

## Life Cycle Assessment Highlights

### Talga's World-Leading Green Battery Anode

- Life Cycle Assessment (LCA) shows Talga's flagship battery anode product, Talnode®-C, is world's greenest graphite anode
- This initial LCA into Talga's planned lithium-ion battery anode production in Sweden was completed by Hitachi ABB Power Grids
- Production of Talnode®-C emits 96% less greenhouse gas than incumbent EV battery anode produced in China
- Equivalent to a reduction of ~2,900,000 tonnes of CO<sub>2</sub> per million EVs produced
- Results show 86% of Talnode®-C production emissions are inherited from external suppliers, allowing for further optimisation through strategic procurement processes
- LCA accords to ISO 14040 - 14044 standards and the German Association of Automotive Industry principles for data collection

Battery anode and advanced materials company Talga Group Ltd ("Talga" or "the Company") is pleased to announce the results of a Life Cycle Assessment ("LCA") of Talga's flagship lithium-ion battery anode product Talnode®-C.

The LCA was conducted by consulting firm Hitachi ABB Power Grids ("Hitachi") to quantify the cradle-to-gate<sup>1</sup> life cycle environmental impact of Talnode®-C production according to ISO 14040:2006 and ISO 14044:2006 standards, whilst following the German Association of the Automotive Industry principles for data collection.

The global warming potential of production of 1 kilogram of Talnode®-C is **1.477 kilogram CO<sub>2</sub> equivalent**, driven by Talga's unique high-yield graphite ore, innovative anode process and use of renewable energy. Of this total, **only 14% (or 0.207 kilogram CO<sub>2</sub> equivalent) is directly related to Talga's processes** (Scope 1 emissions), while the remainder is related to emissions from external suppliers. The Company foresees significant opportunities to further reduce the environmental impact of Talnode®-C through strategic sustainable procurement.

Compared to synthetic graphite anode produced in China, **this is a reduction of 96% in greenhouse gas emissions, which is equivalent to a reduction of ~2.9Mt of CO<sub>2</sub> per million EVs produced<sup>2</sup>.**

Talga's northern Swedish location has proximity to customers and availability of low-carbon transport options, such as electric trains, providing further mine-to-customer environmental advantages past the factory gate.

**Figure 1** Talnode®-C, the world's greenest graphite anode

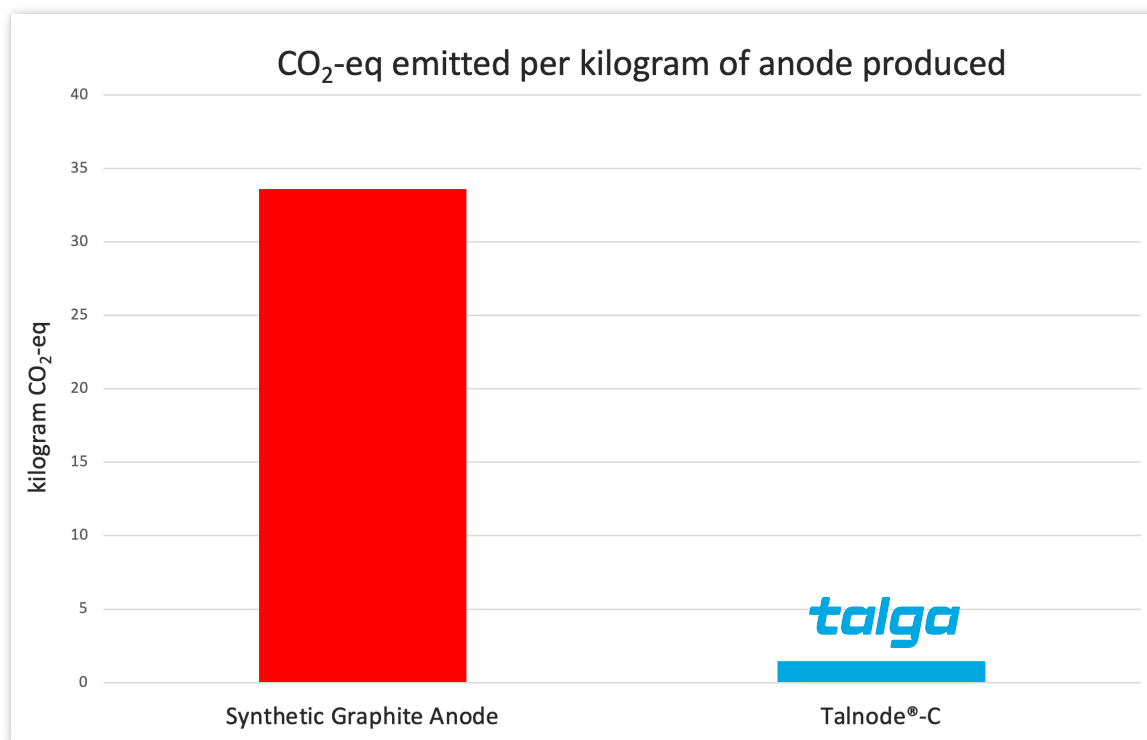


<sup>1</sup> Cradle-to-gate is an assessment of a partial product life cycle from resource extraction (cradle) to the factory gate (i.e., before it is transported to the consumer)

