



Talga Resources (ASX:TLG)

# Investor Presentation



# Talga (ASX:TLG)

**Becoming a significant and vertically integrated producer of lithium-ion battery anode products and technologies**

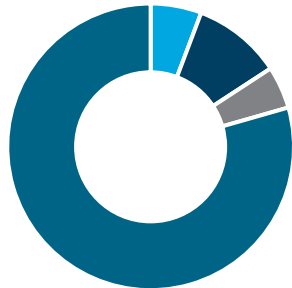
- ▶ Talga is building an integrated graphite anode facility in Sweden running on 100% renewable electricity, to produce ultra-low emission coated anode for greener Li-ion batteries.
- ▶ Proven high-performance anode products
- ▶ Qualification process with battery manufacturers and automotive OEMs underway, targeting production 2023
- ▶ Full mine-to-product ownership resulting in cost and quality advantages with maximum margins
- ▶ Tier 1 location – Sweden; local to battery megafactories
- ▶ Super high-grade ore and industry-leading process yields

SEE: ASX:TLG 16 OCT 2018 and 19 FEB, 21 MAR, 26 MAR, 2 OCT 2019



# Corporate Overview

## ASX:TLG SHARE PRICE (YEAR TO DATE)



## SHAREHOLDERS

- Board & Management
- Smedvig
- European Investors
- Other

NOTE: CASH AS AT 30 JUNE 2020. MARKET CAPITALISATION AS AT 14 AUGUST 2020.

## CAPITAL STRUCTURE

ASX Listing Code:	TLG
Market Capitalisation:	A\$147M
Listed Shares:	243.7M
Unlisted Options:	7.0M
Cash:	A\$5.1M

## MAJOR SHAREHOLDERS

Smedvig – Family Office	10.47%
Mark Thompson – M. Director	5.88%
JP Morgan Nominees	5.35%
Pelmer Securities	3.76%
Citicorp Nominees	3.70%

**TOP 20 SHAREHOLDERS** **49.47%**

# The Opportunity

**Long-term Li-ion battery boom has commenced** driven by sustainability legislation, consumer demand and lower price EVs

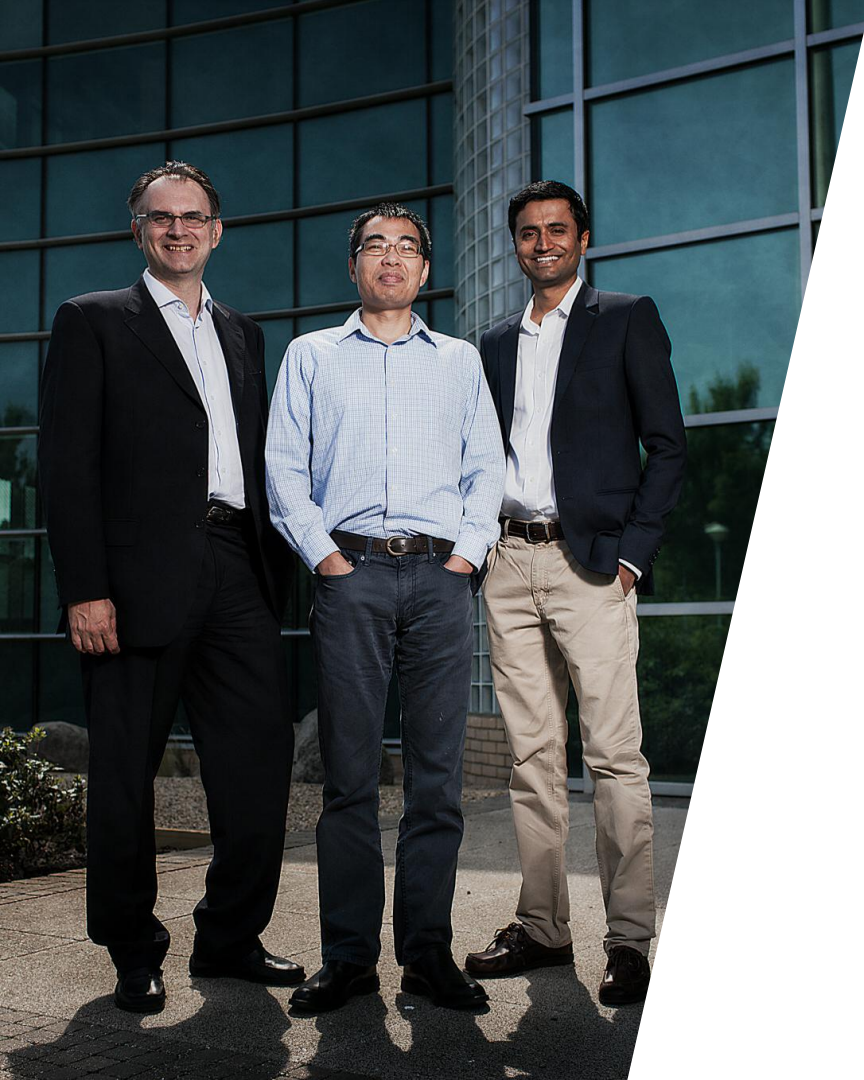
**Anode** (a highly refined and coated form of graphite) is **~50% of the battery volume active ingredients**

