TALGA RESOURCES

Research Note

MOVING CLOSER TO COMMERCIALISATION

Investment Highlights

- **Talga Resources (TLG) has ownership of five graphite projects in Sweden, and represents a unique play on the anticipated commercialisation of large scale graphene and ultra-thin graphite applications. In addition to the ongoing product evaluation, feedback, and product optimisation being performed by a range of companies around the globe, the Company continues to test the scalability of its liberation process at its pilot test work facility in Germany, with the Phase 2 expansion recently completed. We consider TLG as well placed to provide a low-cost bulk graphene and ultra-thin graphite supply into existing and new growth markets. We maintain a Speculative Buy recommendation.**

- **Vittangi mining and exploration update** – TLG is in the process of completing its second trial mining campaign at Nunasvarra (part of the Vittangi project area). The current trial mining campaign is aimed at extracting approximately 2,500 tonnes of material (as blocks of ore), in order to feed the enlarged processing capacity at the Company's pilot plant test work facility in Germany. The Nunasvaara deposit currently holds a JORC 2012 Indicated and Inferred Mineral Resource of 9.8Mt grading 25.3% TGC) The Company has also commenced infill resource drilling at Northern Nunasvaara, which currently contributes an Inferred Mineral Resource of 1.5Mt grading 31.0% TGC, to the Total Nunasvaara Resource. The 10 hole diamond drill program, for 1,000m, is aimed to infill this high grade resource.

- **Pilot test plant update** – Having commenced commissioning of its Phase 2 processing equipment at its pilot processing facility in Rudolstadt, Germany on 6 April 2016, the Company announced on 27 September 2016, that all stages of the Phase 2 expansion at the pilot test plant had been successfully commissioned. Importantly, the plant is currently achieving a 76% recovery of graphitic carbon to graphene products (Few Layer Graphene (FLG) and Graphene Nanoplatelets (GNP)).

- **Product Development and Marketing update** - TLG has been actively advancing its product development and marketing initiatives. The Company's current commercialisation strategy, involves the focus on four products to cater for each of the four target sectors. The four products are: a metal pre-treatment coating, an electrically conductive ink, a conductive cement product, and a high performance membrane for energy storage/harvesting. This product strategy is in addition to the supply of raw graphene and graphite materials, and offers the potential to provide early commercialisation opportunities during the current pilot processing stage. Significant advancements have been made in a number of these projects since the early commercialisation strategy was announced in July 2016.

- **Catalysts** – The clear short-term catalyst for TLG is the successful demonstration of large scale, low cost graphene and graphite production at its pilot test work facility through the various phases, combined with the relationships developed with end-users developing near term commercial scale applications of graphene and ultra-thin nanographite and micrographite. A further catalyst is expected to be the transition to a revenue model, coupled with the successful conclusion of pricing point/s for the graphene products produced. Longer term, the decision to proceed with a full scale plant development is expected to be a key milestone. An additional short-term catalyst would be the outcomes of the Prefeasibility Study.

3 October 2016

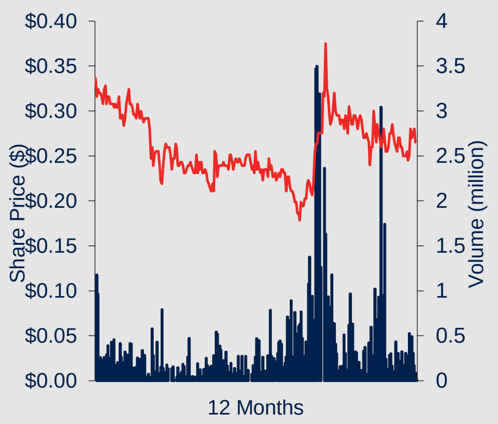
12mth Rating		Speculative Buy
Price	A$	0.265
RIC: **TLG.AX**		BBG: **TLG AU**
Shares o/s	m	181.9
Free Float	%	89.8
Market Cap.	A$m	48.2
Net Debt (Cash)	A$m	(11.8)
3m Av. D. T'over	A$m	0.13
52wk High/Low	A$	0.395/0.162

Analyst: Jason Chesters, CFA
Phone: 08 9263 1144
Email: jchesters@psl.com.au

Disclosure: The Chairman of Talga Resources, Keith Coughlan, is also an employee of Patersons Securities Ltd. Mr Coughlan has had no input into this report.

