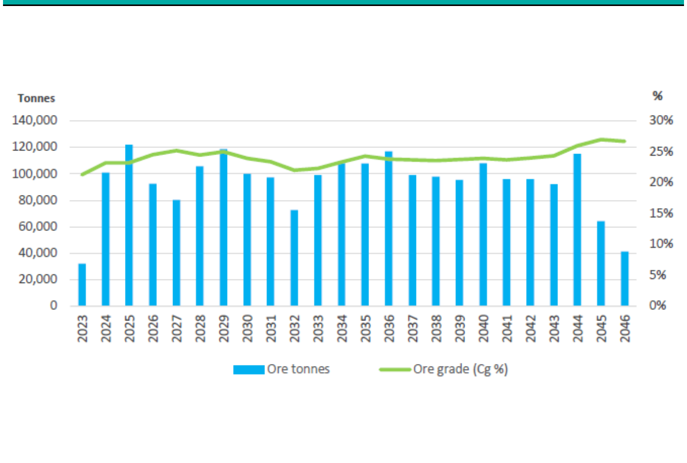
The project is serviced by existing road networks, with some minor upgrades to power and road infrastructure required (and accounted for in capital budget). The nearby Vittangi township (10km) provides an experienced workforce currently servicing the LKAB iron ore mine located 20km west. The mine and concentrator will be connected to the regional power grid (tie-in to grid required), which is supplied by renewable hydroelectricity.

Figure 6 - Nunasvaara deposit



SOURCE: COMPANY DATA

Figure 7 – Ore production & grade (TGC%)



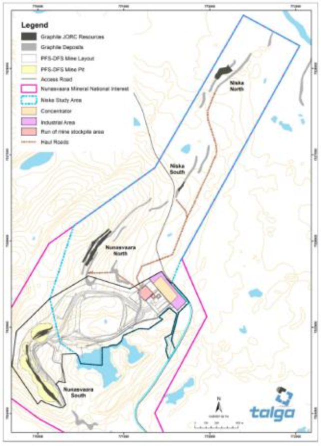
SOURCE: COMPANY DATA

Niska (Stage 2)

The Niska deposits are located north of the Nunasvaara deposit, within the Vittangi project, and thus bare similar characteristics in terms of high-grade, highly crystalline graphite fines. The Niska deposit will support Stage 2 mining and processing operations. TLG anticipate an underground mining operation of 1.6mtpa producing ~400ktpa ore via long hole open stoping mining, supporting a 14 year mine life. Downstream anode production under Stage 2 lifts by ~85ktpa of Talnode-C (and ~8.5ktpa Talphene a feedstock into TLG's Talnode-Si and other industrial products).

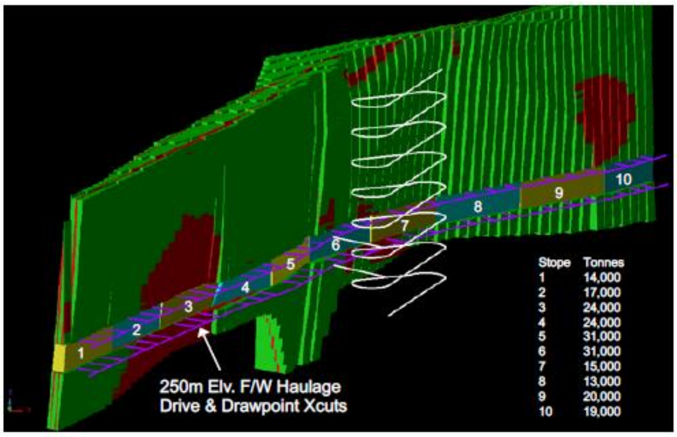
Further studies and concentrator testwork have been scheduled to further optimise the Niska scoping study.

Figure 8 – Niska site map



SOURCE: BELL POTTER SECURITIES ESTIMATES

Figure 9 - Niska underground model



SOURCE: COMPANY DATA

Luleå Anode Facility

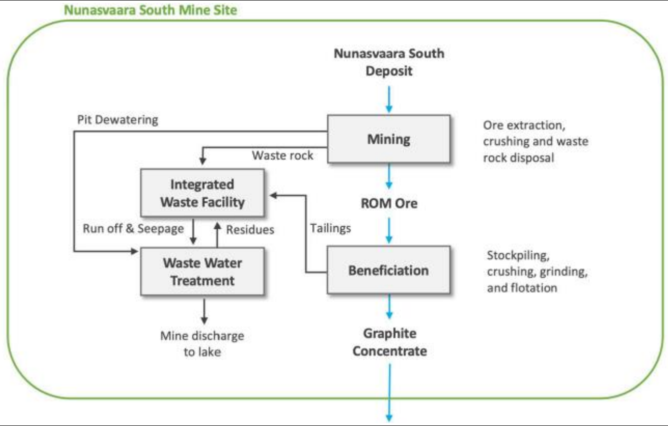
The planned downstream battery anode facility is anticipated to be located in the Swedish port city of Luleå. Under Stage 1 the facility will produce roughly 19,500tpa of TLG's patented Talnode-C battery anode product. Under Stage 2, production is anticipated to lift by a further 85,000tpa (105,000tpa combined capacity) of Talnode-C and ~8.5ktpa Talphene (TLG's patented silicon anode and industrial feedstock). TLG have conducted auto qualification scale programs at its Electric Vehicle Anode plant (EVA plant). The EVA plant, which was commissioned in March 2022, utilises graphite from the Vittangi trial mine in production of Talnode-C. Upon commissioning, over 20 battery manufacturers and automotive customers engaged to receive samples of Talnode-C for EV battery qualification and procurement processes.

Processing technology - TLG's internal chemical purification and coating flowsheet utilises a more environmentally sustainable treatment methodology, which differs from the conventional hydrofluoric acid methodology. The primary objective in the purification and coating process is to increase graphitic purity to >99.95% whilst reducing moisture content and other impurities. The finished product is a high-quality battery active anode material.

