

Talga Presentation at IDTechEx Graphene and 2D Materials Conference, Santa Clara, USA

Advanced materials company, Talga Resources Ltd (ASX: TLG or Talga), is pleased to provide a copy of the presentation to be delivered today, 18th November, by Managing Director Mark Thompson at the IDTechEx Graphene and 2D Materials Conference in Santa Clara, USA.

The presentation is available on the Company's website via the link below:

http://www.talgaresources.com/irm/content/presentations.aspx?RID=301

Presentation details are as follows:

Date: Wednesday 18th November 2015

Time: 3.20pm (Pacific Time)

Booth: N21

Venue: Santa Clara Convention Centre, 5001 Great American Parkway, Santa Clara,

CA 95054, USA

For further information, visit <u>www.talgaresources.com</u> or contact:

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About Talga

Talga Resources Ltd ("Talga") (ASX: TLG) is an advanced materials company with a simple and cost effective process to liberate graphene and graphite directly from its 100% owned natural graphite ore deposits in Sweden. Talga's unique deposits and proprietary processes provide a nominal cost path to high quality graphite and graphene production that overcome cost and volume barriers to supply, thereby unlocking additive applications.

Trial mining is complete for 2015 and commercial quantities of graphene platelets and ultrafine graphite will be provided to industry from Talga's German pilot test-work facility. End applications may include the production of intermediates such as inks, polymers, master-batches and dispersions based on Talga graphene and ultrafine graphites.

Talga's legacy non graphite assets in Sweden and Australia, including a cobalt-rich IOCG, are all to be commercialised to provide funds for the core graphite projects.



Introducing a revolution in Graphene production



Removing the Volume and Cost Barriers to Economic Graphene Commercialisation



Technology, Opportunities, Applications
November 18-19, 2015 | Santa Clara, CA, USA

Mark Thompson, Managing Director



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Executive Summary



- ▶ Talga Resources Ltd ("Talga") ASX:TLG is an advanced materials company with a scalable, fast and cost effective process to liberate graphene and ultra thin graphite directly from its large high quality graphite ore deposits.
- Owns five 100% owned high grade graphite mineral projects (including the world's highest grade graphite resource*) as well as non-core cobalt, copper and gold deposits.
- Processing IP to produce graphene and graphite direct from raw graphite ore which provides unique economic advantages compared to global peers.
- By removing cost and volume barriers that have slowed uptake, Talga intends to enable widespread industrial graphene use in material markets worth over \$700Bn.
- Growing team in Australia and Europe as development status advances rapidly (scoping study complete, 2015 trial mining completed, pilot testwork underway, commercial collaborations commencing, 2016-18 trial mining campaigns permitted).



Talga Europe Operations



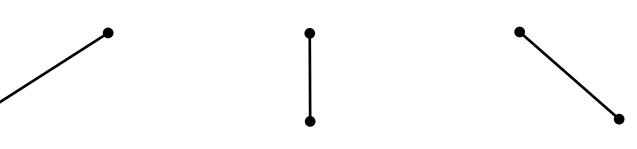






Research, Development and Analytics

- JV Uni of Dresden/Max Planck
- Friedrich-Schiller-University Jena



DB SCHENKER **SCHOTT**

Local Industry/End users

Use research as interface

Product testing/development

talqa

Consultants

- General Research GmbH
- Conduit to research, industry, local finance

Sweden Operations

Talga Mining P/L filial Sweden

- Trial mining and exploration
- Road/rail ore blocks direct to German operations

German **Operations**

Talga Advanced Materials GmbH

Pilot plant facility

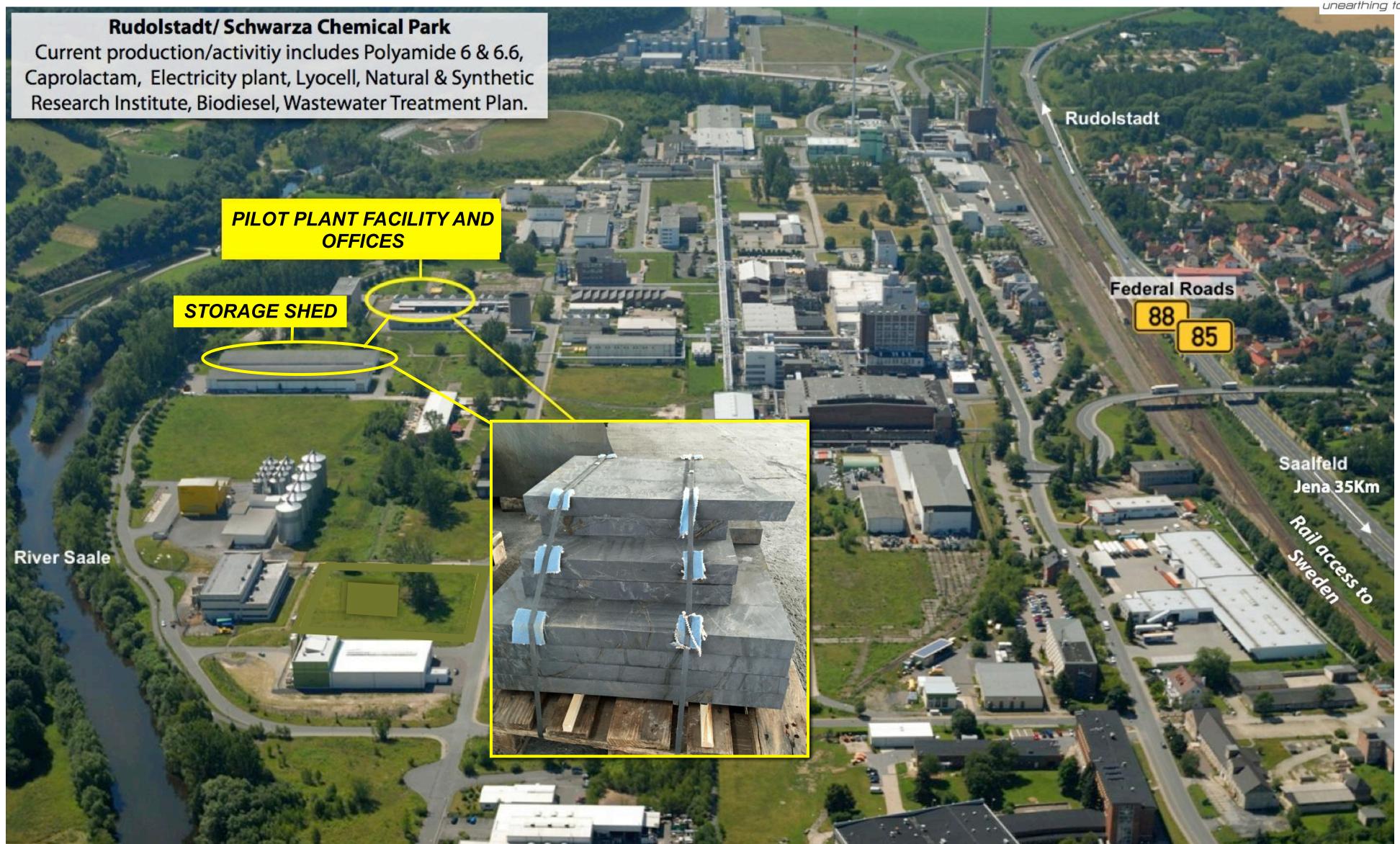
Within a radius of 800km...

