TALGA PRESENTATION AT 2ND ANNUAL GRAPHENE SUPPLY, APPLICATIONS & COMMERCIALISATION CONFERENCE

Talga Resources Ltd
ABN 32 138 405 419

1st Floor, 2 Richardson St,
West Perth, WA 6005
T: +61 8 9481 6667
F: +61 8 9322 1935
www.talgaresources.com

Corporate Information

ASX Code	**TLG**
Shares on issue	**105.1m**
Options (unlisted)	**3.75m**

Company Directors

Keith Coughlan
Non-Executive Chairman

Mark Thompson
Managing Director

Grant Mooney
Non-Executive Director

ASX Code: TLG

Talga Resources Limited **(ASX:TLG)** ("**Talga**" or "**the Company**") is pleased to provide a copy of the presentation to be delivered by Managing Director Mr Mark Thompson at the ***2nd Annual Graphene Supply, Applications & Commercialisation Conference*** today.

The presentation summarises Talga's bulk graphene solution to meet growing graphene demand utilising it's wholly owned Nunasvaara graphite deposit in Sweden. The presentation will be made available on the Company's website www.talgaresources.com

The presentation details are as follows:

Date: Friday, 13th June 2014

Time: 10.20am

Venue: University of Manchester, UK.

Further information on the Company's graphene developments will be available at Talga's booth at the conference.

For further information, contact:

Mark Thompson
Managing Director
Talga Resources Ltd

Tel +61 (08) 9481 6667
Email admin@talgaresources.com

ABOUT TALGA

Talga Resources Limited (Talga) (ASX: "TLG") is a diversified mineral explorer and developer with a portfolio of 100% owned graphite, iron, copper/gold projects in Sweden and gold projects in Western Australia.

The main focus is development of its unique graphite-graphene deposits of northern Sweden utilising the advantages of ultra-high grade deposits, low cost power, established mining infrastructure and short transport distance to high demand markets in Europe.

TALGA RESOURCES

A unique natural graphite source for economic bulk graphene platelet supply

2nd Annual Graphene Conference
'Supply, Applications & Commercialisation'
Manchester, 13 June 2014

ASX: **TLG**

Cover; Nunasvaara graphite core sample and graphene schematic.

Forward Looking Statements and Disclaimer:

This presentation has been prepared by Talga Resources Limited (ACN 138 405 419) ("Issuer") for the sole purpose of providing an overview of its current prospects and proposed exploration and development strategy to recipients ("Recipient"). This presentation and its contents are provided to the Recipient in confidence and may not be reproduced or disclosed in whole or in part to any other person, without the written consent of the Issuer.

The presentation is based on information available to the Issuer as at the date of the presentation. The information contained in this presentation has not been verified by the Issuer nor has the Issuer conducted any due diligence in relation to that information. The presentation contains selected information and does not purport to be all inclusive or to contain all information that may be relevant to the Recipient. The Recipient acknowledges that circumstances may change and this presentation may become outdated as a result. The Issuer accepts no obligation to update or correct this presentation.

This document includes forward-looking statements. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may," "potential," "should," and similar expressions are forward-looking statements. Although the Issuer believes that the expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties, and no assurance can be given that actual results will be consistent with these forward-looking statements.