Figure 10 - TLG Electric Vehicle Anode (EVA) plant and installation of EVA anode coating kiln

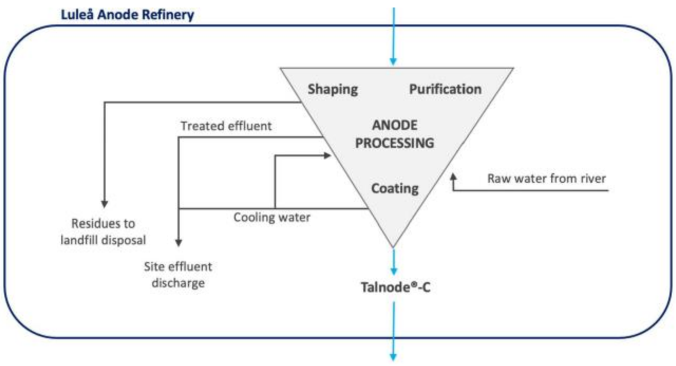
SOURCE: COMPANY DATA

Figure 11 - TLG - Mine to graphite concentrate flowsheet



SOURCE: COMPANY DATA

Figure 12 - TLG - Graphite concentrate to battery anode product

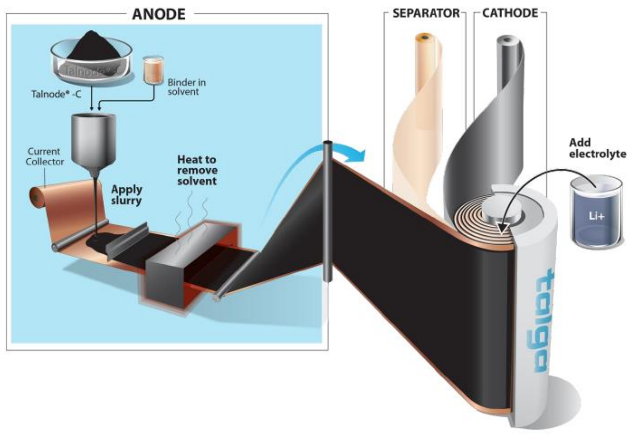


SOURCE: COMPANY DATA

TLG product suite

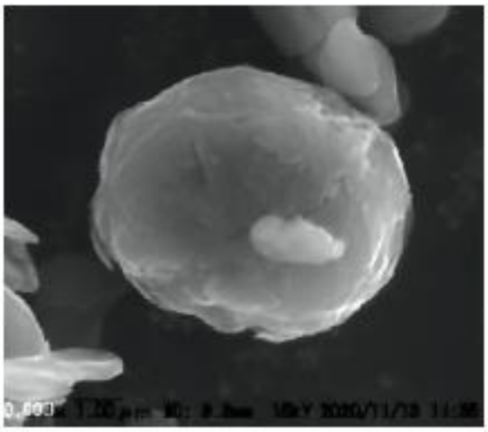
Talnode-C: Under stage 1, TLG anticipates to produce a single battery anode product for sale to European customers. The patented product, Talnode-C is a high-quality battery anode material suitable for use in fast charging EV's. TLG will sell the product as a powder, for use in the production of a battery anode, or will blend with a synthetic graphite anode material, dependent upon customer capabilities and demand.

Figure 13 - Talnode-c anode in a li-ion battery



SOURCE: COMPANY DATA

Figure 14 - Microscopic image of Talnode-C



SOURCE: COMPANY DATA

Talnode-Si & Talphene: Under stage 2 of operations TLG anticipate ~8.5ktpa of production a silicon-based battery anode product (Talnode-Si) utilising an intermediary product Talphene. It is anticipated that Talnode-Si would be a premium product and thus be priced at a higher level from Talnode-C. Under the Scoping study, TLG utilised a US$15,000/t price for the Talphene precursor. We are unable to confirm pricing via external sources at this point in time, however note that silicon based anodes appear to be a superior product.

Graphite market

Demand & Supply overview

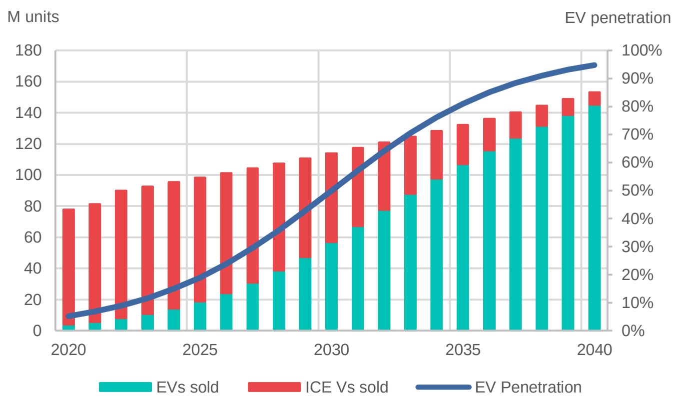
We have provided below our outlook for graphite demand and supply primarily driven from the expansion of EV adoption. For the purpose of this analysis we have begun with an analysis of demand for CSPG from EV adoption, and worked back towards demand for graphite concentrate.