An investment in this company should be considered speculative and note assumptions employed are contingent on broader market conditions being supportive. These can change at short notice. Recommendations are current at the time of publication.

12 Month Share Price Performance



EXECUTIVE SUMMARY

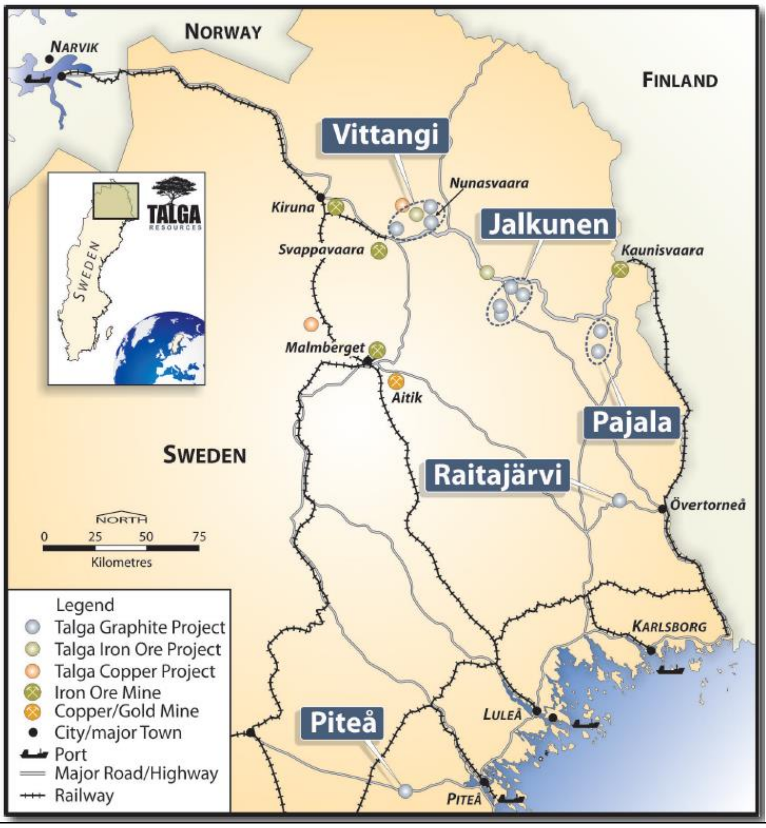
TLG is a graphite and graphene focussed company, with five wholly-owned graphite mineral projects located in Sweden (Figure 1). Two of the projects (Vittangi and Jalkunen) have particular attributes, being high grade (according to TLG, Vittangi is the world's highest grade JORC or Canadian equivalent graphite resource at 25.3%), with high rock competence and highly conductive particle morphology. This allows for the unique outcome of liberating graphitic carbon products (graphene and ultra-thin graphite) directly from the graphite ore using a one-step electrochemical exfoliation processing route (no crushing or grinding required).

TLG is in the process of completing its second trial mining campaign at Vittangi, and is also conducting infill resource drilling at Northern Nunasvaara (Vittangi). In addition, it has recently completed Phase 2 commissioning and processing at its pilot test work facility in Germany. Importantly, the plant is currently achieving a 76% recovery of graphitic carbon to graphene products (Few Layer Graphene (FLG) and Graphene Nanoplatelets (GNP)). The Company has a JORC (2012) Total Mineral Resource (Indicated and Inferred) at Vittangi to 9.8Mt grading 25.3% TGC for 2.4Mt of contained graphite (using a 10% TGC low cut-off). In addition, TLG has JORC Mineral Resources at two other graphite projects in Sweden, Jalkunen and Raitajarvi. Jalkunen has a Total Inferred Mineral Resource of 31.5Mt grading 14.9% TGC, for 4.69Mt of contained graphite, while Raitajarvi has a Total Indicated and Inferred Mineral Resource of 4.3Mt grading 7.1% TGC, for 305kt of contained graphite.