**The fastest growing market in the world is Europe** which imports 100% of its anode materials from Asia

European auto-OEMs **want local and clean** supply making **now the time for Talga to enter the market** and compete with Asian chemical companies



TESLA 18650 BATTERY CELL SHOWING ANODE & CATHODE LAYERS



# In-house Expertise

Talga develops high performance Li-ion anodes and battery materials enabled by its unique:

- ▶ natural carbon source type
- ▶ processing technology
- ▶ in-house material engineering technology

Strong technology capability with over 20 PhDs and Engineers with energy product experience including. ex-Toyota, Tata, Dyson and Cambridge University alumni

**Deep industry knowledge enabling downstream strategy and cell maker/OEM interactions**



# Growing Partnerships

Confidential qualification processes under active customer engagements including majority of announced European Li-ion battery manufacturers and six of the world's major automotive OEMs



Innovate UK



BOSCH



SveMin

# Fastest Growing Battery Capacity

European Li-ion battery manufacturing will require 500,000tpa of new graphite anode by 2029



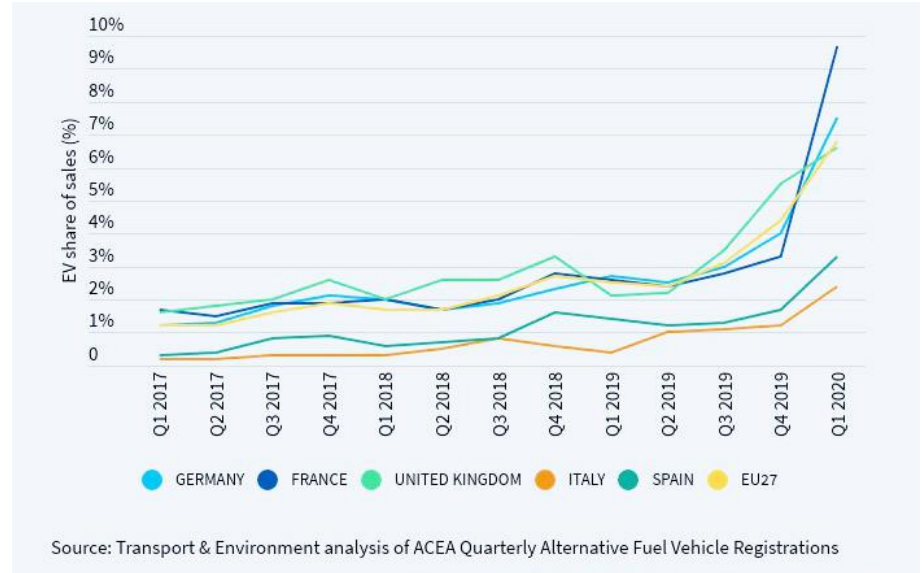
# EV Sales Accelerating

European EV sales take off in the quarters prior to COVID-19, driven by **lower price models becoming available**

EV demand expected to grow ten-fold by 2028 (from 2019 base) but could be more as **emission-subsidies and legislation** clip economics of internal combustion engines

At least **400,000 tonnes anode** required by 2028 for EU manufacturers (20 times Talga's current planned annual production)