<sup>2</sup> Assumes 76.5kWh battery pack being average of VW ID.4 1st and Tesla Model 3 Performance. Note 1KWh = 1.2Kg anode per Benchmark Mineral Intelligence report.



**Figure 2** Emissions from Chinese synthetic graphite anode production (ASX:TLG 15 December 2020, Investor Presentation, Source: Recruit Report) compared to Talnode®-C production in northern Sweden.



**Talga Managing Director, Mark Thompson, commented:** “This high quality Hitachi Life Cycle Assessment confirms the world-leading low emissions profile of our flagship Li-ion battery anode product and highlights the importance of the Vittangi Anode Project to European decarbonisation. The level of environmental responsibility and emission performance is increasingly important to differentiate projects and products in the EV battery supply chain, and we are proud to continue executing on our strategy to deliver the greenest battery materials.”

### Methodology

According to the European Commission, LCAs are the best available framework for assessing the potential environmental impacts of products.

In conducting this LCA, Hitachi modelled the production process outlined in the Detailed Feasibility Study ([ASX:TLG 1 July 2021](#)) in a cradle-to-gate approach. As a number of conservative assumptions have been made in order to not underestimate impacts, care should be taken when comparing these results with results from other manufacturers who may use less stringent criteria.

The LCA is delivered as Talga is engaging directly with 11 automotive companies among 48 battery customer engagements ([ASX:TLG 30 July 2021](#)), each testing and qualifying Talnode® products.

### Industry

Transparency into the origin of battery raw materials is becoming increasingly important as automotive OEMs use strategic procurement to lower carbon emissions across their supply chains.

In late 2020, the Volkswagen Group announced a commitment to responsible procurement of battery raw materials<sup>3</sup> and recently said “in order to reach [the goals set in the Paris Agreement], the Volkswagen Group pursues the objective of continuously avoiding or reducing greenhouse gas emissions over the entire life cycle of a vehicle.”<sup>4</sup>

<sup>3</sup> [https://www.volkswagenag.com/en/news/2020/09/volkswagen\\_battery\\_raw\\_materials.html](https://www.volkswagenag.com/en/news/2020/09/volkswagen_battery_raw_materials.html)

<sup>4</sup> <https://www.volkswagenag.com/en/sustainability/sustainability-in-the-supply-chain.html#>

<sup>5</sup> [https://ec.europa.eu/commission/presscorner/detail/en/qanda\\_20\\_2311](https://ec.europa.eu/commission/presscorner/detail/en/qanda_20_2311)



As the only vertically integrated supplier of green anode products in Europe and a member of numerous battery and raw material industry bodies, Talga is pleased to note the electric vehicle battery policies proposed by the European Union<sup>5</sup>, including the 2026 introduction of a “passport” for EV batteries. This policy will subject battery materials imported into the EU to tariffs based on environmental credentials.

The LCA results, showing Talnode®-C’s world-leading green credentials, validates Talga’s key competitive advantage across evolving global markets where increased value is being placed on green products and sustainable supply chains.

Authorised for release by the Board of Directors of Talga Group Ltd.

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## About Talga

Talga Group Ltd (ASX:TLG) is building a European battery anode and graphene additives supply chain, to offer advanced materials critical to its customers’ innovation and the shift towards a more sustainable world. Vertical integration, including ownership of several high-grade Swedish graphite projects, provides security of supply and creates long-lasting value for stakeholders.

Company website: [www.talgagroup.com](http://www.talgagroup.com)

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Statements in this document regarding the Company's business or proposed business, which are not historical facts, are forward-looking statements that involve risks and uncertainties, such as estimates and statements that describe the Company's future plans, objectives or goals, including words to the effect that the Company or management expects a stated condition or result to occur. Since forward-looking statements address future events and conditions, by their very nature, they involve inherent risks and uncertainties. Actual results in each case could differ materially from those currently anticipated in such statements. Investors are cautioned not to place undue reliance on forward-looking statements.

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