The Company's product development and marketing strategy is to provide early commercial sample volumes of graphitic products in order to develop strong customer relationships and bridge the gap in availability of supply as Research and Development (R&D) is conducted into new commercial applications. The Company has a focus on four key markets for its graphene products: Coatings, Energy, Construction, and Composites. TLG's current commercialisation strategy, involves the focus on four products to cater for each of the four target sectors. The four products are: a metal pre-treatment coating, an electrically conductive ink, a conductive cement product, and a high performance membrane for energy storage/harvesting. This product strategy is in addition to the supply of raw graphene and graphite materials, and offers the potential to provide early commercialisation opportunities during the current pilot processing stage.

We consider TLG as well placed to provide a low-cost bulk graphene and ultra-thin graphite supply into existing and new growth markets. We maintain a Speculative Buy recommendation.

Figure 1: Location of graphite projects in Sweden



Source: Talga Resources

COMPANY UPDATE

Operations

TLG is in the process of completing its second trial mining campaign at Vittangi. The current trial mining campaign is aimed at extracting approximately 2,500 tonnes of material (as blocks of ore), in order to feed the enlarged processing capacity at the Company's pilot plant test work facility in Germany. The trial mining permit forms part of a larger permit issued by the Swedish Environmental Review Commission over a part of TLG's exploration license area. The permit allows for the extraction of a total of 5,000 tonnes of graphite ore for pilot test processing, and expires on 30 September 2018. Figure 2 and 3 illustrate current trial mining activities on site. TLG has made a number of modifications to its trial mining process since the 2015 campaign, notably, tailor-made automated block cutting equipment is being used, and the extracted blocks will be stored in Sweden, ready for transport to the pilot plant in Germany when required.

Figure 2: Expanding trial mine benches

Source: Talga Resources

Figure 3: Preparation of first graphite ore block extraction level

Source: Talga Resources

The Company has also commenced infill resource drilling at Vittangi. The 10 hole diamond drill program, for 1,000m, is aimed to infill the high grade Northern Nunasvaara JORC Inferred Mineral Resource of 1.5Mt grading 31.0% TGC (which forms part of the total Nunasvaara JORC Resource of 9.8Mt grading 25.3% TGC).

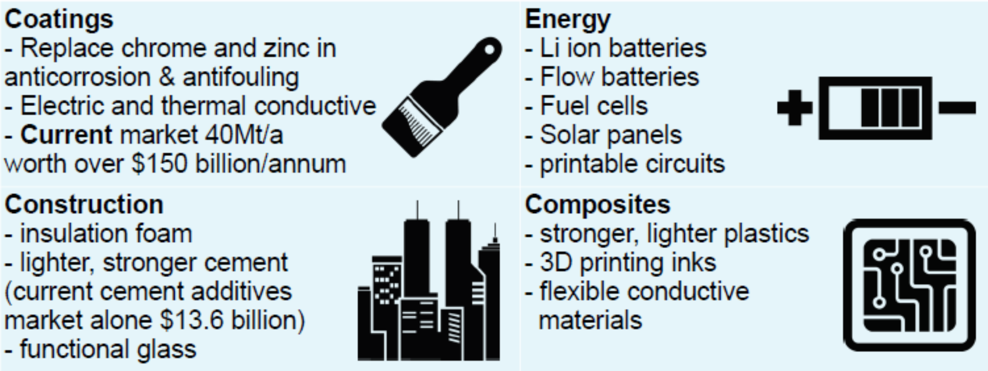
TLG commenced commissioning (6 April 2016) of its Phase 2 processing equipment at its pilot processing facility in Rudolstadt, Germany. The new production cells have the capacity to accept 50kg blocks of ore, a significant increase on the 10kg capacity in Phase 1. On 27 September 2016, TLG announced that all stages of the Phase 2 expansion at the pilot test plant had been successfully commissioned. Importantly, the plant is currently achieving a 76% recovery of graphitic carbon to graphene products (FLG and GNP). The balance of the graphite is being recovered as micrographite (potentially for use in the construction sector). A recovery of 76% as graphene products represents a substantial increase on the level expected in the Scoping Study, and comes as a result of significant advances made in the recovery process.

The increased capacity allows the Company to consistently produce graphene and micrographite products. This enables the production of larger and/or multiple samples for different applications and end user requirements, while at the same time, completing its primary goal to further optimise the scalability of the process technology.