**Localisation, supply-chain security** and **low-CO<sub>2</sub>** of increasing importance for auto OEMs





# Building the Solution

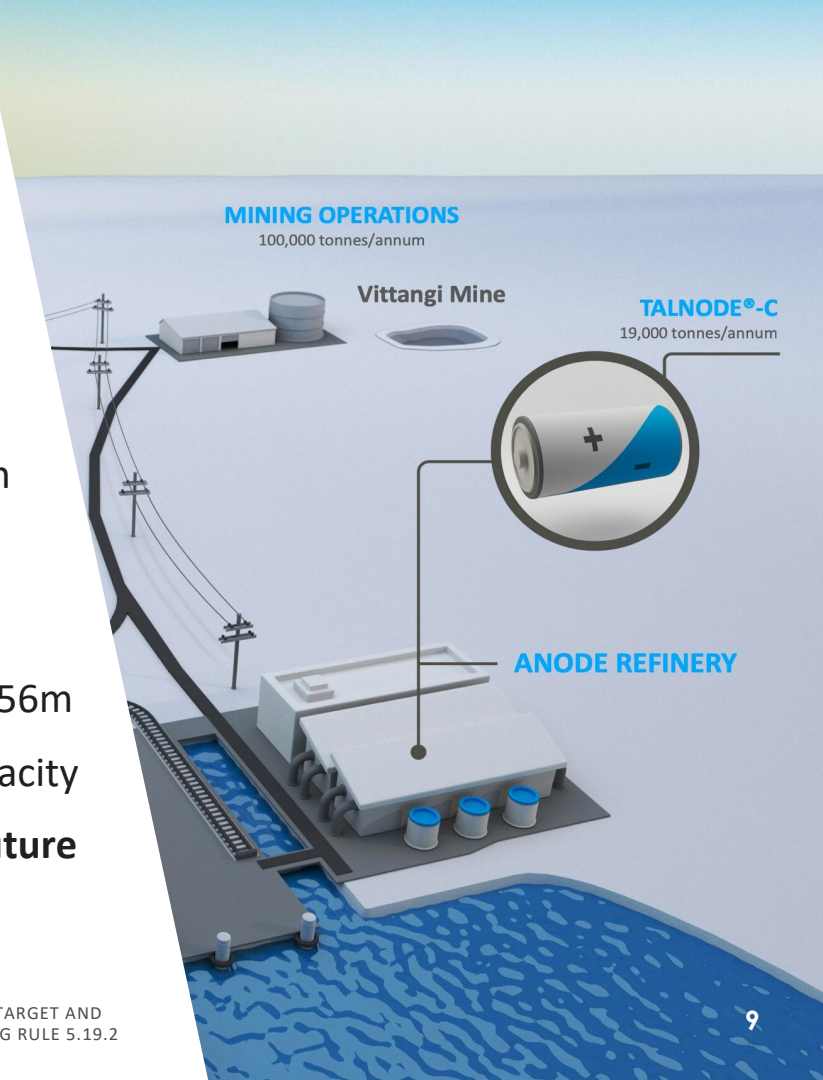
**An integrated anode supply chain in northern Sweden with anode refinery to be built in Luleå fed by graphite concentrate from wholly owned Vittangi mine**

**Planned 19,000tpa of anode production for 22 years from 2023 following Electric Vehicle Anode pilot plant in 2021**

**PFS shows strong financial potential with pre-tax annual revenue US\$188m and IRR 55%. Life of mine net profit before tax is US\$3,133m and current NPV<sub>8</sub> (real) is US\$1,056m**