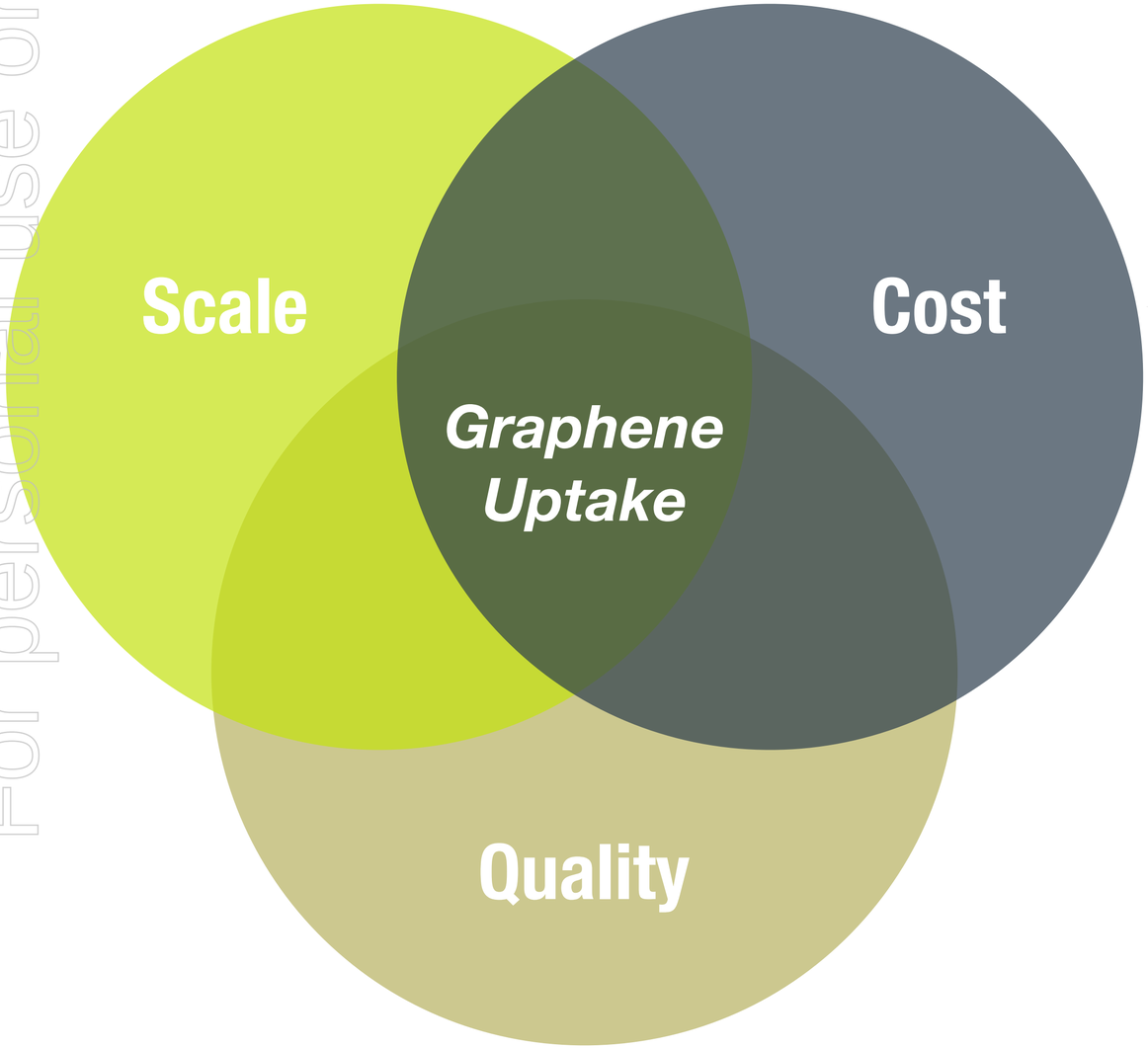
No representation or warranty, express or implied, is made as to the fairness, accuracy, completeness or correctness of the information, opinions and conclusions contained in this presentation. To the maximum extent permitted by law, none of the Issuer, its directors, employees or agents, advisers, nor any other person accepts any liability for any loss arising from the use of this presentation or its contents or otherwise arising in connection with it, including, without limitation, any liability arising from fault or negligence on the part of the Issuer or its directors, employees or agents. Nothing in this Presentation is a promise or representation as to the future. Statements or assumptions in this presentation as to future matters may prove to be incorrect and differences may be material. The Issuer does not make any representation or warranty as to the accuracy of such statements or assumptions.

The information in this presentation does not take into account the investment objectives, financial situation and particular needs of any Recipient. The Recipient should not make an investment decision on the basis of this presentation alone and the Recipient should conduct its own independent investigation and assessment of the content of this presentation. Nothing in this presentation constitute financial product, investment, legal, tax or other advice. Nothing in this presentation should be construed as a solicitation to buy or sell any security or to engage or refrain from engaging in any dealing in any security.

Photographs, maps, charts, diagrams and schematic drawings appearing in this presentation are owned by and have been prepared by or commissioned by the Issuer, unless otherwise stated. Maps and diagrams used in the presentation are illustrative only and may not be drawn to scale. Unless otherwise stated, all data contained in charts, graphs and tables is based on information available at the date of this presentation. By accepting this presentation the Recipient agrees to be bound by the foregoing statements.

Supply Side Problem

Pace of graphene uptake & commercialisation is hampered by current limitations of production scale and cost more than quality.



Main factors delaying uptake of graphene platelets into ordinary products include:

- Lack of **scale**: most production methods are not scalable to the **large quantities** required to guarantee supply and expand uptake
- High **costs**: platelets are still vastly **expensive** compared to most material inputs.
- Quality: most lower cost scalable production methods have reduced quality that **limit** applications/markets.
- **Scale** and **Cost** are **main constraints** as they have most physical limitations but **Quality** can be manipulated to a degree.

