

15 December 2016

# **ASX / TSX ANNOUNCEMENT**

# Positive scoping studies confirm 17,500 tonne per annum lithium carbonate expansion for Olaroz Lithium Facility in Argentina

- Lithium carbonate equivalent (LCE) production will be expanded from the current 17,500 tonnes per annum (tpa) capacity to 35,000 tpa with commissioning targeted for late 2018/early 2019
- Capital expenditure for the additional 17,500 tpa of lithium carbonate capacity is circa US\$190 million (including a US\$25 million contingency) and is expected to be financed through a combination of project finance and Stage 1 operating cashflows
- Construction of a 10,000 tpa battery grade lithium hydroxide plant is being investigated with the preferred location being in Japan. Additional capital expenditure is expected to be circa US\$30 million before potential government incentives. Financing of this development is expected to include debt and/or offtake financing
- Following site visits, five engineering firms have been pre-qualified for the Olaroz lithium carbonate expansion, and three specialist engineering firms have been preselected to undertake work on the lithium hydroxide plant

Orocobre Limited (ORE:ASX, ORL:TSX) (**Orocobre** or the **Company**) provides the following update into studies conducted for the Stage 2 expansion of the Olaroz Lithium Facility.

A number of different expansion options were assessed focusing on the production of both lithium carbonate and lithium hydroxide using either conventional and non-conventional technologies and combinations of technologies with different rates of production. The Stage 2 expansion strategy has considered product market conditions, processing risk, capital costs and potential returns.

The key results of the studies were:

- There are key strategic advantages to add lithium hydroxide to the Orocobre product range to feed the growing demand in the battery sector
- The preferred location for a lithium hydroxide plant is Japan in order to be close to, or integrated with, cathode manufacturers servicing the growing electric vehicle sector
- Only existing conventional processing technologies will be used in the expansion. All unconventional technologies reviewed carried a significant level of process risk and were not seen to hold any commercial advantage over conventional technologies
- Stage 2 is expected to be fully funded by project debt and internal project cashflows

Stage 2 will entail the construction of a 17,500 tpa lithium carbonate production facility adjacent to the Stage 1 operations at Salar de Olaroz, in northern Argentina. The expansion is expected to include both Primary and Purification circuits capable of producing battery grade lithium carbonate. In addition, studies continue into construction of a 10,000 tpa lithium hydroxide plant, with a preferred location in Japan facilitating integration into production of cathode for battery manufacture.

# **Capital Requirements**

The Stage 2 capital cost is estimated to be US\$190 million including a US\$25 million contingency for construction of a 17,500 tonne lithium carbonate facility.

If a lithium hydroxide plant is constructed in Japan, the approximate capital cost will be US\$30 million before any government incentives.

It is expected that the funding of both developments will involve project debt (circa 70%) and operating cashflow from Stage 1. In addition, a lithium hydroxide plant based in Japan is likely to be eligible for offtake financing and government incentives.

Orocobre does not anticipate the need to raise equity capital to finance either the Stage 2 expansion or lithium hydroxide plant.

## **Operating Costs**

Stage 2 operating costs for battery grade lithium carbonate production are expected to be similar to Stage 1, which are currently circa US\$3,500 per tonne and forecast to decrease to US\$2,500 per tonne in FY18.

#### Timing

The process to obtain the necessary permits and approvals for Stage 2 has commenced and will run concurrently with engineering and design work.

Orocobre and its joint venture partners expect to reach a final investment decision by mid-2017. Stage 2 commissioning is planned to commence in late 2018/early 2019, which aligns with a projected undersupply of lithium chemicals in global markets.

Orocobre is the first new brine based producer of lithium carbonate to emerge in approximately 20 years.

## For more information, please contact:

Richard Seville Managing Director T: +61 7 3871 3985 M: +61 419 916 338 E: <u>rseville@orocobre.com</u> Andrew Barber Investor Relations Manager T: +61 7 3871 3985 M: +61 418 783 701 E: <u>abarber@orocobre.com</u>

# **About Orocobre Limited**

Orocobre Limited is listed on the Australian Securities Exchange and Toronto Stock Exchange (ASX:ORE) (TSX:ORL), and is building a substantial Argentinian-based industrial chemicals and minerals company through the construction and operation of its portfolio of lithium, potash and boron projects and facilities in the Puna region of northern Argentina. The Company has built, in partnership with Toyota Tsusho Corporation and JEMSE, the first large-scale, greenfield brine based lithium project in approximately 20 years at the Salar de Olaroz with planned production of 17,500 tonnes per annum of low-cost battery grade lithium carbonate.