**Expressions of interest received for >300% of planned capacity**

**Expansion being scoped for significantly larger scale in future (ASX:TLG 24 Jun 2020 re Niska Scoping Study)**



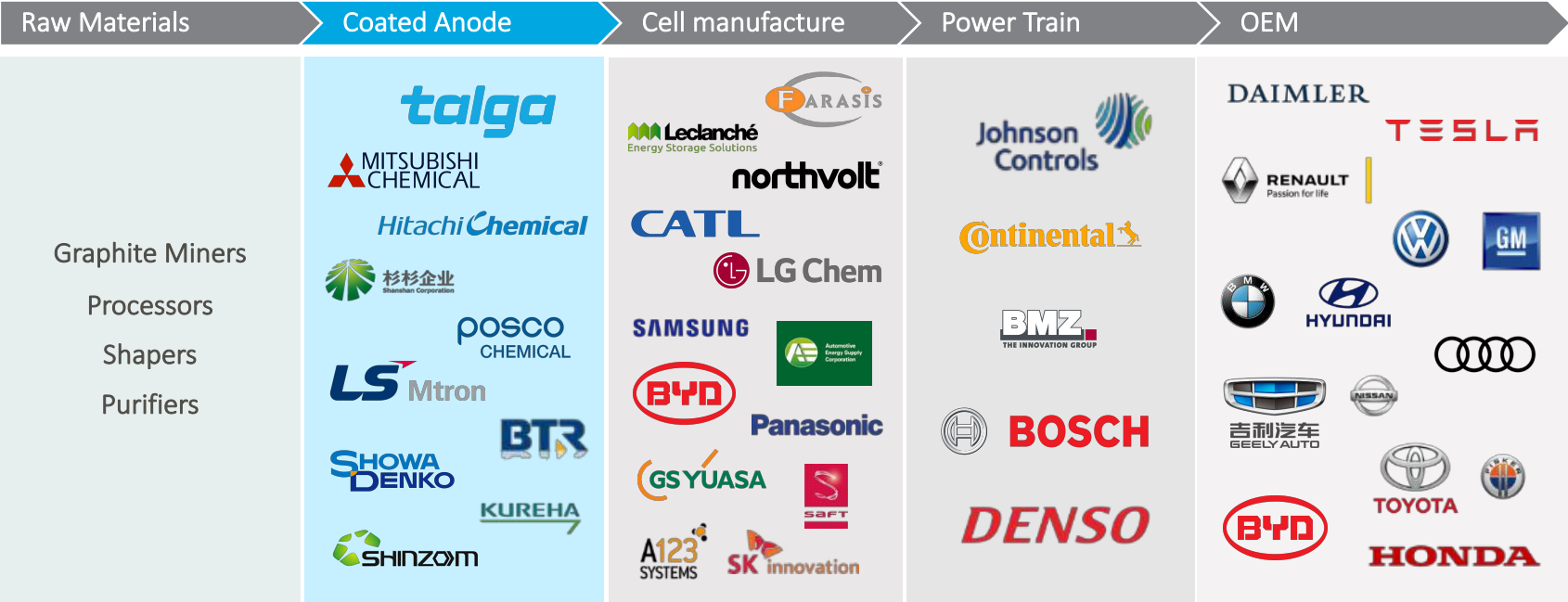
# Battery Anode Range

Talga-developed active anode products designed for current and emerging Li-ion battery applications

- ▶ **Talnode™-C:** Engineered graphite for fast charge, high power, high capacity and excellent low temperature performance
- ▶ **Talnode™-Si:** Silicon-graphene composite anode for higher energy density
- ▶ **Talnode™-X:** Graphite-based anode with ultra-fast charge capability
- ▶ **Talnode™-E:** Graphite-composite anode materials for Solid State Batteries

# Position in the Supply Chain

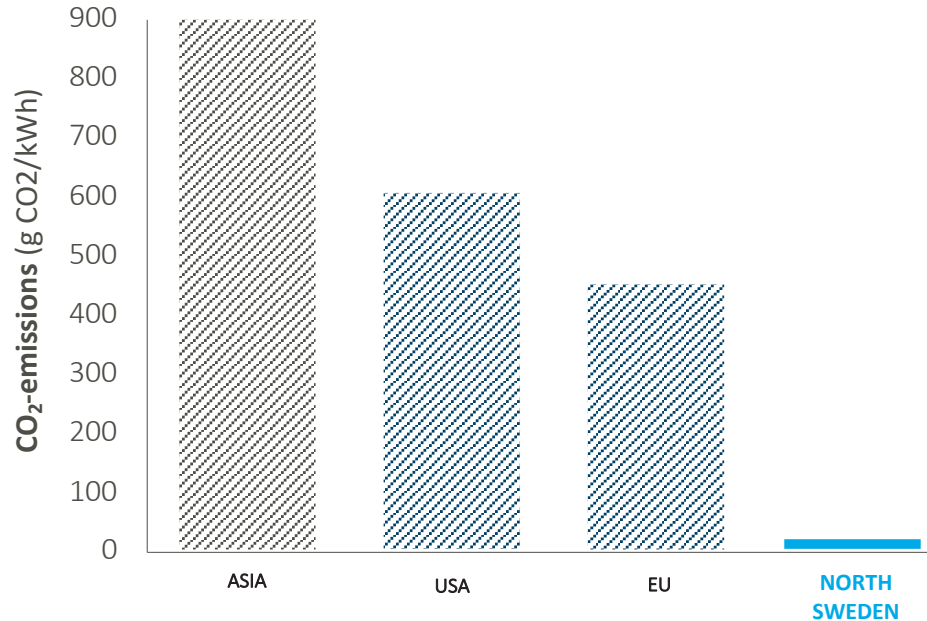
With the capability to sell directly to end users Talga's peers are chemical companies, not miners