Table 7 - Graphite demand modelling: Light passenger electric vehicles

		2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040
Global passenger vehicle market													
Passenger vehicle sales	m units	78	81	90	93	95	98	101	104	107	111	114	153
Growth rate	*%*		*4.6%*	*10.7%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*	*3.0%*
EV market penetration	%	5%	7%	9%	12%	15%	19%	24%	30%	36%	43%	50%	95%
EV sales	**m units**	**4**	**6**	**8**	**11**	**14**	**19**	**24**	**31**	**39**	**47**	**57**	**145**
Graphite intensity													
Average kWh capacity per EV	kWh	65	65	66	66	67	67	69	71	74	77	81	97
Market GWh capacity required	GWh	264	364	528	710	949	1,261	1,665	2,185	2,844	3,661	4,632	14,128
Average kg CSPG per kWh	**kg / kWh**	**1.20**	**1.20**	**1.20**	**1.19**	**1.19**	**1.18**	**1.17**	**1.16**	**1.14**	**1.11**	**1.08**	**0.96**
Total CSPG demand	kt	317	436	632	847	1,128	1,490	1,950	2,526	3,230	4,061	5,002	13,586
Less: Scrap supply	kt	0	0	0	1	2	5	11	23	47	96	190	6,278
Primary CSPG Demand	kt	317	436	631	846	1,125	1,485	1,940	2,504	3,182	3,965	4,812	7,308
Graphite market share													
Natural graphite	%	42%	43%	45%	46%	47%	48%	49%	49%	49%	50%	50%	50%
Synthetic graphite	%	58%	57%	56%	54%	53%	52%	51%	51%	51%	50%	50%	50%
Natural CSPG demand	kt	133	188	281	388	529	713	944	1,231	1,575	1,970	2,397	3,654
Yield - CSPG production	%	52%	53%	53%	54%	55%	55%	56%	57%	58%	59%	60%	68%
Other graphite concentrate demand	kt	600	618	637	656	675	696	716	738	760	783	806	831
Growth rate	*%*	*0%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*	*3%*
Global graphite concentrate demand	kt	854	974	1,163	1,374	1,644	1,982	2,397	2,894	3,474	4,121	4,801	5,456
Natural graphite concentrate supply													
Existing supply	kt	695	914	978	1,075	1,285	1,335	1,282	1,621	1,717	1,570	1,680	3,306
Probable additional supply (staged)	kt	0	0	0	29	165	137	0	249	249	0	0	0
Cumulative additional supply	kt	0	0	0	29	194	330	330	579	828	828	828	828
Total concentrate supply	kt	695	914	978	1,103	1,478	1,665	1,612	2,200	2,545	2,398	2,508	4,134
Supply/ Demand balance	*kt*	**-159**	**-60**	**-185**	**-271**	**-166**	**-318**	**-785**	**-694**	**-929**	**-1,723**	**-2,292**	**-1,322**
As a % of supply		*23%*	*7%*	*19%*	*25%*	*11%*	*19%*	*49%*	*32%*	*37%*	*72%*	*91%*	*32%*

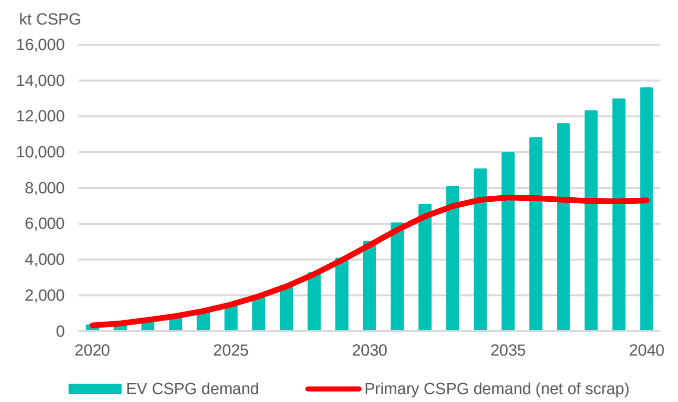
SOURCE: BELL POTTER SECURITIES ESTIMATES, UNITED STATES GEOLOGICAL SURVEY

Figure 15 – Global passenger vehicles & EV take-up



SOURCE: BELL POTTER SECURITIES ESTIMATES

Figure 16 – Coated spherical graphite demand outlook



SOURCE: BELL POTTER SECURITIES ESTIMATES

Supply

Existing supply

The US Geological Survey (USGS) estimated 2021 natural crystalline flake graphite supply at 914kt up from Covid-19 lows of 695kt. 68% of this came from China, with other large producers, being Brazil (9%), Madagascar (8%) and Mozambique (8%). We anticipate existing producers to grow in-line with the broader industry, however we note that growth may be constrained by ore-body characteristics and downstream requirements.

Additional supply

We list several greenfield and brownfield graphite projects currently being developed in the table below. We note that a significant share of these projects are located in Africa. Combined, these projects could deliver up to 828ktpa of graphite concentrate production. Given the inherent risks associated with greenfield developments, we acknowledge that some projects may not get built, could take longer than expected to develop or may have commissioning issues.

Table 8 - Upcoming greenfield & brownfield graphite developments

Region / Company name	Project name (location)	Status	Annual concentrate production (ktpa)	First production by	Graphite product produced
Africa					
Black Rock Mining (ASX:BKT)	Mahenge Graphite Project (Tanzania)	DFS & approved	83 (increasing to 340)	Q4 2023	Concentrate
Ecograf (ASX:EGR)	Epanko Graphite Project (Tanzania)	DFS & approved	60	1H 2023	Active anode material
Evolution Energy Minerals (ASX:EV1)	Chilalo Project (Tanzania)	DFS & approved	50	Not disclosed	Concentrate
Greenwing Resources (ASX:GW1)	Graphmada Mining Complex (Madagascar)	Care & maintenance / expansion	6 (increasing to 40)	TBA - pending Resource expansion & study	Concentrate
Magnis Energy Technologies (ASX:MNS)	Nachu Graphite Project (Tanzania)	DFS + approved	220	Not disclosed	Active anode material
Next Source Materials (TSXV:NEXT)	Molo Graphite Project (Madagascar)	Construction	17	Q2 2022	Concentrate
Triton Minerals (ASX:TON)	Ancuabe Graphite Project (Mozambique)	Scoping study underway / pending approvals	5 to 8	Q3 2023	Concentrate
Volt Resources Limited (ASX:VRC)	Bunyu Graphite Project (Tanzania)	DFS + approved	24 (increasing to 170)	Not disclosed	Concentrate
Walkabout Resources Ltd (ASX:WKT)	Lindi Jumbo Graphite Mine (Tanzania)	Construction	40	2H 2022	Concentrate
Australia					
Renascor Resources (ASX:RNU)	Siviour Graphite Project (South Australia)	DFS; final approvals pending	105	Not disclosed	Purified uncoated SPG
Europe					
Talga Group (ASX:TLG)	Vittangi Graphite Project (Sweden)	DFS & approvals pending	100	From 2024	Active anode material
North America					
Mason Graphite (CVE:LLG)	The Lac Guéret Graphite Project (Canada)	FS & approved	52	Not disclosed	Concentrate
Northern Graphite (CVE:NGC)	Bissett Creek Mine (Canada)	Construction ready subject to financing	25 (increasing to 44)	Not disclosed	Concentrate
Nouveau Monde Graphite (TSXV:NOU)	Matawinie Graphite Project (Canada)	Construction ready	100	In 2024	Active anode material
South America					
South Star Battery Metals Corp (CVE:STS)	Santa Cruz Graphite Project (Brazil)	Construction	5 (increasing to 25)	Q2 2023	Concentrate