- 280m potential customers
- € 8,700 Billion GDP



Pilot Plant Site - Rudolstadt, Germany.





Talga's Graphite Pipeline



100% ownership of **five** graphite projects in **Sweden** containing multiple deposits offering the **full range** of market size specifications. Three JORC resource¹ projects in the development pipeline.



JORC Resource Total 7.6Mt @ 24.4% Cg, Graphene

JORC Resource Total **4.3Mt** @ **7.1% Cg**, 87% coarse flake size and 49% >200µm

JORC Resource Total 31.5Mt @ 14.9% Cg, Graphene and <100µm flake

Drilled flake sizes <75µm to >400µm. Graphene and large flake market.

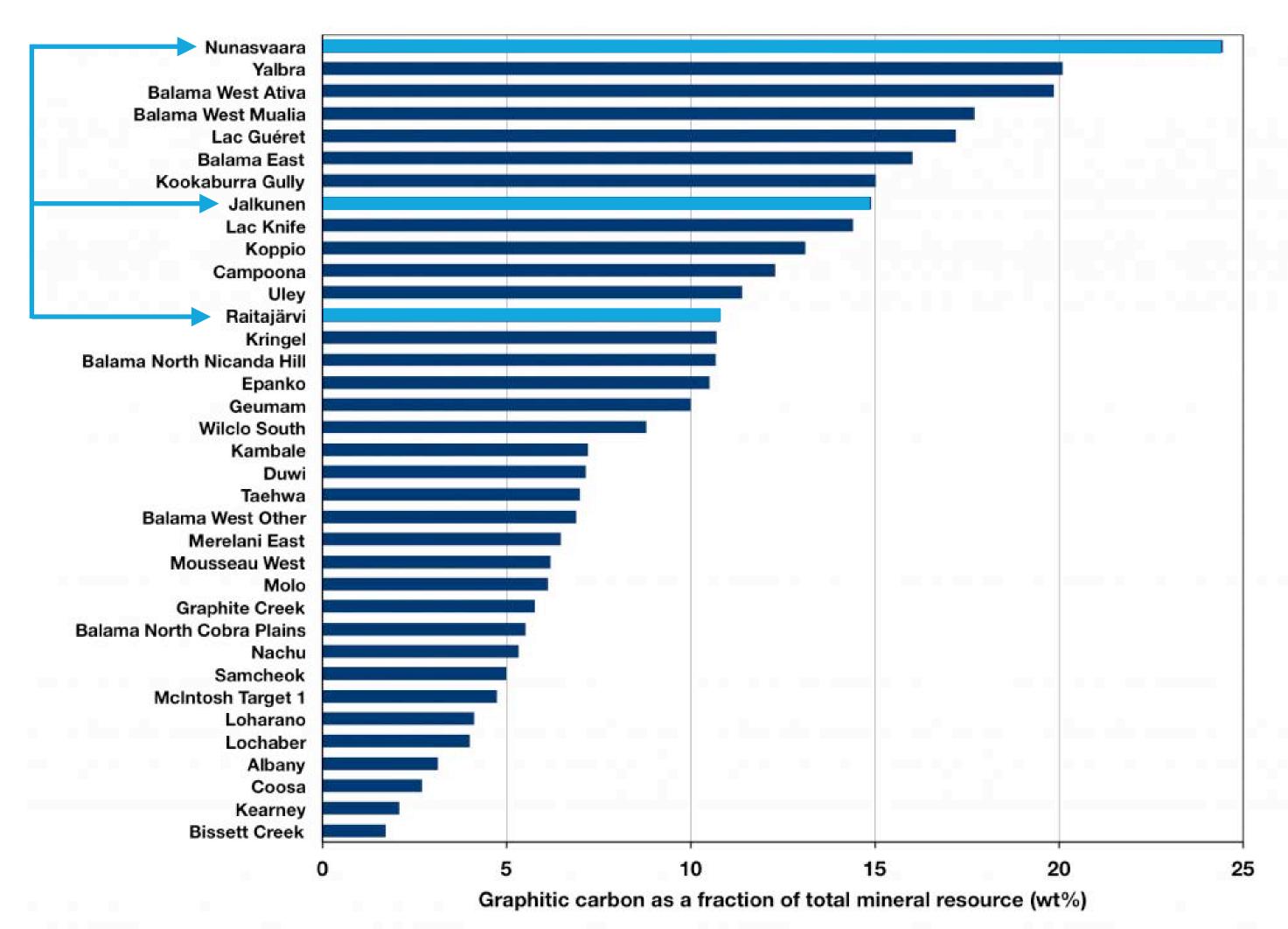
Drilled 80% >300µm large flake, 10-40% >600µm. Large untested conductors.