Product Development and Marketing

TLG has been actively advancing its product development and marketing initiatives, in tandem with its pilot plant expansion and optimisation. The Company had previously indicated its focus on four key markets for its graphene products: Coatings, Energy, Construction, and Composites (Figure 4). On 19 July 2016, TLG announced an updated commercialisation strategy, which involved the focus on four products to cater for each of the four target sectors. The four products are: a metal pre-treatment coating, an electrically conductive ink, a conductive cement product, and a high performance membrane for energy storage/harvesting. This product strategy is in addition to the supply of raw graphene and graphite materials, and offers the potential to provide early commercialisation opportunities during the current pilot processing stage.

Figure 4: Talga's graphene target markets

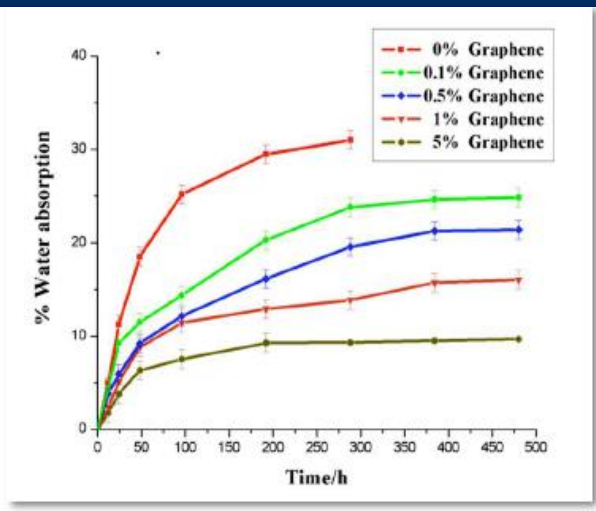


Source: Talga Resources

On 16 August 2016, TLG announced it had produced and delivered its first value-added graphene product. The Company has filed a patent over the composition and production method of a metal pre-treatment coating, and has delivered it to an unnamed, leading global coating company for performance trials. In addition, further testing and peer review on the coating product is being undertaken at research institutions in India and the UK.

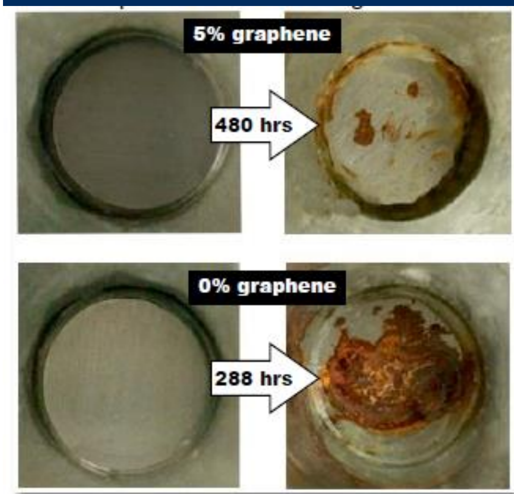
On 22 September 2016, TLG announced the outcome of one of these peer reviews. The study "Functionalised Graphene as a Barrier Against Corrosion" was published in a scientific journal 'FlatChem'. The study used TLG's graphene nanoplatelets to produce a base coating used to test corrosion resistance on certain steel products. The study indicated that the addition of TLG's graphene to the coating produced significant improvements to the corrosion resistance of the final product. These improvements were noted even with low concentrations of graphene added. Figure 5 indicates the potential reduction in water absorption over time as increased proportions of graphene are added to the coating. The addition of 5% graphene showed the potential to decrease water absorption by 74%. In addition, the study tested the impact on the steel product to salt exposure, with similarly impressive results (Figure 6 indicates the visual improvement in anti-corrosion performance).

Figure 5: Water absorption tests



Source: Talga Resources

Figure 6: Salt immersion tests



Source: Talga Resources

The Company's initiatives in the Energy sector have previously been reported (Patersons TLG Company Update 31 May 2016). In February 2016, TLG announced the results of independent test work performed on its Vittangi graphite ore, in processing it into refined natural graphite, for use in producing the anode used in lithium-ion batteries. The findings indicate that commercial grade energy capacity in Li-ion battery anodes can be delivered, without the need for milling, purification, spheronisation, or coating. The Company reports that this demonstrates the advantage of Vittangi graphite ore, in making multiple high value products (alongside graphene) as part of its advanced technology materials strategy.