SOURCE: COMPANY DATA

Financials & Capital structure

Financials

TLG is a graphite anode development company, on the path to construction of its mining operations and downstream anode refinery business in 2023. As such, the business does not generate income internally, and relies on the support from financiers (both debt and equity) in order to fund its operations. Due to this, TLG is classed as a speculative investment under Bell Potter Securities framework.

Cash flow summary

Historical annual and semi-annual cash flows for TLG are provided below:

Table 9 - Cash flow summary

Cashflow summary A$ million	1H20A	2H20A	FY20A	1H21A	2H21A	FY21A	1H22A	2H22A	FY22A	1H23A
Receipts from customers	0	0	0	0	0	0	0	0	0	0
Payments to suppliers & employees	(3)	(1)	(5)	(3)	(1)	(4)	(5)	(3)	(8)	(7)
Other	(3)	(5)	(8)	(4)	(9)	(12)	(9)	(10)	(18)	(11)
Net cash flow from operations	**(6)**	**(6)**	**(12)**	**(6)**	**(10)**	**(16)**	**(14)**	**(13)**	**(27)**	**(17)**
Payments for property, plant & equipment	(0)	0	(0)	(0)	(2)	(2)	(7)	(5)	(12)	(3)
Other	0	0	0	0	0	0	1	(1)	0	0
Net cash flow from investing	**(0)**	**0**	**(0)**	**(0)**	**(2)**	**(2)**	**(7)**	**(6)**	**(12)**	**(3)**
Interest and finance costs	0	0	0	0	0	0	0	0	0	0
Increase/ (decrease) in borrowings	0	0	0	0	0	0	0	0	0	0
Proceeds from share issues	9	1	11	35	30	65	0	0	0	32
Other	1	(1)	(1)	(1)	1	(0)	(0)	(0)	(1)	(2)
Net cash flows from financing	**10**	**(0)**	**10**	**34**	**31**	**65**	**(0)**	**(0)**	**(1)**	**30**
Net increase (decrease) in cash	3	(6)	(3)	27	20	47	(21)	(19)	(39)	10
Cash at beginning	8	11	8	5	32	5	52	32	52	13
Net foreign exchange differences	0	0	0	0	0	0	0	0	0	0
Cash at end	11	5	5	32	52	52	32	13	13	23

SOURCE: COMPANY DATA

Near term capital requirements

We anticipate TLG will need near-term capital of ~A$860m in the form of debt and equity in order to advance its Nunasvarra South graphite mine and Luleå graphite refinery.

Capital structure

TLG has 361 million fully paid ordinary shares on issue and 7.5 million options and performance rights as at the end of December 2022. The table below summarises TLG's capital structure.

Table 10 - Capital structure

Shares on issue	m	361
Escrowed shares/ other	m	-
Total shares on issue	**m**	**361**
Share price	$/sh	1.30
Market capitalisation	$m	469
Net cash	$m	40
Enterprise value (undiluted)	**$m**	**429**
Options outstanding	m	7.5
Options in the money	m	5.0
Issued shares (diluted for options)	m	366
Market capitalisation (diluted)	**$m**	**475**
Net cash + options	$m	40
Enterprise value (diluted)	**$m**	**435**

SOURCE: COMPANY DATA AND IRESS

Share registry

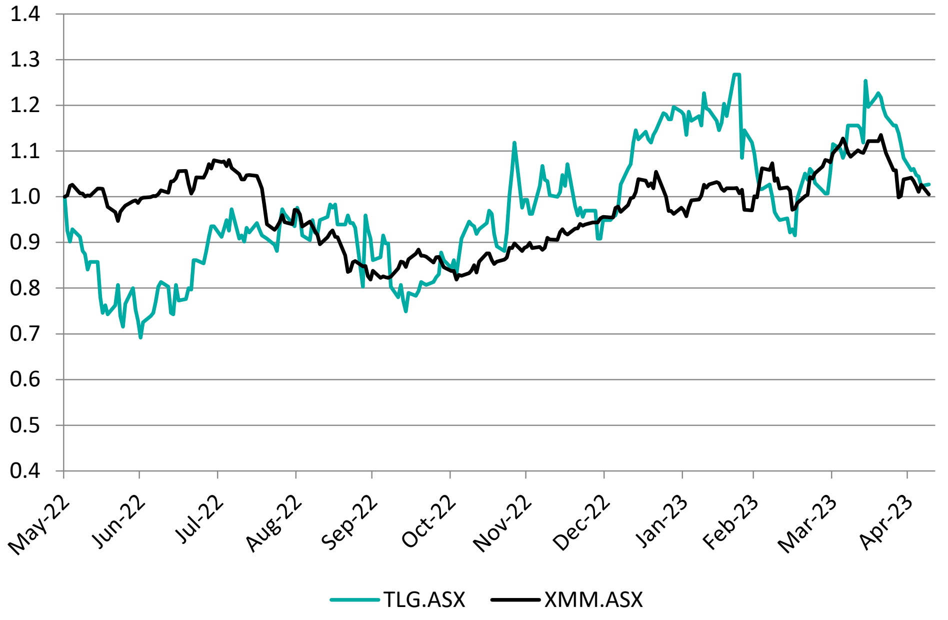
Table 11 - Major shareholders

Major shareholders	%	shares
Mark Thompson	4.0%	14,382,174
Yandal Investments Pty Ltd	1.4%	5,000,000
Anthony Holman	1.0%	3,600,000
Insignia Financial Ltd	0.7%	2,575,794
Total	**7.1%**	**25,557,968**