Peer Comparison: World Graphite Resources



Average Grade of In-situ Graphite





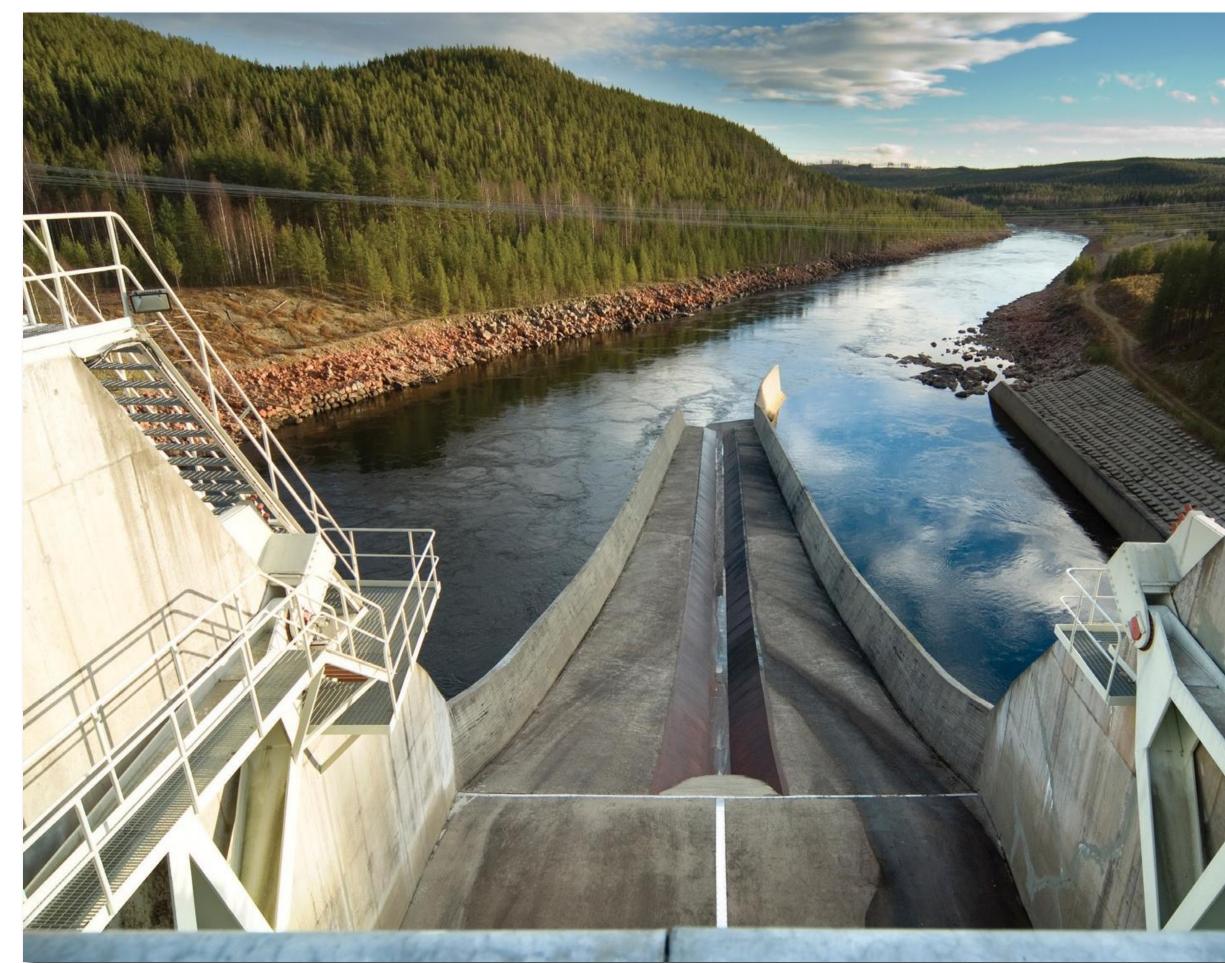


Advantages of Sweden



- Established quality infrastructure
- Low cost power supply with high renewable energy content:
 Hydro 67 TWh
 Wind 12 TWh
 Solar 79 MWh
- Low CO₂ emission person/year:
 Sweden 5.1t
 EU 7.9t
 USA 19.1t
- Low risk investment jurisdiction consistently in top 10 Fraser Institute
- Rail and road connection to EU markets
- Mineral Production tax 0.2% Corporate tax rate 22%



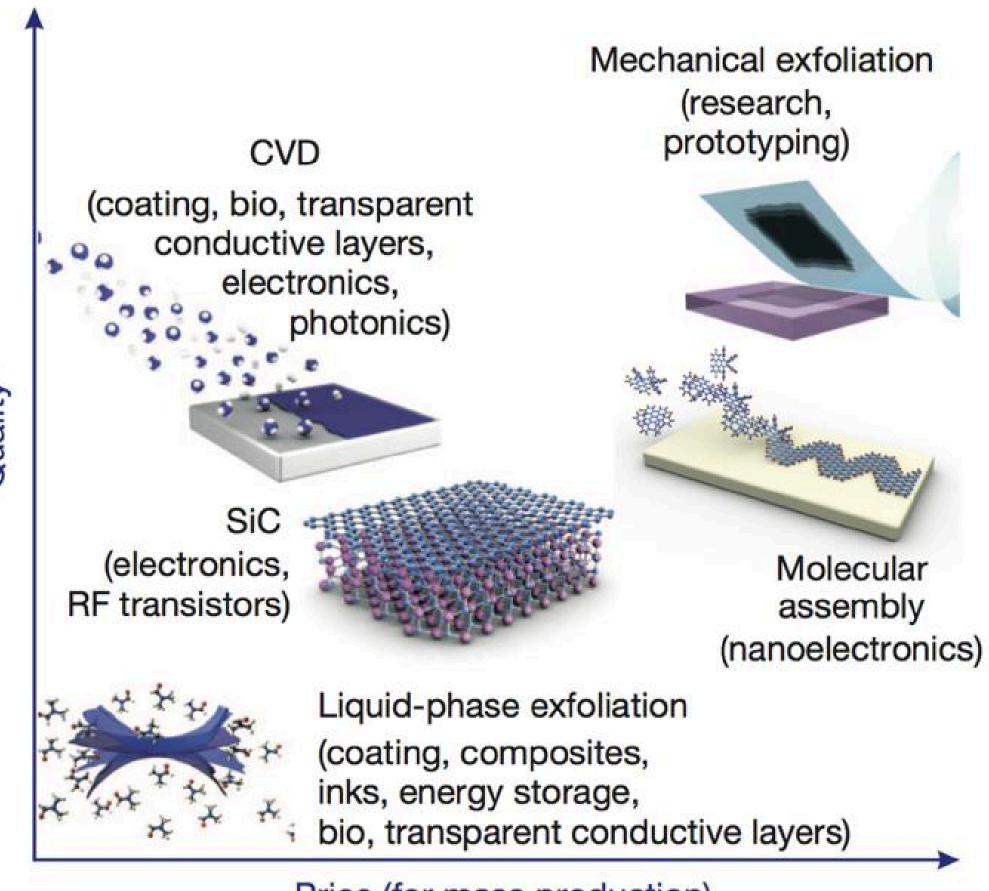


Graphene Production



Different production methods for graphene; price vs quality (not to scale, or including scalability)

- Many graphene production methods exist
- Almost all suffer **low scalability** and **high costs** due to high temperature/pressure/ energy/precursor beneficiation costs ie, gas.
- The advantage in using natural graphite is it is dense with graphene (high yield) and the temperature/pressure inputs were freely completed by the earths crust.
- But most techniques using natural graphite are also limited in **scale**, or produce **small** and chemically **damaged** particles that **limit** applications (and margins).

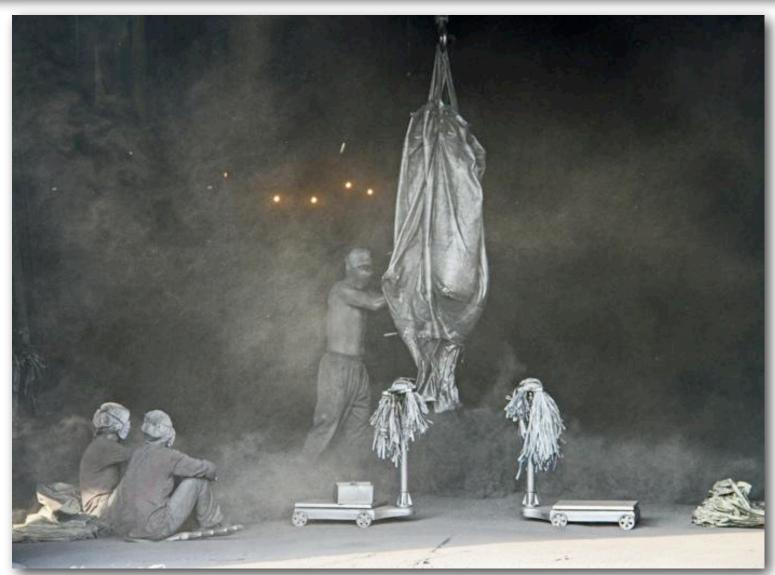


Graphite to Graphene: do you know the cost?