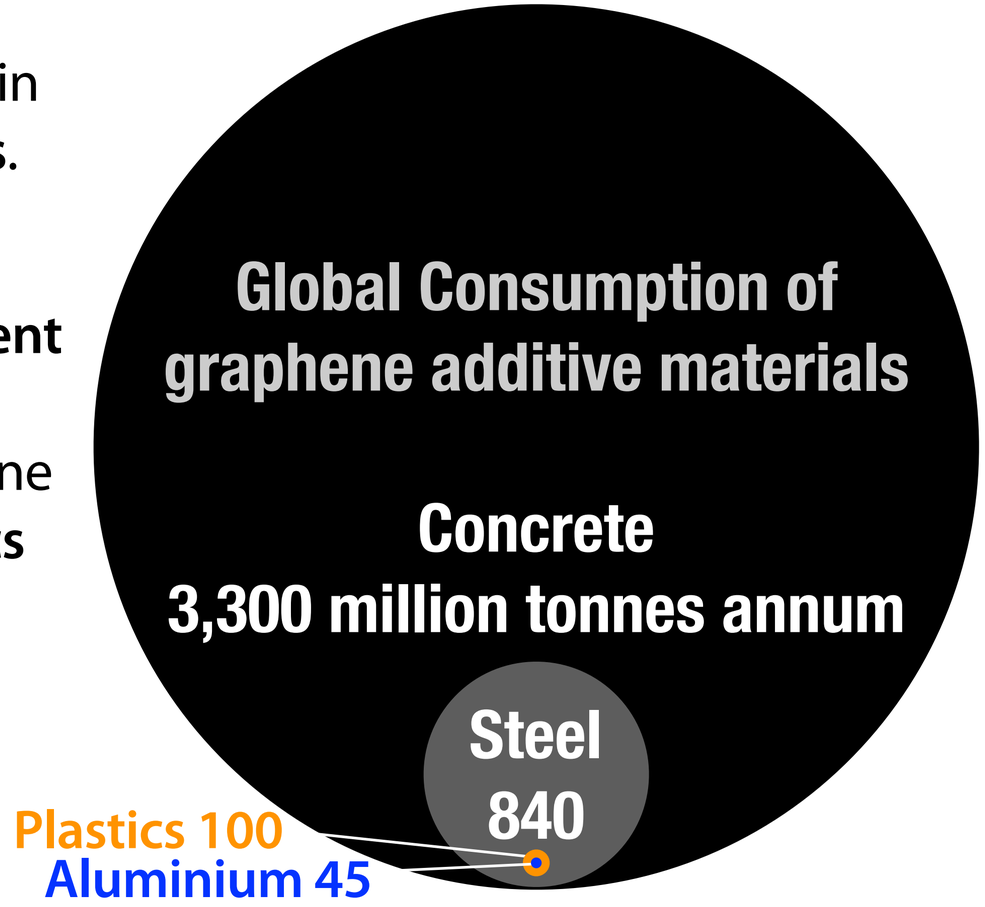
Scale Problem

Paradigm shift in scale of production required

- While the media is excited by future 'hi-tech' applications the main driver of near term graphene commoditisation may be **additives**.

- Small amounts of graphene (**0.05-2%**) added to common bulk materials can impart ***exponential*** increases in strength e.g. **cement** (global consumption 3,300Mt/ann), and **aluminium** (45Mt) allowing less material/lighter builds. Similar additions of graphene to **steel** (840Mt) can impart anti-corrosion properties and **plastics** (100Mt) can become conductive.

- If ***0.5%*** by weight average graphene was added across these materials now, it requires ***2.1Mt graphene per annum***. Not many production processes are capable of addressing this scale.



- **Natural graphite ores** are **abundant** (exceeding several billion tonnes in resources) so it seems **realistic to attain** this **scale** at lower cost, but few natural graphite sources suit economic bulk scale production either.

