

28 August 2020

## **Global Car Industry Awakens to the Sunrise of a Green Metals Age**

**Resumption of Electric Vehicle Sales Growth to Drive  
Unprecedented Demand for Nickel and Cobalt**

**Preliminary Study Results Confirm Long Life, Low Cost,  
Development Ready Asset**

**Clean TeQ Fully Committed to Sunrise Development for  
Auto Supply Chains**

**MELBOURNE, Australia** – Co-Chairman, Robert Friedland, and CEO, Sam Riggall, of Clean TeQ Holdings Limited (**Clean TeQ** or **Company**) (ASX/TSX:CLQ; OTCQX:CTEQF) provide the following update on the Sunrise Nickel-Cobalt-Scandium Project.

### **ELECTRIC VEHICLE MARKET UPDATE**

Despite significant economic uncertainty created by COVID-19, global electric vehicle sales surged in June and July and are, again, back to a healthy growth trajectory, supported by government policy initiatives across the world.

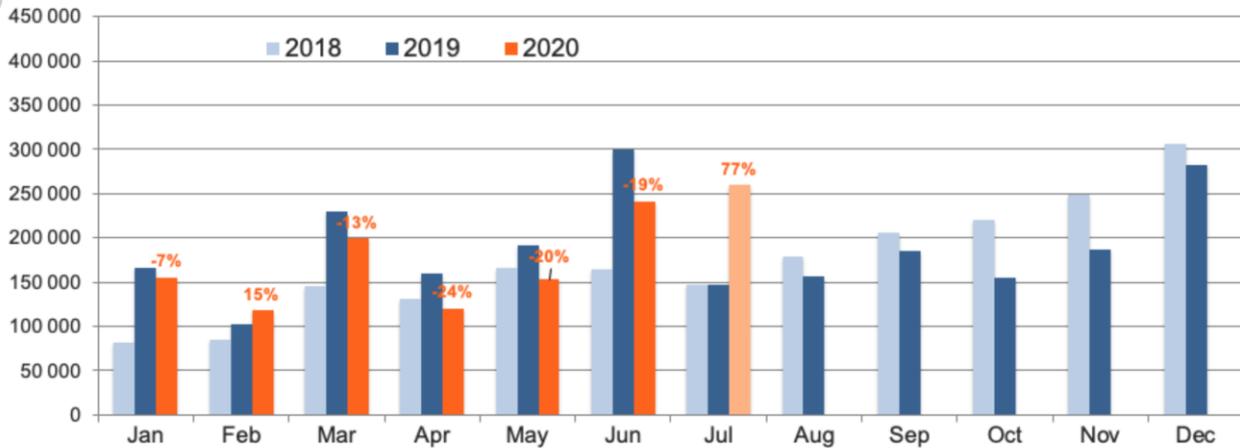
Offsetting the decline in Chinese electric vehicle sales in the first half of 2020, European sales have been surprisingly strong, as carmakers prepare to release a number of new electric models to the market. For the first time, Europe overtook China as the world's largest market, with over half a million plug-in electric vehicles sold in the first half of 2020. Governments across Europe are introducing stimulus plans that will provide momentum for electric vehicle adoption in the wake of COVID-19, supported by a mix of tightening emissions standards and subsidies to drive consumer demand.

These initiatives are expected to result in demand rebounding strongly in 2021. Benchmark Minerals, a leading industry forecaster for the battery materials sector,

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anticipates global battery demand to reach almost 800 GWh by 2025 (166 GWh in 2020), with a 37% CAGR, requiring nickel consumption in batteries to grow from 140kt in 2020 to 570kt in 2025.

**Monthly plug-in-vehicle sales and year-on-year growth rates**



Source: www.ev-volumes.com

In response, we have seen carmakers actively restructuring their businesses and supply chains to accommodate the new reality of electrification. Auto companies are investing to secure battery manufacturing capacity and capability (for example, Volkswagen's acquisition of a 26.5% stake in Chinese battery manufacturer Guoxuan High-Tech Co Ltd). Similarly, OEMs - such as Tesla and BMW - are contracting directly with mining companies to secure raw materials from low risk jurisdictions that meet minimum ethical and sustainability criteria. The clear trend is to increasing integration across the supply chain.