Typical Graphite flake production facilities in northern China





- Usually graphite ores require drill/blast mining, crushing, milling, flotation and purification stages to produce a graphite concentrate.
- This is prior to the start of making graphene.
- Each stage induces an environmental footprint from the energy, dust, chemicals and waste.
- The graphite is then blended from different sources and may contain impurities that differ.
- Cleaner and lower risk supply chains from consistent/homogenous sources are required.
- The **ideal** is a method that does not require so many steps and has a smaller energy, social, environmental and economic cost.

Solution-Talga natural ore advantage







OTHERS

- Talga's patent pending technology produces graphene directly from unprocessed raw graphite ore, skipping intermediate purification steps required by peers.
- Talga can use it's raw (uncrushed/unmilled) ore directly as an electrode in an electrochemical cell.
- The process drives molecules between the layers of graphite to liberate them directly into pristine graphene.
- Benefits are that it is Scalable to industrial requirements, Fast, Efficient, Flexible to produce choice of products for broadest market and ultimately more Economic with a potentially lower environmental footprint.
- Can incorporate in-situ functionalisation and product dispersion.

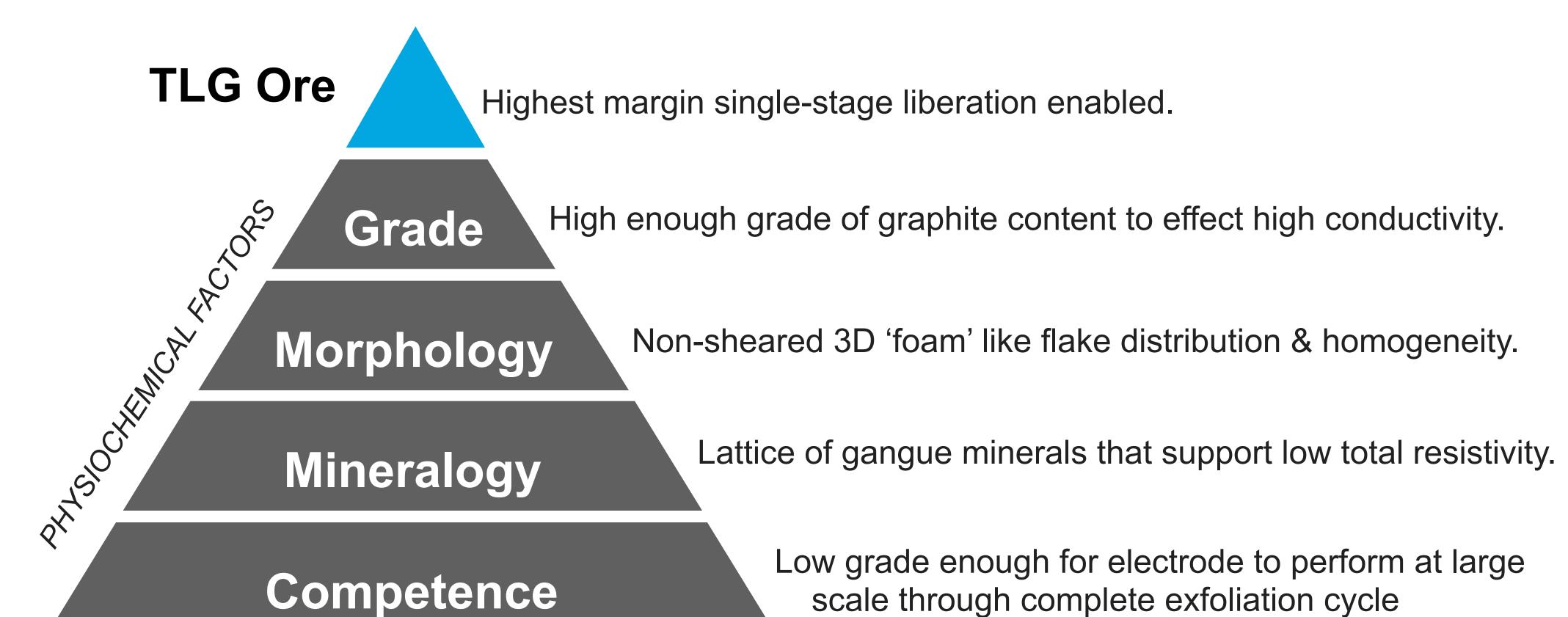
Early lab scale test demonstrating simplicity, scalability and speed of electrochemical exfoliation process on Talga unprocessed graphite ore