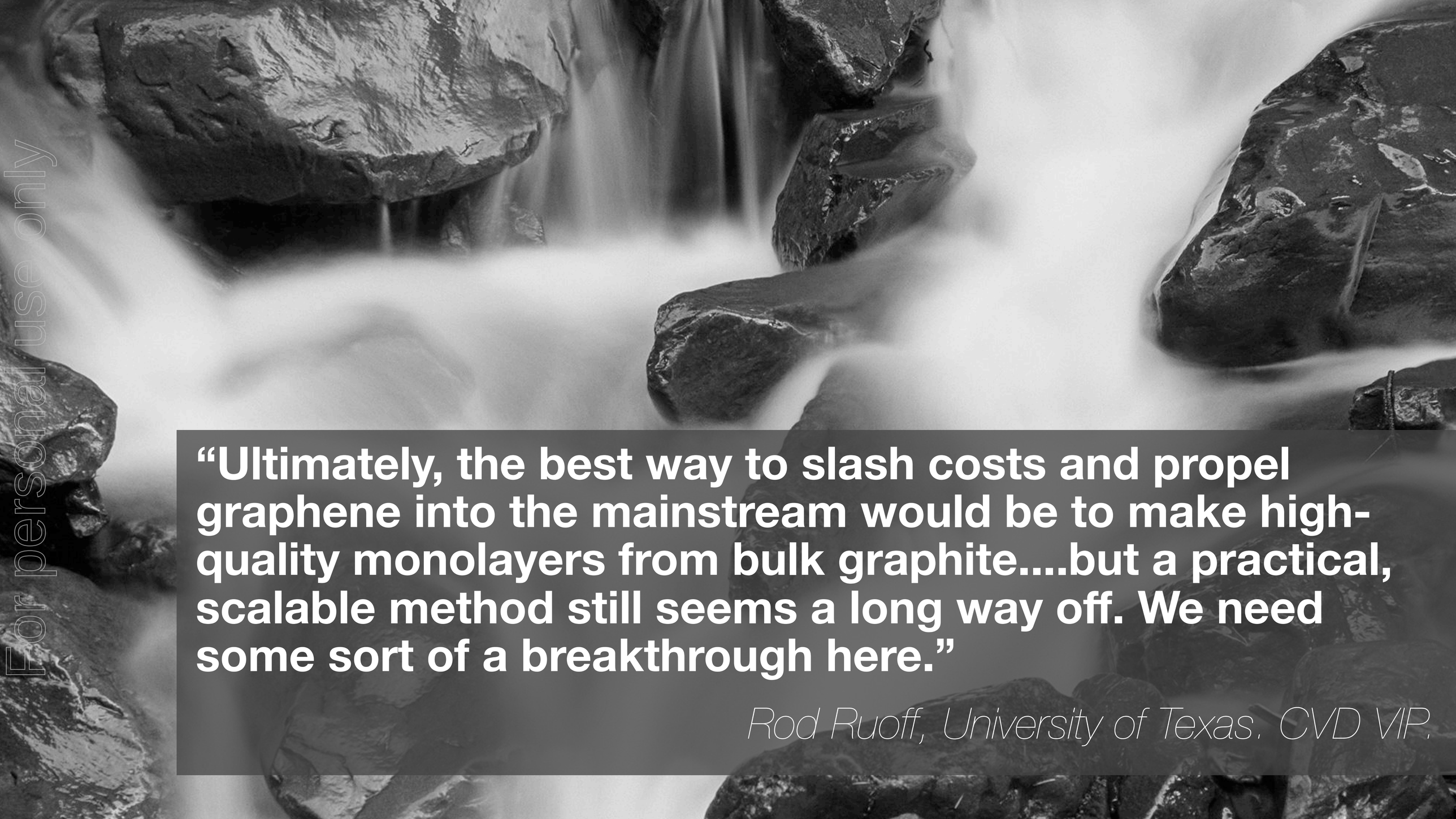
The Graphite Ore Problem

Abundant natural graphite requires multi-stage expensive processes

- The problem with scalable natural graphite sources though is they require **multiple stages** of crushing, milling and flotation to form a **concentrate** for **further stages** of **purification** commonly involving oxidation and reduction, sonication, electrode forming etc to reach graphene stage. The **multiple stages** increase **costs** and can decrease **quality** of the graphene.

- Other simple processes have either such **low yields** (eg, 'Blender' method) or require **high purity** (expensive) **source material** they are **not commercial** or **cannot** generate significantly **lower cost** of graphene supply.

- ***As graphite ores already contain 'natural graphene' an ultra-low cost path considering energy and commerciality is a single stage process where raw graphite ore can be processed to graphene without multiple steps.***



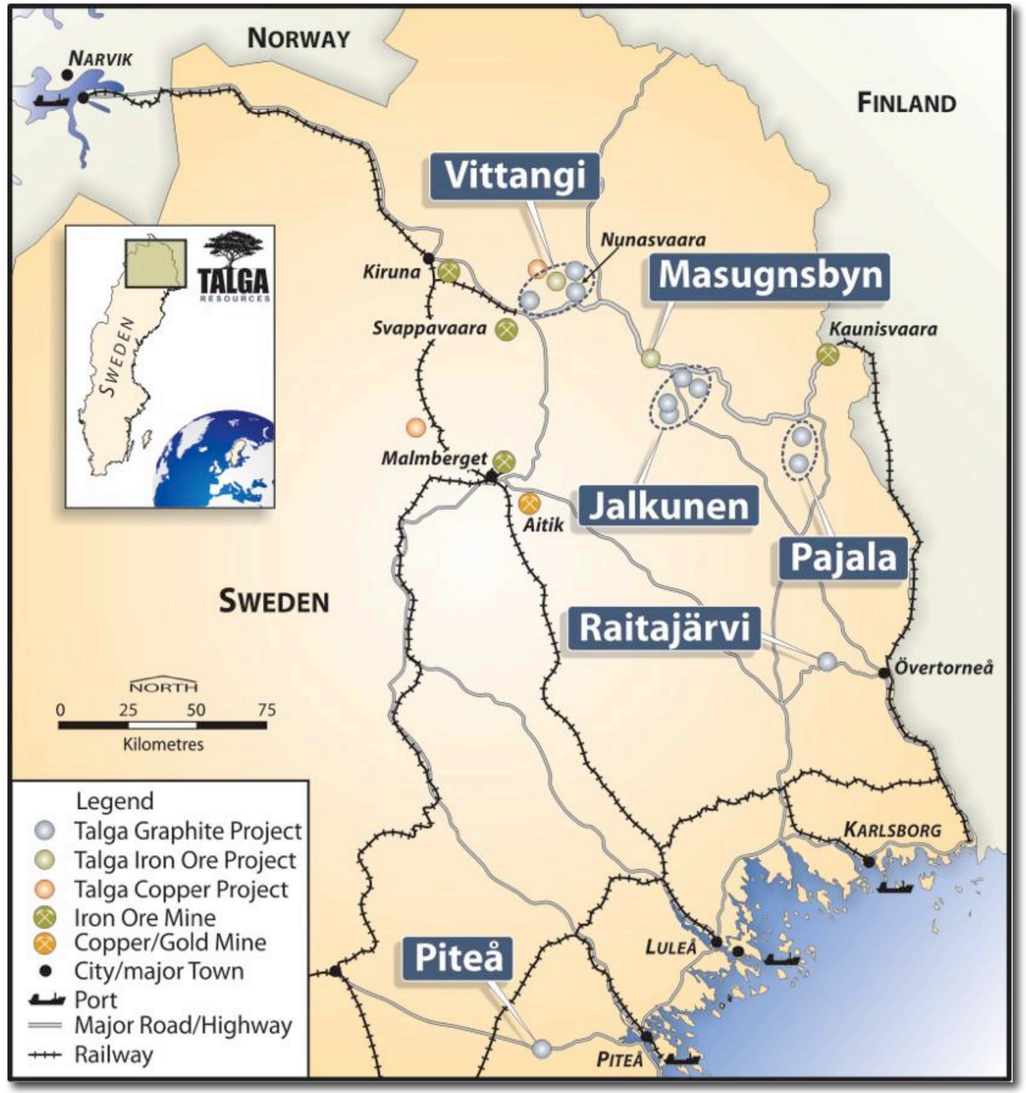
“Ultimately, the best way to slash costs and propel graphene into the mainstream would be to make high-quality monolayers from bulk graphite....but a practical, scalable method still seems a long way off. We need some sort of a breakthrough here.”