On the supply side for raw materials, COVID-19 has pushed back and delayed several China-financed nickel developments in Indonesia due to a combination of labour constraints in construction and, in some cases, community opposition. Outside Indonesia, almost no new nickel capacity is being developed. While cobalt markets remain well balanced, the Mutanda mine in the DRC, which represents 20% of world capacity, remains in care and maintenance due to low cobalt prices, while customers actively seek non-DRC supply options.

*"We are sitting at the foot of an enormous wave that is gathering momentum," said Mr Friedland. "The transition to cleaner and more efficient forms of energy is inexorable. It always has been. What is rarely understood is the profound impact these transitions have on supply chains and raw materials. In renewable energy, the global mining industry has yet to fathom the scale of the challenge it faces. And, at least for now, it fails to comprehend the strategic significance of assets, like Sunrise, that are critical to enabling these new energy technologies."*

*“Sunrise is a template for how you build the mine of the future for emerging, technology-driven, markets. If a company like Tesla can clearly articulate its concerns – ‘please mine more environmentally-friendly nickel’ - it’s now for the mining industry to determine whether it can deliver a solution.”*

## **SUNRISE INTERIM STUDY RESULTS**

As previously advised, the Company will release the final outcomes for its Project Execution Plan (**PEP**) at the end of September 2020, including a full economic evaluation of the Project. It will incorporate the latest engineering and design work based on updated material quantities, vendor pricing and labour costs.

In the Company’s FY20 full-year financial results, a review of the carrying value of the Sunrise Project assets was undertaken, resulting in an impairment. The review was based on a best estimate of probable outcomes from the studies currently underway and incorporated conservative macroeconomic assumptions, including forecast metal prices, as required by applicable accounting standards. Those macroeconomic assumptions included a 15% nominal post-tax discount rate and forecast prices of US\$7.30/lb for nickel, US\$21.60/lb for cobalt, US\$1,500/kg for scandium oxide and an AUD/USD rate of 0.70. As flagged in the Company’s release of 31 July 2020, the likely higher capital development cost and longer development schedule also impacted negatively on the review of the carrying value of the assets.

Despite the accounting impairment, the Company remains extremely confident that Sunrise is an exceptionally unique and strategic asset whose inherent value is not based on its book value, but on its large-scale, long-life resource, its low cost of production and its highly advantageous sustainability credentials compared to other potential sources of supply.

When the final outcomes of the PEP are announced in late September 2020, the Company will base the Project’s economic analysis on assumptions consistent with market convention and metal price forecasts by a third-party independent expert. These price forecasts will reflect the prices required to incentivise new projects to satisfy forecast demand. It is worth noting that independent long-term price forecasts for nickel and cobalt have generally strengthened over the past year due to a challenging supply outlook, improved confidence in electric vehicle uptake and an increasing awareness of procurement risks.

The key economic assumptions to be adopted in the Project’s financial assessment will be:

Discount rate (2020 real)	8%
Long-term nickel sulphate price (USD/t NiSO <sub>4</sub> )	~\$5,300
Long-term LME nickel metal equivalent price (USD/t Ni)	~\$21,900
Long-term cobalt sulphate price (USD/t CoSO <sub>4</sub> )	~\$12,200
Long-term LME cobalt metal equivalent price (USD/t Co)	~\$59,500
Scandium oxide price (USD/kg)	\$1,500
AUD/USD rate	0.70

Note: Prices quoted are in 2020 real terms. LME nickel metal equivalent price excludes a \$1/lb Ni sulphate premium. Assumes a 22% nickel metal equivalent content in NiSO<sub>4</sub> and a 20.5% cobalt metal equivalent content in CoSO<sub>4</sub>.

Based on these economic assumptions the financial outcomes of the PEP are expected to remain very robust, positioning the Sunrise asset as one of the lowest cost producers of nickel and cobalt in the world.

The current best estimates for the Project over the first 25 years of mine life, which formed the basis of the impairment test, are detailed below. **Note that the PEP deliverables are not yet complete, and these estimated outcomes may be subject to material change by the time final results are released in late September 2020.**

### Capital Cost

The current best estimate of the pre-production capital development cost is approximately US\$1.99 billion, including contingency. This represents an approximately one-third increase on the 2018 DFS estimate, driven by a number of factors:

- Engineering and design scope changes to de-risk the plant and supporting infrastructure, and to ensure successful ramp-up.
- Variations to materials of construction, designs to enhance ease of access for plant maintenance and increases in equipment redundancy at key process interfaces.
- Updating the refinery design to enable refining of primary, intermediate and secondary (recycled) metal.
- Construction of a longer power line from the regional centre of Parkes to site. The connection to the NSW electrical grid at Parkes is an important enabler for providing options for 100% renewable power supply.
- Escalation of indirect costs, particularly schedule-dependent assumptions such as labour rates and productivity, construction methodology and workforce requirements.