SOURCE: BLOOMBERG

Stock price performance

Figure 17 - TLG share price Vs ASX Metals and Mining Index Rebased (XMM)



SOURCE: IRESS

Board of Directors & Management

Table 12 - Board of Directors & Management

Name	Position	Appointed to position
Terry Stinson	Non-Executive Chairman	Feb-17
Mark Thompson	Managing Director	Jul-09
Grant Mooney	Non-Executive Director	Feb-14
Stephen Lowe	Non-Executive Director	Dec-15
Ola Rinnan	Non-Executive Director	Aug-17

SOURCE: COMPANY DATA

Terry Stinson, (Non-Executive Chairman) (Appointed 8th February 2017)

Mr Stinson has over 35 years' Executive and Non-Executive Director experience, working for global innovation companies across a range of industry segments, along with a proven track record of forming and leading international business collaborations and joint ventures.

Formerly the CEO (12 April 2017 to 18 November 2019) and Managing Director (20 May 2008 to 12 April 2017) of Orbital Corporation, VP for Global Fuel Systems at Siemens AG, CEO and Managing Director of Synerject and VP of Manufacturing Outboard Marine Corporation, Mr Stinson is currently the Non-Executive Chair of wave energy technology developer, Carnegie Clean Energy Limited (appointed 19 October 2018), Non-Executive Director of Aurora Labs Limited (appointed 27 February 2020), and Non-Executive Director of Engentus Pty Ltd (appointed May, 2021). Interests in shares: 175,554. Interests in performance rights: 600,000

Mark Thompson, (Managing Director) (Appointed 21st July 2009)

Mr Thompson has over 30 years' global experience in the geoscience and mineral industries including project discovery, development, technology, and management. He is a member of the Australian Institute of Geoscientists, the Society of Economic Geologists, and the Society of Vertebrate Paleontology.

Mr Thompson founded Talga and previously founded and served on the Board of ASX-listed Catalyst Metals Limited. Mr Thompson was a Non-Executive Director of Gibb River Diamonds Ltd from 1 December 2012 to 24 March 2020. Interests in shares: 14,354,901. Interests in options: 4,000,000

Grant Mooney, (Non-Executive Director) (Appointed 20th February 2014)

Mr Mooney has a background in corporate advisory with extensive experience in equity capital markets, corporate governance, and M&A transactions along with a wealth of experience in resources and technology markets. He is a member of the Institute of Chartered Accountants in Australia.

Mr Mooney is a Non-Executive Director of several ASX-listed companies including wave energy technology developer Carnegie Clean Energy Limited (appointed 19 February 2008), 3D metal printing technology company Aurora Labs Limited (appointed 25 March 2020), oil and gas services company SRJ Technologies (appointed 1 June 2020) and mineral resources companies Riedel Resources Ltd (appointed 31 October 2018), Accelerate Resources Limited (appointed 1 July 2017), , and Gibb River Diamonds Limited (appointed 14 October 2008). Interests in shares: Nil. Interests in performance rights: 500,000

Stephen Lowe, (Non-Executive Director) (Appointed 17th December 2015)

Mr Lowe has a background in business management with over 25 years' experience consulting to a range of corporate and high wealth clients. Mr Lowe was the Group Manager for the Creasy Group for 12 years before retiring in August 2019.

Mr Lowe is also an experienced public company Director, being the former Chair of Sirius Resources NL and former Non-Executive Director of Coziron Resources Ltd, Belararox Ltd and Windward Resources Ltd. Mr Lowe holds a Bachelor of Business (Accounting) and a Masters of Taxation from the UNSW. He is a Fellow of the Taxation Institute of Australia. Interests in shares: 2,050,000. Interests in performance rights: 500,000

Ola Rinnan, (Non-Executive Director) (Appointed 7th August 2017)

Mr Rinnan has extensive commercialisation and leadership experience across the energy, banking and finance sectors and has held numerous board positions for European listed companies and financial institutions including Non-Executive Directorships in Smedvig group, companies and DFCU Bank (representing the largest shareholder Norfund).

Formerly the Chairman of Avinor AS, CEO at Eidsiva Energi AS, CEO at Norgeskreditt AS and CFO for Moelven Industrier AS, Mr Rinnan is currently the Chairman of Nordavind DC Sites AS, Hamar Media AS, Espern Eiendom AS, Alpha Entrance AS, Megafun AS and Gravdahl AS. Mr Rinnan holds a Bachelor of Economics and a Masters of Construction and Materials Technology. Interests in shares: Nil. Interests in performance rights: 500,000

Per-Erik Lindvall, Talga AB Chairman

A well-known business leader in northern Sweden with a long standing background in the Swedish mining industry including as former Vice President of LKAB. Per-Erik also holds several board assignments and has for many years been a driving force in creating a new, sustainable industrial cluster in northern Sweden

Melissa Roberts, Chief Financial Officer

Over 20 years' experience in the global resources industry across corporate and commercial roles, most recently with global mineral producer Iluka Resources. Melissa joined Iluka in 2009 and held a range of senior roles within the business in Commercial, Investor Relations, Business Development and Information Technology.

Martin Phillips, Chief Operating Officer & European CEO

Experienced commercial and project manager with over 25 years of global metals and mining sector experience. Previous positions include engineering and management roles in battery recycling programs and smelting innovations at MIM's Mt Isa and UK operations. Mr Phillips was former Commercial Manager of Iluka Resources Ltd.

Dean Scarparolo, Company Secretary

A wealth of experience in developing and managing finance departments of ASX listed resource companies. A member of CPA Australia with over 25 years in roles spanning exploration, development and operations across Australia, Africa and Europe.

Appendix 1: Graphite 101

What is graphite?