Rod Ruoff, University of Texas. CVD VIP.

The Breakthrough

In Feb 2014 Talga announced exceptional results from testing a 1-step scalable method on the Nunasvaara graphite deposit, Sweden.

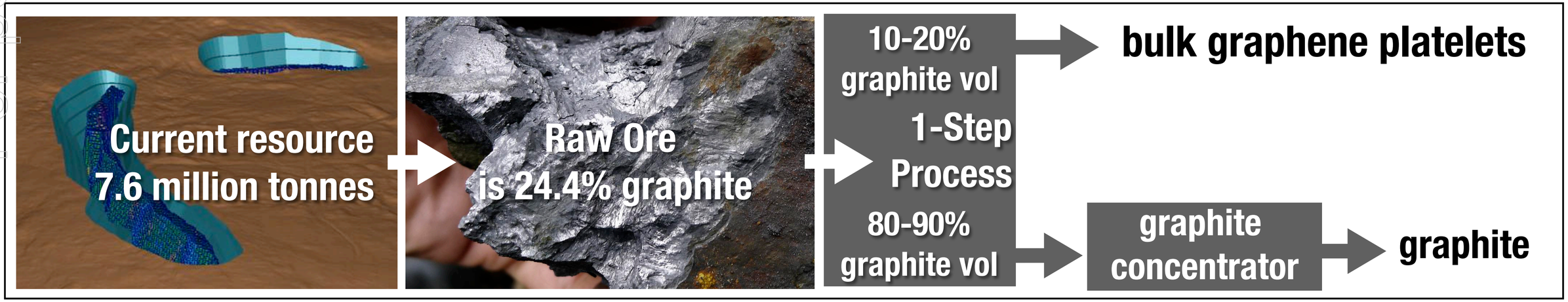
- The **Nunasvaara** graphite deposit is the **world's highest grade graphite** mineral resource[1] **compliant** to JORC or NI43-101 standards and is **located** in the Kiruna mining district of **Sweden**.
- Testwork this year demonstrated a ***1-step*** processing methodology applied **directly** to **raw** ore liberates **mono-to-few layered graphene platelets** with **consistent morphology.**
- **The ore is abundant and as there is no crushing, grinding or purification stages required; ultra-low production cost.**



[1] See appendices for details of JORC (2004) resources and www.techmetalsresearch.com for world graphite resources grade comparison.

Paradigm Shift to Lower Cost

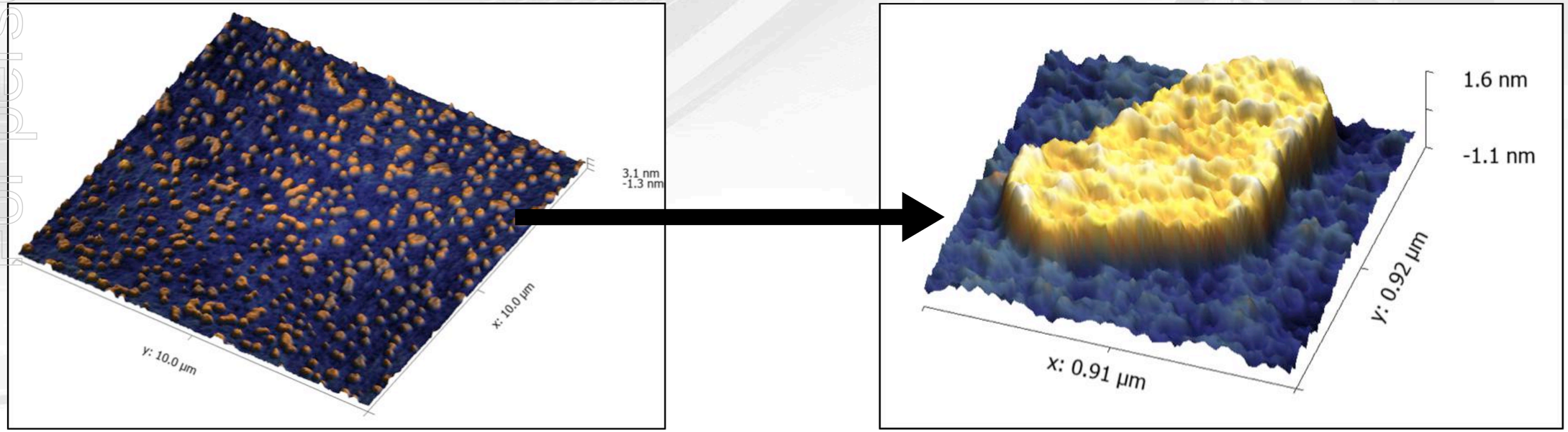
- Because of the **unique** characteristics of the **ore deposit**, both graphite and graphene platelets can be liberated from the ore in a **single step** process. This means no expensive **multiple stage processing or** purification stages that impart complexity and costs.
- Other minerals liberated in the same process can also be sold, lowering cost of production further.
- This shows strong potential for Talga to enjoy a **vastly different production** and **capital cost** structure **compared** to **other** producers globally, and represents a paradigm shift in the production outlook for **bulk graphene cost and scale**.