In May 2016, TLG announced that a new program has commenced at the University of Warwick Energy Innovation Centre, in the UK. This program differs from previous and concurrent German testing, in that the work is at industrial rather than laboratory scale. This program has thus far used TLG's material to produce Li-ion coin cell batteries. Performance testing will commence shortly to test the batteries over up to 1,000 charge-discharge cycles.

In addition to the above, TLG has entered into an agreement to supply graphite samples to a US based lithium-ion battery developer, to test the performance of the product in its emerging lithium-ion battery technology. Testing is currently being conducted.

The latest initiative announced (13 September 2016) in this product segment, was the signing of a Collaboration Agreement with JenaBatteries GmbH, to jointly explore the use of TLG's graphene products in flow batteries. TLG will formulate and supply a graphene product for testing in components in JenaBatteries' polymer flow battery (a type of redox flow battery).

CORPORATE

TLG currently has 181.9m ordinary shares on issue. In addition, the Company has 44.9m quoted options (exercisable at A$0.45/share, expiry 31 December 2018), and 36.2m unlisted options (various expiry dates and strike prices).

As at 30 June 2016, TLG had A$11.76m in cash and has listed investments (subject to a statutory hold period expiring 16 January 2017) in TSX-listed Novo Resources Corp (received as part of the payment from the sale of its Pilbara Gold Projects), valued at approximately A$1.3m. The Company expected that cash outflows for the September 2016 Quarter would amount to A$2.74m. The Company has no debt.

CATALYSTS

The clear short-term catalyst for TLG is the successful demonstration of large scale, low cost graphene and graphite production at its pilot test work facility through the various phases, combined with the relationships developed with end-users developing near term commercial scale applications of graphene and ultra-thin nanographite and micrographite. An additional short-term catalyst would be the outcomes of the Prefeasibility Study.

While the Company is currently providing samples free of charge, a further catalyst will be the transition to a revenue model, coupled with the successful conclusion of pricing point/s for the graphene products produced. Longer term, the decision to proceed with a full scale plant development is expected to be a key milestone, as we expect this will be timed with a ramp-up in demand from identified end-users requiring bulk volumes of product for commercial applications.

BOARD OF DIRECTORS

Keith Coughlan – Non-Executive Chairman

Mr Coughlan has almost 30 years of experience in stockbroking and funds management where he has been largely involved in the funding and promoting of resource companies listed on the ASX, AIM and TSX. He has advised various companies on the identification and acquisition of resource projects and was previously employed by one of Australia's then largest funds management organisations.

Mr Coughlan is a current executive director of ASX listed European Metals Holdings Limited.

Mark Thompson – Managing Director

Mr Thompson has more than 20 years industry experience in mineral exploration and mining management, working extensively on major resource projects throughout Australia, Africa and South America. He is a member of the Australian Institute of Geoscientists and the Society of Economic Geologists, and holds the position of Guest Professor in Mineral Exploration Technology at both the Chengdu University of Technology and the Southwest University of Science and Technology in China.

Mr Thompson founded and served on the Board of ASX listed Catalyst Metals Ltd and is a Non-Executive Director of Phosphate Australia Ltd.

Grant Mooney – Non-Executive Director

Mr Mooney has a wealth of experience in resources and technology markets that should assist the Company as it proceeds with the Company's dual graphene/graphite project development at its world-class deposits in Sweden. Mr Mooney serves as Director to several ASX listed companies, and is a member of the Institute of Chartered Accountants in Australia.

Stephen Lowe – Non-Executive Director

Mr Lowe is an experienced public company director. He was actively involved in managing the recapitalisation and re-listing of the former Croesus Mining NL shell into Sirius Resources NL and then served for four years as Non-Executive Chairman and Non-Executive Director through the discovery, and partially through the development phase, of the Nova/Bollinger nickel-copper deposits. He also serves as a Non-Executive Director (ex-Chairman) of ASX listed base metal explorer Windward Resources Limited and iron ore exploration and project developer, Corizon Resources Limited. He has spent the last eight years as Business Manager to the Creasy Group.

