

31 October 2019

MELBOURNE, Australia – Mr Sam Riggall, Chief Executive Officer of Clean TeQ Holdings Limited (**Clean TeQ** or **Company**) (ASX/TSX:CLQ; OTCQX:CTEQF), will present the attached update to shareholders today at 10:00am at the Company's Annual General Meeting in Melbourne.

For more information, please contact:

Clean TeQ – Ben Stockdale, CFO and Investor Relations

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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® continuous ion exchange technology. For more information about Clean TeQ please visit the Company's website <u>www.cleanteq.com</u>.

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, 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.

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, the Clean TeQ Sunrise Project, 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 presentation that constitute forward-looking statements or information include, but are not limited to statements regarding successful completion and handover of water projects, development of a pipeline of new water projects, the negotiation and conclusion of further offtake agreements; growth in demand for battery materials.

In addition, all disclosures in this presentation related to the results of the Sunrise Project's Definitive Feasibility Study (the "DFS") announced on June 25, 2018, constitute forward-looking statements and forward-looking information. The forward-looking statements includes metal price assumptions, cash flow forecasts, projected capital and operating costs, metal recoveries, mine life and production rates, and the financial results of the DFS. These include statements regarding the



Sunrise Project IRR; the Project's NPV (as well as all other before and after taxation NPV calculations); life of mine revenue; average annual EBITDA; capital cost; average C1 operating cash costs before and after by-product credits; proposed mining plans and methods, the negotiation and execution of offtake agreements, a mine life estimate; project payback period; the expected number of people to be employed at the Project during both construction and operations and the availability and development of water, electricity and other infrastructure for the Sunrise Project, as well as the indicative project schedule. 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; changes in investor demand; the results of negotiations with project financiers; 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.

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

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ANNUAL GENERAL MEETING FY19 OPERATIONAL REVIEW

SAM RIGGALL – CHIEF EXECUTIVE OFFICER

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- Excellent HSE performance, zero community and environmental incidents and good progress on developing business systems
- Sunrise engineering advanced, MOD4 secured and strong government and community support
- □ Work continues on debt and equity financing options
- Finished construction of three water / metal recovery plants across Australia, Africa and the Middle East. All in final stages of commissioning prior to handover
- Developing a pipeline of new water opportunities
- CleanBio[®] Lens production, on-going ion exchange process development and establishment of NematiQ for graphene oxide membranes







CLEAN TEQ SUNRISE

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Building the world's largest, fullyintegrated battery raw materials business

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Decarbonisation – the industrial challenge for this century



The world will need significantly more metal – for energy generation, storage and distribution



Energy storage



Lithium-ion batteries have emerged as the dominant energy storage technology for transportation



Energy density

- □ Nickel drives energy density in the cathode and therefore EV range
- □ Cathodes require increasingly more nickel (NMC532, NMC811, NCA vs LFP, LMO)

2 Lifecycle and safety

- Cobalt stabilises the chemistry and improves recharge/discharge performance critical for **fast-charging** applications
- □ Newer chemistries use less cobalt, but very difficult to replace cobalt completely

3 Cost

- Nickel and cobalt make up 80% of cathode raw material cost, 20% of the cell cost and 10% of EV battery pack cost
- □ Volatile nickel and cobalt prices can significantly impact producer margins
- □ Cell production costs are declining at **~8%pa**, to reach ICE parity in the next few years, meaning metal cost is becoming a larger portion of total delivered cost

Megafactories being built now



Significant increase in Li-ion battery capacity from 2018 to 2028



- 70 megafactories under construction
- 46 in China
- Megafactories will make Li-ion batteries with two specific chemistries:
 - nickel-cobalt-manganese
 - nickel-cobalt-aluminium
- Significant impact for four critical raw materials: lithium, nickel, cobalt and graphite

Source: Benchmark Mineral Intelligence (5 Feb 2019 written testimony to US Senate Committee on Energy and Natural Resources Committee)

Nickel market balance



The world needs over 1 million tonnes of new nickel capacity within a decade



Source: Internal analysis assuming 1.5% pa global passenger vehicle growth and 15% EV penetration rate by 2030. Battery chemistry demand by 2020 is 90% split between NCM622/NCM811/NCA and 10% LFP. Average battery pack size is 50kWh. Mine closure and expansion data from Wood Mackenzie nickel market forecasts.

Cobalt market balance



The world needs over 180k tonnes of new cobalt capacity within a decade

Cobalt Market Balance 2018-2030 (kt pa Co)





A\$ nickel prices are +66% year to date and now trading at multi-year highs



Supply disruptions to drive prices higher

- The now immediate return of the Indonesian nickel ore ban is expected to take out ~250ktpa of supply
 - Equivalent to 10% of the global market
 - Stainless steel capacity is migrating from China to Indonesia
- Laterite development in SE Asia is a focus for China, for both Class 1 and 2 nickel
- At least four Indonesian PAL projects are in studies phase, mostly led by Chinese companies or consortia
 - PAL is fundamentally different to NPI and FeNi smelting
 - PAL development is essential if the world is to produce enough Class 1 nickel
- Steel industry concerns have led to LME stocks falling to their lowest levels in a decade

Source: Public announcements and Macquarie Research

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Nickel has meaningful supply constraints with a supply deficit forecast to emerge by 2021

500.0 400.0 LME warehouse stocks (kt) 300.0 Sept 19: Announcement of Indonesian ore export ban 200.0 100.0 2016 2019 2015 2017 2018 Source: Bloomberg, as at 28 October 2019.