Quality and Consistency

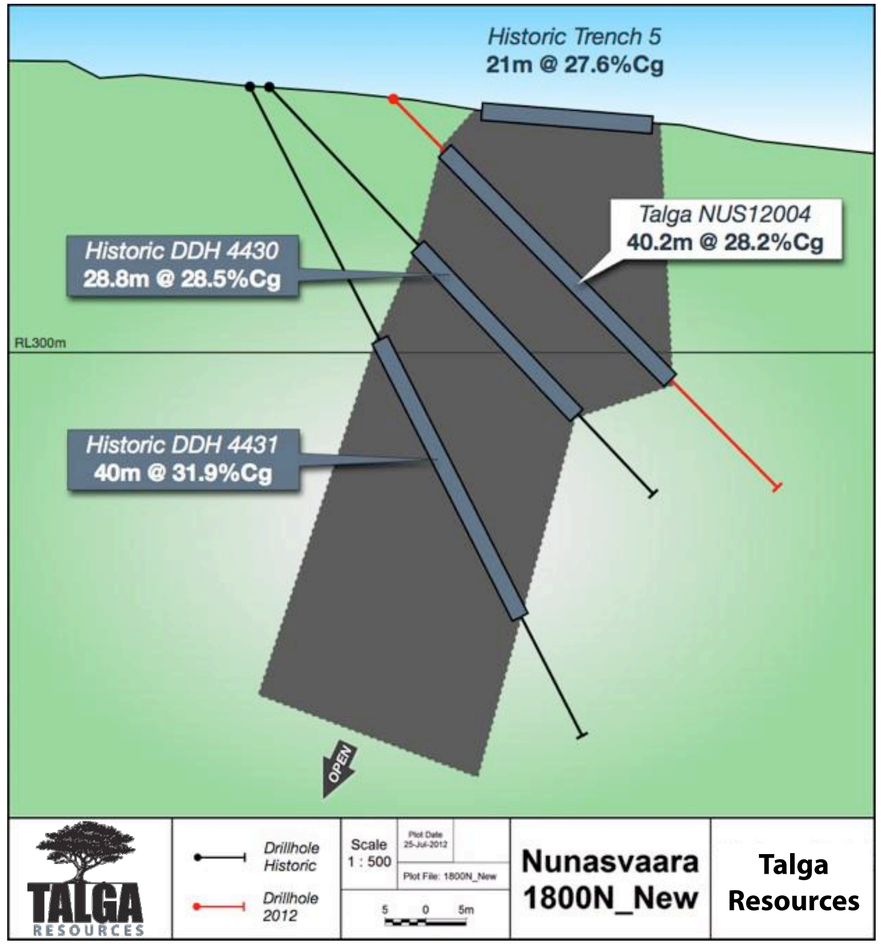
- The ore source provides high level of consistency and size of graphene platelets.
- Initial tests of graphene platelets from the raw ore demonstrate single to few layered graphene of surprisingly high quality (Raman defect-to-layer ratio <0.25).
- Morphology is naturally consistent but can be modified and optimised to a degree in the production process.

Atomic force microsscopy images of Nunasvaara unoptimised graphene platelet size, distribution and morphology.



Scalable to Market Size

- **Robust** outcropping **high grade** resource and **extreme homogeneity** (see drilled section) makes Nunasvaara a unique source for **low-cost** and high quality bulk supply potential.
- **With JORC compliant resource**[1] of (ASX:TLG 8 Nov 2012) **7.6Mt @ 24.4% graphite ("Cg") there is abundant contained graphite for graphene platelet production in short term**.
- Process pathway has been demonstrated at benchtop scale and **upscaling tests** are **underway** to design a **5 tonne/hr pilot plant** to be operational in north Sweden **Jul-Sep 2015**.
- The pilot plant will be designed to supply 100-200 tonnes graphene samples over few year test period.
- A scoping study underway will include potential for production scenarios 10x this level.
- The process and graphite deposits are entirely scalable to meet what additive markets may require.