The Olaroz Lithium Facility has a low environmental footprint because of the following aspects of the process:

- The process is designed to have a high processing recovery of lithium. With its low unit costs, the process will result in low cut-off grades, which will maximise resource recovery.
- The process route is designed with a zero liquid discharge design. All waste products are stored in permanent impoundments (the lined evaporation ponds). At the end of the project life the ponds will be capped and returned to a similar profile following soil placement and planting of original vegetation types.
- Brine is extracted from wells with minimum impact on freshwater resources outside the salar. Because the lithium is in sedimentary aquifers with relatively low permeability, drawdowns are limited to the salar itself. This is different from halite hosted deposits such as Salar de Atacama, Salar de Hombre Muerto and Salar de Rincon where the halite bodies have very high near surface permeability and the drawdown cones can impact on water resources around the Salar affecting the local environment.
- Energy used to concentrate the lithium in the brine is solar energy. The carbon footprint is lower than other processes.
- The technology developed has a very low maximum fresh water consumption of <20 l/s, which is low by industry standards.
- Sales de Jujuy S.A. is also committed to the ten principles of the sustainable development framework as developed by The International Council on Mining and Metals. The company has an active and well-funded "Shared Value" program aimed at the long term development of the local people.

The Company continues to follow the community and shared value policy to successfully work with suppliers and the employment bureau to focus on the hiring of local people from the communities of Olaroz, Huancar, Puesto Sey, Pastos Chicos, Catua, Susques, Jama, El Toro, Coranzulí, San Juan and Abrapampa. The project implementation is through EPCM (Engineering, Procurement and Construction Management) with a high proportion of local involvement through construction and supply contracts and local employment. The community and shared value policy continues to be a key success factor, training local people under the supervision of high quality experienced professionals.

The Company also wholly-owns Borax Argentina, an important regional borate producer.

For further information, please visit www.orocobre.com

#### **Caution Regarding Forward-Looking Information**

This news release contains "forward-looking information" within the meaning of applicable securities legislation. Forward-looking information contained in this release may include, but is not limited to, the completion of commissioning, the commencement of commercial production and ramp up of the Olaroz Lithium Facility and the timing thereof, the cost of construction relative to the estimated capital cost of the Olaroz Lithium Facility, the meeting of banking covenants contained in project finance documentation, the design production rate for lithium carbonate at the Olaroz Lithium Facility, the expected brine cost and grade at the Olaroz Lithium Facility, the expected operating costs at the Olaroz Lithium Facility and the comparison of such expected costs to expected global operating costs, the estimation and conversion of exploration targets to resources at the Olaroz Lithium Facility, the viability, recoverability and processing of such resources, the potential for an expansion at the Olaroz Lithium Facility and the outcome of studies currently being undertaken into the proposed expansion at Olaroz and elsewhere, the capital cost of an expansion at the Olaroz Lithium Facility; the future performance of the relocated borax plant and boric acid plant, including without limitation the plants estimated production rates, financial data, the estimates of mineral resources or mineralisation grade at Borax Argentina mines, the economic viability of such mineral resources or mineralisation, mine life and operating costs at Borax Argentina mines, the projected production rates associated with the borax plant and boric acid plant, the market price of borate products whether stated or implied, demand for borate products and other information and trends relating to the borate market, taxes including recoveries of IVA, royalty and duty rate and the ongoing working relationship between Orocobre and the Province of Jujuy, TTC and Mizuho Bank.

Such forward-looking information is subject to known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from those expressed or implied by such forward-looking information, including but not limited to the risk of further changes in government regulations, policies or legislation; the possibility that required concessions may not be obtained, or may be obtained only on terms and conditions that are materially worse than anticipated; that further funding may be required, but unavailable, for the ongoing development of the Company's projects; changes in the scope and focus of studies currently being undertaken with respect to the expansion of the Company's production facilities, fluctuations or decreases in commodity prices and market demand for product; uncertainty in the estimation, economic viability, recoverability and processing of mineral resources; risks associated with weather patterns and impact on production rate; risks associated with commissioning and ramp up of the Olaroz Lithium Facility to full capacity; unexpected capital or operating cost increases; uncertainty of meeting anticipated program milestones at the Olaroz Lithium Facility; general risks associated with the further development of the Olaroz Lithium Facility; general risks associated with the operation of the borax plant or boric acid plant; a decrease in the price for borates resulting from, among other things, decreased demand or an increased supply of borates or substitutes, as well as those factors disclosed in the Company's Annual Report for the year ended June 30, 2016 filed at www.sedar.com.

The Company believes that the assumptions and expectations reflected in such forward-looking information are reasonable. Assumptions have been made regarding, among other things: the timely receipt of required approvals and completion of agreements on reasonable terms and conditions; the ability of the Company to obtain financing as and when required and on reasonable terms and conditions; the prices of lithium, potash and borates; market demand for products and the ability of the Company to operate in a safe, efficient and effective manner. Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. There can be no assurance that forward-looking information will prove to be accurate, as actual results and future events could differ materially from those anticipated in such information. Accordingly, readers should not place undue reliance on forward-looking information. The Company does not undertake to update any forward-looking information, except in accordance with applicable securities laws.