The current estimate of capital intensity for Sunrise has been benchmarked, using publicly available data, against the construction cost and actual production capacity of a number of successfully operating nickel/cobalt plants of similar scale in Australia, Philippines, Cuba and Papua New Guinea. While Sunrise's capital intensity, at US\$56k/t Ni-equivalent,

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sits at the higher end of that comparable range, it is worth noting that the Project incorporates a number of safety, environmental and operability design features that differentiate it substantially from other assets in the industry.

### Production

The current best estimate of mining, processing, production and sales forecasts are:

Physicals	Average Annual Years 2-11	Average Annual Years 2-25
Ore mined (tonnes) <sup>1</sup>	5,531,402	3,325,140
Ore mill feed (tonnes) <sup>2</sup>	2,572,146	2,655,361
Nickel grade: mill feed	0.91%	0.77%
Cobalt grade: mill feed	0.19%	0.13%
Ore PAL feed (tonnes)	2,472,566	2,488,875
Nickel grade: PAL feed	0.93%	0.80%
Cobalt grade: PAL feed	0.19%	0.14%
Nickel recovery: PAL feed	92.50%	92.35%
Cobalt recovery: PAL feed	91.09%	90.88%

Production and Sales	Average Annual Years 2-11	Average Annual Years 2-25
Nickel Sulphate (tonnes)	96,753	83,596
Cobalt Sulphate (tonnes)	20,916	15,245
Nickel metal content (tonnes)	21,286	18,391
Cobalt metal content (tonnes)	4,351	3,171
Scandium recovered as Sc(OH) <sub>3</sub> (Kg) <sup>3</sup>	25,098	24,409
Scandium oxide sold (Kg) <sup>4</sup>	9,600	15,667
Ammonium sulphate (tonnes)	60,306	50,462

<sup>1</sup> The optimised mine plan involves stockpiling of intermediate material in early years for processing in later years.

<sup>2</sup> Ore is beneficiated to remove barren silica prior to being introduced to the autoclave.

<sup>3</sup> Scandium is recovered as a by-product of nickel and cobalt production initially as a scandium hydroxide concentrate which is stored on-site until required for conversion to scandium oxide. The figures quoted are scandium oxide (Sc<sub>2</sub>O<sub>3</sub>) equivalent.

<sup>4</sup> Scandium hydroxide stored on-site is refined and sold to order. The Company has assumed sales of scandium oxide will ramp-up progressively from 2 tonnes per annum in year 3 to 20 tonnes per annum by year 10.