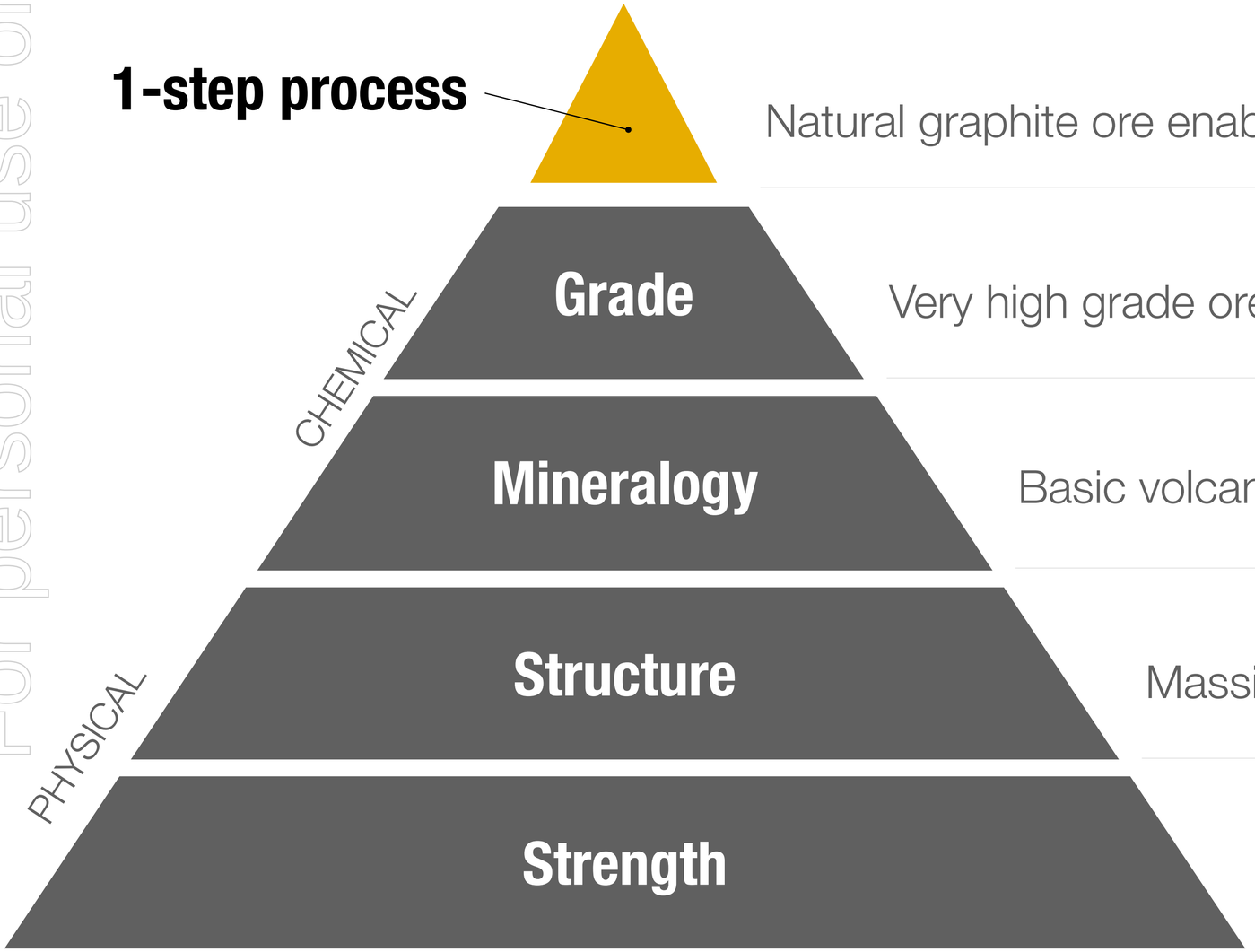


Nunasvaara Mineral Resource[1] (10% Cg lower cut-off grade)

JORC 2004 Classification	Tonnes (Mt)	Grade (%Cg)	Contained Graphite (tonnes)
Indicated	5.6	24.6	1,377,600
Inferred	2.0	24.0	480,000
Total	**7.6**	**24.4**	**1,857,600**

It's More About The Ore

Multiple physio-chemical factors required for raw ore to work in lowest cost production pathway



Natural graphite ore enabled for lowest cost single stage processing.

Very high grade ore eg,>16%Cg which is rare in global resources.

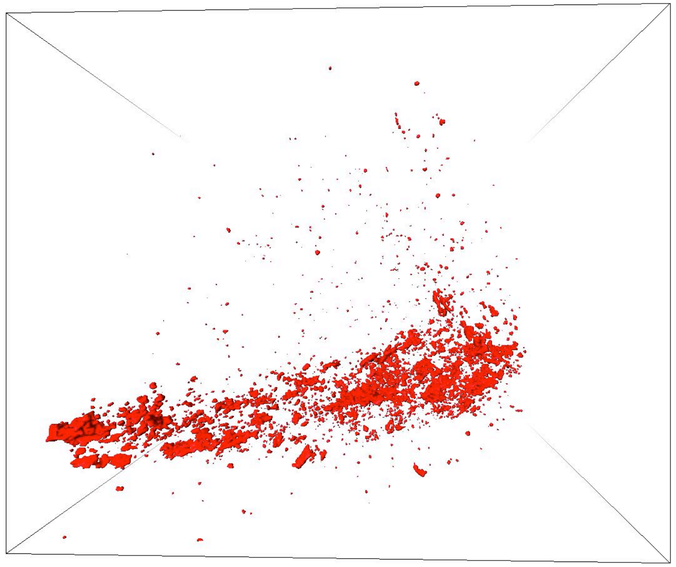
Basic volcanic host rocks with specific gangue mineral ratios.

Massive and homogenous crystalline nature.