Graphite is an allotrope of carbon, naturally occurring in crystalline form. Graphite is made of weakly bound horizontal sheets of carbon atoms (known as graphene). The carbon atoms are arranged in hexagonal shapes, bound together by strong covalent bonds. It is this chemical bonding arrangement that gives graphite it's sought after properties in industrial applications. These properties include: excellent thermal and electrical conductivity, good lubricity, a high melting point, a low thermal expansion coefficient, chemical stability and corrosion resistance. Other than being a precursor to manufacture anodes for lithium ion batteries, graphite is used to make refractory bricks, foundry equipment, graphite foil for use in consumer electronics, fire retardants, graphite composites and graphene.

TYPES OF GRAPHITE

- **Natural graphite:** Extracted from a graphite orebody. China currently dominates graphite mining, responsible for at least 70% of the world's supply. Active Anode Material (AAM) derived from natural graphite tends to be half the cost of AAM from synthetic sources.
- **Synthetic graphite:** Manufactured from petroleum and metallurgical coal derivatives (petroleum and needle coke). These precursor products are baked in furnace at temperatures between 900-1,200°C, before heat treated in an anaerobic environment at extremely high temperatures of around 2,700-3,000°C to induce graphitisation. Given this process, synthetic has fewer impurities than natural graphite and contains more uniform crystal structures. The use of fossil fuel derived products and the significant amount of energy used during baking and graphitisation make synthetic graphite a less environmentally friendly source of graphite.

  The table below outlines the advantages and disadvantages of natural and synthetic graphite.

Table 13 - Advantages and disadvantages of natural synthetic graphite

	Advantages	Disadvantages
Natural graphite	Lower cost Higher specific capacity	Lower cycle life in Li-B Higher swelling
Synthetic graphite	Better cycle life in Li-B Lower swelling	Higher cost Slightly lower specific capacity Less enviromentally friendly

SOURCE: BELL POTTER SECURITIES

FORMS OF NATURAL GRAPHITE

- **Amorphous graphite:** The least valuable and most abundant source of graphite. Amorphous graphite naturally occurs as a seam mineral and contains more ash than other forms of natural graphite. Industrial applications include: production of crucibles moulds and ladles, carburizing molten steel and making lead pencils.
- **Graphite flake:** Has a flaky morphology and occurs in fine, medium, large and jumbo particle sizes. Froth flotation can yield concentrate purity of 90-97%. Flake graphite concentrate can be further refined into spheres, purified and carbon coated to be used in anode manufacturing for lithium ion batteries.
- **Lump (vein) graphite:** The rarest form of natural graphite. Reports indicate that lump graphite makes up less than 1% of graphite supply. Given its superior graphitic content,

lump graphite can lead to lower milling and refining costs. This form of graphite shares similar industrial applications to flake graphite.

Why size is important in graphite flake mining

Other than purity, an important characteristic of a graphite development's concentrate production is its particle size distribution. This distribution can vary significantly from mine to mine, driven by the inherent attributes of a project's ore body and is subject to the choice of comminution and beneficiation design. The U.S. Mesh Size is an accepted and commonly used measuring system by the graphite industry.

A Mesh number refers to the number of openings in a one square inch screen (sieve). For example, 100 Mesh describes a one square inch screen with 100 equal spaced openings. The greater the Mesh number, the smaller the openings, and vice versa. Either a plus (+) or minus (-) sign will be denoted before the Mesh number: plus indicates that the graphite flake particles are too large for the mesh openings (will not fall through the openings); and minus is the opposite (will fall through the openings).

The table below summarises benchmark graphite flake concentrate Mesh and micron sizes. Note: 1 micron is one-millionth of a meter.

Table 14 - Measuring graphite flake concentrate particles: Mesh and micron sizes

Mesh size	-100	+100	+80	+50	+32	+20
Microns	<150	150 - 180	180 - 300	300 - 500	500 - 850	>850

SOURCE: BELL POTTER SECURITIES

The following table outlines markets and end-user applications commonly associated with each concentrate particle size. We also list the required downstream processing required to upgrade the flake concentrate into a usable product in its respective end-user application.

Table 15 - Particle size, downstream processing, and end-user applications

Particle size	Processing required	Market	End-user applications
Fine flake (<180 microns)	Micronisation, spheronisation, purification, carbon coating and thermal treatement	Lithium ion batteries	Used in electric vehicles, electronic storage systems and consumer electronics
	Purification	Nuclear power	As a moderator in a nuclear reactors (slows down neutrons released from fission)
Coarse flake (>180 microns)	Intercalation and exfoiliation	Expanded graphite	Fire retardants and graphite foil used in consumer electronics, high performance gaskets and fuel cells
	Not applicable	Refractory	Refractory bricks
	Electrolysis	Graphene	Advanced materials and composites - carbon fibers used in fighter aircrafts and racecars
	Not applicable	Foundry	Produce metal castings, crucibles and ladles for industrial applications
	Not applicable	Steel making	Carburiser - increase carbon content in molten steel

SOURCE: BELL POTTER SECURITIES ESTIMATES

Investment risks

Risks include, but are not limited to:

- **Commodity price and exchange rate fluctuations**. The future earnings and valuations of exploration, development and operating resources companies are subject to fluctuations in underlying commodity prices and foreign currency exchange rates.
- **Infrastructure access.** Bulk commodity producers are particularly reliant upon access to transport infrastructure. Access to infrastructure is often subject to contractual agreements, permits, and capacity allocations. Agreements are typically long-term in nature (+10 years). Infrastructure can be subject to outages as a result of weather events or the actions of third party providers.
- **Operating and capital cost fluctuations.** Markets for exploration, development and mining inputs can fluctuate widely and cause significant differences between planned and actual operating and capital costs. Key operating costs are linked to energy and labour markets.
- **Resource growth and mine life extensions.** Future earnings forecasts and valuations may rely upon resource and reserve growth to extend mine lives.
- **Sovereign risks.** Mining companies' assets can be located in countries other than Australia and are subject to the sovereign risks of that country.
- **Regulatory changes risks.** Changes to the regulation of infrastructure and taxation (among other things) can impact the earnings and valuation of mining companies.
- **Environmental risks.** Resources companies are exposed to risks associated with environmental degradation as a result of their exploration and mining processes. Fossil fuel producers (coal) may be particularly exposed to the environmental risks of end markets including the electricity generation and steel production industries.
- **Operating and development risks.** Mining companies' assets are subject to risks associated with their operation and development. Risks for each company can be heightened depending on method of operation (e.g. underground versus open pit mining) or whether it is a single operation company. Development assets can be subject to approvals timelines or weather events, causing delays to commissioning and commercial production.
- **Occupational health and safety risks.** Mining companies are particularly exposed to OH&S risks given the physical nature and human resource intensity of operating assets.
- **Funding and capital management risks.** Funding and capital management risks can include access to debt and equity finance, maintaining covenants on debt finance, managing dividend payments, and managing debt repayments.
- **Merger/acquisition risks.** Risks associated with value transferred during merger and acquisition activity.
- **COVID-19 risks:** Mining companies' rely on freedom of movement of workforces, functioning transport routes, reliable logistics services including road, rail, aviation and ports in order to maintain operations and get their products to market. They also rely on liquid, functioning markets to sell their products. Measures being put in place to combat the COVID-19 pandemic are posing risks to these conditions.