SOURCE: RECRUIT, AVICIENNE. NOTE: SELECTED LI-ION SUPPLY CHAIN COMPANIES/NOT ALL MARKET PARTICIPANTS ILLUSTRATED. THE COMPANY CAUTIONS THAT IT IS NOT PRESENTLY PARTY TO SUPPLY AGREEMENTS WITH ALL THE PARTIES NAMED ABOVE. HOWEVER, ON THE BASIS OF THE COMPANY'S ENGAGEMENTS WITH THESE OR SIMILAR PARTIES, THE COMPANY CONSIDERS THAT IT HAS A REASONABLE BASIS FOR THE VIEW THAT IT CAN FILL THIS POSITION IN THE SUPPLY CHAIN. THE COMPANY CAUTIONS INVESTORS AGAINST APPLYING UNDUE WEIGHT ON THE ABOVE.

# Low Emission Leader

Production emissions becoming more important to customers purchasing decisions



To produce 100GWhr of Li-ion batteries:

**Talga's north Sweden** anode production requires 2,300 GWhr power and emits approximately: **100t CO<sub>2</sub>**

**China-based** synthetic graphite anode production requires 4,100 GWhr power and emits approximately: **3,700,000t CO<sub>2</sub>**

# Cost Leader

Collective advantages enable Talga to be globally competitive low-cost anode producer



**Highest grade graphite resource**



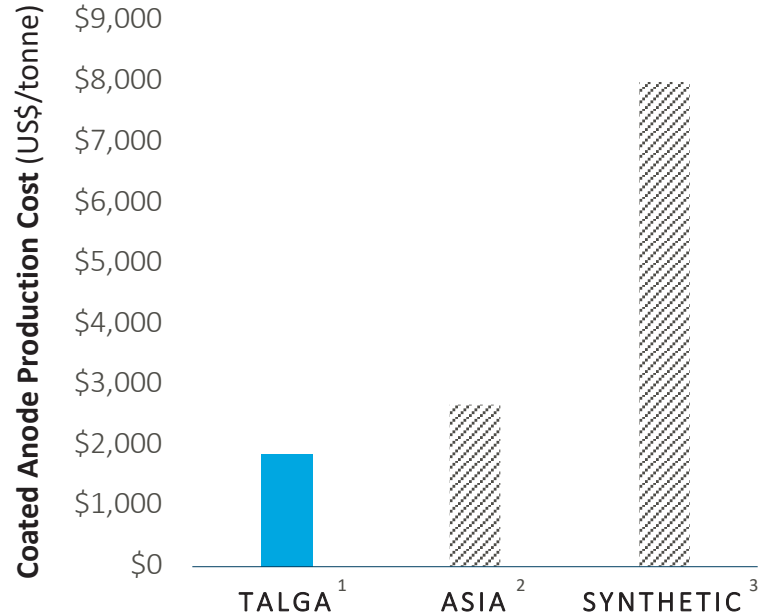
**100% anode flake  
(no basket of industrial products)**