How is the Talga Ore Different

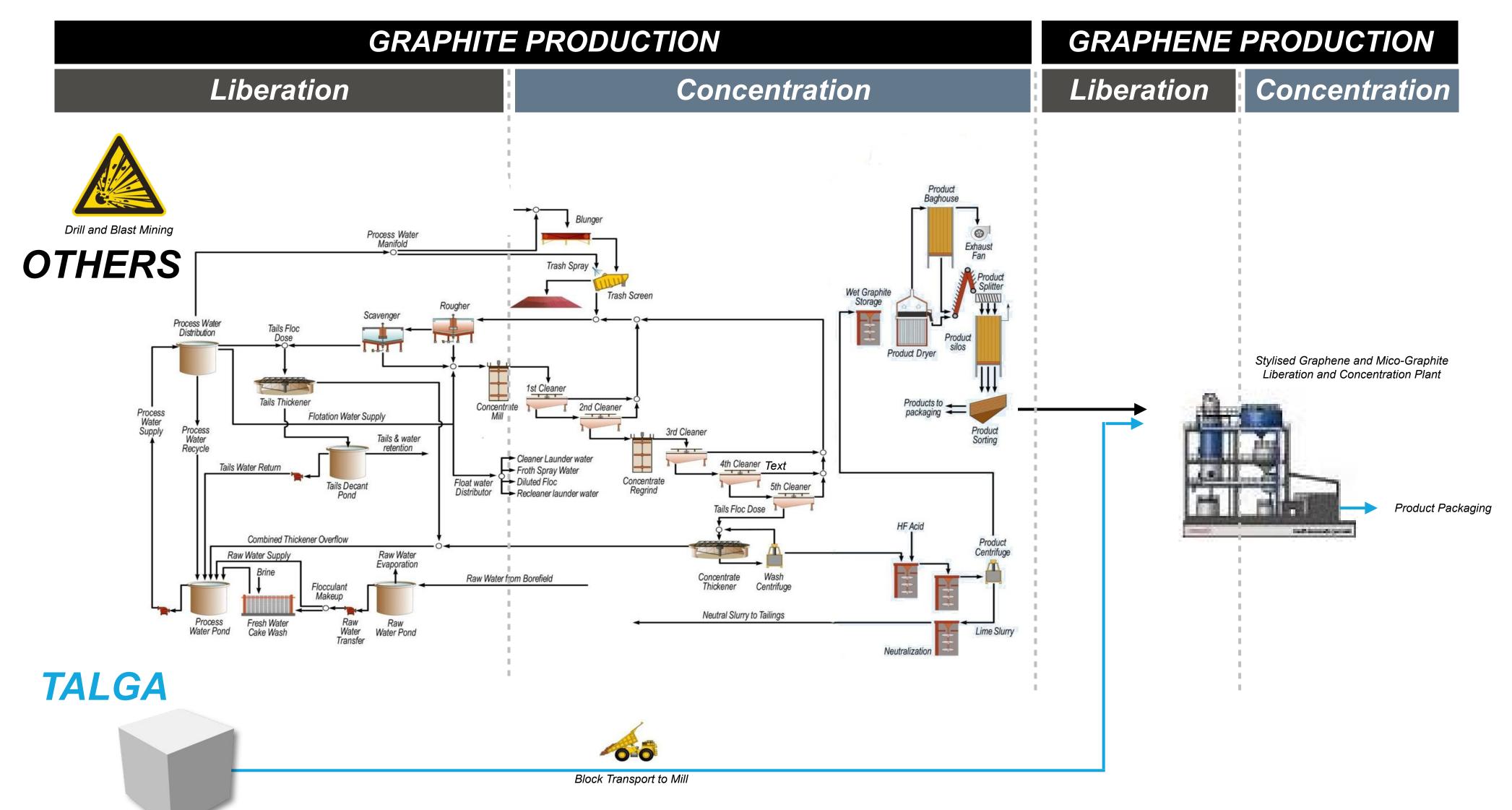


- Graphite is made from layers of graphene so in theory anyone can produce graphene in a laboratory - but at what volume and cost? Talga ore* is differentiator.
- Talga's mining and processing method is designed to use natural multiple physio-chemical factors in the 100% owned orebody to liberate graphene without physical comminution.



Simplifying Production Talga vs Others





Graphene from Talga Ore



- Vittangi raw ore exfoliates directly to micro-sized graphite and graphene without crushing, grinding, milling or micronisation.
- Various studies confirm Talga's low defect graphene.
- Avoids 'Hummers' style oxidation and retains good size range for additive applications.
- Flexible process can be optimised for different layers/purity spec output to suit range of current and future applications.

TLG Graphene Image

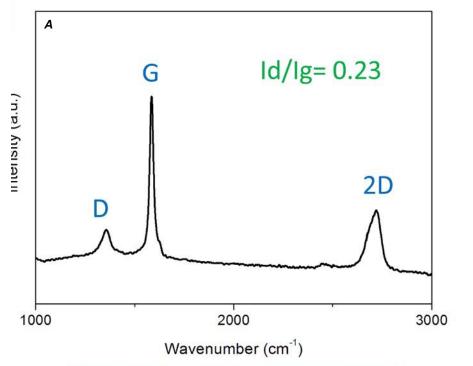
SEM Size Study

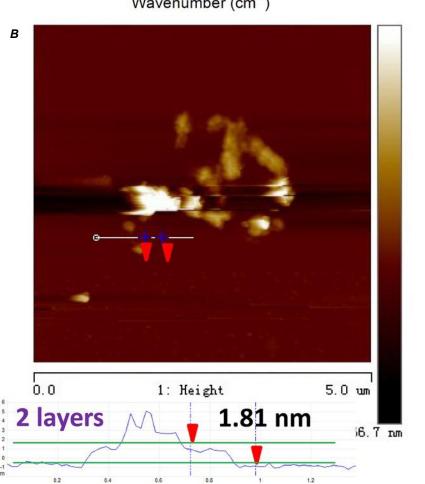
picture 1
picture 2

particle size [µm]