Talga Group Ltd
as at 16 May 2023

Recommendation	Buy, Speculative
Price	$1.30
Valuation	$2.50

Table 16 - Financial summary

ASSUMPTIONS

Year Ending June	Unit	FY20A	FY21A	FY22A	FY23E	FY24E	FY25E
COMMODITY PRICE							
High-Quality Anode price	US$/t	12,500	12,000	12,000	12,563	12,698	12,719
Spherical graphite 99.95%, 15 µm, fob China	US$/t	2,546	2,446	3,036	2,730	2,694	2,692
AUD/USD	A$/US$	0.67	0.75	0.73	0.73	0.73	0.74
PRODUCTION & COST							
Talnode-C	tpa	-	-	-	-	-	2,684
Operating cost	A$/t	-	-	-	-	-	2,647

PROFIT AND LOSS

Year Ending June	Unit	FY20A	FY21A	FY22A	FY23E	FY24E	FY25E
Revenue	A$m	0.0	0.1	0.0	0.0	0.0	23.0
Expense	A$m	(12.6)	(19.3)	(35.8)	(31.7)	(25.6)	(35.6)
EBITDA	**A$m**	(12.6)	(19.2)	(35.8)	(31.7)	(25.6)	(12.6)
Depreciation	A$m	(0.9)	(0.7)	(1.0)	(0.4)	(0.8)	(7.7)
EBIT	A$m	(13.4)	(19.9)	(36.8)	(37.2)	(26.4)	(20.3)
Net interest expense	A$m	0.0	0.0	0.0	0.0	(24.9)	(33.2)
Unrealised gains (Impairments)	A$m	0.0	0.0	0.0	0.0	0.0	0.0
Other	A$m	0.0	0.0	0.0	0.2	4.3	0.9
PBT	**A$m**	(13.4)	(19.9)	(36.8)	(37.0)	(47.0)	(52.5)
Tax expense	A$m	0.0	0.0	0.0	0.0	0.0	0.0
NPAT (reported)	**A$m**	(13.4)	(19.9)	(36.8)	(37.0)	(47.0)	(52.5)
NPAT (underlying)	A$m	(13.4)	(19.9)	(36.9)	(37.0)	(47.0)	(52.5)

CASH FLOW

Year Ending June	Unit	FY20A	FY21A	FY22A	FY23E	FY24E	FY25E
OPERATING CASHFLOW							
Receipts	A$m	0.0	0.1	0.1	2.6	0.0	11.7
Payments	A$m	(4.7)	(3.9)	(8.4)	(10.0)	(7.4)	(22.5)
Tax	A$m	0.0	0.0	0.0	0.0	0.0	0.0
R&D + Exploration	A$m	(8.8)	(13.4)	(20.4)	(18.6)	(18.0)	(18.0)
Other	A$m	1.2	1.4	2.1	(2.4)	0.0	0.0
Operating cash flow	**A$m**	(12.3)	(15.9)	(26.5)	(28.4)	(25.4)	(28.8)
INVESTING CASHFLOW							
Property, plant and equipment	A$m	(0.4)	(1.9)	(12.4)	(2.8)	(781.6)	(5.4)
Mine development	A$m	0.0	0.0	0.6	0.0	0.0	0.0
Other	A$m	0.1	0.3	(0.5)	0.0	0.0	0.0
Investing cash flow	**A$m**	(0.3)	(1.7)	(12.4)	(2.8)	(781.6)	(5.4)
Free Cash Flow	**A$m**	(12.6)	(17.5)	(39.0)	(31.2)	(807.0)	(34.2)
FINANCING CASHFLOW							
Share issues/(buy-backs)	A$m	10.7	65.0	0.0	72.1	351.8	0.0
Debt proceeds/ (repayments)	A$m	0.0	0.0	0.0	0.2	(20.6)	(32.2)
Dividends	A$m	0.0	0.0	0.0	0.0	0.0	0.0
Other	A$m	(0.7)	(0.1)	(0.5)	(3.7)	499.4	0.0
Financing cash flow	**A$m**	10.0	65.0	(0.5)	68.6	830.7	(32.2)
Change in cash	A$m	(2.6)	47.4	(39.5)	37.4	23.7	(66.4)