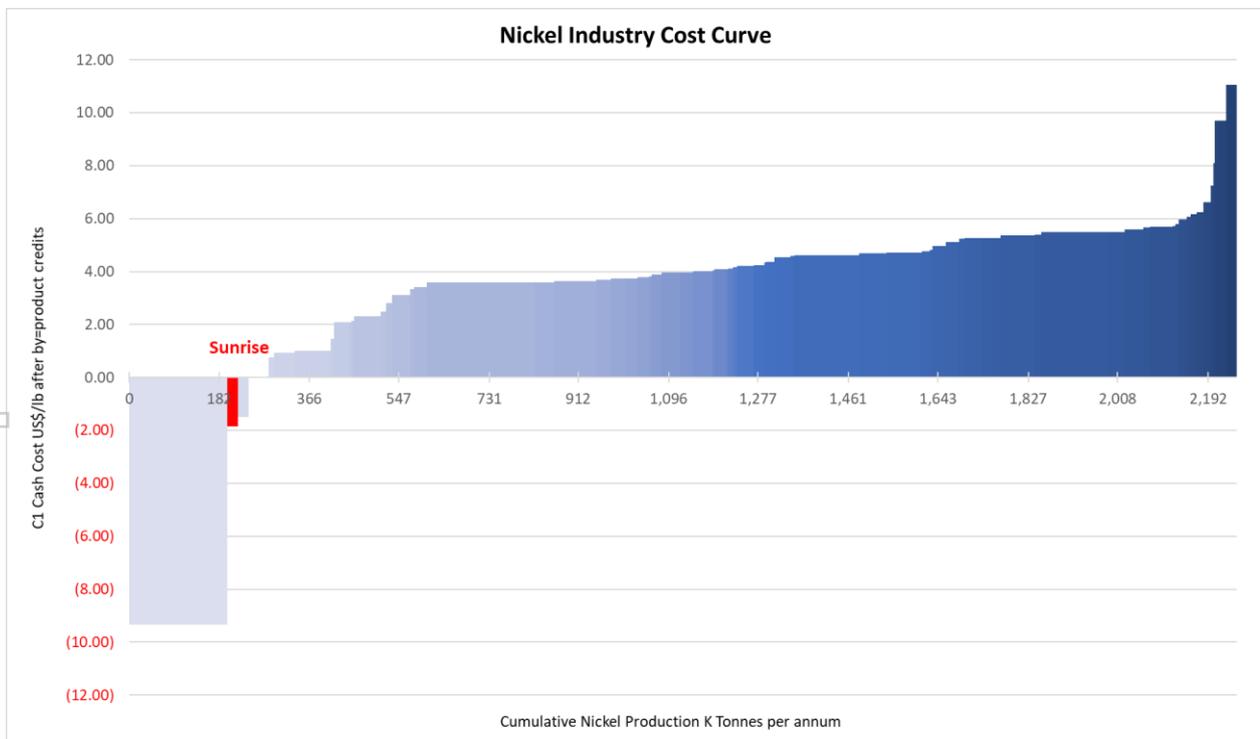
Operating costs

Sunrise is designed to deliver some of the lowest cost metal units into the global battery supply chain. Supported by an integrated mining/refining operation and strong by-product credits, Sunrise is targeting first quartile nickel production costs over its 40-year mine life.

The current best estimate of the Project’s operating costs, which are subject to on-going revision through the completion of the PEP phase, are:

Production and Sales	US\$/lb Ni Years 2-11	US\$/lb Ni Years 2-25
<b>C1 Operating Costs (before by-products)</b>	<b>4.42</b>	<b>4.76</b>
<b>By-product credits</b>		
Cobalt Credits	(5.81)	(4.65)
Scandium Credits	(0.31)	(0.58)
Ammonium Sulphate Credits	(0.17)	(0.16)
<b>Total By-product credits</b>	<b>(6.28)</b>	<b>(5.39)</b>
<b>Total C1 cost net of by-product credits</b>	<b>(1.86)</b>	<b>(0.63)</b>

Note: By-product credits based on US\$59,512/t Co (metal equivalent), US\$1,500/kg Sc2O3 and US\$130/t amsul.



Source: Wood Mackenzie

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### Schedule

Work continues to optimise the construction and ramp-up schedule. The current best estimate remains an engineering, procurement and construction schedule from signing of an EPCM contract to first production of approximately three years, followed by a 24-month ramp-up to full production.

### **FUNDING AND DEVELOPMENT**

COVID-19 has presented difficult conditions for financial markets and challenges for funding new projects. Pleasingly, though, engagement with the automotive sector on Sunrise remains on-going, despite these challenges.

It will take time for automotive supply chains to adapt to a new reality. Some OEMs are making that transition faster than others and some, like Tesla, are beginning to understand the enormity of the raw material challenges, particularly for nickel and cobalt.

At some point, significant investments need to be made in new mining capacity if electric vehicles are to become anything more than a niche market. To date, at least in nickel and cobalt, the mining industry has not been prepared to make that investment.

While the timing for completion of a transaction is not possible to forecast, Clean TeQ will continue to engage with potential partners across the supply chain.

As Mr Riggall noted, *“We are fully committed to developing Sunrise. We are also prepared to be patient and to wait for market conditions to improve. We have been extremely focused the past few years, completing a comprehensive program of test work and studies, obtaining key project approvals and securing the resource. The result is a construction-ready, multi-decade asset producing some of the lowest cost nickel and cobalt units in the industry, designed to support well over 1 million electric cars per year.”*

Following release of the final PEP study results at the end of September, the Company will host a webcast for investors to review the Sunrise study results.