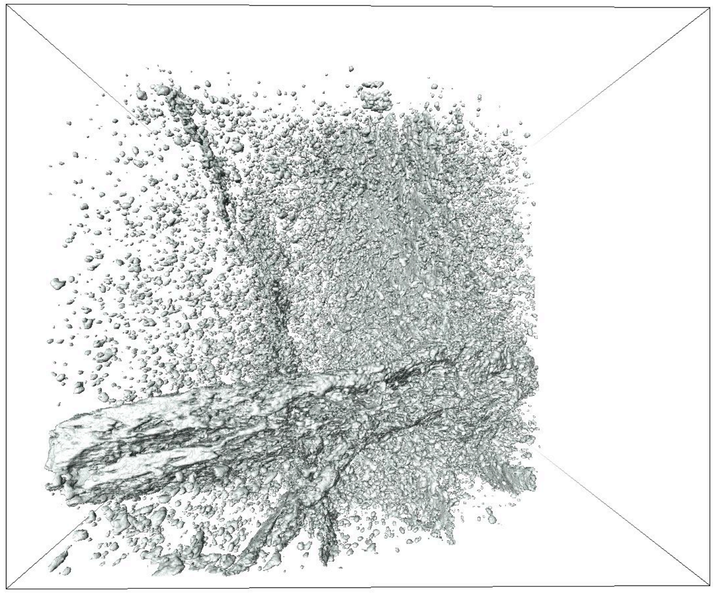
High compressive strength but low hardness.

Developing Workflow

- Methods for measuring **constant stream** graphene platelet quality in production scenarios include:
- ***Nanoscale*** - Raman and atomic force microscopy (AFM) is revealing factors of graphene platelet morphology and defects.
- ***Macroscale*** - Tornado and other in-situ 3-d scanning technologies to measure mineral distribution and morphology with implications for genesis of deposit.
- ***Pilot plant*** - 5t/hr plant will provide steady state production **data** and **samples** for integration into large scale quality-controlled manufacturing processes.



Movies of 3-d 'Tornado' scans of Nunasvaara graphite ore.
Field of view = approx 5cm width.



Summary

- In recent tests Talga has demonstrated **ability** to produce **high quality graphene** direct from its **raw** (uncrushed/unpurified) **graphite ore** which provides Talga with **unique economic advantages** compared to global graphene peers.
- This new **low cost** and **abundant** supply potential is a paradigm shift in the production outlook for bulk graphene, and will be able to 'commoditise' supply into everyday applications.
- Talga has defined 7.6 million tonnes source ore to date and is ramping up its low-cost development strategy to focus on becoming a global graphene supplier with industry leading margins.
- The current development stages underway include upscaling the metallurgical process to use the dual graphite-graphene process, completing a **scoping study** and permitting a trial mine for 2015.

To get further information or register interest in graphene products, specifications and collaboration contact:

Mark Thompson - Managing Director
1st Floor, 2 Richardson St West Perth 6005 Australia
Tel +61 89481 6667
admin@talgaresources.com
www.talgaresources.com

ASX: **TLG**

TALGA RESOURCES

Appendices

Talga Asset Structure and JORC (2004) Resources*

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.

TALGA RESOURCES LTD

100%

Talga Mining Pty Ltd

100%

Swedish Branch

100% | 100%

GRAPHITE

Nunasvaara *Graphite Mineral Resource @ 10% Cg lower cut-off Nov 2012*

Classification	Tonnes (Mt)	Graphite (%Cg)
Indicated	5.6	24.6
Inferred	2.0	24.0
Total	**7.6**	**24.4**

Raitajärvi *Graphite Mineral Resource @ 5% Cg lower cut-off Aug 2013*

Classification	Tonnes (Mt)	Graphite (%Cg)
Indicated	3.4	7.3
Inferred	0.9	6.4
Total	**4.3**	**7.1**

IRON

Iron Mineral Resources @ 20% Fe lower cut-off July 2013

Deposit	Tonnes (Mt)	Grade %Fe	JORC Category
Vathanvaara	51.2	36.0	Inferred Resource
Kuusi Nunasvaara	46.1	28.7	Inferred Resource
Mänty Vathanvaara	16.3	31.0	Inferred Resource
Sorvivuoma	5.5	38.3	Inferred Resource
Jänkkä	4.5	33.0	Inferred Resource
Masugnsbyn	87.0	28.3	Indicated Resource
Masugnsbyn	25.0	29.5	Inferred Resource
Total	**235.6**	**30.7**	

References & Qualified Persons

1 Resource Note: All Talga owned resources referred to in this report are based on information prepared and first disclosed under the JORC code 2004. They have 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 Research references

Graphene in concrete "Materials Genome for Graphene-Cement Nanocomposites for Infrastructure Applications"; Hunain Alkhateb et al Department of Civil Engineering, University of Mississippi USA plus see http://www.monash.edu.au/assets/pdf/industry/graphene-oxide-reinforced-concrete.pdf

Graphene in aluminium "Reinforcement with graphene nanosheets in aluminum matrix composites". Wang, J et al (2012). Scripta Materialia, 66 (8).

Graphene in plastics "Graphene Nanoplatelets: A Multi–functional Nanomaterial Additive for Polymers and Composites" (2013) Lawrence T. Drzal, Chief Scientist XG Sciences, Inc. Professor, Chem Engin and Materials Science Michigan State University

Graphene on iron/steel "Hybrid nanocomposite coatings for corrosion protection of low carbon steel: A substrate-integrated and scalable active–passive approach," (2011) G.K. Rout et al, J. Mater. Res., 26, 837–44 and see http://www.steeltimesint.com/news/view/tata-partners-with-epsrc-to-develop-graphene-coated-steels.

Competent Person's Statement

The information in this report that relates to Exploration Results is based on information compiled and reviewed by Mr Mark Thompson, who is a member of the Australian Institute of Geoscientists. Mr Thompson, an employee of the Company, has 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 consents 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 of CoxsRocks Pty Ltd. 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.