**Very high anode yield (90%)**



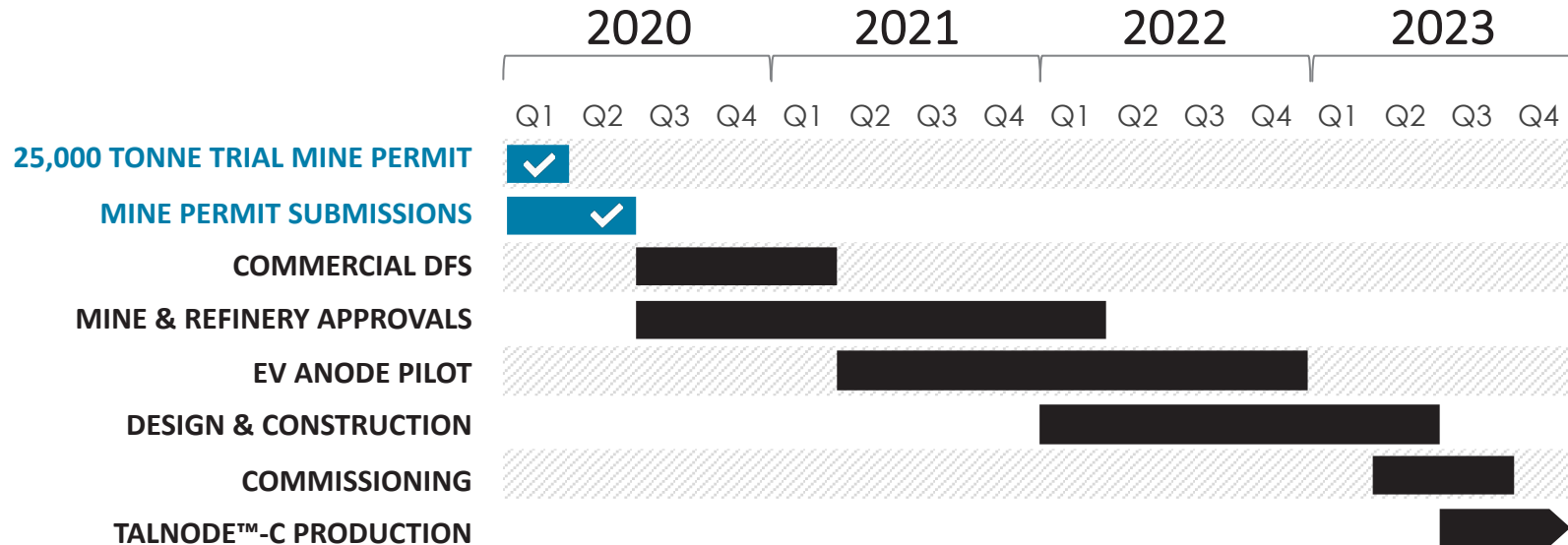
**Low cost grid power**



SEE: <sup>1</sup> ASX:TLG 23 MAY 2019. SOURCE: <sup>2</sup> BENCHMARK MINERAL INTELLIGENCE PRESENTATION: 'CHINA' REFERS TO COATED NATURAL GRAPHITE ANODE PRODUCED IN CHINA, BASED ON BULK SALES AND MID-POINT AVERAGE COSTS AS OF H1 2018. <sup>3</sup> RECRUIT REPORT: 'SYNTHETIC' REFERS TO COATED ANODE MADE FROM SYNTHETIC GRAPHITE SOURCE e.g. NEEDLE COKE.

# Project Development Timeline

Trial mine approved and full scale mining applications submitted for 2023 production





# Recent Milestones

- ✓ Partnerships underway to jointly develop project. A range of major parties are engaged and undertaking detailed diligence and testwork including **Mitsui** (ASX:TLG 20 Mar 2020)
- ✓ 36 commercial engagements for Talnode underway including qualification for EV markets, includes **Farasis Energy** (supplier to Daimler) (ASX:TLG 27 May 2020)
- ✓ **Approval for 25,000t mining operation** (5,000t Talnode production) received and land **allocation for anode refinery** from Municipality. Commercial 100,000tpa mining permits submitted
- ✓ Successful **60 tonne pilot concentrate program** provides commercial samples
- ✓ Battery **technology co-funding** from UK government Innovate programs includes **Bentley Motors**
- **Project development steps underway include Commercial Detailed Feasibility Study (Q1 2021) and expansion project Niska Scoping Study (Sep 2020)**
- **Multiple customer offtake and project financing discussions underway**

# Board of Directors

Substantial commercialisation experience across resource, innovation and development projects



**Terry Stinson**  
Non-Executive  
Chairman

**Over 35 years' Executive and Non-Executive Director experience, working for global innovation companies across a range of industry segments**

A proven track record of forming and leading international business collaborations and joint ventures.