### **UPDATE ON FUTURE SITE EXPLORATION ACTIVITIES**

In coming weeks, the Company will update the market on a work program intended to test the deeper mineral potential of Sunrise. While the Sunrise laterite hosts over 1,000,000 ounces of platinum,<sup>5</sup> no drilling campaign has ever been undertaken to test the source of this metal below the laterite.

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<sup>5</sup> For full details see the ASX announcement dated 9 October 2017

As Mr Friedland noted, *“It is difficult to think of a better walk-up drill target in Australia than the Sunrise dunitite, with over one million ounces of platinum already defined at surface and a handful of historic drill holes intercepting high grade platinum in bedrock, but never adequately followed up. The Sunrise resource may have a lot more to give.”*

**For more information, please contact:**

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This announcement is authorised for release to the market by the Board of Directors of Clean TeQ Holdings Limited.

**About Clean TeQ Holdings Limited (ASX/TSX: CLQ)** – Based in Melbourne, Australia, Clean TeQ is a global leader in metals recovery and industrial water treatment through the application of its proprietary Clean-iX<sup>®</sup> continuous ion exchange technology. For more information about Clean TeQ please visit the Company’s website [www.cleanteq.com](http://www.cleanteq.com).

**About the Clean TeQ Sunrise Project** – Clean TeQ is the 100% owner of the Clean TeQ Sunrise Project, located in New South Wales. Clean TeQ Sunrise is one of the largest cobalt deposits outside of Africa, and one of the largest and highest-grade accumulations of scandium ever discovered.

**About Clean TeQ Water** – Through its wholly owned subsidiary Clean TeQ Water, Clean TeQ is also providing innovative wastewater treatment solutions for removing hardness, desalination, nutrient removal and zero liquid discharge. The sectors of focus include municipal wastewater, surface water, industrial waste water and mining waste water. For more information about Clean TeQ Water please visit [www.cleanteqwater.com](http://www.cleanteqwater.com).

**FORWARD-LOOKING STATEMENTS**

Certain statements in this news release constitute “forward-looking statements” or “forward-looking information” within the meaning of applicable securities laws. Such statements involve known and unknown risks, uncertainties and other factors, which may cause actual results, performance or achievements of the Company or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements or information. Such statements can be identified by the use of words such as “may”, “would”, “could”, “will”, “intend”, “expect”, “believe”, “plan”, “anticipate”, “estimate”, “scheduled”, “forecast”, “predict” and other similar terminology, or state that certain actions, events or results “may”, “could”, “would”, “might” or “will” be taken, occur or be achieved. These statements reflect the Company’s current expectations regarding future events, performance and results, and speak only as of the date of this new release.

Statements in this news release that constitute forward-looking statements or information include, but are not limited to, statements regarding: the completion of the Sunrise Project Execution Plan; financing of the Sunrise Project; the outlook for electric vehicle markets and demand for nickel and cobalt; the EPCM and ramp-up schedule and capital development cost for the Sunrise Project; production volumes and production cost and sustainability of Sunrise metal production. Readers are cautioned that actual results may vary from those presented. All such forward-looking information and statements are based on certain assumptions and analyses made by Clean TeQ’s management in light of their experience and perception of historical trends, current conditions and expected future developments, as well as other factors management believe are appropriate in the circumstances. These statements, however, are subject to a variety of risks and uncertainties and other factors that could cause actual events or results to differ materially from those projected in the forward-looking information or statements including, but not limited to, unexpected changes in laws, rules or regulations, or their enforcement by applicable authorities; the failure of parties to contracts to perform as agreed; changes in commodity prices; unexpected failure or inadequacy of infrastructure, or delays in the development of infrastructure, and the failure of exploration programs or other studies to deliver anticipated results or results that would justify and support continued studies, development or operations. Other important factors that could cause actual results to differ from these forward-looking statements also include those described under the heading “Risk Factors” in the Company’s most recently filed Annual Information Form available under its profile on SEDAR at [www.sedar.com](http://www.sedar.com).

Readers are cautioned not to place undue reliance on forward-looking information or statements.

Although the forward-looking statements contained in this news release are based upon what management of the Company believes are reasonable assumptions, the Company cannot assure investors that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of the date of this news release and are expressly qualified in their entirety by this cautionary statement. Subject to applicable securities laws, the Company does not assume any obligation to update or revise the forward-looking statements contained herein to reflect events or circumstances occurring after the date of this news release.

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