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CleanTech Lithium PLC
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CleanTech Lithium PLC ("CleanTech Lithium" or the "Company")
Pilot Plant Commences Operation with First Lithium Chloride Eluate Produced

CleanTech Lithium PLC (AIM:CTL, Frankfurt: T2N, OTCQX: CTLHF), an exploration and development company advancing lithium projects in Chile, announces that the operation of the Company´s pilot plant has commenced and is producing lithium chloride eluate from the Direct Lithium Extraction (DLE) process.

Pilot Plant Highlights:

- Commissioning phase of DLE pilot plant completed and operation underway
- Brine from the Laguna Verde project is being fed into DLE columns where lithium chloride is extracted onto the adsorbent, before desorption with water to create a purified lithium chloride eluate
- First production of eluate was completed in the past week
- A reverse osmosis unit at the pilot plant will be used to concentrate the eluate
- The pilot plant has a design capacity of 1 tonne per month lithium carbonate equivalent (LCE) as concentrated eluate
- The concentrated eluate will be shipped in batches to North America for conversion into battery-grade lithium carbonate
- The Company will determine the appropriate volume of each batch based on end user requirements and conversion cost considerations
- The Company has engaged Conductive Energy for the conversion, utilising standard industry processing steps
- The pilot plant will be used for process optimisation and product verification and will provide important input into the Pre-feasibility study (PFS) currently underway for the project
- Operation of the pilot plant will place CTL among a small number of companies in the lithium exploration sector to produce meaningful quantities of battery grade product at pilot scale
- Samples of the product will be made available to potential strategic partners such as major auto and battery manufacturers, in preparation for off-take agreements

Commenting, Aldo Boitano, Chief Executive Officer, of CleanTech Lithium PLC, said:
"I am very pleased to inform the market that our pilot plant has commenced operation with the first volume of lithium chloride eluate produced. Batches of concentrated eluate will be shipped to North America to be converted into battery grade lithium carbonate by a third-party processor. This pilot plant plans to produce significant quantities of battery grade product for evaluation by potential strategic partners, making CTL one of the few companies in the sector to produce pilot scale volumes of battery grade product. The pilot plant positions CTL as a leader in the sector and in Chile, with first eluate production representing a significant milestone for the Company."

Further Information

The Company´s pilot plant, which is located at the Company´s R&D Centre in Copiapó, some 250km from Laguna Verde, underwent an extended commissioning phase which is now completed. Washing and adsorbent activation protocols were completed, and filtering equipment and a reverse osmosis (RO) unit installed. Brine from the Laguna Verde project is stored in a large 243,000 litre vessel outside the pilot plant, which is fed into an indoor tank having passed through filtration to remove suspended solids. It is then fed into the DLE columns shown in Figure 1, which are filled with adsorbent designed to be selective for lithium molecules. Lithium, as lithium chloride, is adsorbed from the brine, before desorption with water to create a lithium chloride eluate. DLE acts as a purification stage recovering lithium chloride from the brine whilst rejecting more than 99% of other impurities. First production of lithium chloride eluate was completed in the past week.

A RO unit at the plant will be used to concentrate the eluate, with the concentrated eluate to be shipped to North America for the downstream conventional processing stages and conversion into battery-grade lithium carbonate.



Figure 1: Pilot Plant Multi-Valve Feeding Brine to DLE Columns (approx. 2.5 metres high)

Downstream Processing into Battery-Grade Lithium Carbonate

For the conversion of the concentrated lithium chloride eluate into battery-grade lithium carbonate, CTL has engaged Conductive Energy based in Alberta, Canada, which has a conversion facility in Chicago, USA. Concentrated eluate will be shipped in batches on a monthly basis to this facility (see Figure 2). The first step will be to further concentrate the eluate using Forward Osmosis (FO), with an FO unit provided by Forward Water Technology, another Canadian company based in Ontario. FO achieves a high concentration factor with low energy use.





Figure 2: Conductive Energy - Milling and Refining Equipment, Continuously Stirred Tank Reactor, and Lithium Carbonate product in Chicago, USA (pictures left to right)

Following FO, the conversion process stages undertaken by Conductive Energy, involve polishing to remove trace impurities, carbonation to precipitate lithium carbonate, solid/liquid separation and drying. These standard industry processes for lithium carbonate production are reflective of the conversion process CTL plans to use at a commercial scale for the Laguna Verde project. Samples of the lithium carbonate product will be analysed by Conductive Energy and a third-party independent laboratory to confirm the benchmark of 99.5% Li_2CO_3 is achieved for battery-grade lithium carbonate. The product will be packaged for shipping to potential strategic partners and off-takers for product verification in the coming months.

****ENDS****

Notes:

The information communicated within this announcement is deemed to constitute inside information as stipulated under the Market Abuse Regulations (EU) No 596/2014 which is part of UK law by virtue of the European Union (Withdrawal) Act 2018. Upon publication of this announcement, this inside information is now considered to be in the public domain. The person who arranged for the release of this announcement on behalf of the Company was Gordon Stein, Director and CFO.

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About CleanTech Lithium

CleanTech Lithium (AIM:CTL, Frankfurt:T2N, OTCQX:CTLHF) is an exploration and development company advancing sustainable lithium projects in Chile for the clean energy transition. Committed to net-zero, CleanTech Lithium's mission is to produce material quantities of sustainable battery grade lithium products using Direct Lithium Extraction technology powered by renewable energy. The Company plans to be a leading supplier of 'green' lithium to the EV and battery manufacturing market.

CleanTech Lithium has four lithium projects - Laguna Verde, Francisco Basin, Llamara and Salar de Atacama - located in the lithium triangle, a leading centre for battery grade lithium production. The two major projects: Laguna Verde and Francisco Basin are situated within basins controlled by the Company, which affords significant potential development and operational advantages. All four projects have direct access to existing infrastructure and renewable power.

CleanTech Lithium is committed to using renewable power for processing and reducing the environmental impact of its lithium production by utilising Direct Lithium Extraction with reinjection of spent brine. Direct Lithium Extraction is a transformative technology which removes lithium from brine, with higher recoveries than conventional processes. The method offers short development lead times with no extensive site construction or evaporation pond development so there is minimal water depletion from the aquifer. www.ctlithium.com

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