Formerly the CEO and Managing Director of Orbital Corporation, VP for Global Fuel Systems at Siemens AG and CEO of Synerject.

Currently the Non-Executive Chairman of Carnegie Clean Energy Limited and Non-Executive Director of Aurora Labs.



**Mark Thompson**  
Managing Director  
& Founder

**Over 30 years' global experience in the mineral industry including resource project development, technology and management**

Founded Talga in 2009 and listed the company on the Australia Securities Exchange in mid 2010.

A member of the Australian Institute of Geoscientists and the Society of Economic Geologists.

Previously founded and served on the Board of ASX listed Catalyst Metals Limited.



**Grant Mooney**  
Non-Executive  
Director

**Strong corporate advisory background with extensive experience in equity capital markets, corporate governance and M&A transactions**

A member of the Institute of Chartered Accountants in Australia.

Currently the Non-Executive Director of several ASX listed companies including Carnegie Clean Energy Limited, Aurora Labs Limited and mineral resources companies Barra Resources Limited, Riedel Resources Limited, Accelerate Resources Limited and Gibb River Diamonds Limited.



**Steve Lowe**  
Non-Executive  
Director

**Strong business management and taxation background with more than 20 years' experience consulting to corporate and high wealth clients**

Holds a Bachelor of Business and a Masters of Taxation from the UNSW.

A Fellow of the Taxation Institute of Australia and a member of the Australian Institute of Company Directors.

Currently a Non-Executive Director of Coziron Resources Ltd.



**Ola Rinnan**  
Non-Executive  
Director

**Extensive commercialisation and leadership experience across the energy, banking and finance sectors**

Has held numerous board positions for European listed companies and financial institutions including Non-Executive Directorships in Smedvig group companies and DFCU Bank.

Formerly the Chairman of Avinor AS, CEO at Eidsiva Energi AS, CEO at Norgeskreditt AS and CFO for Moelven Industrier AS.

Currently the Chairman of Nordavind DC Sites AS, Hamar Media AS, Espern Eiendom AS and Gravdahl AS.

# Key Management Personnel

Leading in-house expertise across mine and battery product development



**Martin Phillips**  
Chief Operating  
Officer

**Experienced commercial and project manager with over 25 years of global metals and mining sector experience**

Manages Talga's battery anode project development and oversees the Group's European operations.

Extensive experience in constructing and managing operations and implementing business growth strategies.

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**  
Financial  
Controller

**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.

Responsible for overseeing Talga's growth in Europe taking care of areas in finance, admin, HR and legal.

Mr Scarparolo is also the Company Secretary for Talga Resources Ltd and has managed the in-country compliance requirements during Talga's European expansion.



**Dr. Claudio Capiglia**  
Director - Battery  
Technologies

**Over 20 years of experience in the battery industry in Japan and holds exclusive development and industrialisation know-how of advanced materials for Li-ion battery manufacturing**

Heads up the commercialisation of Talga's battery products.

Previous Professor & Head of Battery Group/Italian Institute Technology.

Co-founder and Director of original Li-ion cell manufacturers in Europe.

Former Senior Scientist for the solid-state battery for Hybrid Electric Vehicles (HEVs) at Toyota.



**Dr. Anna Motta**  
Head of Technologies  
& Advanced Materials

**A chemist with over 20 years of expertise in carbon nanomaterials and extensive experience in managing R&D programs**

Heads up Talga's technologies and advanced materials unit focusing on the development of next generation products.

Formerly the manager of several research programs at Cambridge Graphene Centre with particular focus on industry partnerships and technology transfer.

Previous positions include science and management roles at the National Research Centre of Finland and the University of Cambridge.

# Disclaimer

Talga Resources Ltd ACN 138 405 419 (the Company) is the issuer of this presentation.

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## **Authorisation**

This presentation is authorised for release by the Board of Directors.