LME inventories have declined rapidly

...alongside an emerging long-term supply deficit



Source: Wood Mackenzie, June 2019.



High relative cobalt grades support a very low cost operation



Co:Ni Ratio in ROM Ore

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By-product revenues cover nickel production costs



Source: Wood Mackenzie cost curve. Sunrise C1 cash cost (after credits) based on 2018 DFS financial model, adjusted for a lower cobalt price of US\$22.60/lb Co.



A supply side response from PAL laterite development will take time



PAL Development Timelines

Source: SNL and public data



Over 20 years of development work and >A\$200m of invested capital

STUDIES	Definitive Feasibility Study completed in June 2018
	Approved 2.5mtpa project from New South Wales Government
VWATER	Secure 3.2GLpa water allocation
	Road and rail access in place
V POWER	Mains power and gas in close proximity to site
V PILOT PLANT	Successful pilot plant operation demonstrated process flowsheet
V MAIDEN OFFTAKE	Secured maiden offtake agreement with Beijing Easpring
MINING LEASES	Mining Leases granted
	Strong technical and project delivery capability
CONSTRUCTION READINESS	Project Execution Plan delivery in 2Q 2020

Community engagement





How we communicate locally







Develop a clear path for project implementation



Work to date	Finalise 2Q 2020	Managed from within Australia using experienced local contractors
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Delivering innovative waste water treatment solutions

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Water scarcity is a global issue



The world's climate is changing, with impacts on water availability



Over the next 15 years, population & economic growth are expected to <u>double</u> global water demand

Lack of access to safe drinking water





An estimated 844 million people do not have access to safe drinking water

China rates 76% of monitored groundwater sites as "poor" or "very poor"

In 2015, 21 million people in the United States were reliant on water systems that had not met health-related safety standards

Soil is becoming less fertile and less productive



Droughts are becoming longer and hotter. Erosion removes top-soil's capacity to retain water.

Localised water impacts



Agriculture, industry and energy can have major impacts if not managed well



Blue-green algae boom due to fertilizer and other chemical waste

Clean-up after cadmium spill from battery factory (China)

North Carolina toxic coal ash spill in local river



'Toilet-to-tap': % re-use of waste water plant effluent



Source: https://www2.deloitte.com/content/dam/Deloitte/pl/Documents/Reports/pl_Water-Tight-2-0-The-top-trends-in-the-global-water-sector.pdf

CLEAN TEQ WATER MISSION

We aspire to address global scarcity of fresh water by providing innovative technology solutions that lower the cost and complexity of water recycling and resource recovery

STRATEGY:



Build on our unique portfolio of innovative technologies and solutions



3

Focus only on selected large and high growth sectors & regions

Provide specialized EPC or BOOT solutions

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 Desalination Sulphate Arsenic Selenium Dissolved metals 	Mining	Waste water treatment plant re-use	 Desalination Nutrient (ammonia, nitrate, phosphate) removal and recovery Suspended solids
 Desalination Nutrient (ammonia, nitrate, phosphate) removal and recovery Trace heavy metals 	Ground water treatment	Industrial brines	 Desalination Hardness Sulphate COD Heavy metals

FY19 project delivery – plants awaiting handover





Antimony Processing Plant

- Oman
- 500 tons/day
- CIF[®] + Reverse Osmosis for re-use
- Construction complete



Gold Mine Waste Water

- Victoria, Australia
- 2000 tons/day
- Removal of Sulphate, Calcium, Magnesium, Arsenic, Antimony through DeSalx[®]



Cobalt Nickel Raffinate

- Democratic Republic of Congo
- 20,000 tons/day
- Removal and recovery of Uranium through cLX[®]



Technology development

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Tianjin CleanBio[®] Lens facility



Targeting cost-effective nitrate removal



Blank CleanBio[®] Lens production calibration and optimization in progress

Starting calibration of production and cultivation of bacteria-inoculated CleanBio[®] Lenses



CleanBio[®] Lens production line









Potentially superior membrane performance

- Joint Venture with Ionic Industries (NematiQ) to progress GO-membrane development
- Graphene oxide-based membranes have the potential to deliver significant benefits due to their high water flux, tunability and non-fouling properties
- Targeting next key stage-gate decision by year-end



Ion exchange resins



Resin performance underpins investment in IX technologies



- On-going work to optimize resin performance across metal recovery and water treatment applications
- Clean TeQ works closely with third party vendors to create high-performance resins





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Powering innovation