BALANCE SHEET

Year Ending June	Unit	FY20A	FY21A	FY22A	FY23E	FY24E	FY25E
ASSETS							
Cash & short term investments	A$m	5.1	52.5	13.0	50.4	74.1	7.7
Accounts receivable	A$m	0.3	2.7	1.5	0.0	0.0	11.4
Property, plant & equipment	A$m	3.0	4.8	16.9	18.1	798.9	796.6
Mine development expenditure	A$m	0.0	0.0	0.0	0.0	0.0	0.0
Exploration & evaluation	A$m	0.3	0.3	0.4	0.4	0.4	0.4
Other	A$m	0.1	0.7	1.3	1.3	1.3	6.2
Total assets	**A$m**	8.8	61.0	33.2	70.2	874.7	822.2
LIABILITIES							
Accounts payable	A$m	1.0	5.0	4.0	5.4	5.6	5.6
Income tax payable	A$m	0.0	0.0	0.0	0.0	0.0	0.0
Borrowings	A$m	0.0	0.0	0.0	0.0	510.0	510.0
Other	A$m	0.6	0.9	2.5	2.9	2.9	2.9
Total liabilities	**A$m**	1.6	5.9	6.5	8.4	518.5	518.6
Net Assets	A$m	7	55	27	62	356	304
SHAREHOLDER'S EQUITY							
Share capital	A$m	64.6	130.2	133.5	202.5	543.8	543.8
Reserves	A$m	9.0	11.1	16.1	19.3	19.3	19.3
Retained earnings	A$m	(66.3)	(86.2)	(123.0)	(159.9)	(206.9)	(259.4)
Total equity	**A$m**	7	55	27	62	356	304
Weighted average shares	m	244	300	305	343	603	603

FINANCIAL RATIOS

Year Ending June	Unit	FY20A	FY21A	FY22A	FY23E	FY24E	FY25E
VALUATION							
NPAT	A$m	(13)	(20)	(37)	(37)	(47)	(52)
Reported EPS	Ac/sh	(5.5)	(6.6)	(12.1)	(10.8)	(7.8)	(8.7)
Adjusted EPS	Ac/sh	(5.5)	(6.6)	(12.1)	(10.8)	(7.8)	(8.7)
EPS growth	%	-7%	21%	82%	-11%	-28%	12%
PER	x	0.0 x	0.0 x	0.0 x	0.0 x	0.0 x	0.0 x
DPS	Ac/sh	-	-	-	-	-	-
Franking	%	0%	0%	0%	0%	0%	0%
Yield	%	0%	0%	0%	0%	0%	0%
FCF/share	Ac/sh	(0)	(0)	(0)	(0)	(1)	(0)
P/FCFPS	x	-15.3 x	-20.2 x	-8.7 x	-18.2 x	-2.3 x	-82.9 x
EV/EBITDA	x	-36.9 x	-21.7 x	-12.7 x	-13.2 x	-35.3 x	-77.1 x
EBITDA margin	%	0%	0%	0%	0%	0%	-55%
EBIT margin	%	0%	0%	0%	0%	0%	-88%
Return on assets	%	-111%	-41%	-94%	-64%	-5%	-6%
Return on equity	%	-137%	-45%	-110%	-74%	-13%	-17%
LIQUIDITY & LEVERAGE							
Net debt (cash)	$m	(5)	(52)	(13)	(50)	436	502
ND / E	%	-70%	-95%	-49%	-82%	122%	165%
ND / (ND + E)	%	-234%	-2019%	-95%	-442%	55%	62%
EBITDA / Interest	x	0.0 x	0.0 x	0.0 x	0.0 x	-1.0 x	-0.4 x

ORE RESERVES AND MINERAL RESOURCES

Vittangi Graphite Project (100%)	Mt	TGC %	Mt
Mineral Resources			
Measured	0.0	0.0%	-
Indicated	27.8	23.8%	6.6
Inferred	9.0	21.2%	1.9
Total	**36.9**	**23.1%**	**8.5**
Ore Reserves			
Proven	0	0.0%	-
Probable	2.26	24.1%	0.54
Total	**2.26**	**24.1%**	**0.54**

DCF VALUATION

Ordinary shares (m)	361
Options in the money (m)	5
Diluted m	**366**

	Current		+ 12 months		+ 24 months	
Sum-of-the-parts valuation	**$m**	**$/sh**	**$m**	**$/sh**	**$m**	**$/sh**
Nunasvaara South (Stage 1) - NPV 10%, 90% risked	341	0.95	375	1.04	1,107	3.07
Niska (Stage 2) - NPV 10%, 50% risked	878	2.43	966	2.68	1,062	2.95
Corporate overheads	(90)	(0.25)	(90)	(0.25)	(90)	(0.25)
Subtotal	1,179	3.27	1,251	3.47	2,079	5.76
Net cash (debt)	40	0.11	(436)	(1.21)	(502)	(1.39)
Total (undiluted)	**1,219**	**3.38**	**815**	**2.26**	**1,577**	**4.37**
Add Options in the money (m)	5		5		5	
Add cash	6	0.02	6	0.02	6	0.02
Total (diluted)	**1,225**	**3.35**	**821**	**2.24**	**1,582**	**4.33**
Assumed raise - ($1.35 x 261m shares)	342		342		342	
Total diluted + funded	**1,566**	**2.50**	**1,162**	**1.85**	**1,924**	**3.07**

CAPITAL STRUCTURE

	Unit	
Shares on issue	m	361
Escrow shares / other	m	-
Total shares on issue	**m**	**361**
Share price	**A$/sh**	**1.30**
Market capitalisation	A$m	469
Net cash	A$m	40
Enterprise value (undiluted)	**A$m**	**429**
Options outstanding (m)	m	5
Options in the money (m)	m	5
Issued shares (diluted for options)	m	366
Market capitalisation (diluted)	m	462
Net cash + options	A$m	6
Enterprise value (diluted)	**A$m**	**422**

MAJOR SHAREHOLDERS

Shareholder	%	m
Mark Thompson	4%	14.4
Yandal Investments Pty Ltd	1%	5.0
Anthony Holman	1%	3.6
Insignia Financial Ltd	1%	2.6
	7%	**25.6**

SOURCE: BELL POTTER SECURITIES ESTIMATES

Recommendation structure

Buy: Expect >15% total return on a 12 month view. For stocks regarded as 'Speculative' a return of >30% is expected.

Hold: Expect total return between -5% and 15% on a 12 month view

Sell: Expect <-5% total return on a 12 month view

Speculative Investments are either start-up enterprises with nil or only prospective operations or recently commenced operations with only forecast cash flows, or companies that have commenced operations or have been in operation for some time but have only forecast cash flows and/or a stressed balance sheet.

Such investments may carry an exceptionally high level of capital risk and volatility of returns.

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