## TALGA RESOURCES LTD

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### GLOBAL OPERATIONS

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**Talga Germany:** Prof.-Hermann-Klare-Str. 25, 07407 Rudolstadt, Germany

**Talga Japan:** Takatsuki, 569-1046, Osaka, Japan



# Appendix



# PFS Key Outcomes

Confirms technically and financially robust project

PARAMETER	UNITS	OUTCOME
Annual ore mining rate	tonnes	100,000
Average annual production of Talnode™-C	tonnes	19,000
Life of Mine (LOM)	years	22
Pre-tax NPV <sub>8</sub> (real)	\$M	\$1,056
Pre-tax IRR	%	55%
Total Capex	\$M	\$174
Payback	years	1.5
Talnode™-C average price	\$/t product	\$11,250
Revenue (LOM)	\$M	\$4,148
Cash cost of production of Talnode™-C	\$/t product	\$1,852
EBITDA (LOM)	\$M	\$3,254
Net profit before tax (LOM)	\$M	\$3,133

NOTE: PFS STUDY DETAILS FOR THE VITTANGI GRAPHITE PROJECT, ESTIMATED KEY ECONOMIC OUTCOMES ALL IN USD.  
SEE: ASX:TLG 23 MAY 2019. SOURCE: TALNODE™-C PRICE BASED ON BENCHMARK ASSESSMENT REPORT.

# JORC Graphite Reserve & Resources

Ore Reserve <sup>3, 6</sup>	Tonnes	Graphite (% Cg)
<b>Nunasvaara (JORC 2012)</b>	<b>1,935,000</b>	<b>23.5</b>
Proven	0	0
Probable	1,935,000	23.5

Mineral Resources <sup>1, 2, 4, 5, 7, 8, 9</sup>	Tonnes	Graphite (% Cg)
<b>Vittangi Nunasvaara (JORC 2012)</b>	<b>12,300,000</b>	<b>25.5</b>
Indicated	10,700,000	25.7
Inferred	1,600,000	23.9
<b>Vittangi Niska (JORC 2012)</b>	<b>4,600,000</b>	<b>25.8</b>
Indicated	4,600,000	25.8
<b>Jalkunen (JORC 2012)</b>	<b>31,500,000</b>	<b>14.9</b>
Inferred	31,500,000	14.9
<b>Raitajärvi (JORC 2004)</b>	<b>4,300,000</b>	<b>7.1</b>
Indicated	3,400,000	7.3
Inferred	900,000	6.4
<b>Total Mineral Resources</b>	<b>52,700,000</b>	

NOTE: <sup>1</sup> MINERAL RESOURCES ARE INCLUSIVE OF ORE RESERVES.

<sup>2</sup> MINERAL RESOURCES ARE REPORTED AT VARIOUS CUT OFF GRADES: NUNASVAARA 17% Cg, NISKA 10% Cg, JALKUNEN 5% Cg AND RAITAJÄRVI 5% Cg.

<sup>3</sup> ORE RESERVE IS REPORTED AT A CUT OFF GRADE OF 12% Cg.

<sup>4</sup> ERRORS MAY EXIST DUE TO ROUNDING.

# Competent Person Statements

The Niska Mineral Resource estimate was first reported in the Company's announcement dated 15 October 2019 titled 'Talga Substantially Increases Flagship Graphite Resource Size, Grade and Status'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Resource estimate in the previous market announcement continue to apply and have not materially changed.

The Nunasvaara Mineral Resource estimate was first reported in the Company's announcement dated 27 April 2017 titled 'Talga boosts Swedish graphite project with maiden Niska resource'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Resource estimate in the previous market announcement continue to apply and have not materially changed.

The Nunasvaara Ore Reserve statement was first reported in the Company's announcement dated 23 May 2019 titled 'Outstanding PFS results support Vittangi graphite development'. The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous market announcement and that all material assumptions and technical parameters underpinning the Reserve estimate in the previous market announcement continue to apply and have not materially changed.

The Company first reported the production targets and forecast financial information referred to in this presentation in accordance with Listing Rules 5.16 and 5.17 in its announcement titled 'Outstanding PFS results support Vittangi graphite development' dated 23 May 2019. The Company confirms that all material assumptions underpinning those production targets and forecast financial information derived from those production targets continue to apply and have not materially changed.