A) Raman Spectra B) Atomic Force Microscope image









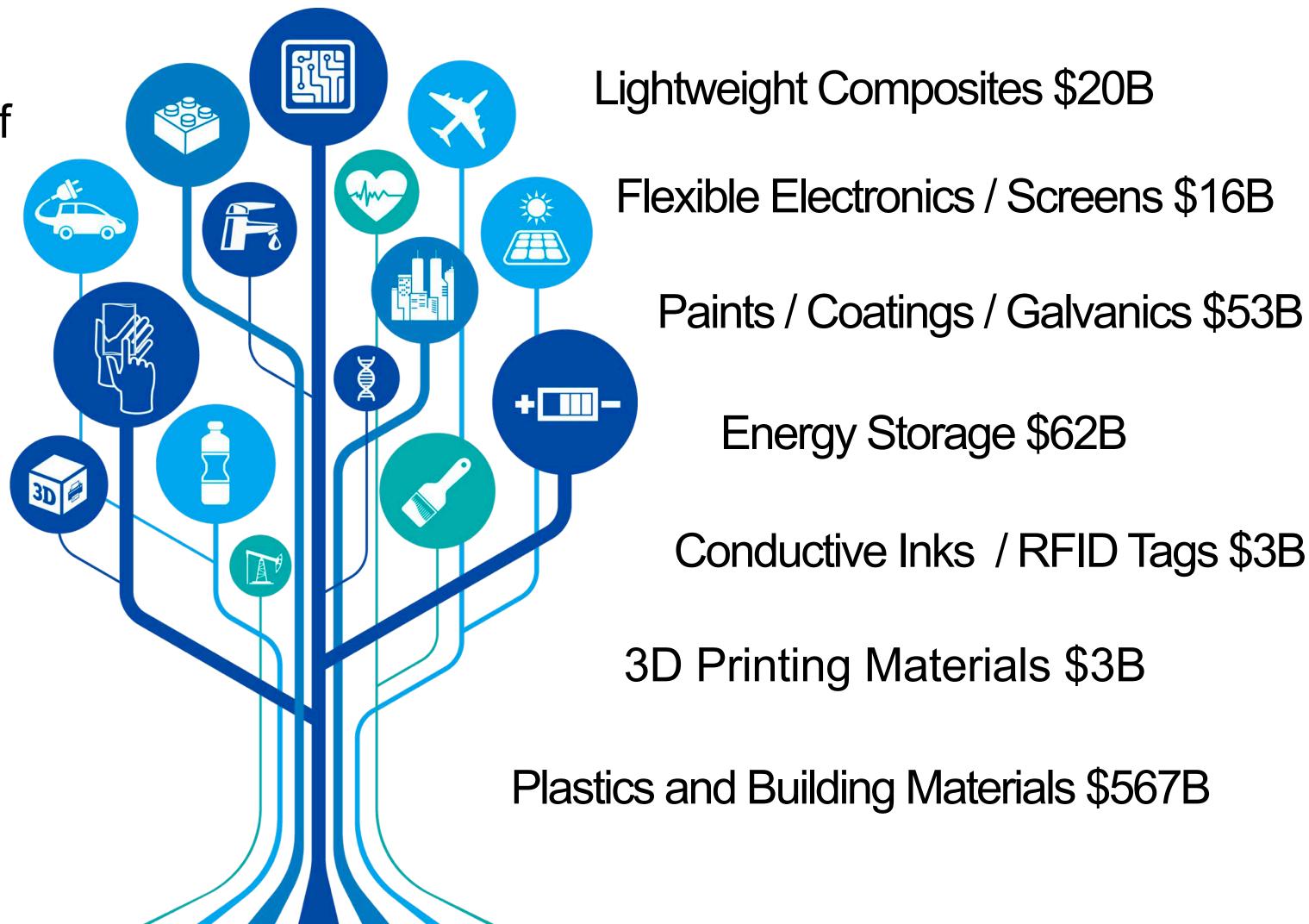


Graphene Applications



Graphene's combination of best-in-class:

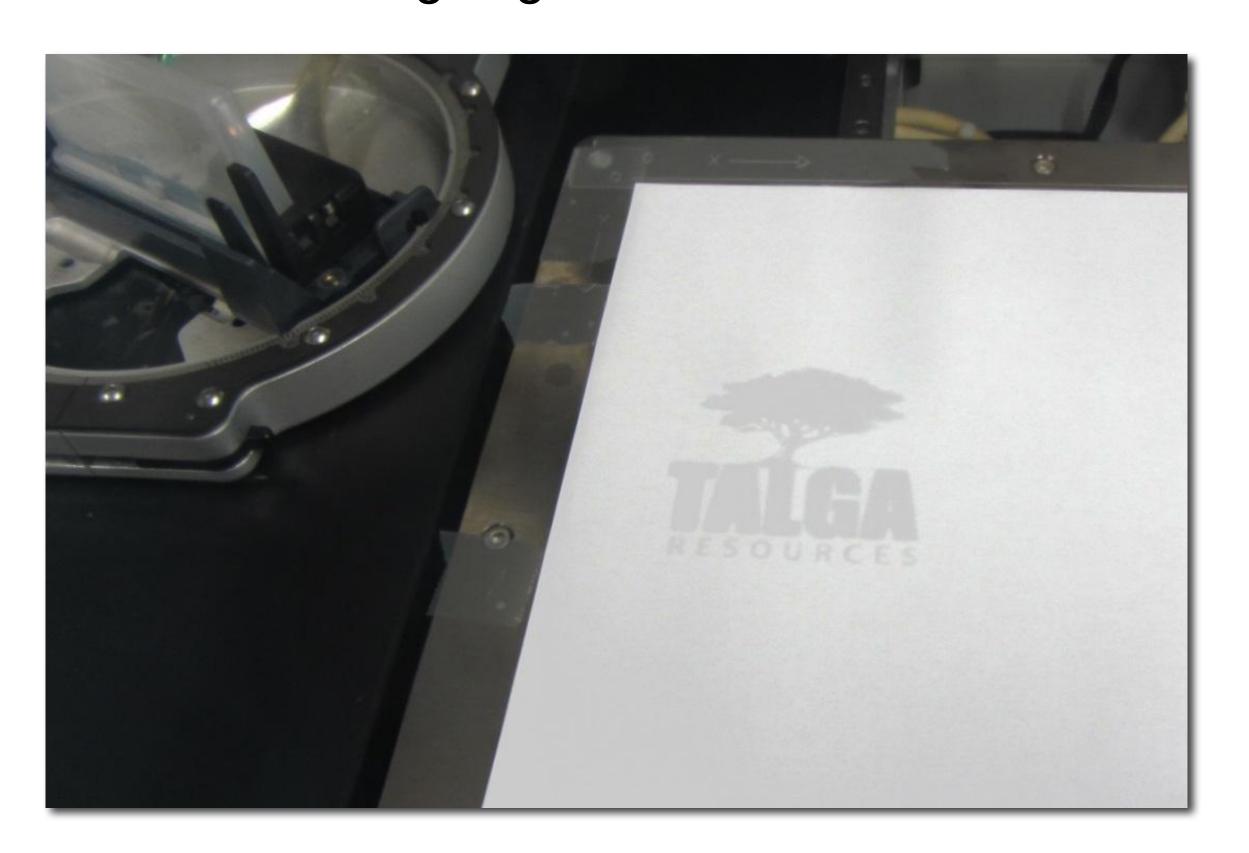
- strength
- electrical conductivity
- thermal conductivity
- impermeability
- flexibility
 and more make it the
 ultimate additive to
 improve a wide range of
 industrial applications.