Mt Lowe holds a Bachelor of Business (Accounting), a Post Graduate Diploma in Advanced Taxation, and a Masters of Taxation from the UNSW. He is a Fellow of the Taxation Institute of Australia and a Member of the Australian Institute of Company Directors.

INVESTMENT RISKS

TLG is subject to a number of investment risks. The key investment risks include, but are not limited to, the following:

Fledgling Graphene Market - The market for graphene products is in its infancy and commercial scale applications requiring bulk volumes of product may not eventuate in a reasonable investment timeframe.

Commodity price risk - The market for graphite exhibits price volatility as with every other commodity and therefore holds commodity price risk. The market price for graphene is potentially inflated at current levels and would likely decline to a level that better reflects the economic reality of bulk commercial applications. This level may be dramatically lower than currently estimated.

Geological risk - The actual production characteristics of an ore body may be significantly different from initial interpretations and expectations, particularly in TLG's case given the unique processing route intended.

Capital Expenditure and operating risk - The risk that the capital and operating costs exceed budget and/or exhaust the available funding due to unforeseen circumstances before project completion, and reduce the profitability and free cash generation of the project.

Exchange rate risk - TLG's product sales are likely to be in US$, its costs may be in multiple currencies and it currently reports in A$, leading to exchange rate risk.

Liquidity risk - The ability of TLG to pay its creditors from its cash balances or cash generation when the payment is due. Given that TLG had A$11.8m in cash as at 30 June 2016, we see this as a low probability risk in the near-term.

1300 582 256
patersons@psl.com.au
www.psl.com.au

Research

Rob Brierley - Head of Research	Phone:	(+61 8) 9263 1611	Email:	rbrierley@psl.com.au
Hira Sakrani - Research Assistant	Phone:	(+61 3) 9242 4052	Email:	hsakrani@psl.com.au
Brad Seward - Associate Analyst	Phone:	(+61 8) 9225 2835	Email:	bseward@psl.com.au
Strategy & Economics				
Tony Farnham - Economist	Phone:	(+61 2) 9258 8973	Email:	tfarnham@psl.com.au
Andrew Quin - Research Strategy Coordinator	Phone:	(+61 8) 9263 1152	Email:	aquin@psl.com.au
Kien Trinh - Senior Quantitative Analyst	Phone:	(+61 3) 9242 4027	Email:	ktrinh@psl.com.au
Commodities				
Jason Chesters - Analyst	Phone:	(+61 8) 9263 1144	Email:	jchesters@psl.com.au
Simon Tonkin - Senior Analyst	Phone:	(+61 8) 9225 2816	Email:	stonkin@psl.com.au
Industrials				
Martyn Jacobs - Analyst	Phone:	(+61 3) 9242 4172	Email:	mjacobs@psl.com.au
Jon Scholtz - Analyst	Phone:	(+61 8) 9225 2836	Email:	jscholtz@psl.com.au

Institutional Dealing

Dan Bahen	Phone:	(+61 8) 9263 1274	Email:	dbahen@psl.com.au
Michael Brindal	Phone:	(+61 8) 9263 1186	Email:	mbrindal@psl.com.au
Artie Damaa	Phone:	(+61 2) 8238 6215	Email:	adamaa@psl.com.au
Paul Doherty	Phone:	(+61 3) 8803 0108	Email:	pdoherty@psl.com.au
Chris Kelly	Phone:	(+61 3) 9242 4078	Email:	ckelly@psl.com.au
Stuart Murray	Phone:	(+61 2) 8238 6210	Email:	smurray@psl.com.au
Jeremy Nugara	Phone:	(+61 3) 8803 0166	Email:	jnugara@psl.com.au
George Ogilvie	Phone:	(+61 8) 9263 1627	Email:	gogilvie@psl.com.au
Phil Schofield	Phone:	(+61 2) 8238 6223	Email:	pschofield@psl.com.au
Josh Welch	Phone:	(+61 8) 9263 1668	Email:	jwelch@psl.com.au
Sandy Wylie	Phone:	(+61 8) 9263 1232	Email:	swylie@psl.com.au