Application Example - Transparent Conductive Ink

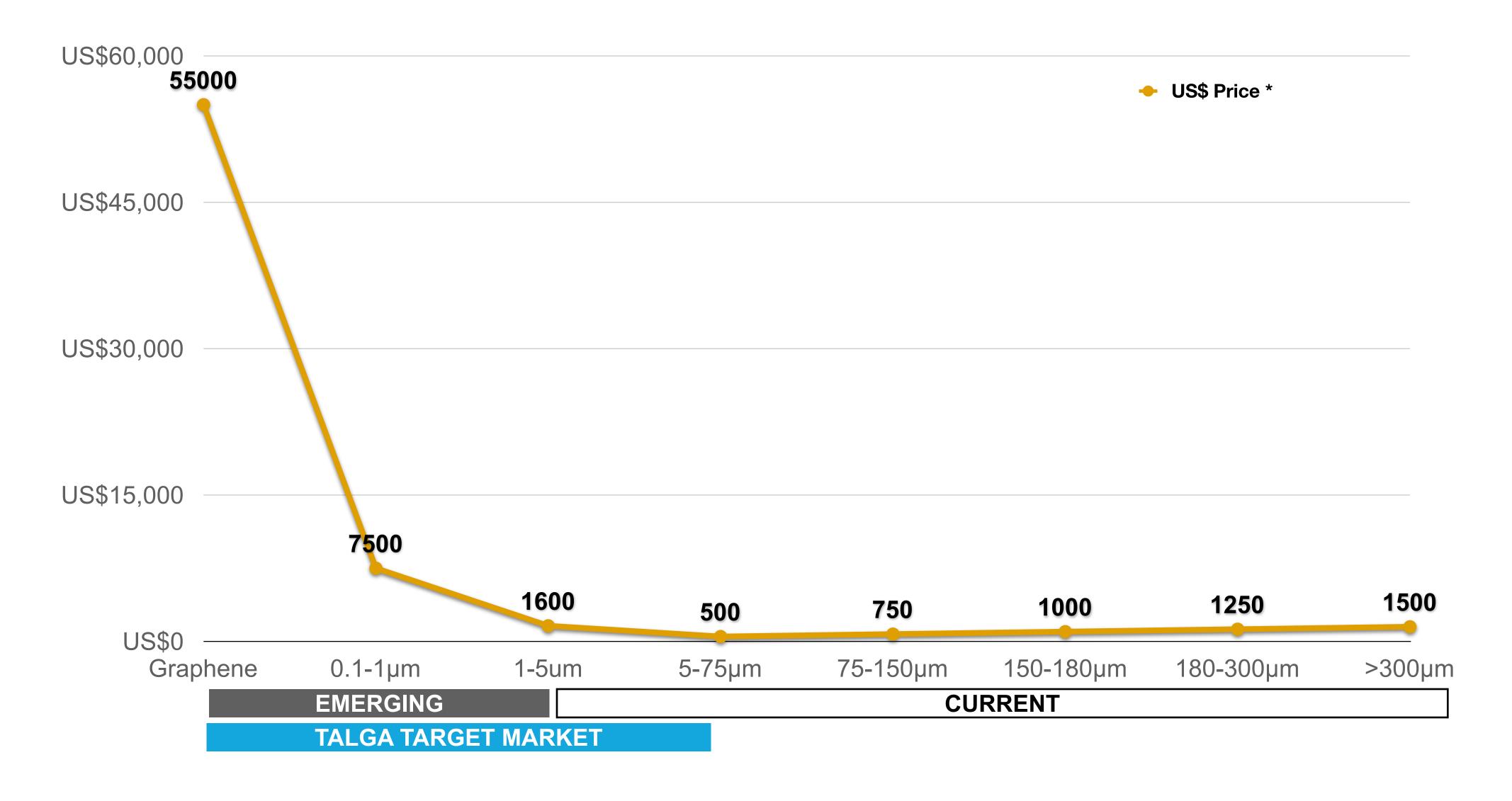


- Talga graphene tested at Frederich-Schiller University, Jena to make transparent conductive ink shows high transparency even after printing 100 layers.
- Tests to improve conductivity and transparency in different dispersions and using different application methods ongoing.



Bulk Graphitic Carbon - Pricing





Development Status



- Lab and Bench-top scale trials complete.
- 2015 trial mining complete 2016 campaign in planning
- Pilot test-work underway in Talga's facility in Germany (team assembled)
- > 3 phases to pilot production first scale underway, second phase equipment started fabrication and delivery
- Focus now on commercial relationships to place upcoming graphene and graphite production - samples being delivered to end users now
- Future full scale processing planned to shift from Germany to **Sweden** once statutory permitting completed process commenced.

Vittangi ore blocks in Germany trimmed for Stage 2 cells.



Trial Mine (Video)





Full Scale Production Modelling³



Base Case		Items	
250,000	(tpa)	Plant throughput	
23.6*	(%)	Diluted Feed Grade	
~46,000	(tpa)	Graphite production	
~1,000	(tpa)	Graphene production	
4:1	W:O	Life of Mine Strip Ratio	
480	(USD\$/t)	Graphite price assumption	
55,000	(USD\$/t)	Graphene price assumption	
29.3	(AUD\$m)	Capital cost	
19.7	(years)	Mine Life	
12	(%)	Discount Rate	
~490	(AUD\$m)	Pre Tax Net Present Value (NPV)**	
1.4	(years)	Payback from construction start	

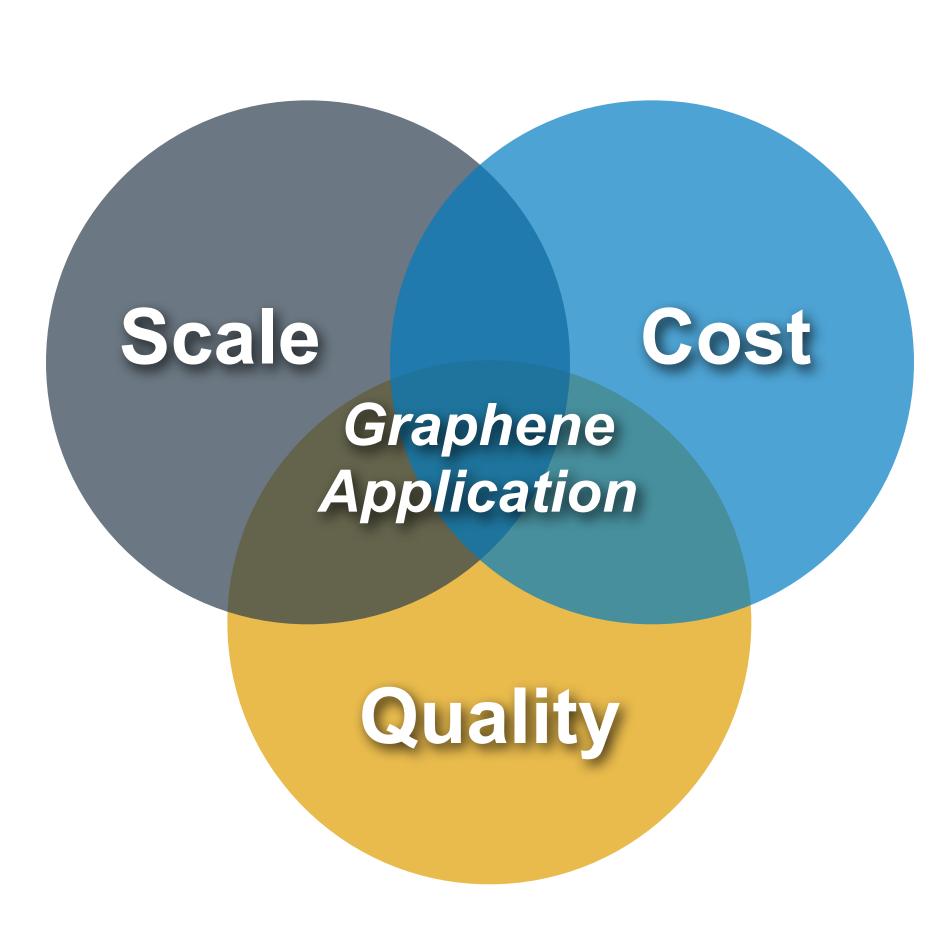
^{*}Feed grade after mining dilution factors. ** Pre-tax and other impositions but including state and private royalties.



Business Model



- Using pilot test facilities for samples to collaborate with industry and develop product range prior to full scale permitting
- Producer and supplier of raw materials with natural advantages in scale and cost to disrupt graphene and nano/micro graphite sectors
- Sell bulk graphene and ultra thin graphite to largest end users developing additive applications (making todays products perform better)
- Potential to licence IP, manufacture precursor materials to feed other technologies/processes or partner on application development (eg, share royalties on products)



Current Collaborations









Tata Steel (UK)

- Formal collaboration agreement to work together on development of finished graphene products using Talga materials
- Tata Group comprises over 100 companies with multinational operations, 2014 revenue USD100B and >580,000 staff
- Talga graphene to be used in anti-corrosion and high performance coatings. Paint and coatings market > 40 Mt annum.

Haydale Graphene Industries PLC

UK based nanomaterials company with value add functionalisation process but no source of graphene. Specialise in graphene enriched polymers for composites and plastics.

EU Graphene Flagship - Associate Member

- Fast track access to huge network of commercial and technology partners
- Invited alongside **Bosch** and **Lego**.

Talga Highlights



- World's highest grade graphite resource# 100% owned
- Truly unique ore with natural advantage for making graphene and graphite in largest volume high growth markets
- High quality low risk mining and logistics jurisdiction clean supply chain
- Leverage to high growth battery and graphene additive market but with small full scale capex requirement
- Advanced stage trial mining and processing underway
- Pilot test-work strategy large scale sample supply to collaborate with market and develop best spec for volume and margin on path to full scale production



Financial and Corporate Summary



Capitalisation Summary 18 November 2015			
Shares on issue (TLG Ordinary)	139.4M		
Listed Opts (TLGO exp 30/11/15 @35c)	6.8M		
Unlisted Options ¹	15.8M		
Market Capitalisation (undiluted @ \$0.37)	A~\$52M		

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	V	a		U

Managing Director - Mark Thompson

Chairman - Keith Coughlan

Non-Executive - Grant Mooney

Cash (end of Sept 2015) ~\$4.02 million. Nil Debt.

Top 5 Shareholders	
Lateral Minerals P/L (M.D. Mark Thompson)	10.3%
Gregorach P/L and related entities	6.1%
HSBC Custody Nominees Australia Ltd	5.3%
UBS Nominees P/L	3.1%
Yandal Inv P/L	2.9%



Average Daily Share Volume (TLG past 12 months): 274,600

¹ Various expiry and strike prices with majority expiring 2016 at 50-60c

Board





Mark Thompson
Managing Director

+25 years international industry experience in mineral exploration and mining management. Member of the Australian Institute of Geoscientists and the Society of Economic Geologists, guest Professor in Mineral Exploration Technology at Chengdu University of Technology and the Southwest University of Science and Technology in China. Past director of ASX listed Catalyst Metals Ltd and a current Non-Executive Director of Phosphate Australia Ltd.



Keith Coughlan *Non-Executive Chairman*

+30 years' experience in stockbroking/funds management. Largely involved in the funding and promoting of resource companies listed on the ASX, AIM and TSX. Advised various companies on the identification/acquisition of resource projects and 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.



Grant Mooney *Non-Executive Director*

Mr Mooney has extensive experience in resources and technology markets. Has served as Director and Company Secretary to several ASX listed companies including Director of renewable energy developer, Carnegie Wave Energy Ltd, Barra Resources Ltd, Phosphate Australia Ltd and Wild Acre Metals Limited. Mr Mooney is a member of the Institute of Chartered Accountants Australia.

Appendices- Graphite Resources and Targets



Nunasvaara JORC (2004) Mineral Resource¹ (10% Cg cut-off)

JORC 2004 Classification	Tonnes	Graphite (%Cg)
Indicated	5,600,000	24.6
Inferred	2,000,000	24.0
Total	7,600,000	24.4

Jalkunen JORC (2012) Mineral Resource (5% Cg cut-off)

JORC 2012 Classification	Tonnes	Graphite (%Cg)
Inferred	31,500,000	14.9

Raitajärvi JORC (2004) Mineral Resource¹ (5% Cg cut-off)

JORC 2004 Classification	Tonnes	Graphite (%Cg)
Indicated	3,400,000	7.3
Inferred	900,000	6.4
Total	4,300,000	7.1

Talga Graphite Exploration Targets ²

Project	Exploration Target	Tonnes (0-1 Dep	· ·	ohite Cg)	
		Min.	Max.	Min.	Max.
	Nunasvaara	62,400,000	93,600,000	20	30
Vittangi	Kotajärvi	16,640,000	30,160,000	20	25
	Maltosrova	20,800,000	52,000,000	20	25
	Tiankijokki	2,600,000	5,200,000	15	25
lalkunan	Nybrännan	5,200,000	10,400,000	20	30
Jalkunen	Suinavaara	2,600,000	5,720,000	15	25
	Lautakoski	26,000,000	52,000,000	15	25
	Subtotal	136,240,000	249,080,000	19	27
	Rounded Total	136,000,000	250,000,000	18	25

¹ Note: This information was prepared and first disclosed under the JORC code 2004. It has not been updated since to comply with the JORC code 2012 on the basis that the information has not materially changed since it was last reported. The Company is not aware of any new information or data that materially affects the information included in the previous announcement and that all of the previous assumptions and technical parameters underpinning the estimates in the previous announcement have not materially changed.

² Note: The Exploration Target is based on a number of assumptions and limitations with the potential grade and quantity being conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource Estimate in accordance with the JORC Code and it is uncertain if future exploration will result in the estimation of a Mineral Resource.

Appendices - References



References

#) see http://www.techmetalsresearch.com/metrics-indices/tmr-advanced-graphite-projects-index/

* see Industrial Minerals Natural Graphite report 2012, unpublished reports for Talga, and Scoping Study released to ASX 9 October 2014. NB) any data not specifically referenced is based on personal communications with industry participants where appropriate and/or unpublished technical research.

Cautionary Statement

The scoping study referred to in this report is based on low level technical and economic assessments, and is insufficient to support estimation and economic assessments, and is insufficient to support estimation of Ore Reserves or to provide assurance of an economic development case at this stage, or to provide certainty that the conclusion of the scoping study will be realised. The Company confirms that all material assumptions and technical parameters underpinning the scoping study results and projections in this release continue to apply and have not materially changed. The use of the word "ore" in the context of this report does not support the definition of 'Ore Reserves' as defined by the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". The word 'ore' is used in this report to give an indication of quality and quantity of mineralised material that would be fed to the processing plant and is not to assumed that 'ore' will provide assurance of an economic development case at this stage, or to provide certainty that the conclusion of the scoping study will be realised.

Competent Person's Statement

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled and reviewed by Mr Simon Coxhell, a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy and Mr Mark Thompson, who is an employee of the Company and a member of the Australian Institute of Geoscientists. Mr Thompson and Mr Coxhell have sufficient experience which is relevant to the activity which is being undertaken 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 Thompson and Mr Coxhell consent to the inclusion in the report of the matters based on this information in the form and context in which it appears.

The information in this report that relates to Resource Estimation is based on information compiled and reviewed by Mr Simon Coxhell. Mr Coxhell is a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Coxhell has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this document and to the activity which he is undertaking 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 Coxhell consents to the inclusion in this report of the Matters based on this information in the form and context in which it appears.