

Rock Tech Lithium Inc. Announces Results from Lithium Hydroxide Converter Engineering Study

30.11.2021 | [CNW](#)

VANCOUVER, Nov. 29, 2021 - [Rock Tech Lithium Inc.](#) (TSXV: RCK) (OTCQX: RCKTF) (FWB: RJIB) (WKN: A1XF0V) "Company" or "Rock Tech") is pleased to announce the results of an engineering study (the "Converter Engineering Study") regarding the construction and operation of the Company's proposed high grade merchant lithium hydroxide converter and refinery facility ("Converter") in Guben, Germany.

Highlights

- Estimated initial capital costs of approximately \$462 million
- Estimated nameplate annual LMH production capacity of approximately 24,000 tonnes
- Estimated revenue of approximately \$6,273 million over 20-year life of project
- Estimated After-Tax NPV (8% discount rate) of approximately \$234 million
- Estimated After-Tax IRR of 14.5%

Converter Engineering Study Details

The Converter Engineering Study was conducted by Wave International Pty ("Wave") and provides an economic evaluation including capital and operating cost estimates, of the construction and operation of the Converter. The results of the Converter Engineering Study are based on a single plant merchant converter designed to produce up to 24,000 tonnes of high purity grade lithium hydroxide monohydrate ("LHM") annually.

As announced on October 18, 2021, the Company has recently completed a pilot test program that resulted in the successful production of high purity battery grade LHM, supporting the proposed process plant design of the Converter. As a merchant converter, a robust flowsheet has been developed to handle a range of spodumene feed sources and, as such, relevant processes are included in the capital and operating cost estimates.

Wave prepared the Converter Engineering Study in accordance with the requirements of a Class 4 estimate, as defined by the American Association of Cost Engineers' Cost Estimation and Classification System.

The results of the Converter Engineering Study support the Company's ongoing Front End Engineering Design ("FEED") of the Converter on a Class 2 estimate basis. The FEED study is expected to include the following activities:

- continuation of metallurgical testwork;
- finalization of process flowsheet;
- progression of discipline engineering to support improved accuracy of cost estimates;
- major procurement activities including basic engineering design for major supply packages;
- selection of major contractors and negotiation of material contract terms; and
- progression of approvals.

Key Metrics

Key metrics from the Converter Engineering Study at the assumed base case are presented below:

Key Metrics ⁽¹⁾⁽²⁾	
Pre-Tax Net Present Value ("NPV") ⁽³⁾	€354.3 million / U.S.\$429.6 million
After-Tax NPV ⁽³⁾	€233.9 million / U.S.\$284.6 million
Pre-Tax Internal Rate of Return ("IRR")	17.0%
After-Tax IRR	14.5%
Payback Period	64 months
Initial Capital Costs	€462.1 million / U.S.\$560.2 million
Life-of-Project Capital Costs ⁽⁴⁾	€544 million / U.S.\$659.6 million
Life-of-Project Revenue	€6,273.4 million / U.S.\$7,606.1 million
Life-of-Project Operating Costs	€3,261.7 million / U.S.\$3,954.6 million
Weighted average C1 Costs per tonne LMH ⁽⁵⁾	€6,950.4 / U.S.\$8,427.0
Weighted average C2 Costs per tonne LMH ⁽⁶⁾	€8,130.8 / U.S.\$9,858.1
Weighted average spodumene concentrate price per tonne ⁽⁷⁾	€473 / U.S.\$573 ⁽⁸⁾
Weighted average lithium hydroxide ("LiOH") price per tonne	€10,950 / U.S.\$13,276 ⁽⁸⁾

Notes:

1. See "Key Assumptions and Sensitivity Analysis" section below for further details.
2. Key metrics are calculated on nameplate annual production of 24,000 tonnes of LHM over 20-year life of project (if applicable).
3. Discount rate of 8%.
4. Includes sustaining capital.
5. Includes all cash costs.
6. Includes all cash costs and depreciation.
7. 5.8% Li₂O.
8. Based on market forecasts projected over 20-year life of project.

Based on the results of the Converter Engineering Study, the Company estimates that the Converter will generate an annual EBITDA¹ of approximately U.S.\$112 million between 2024 and 2043.

¹ See "Non-GAAP Measures" section below.

Capital Cost Estimates

The Converter Engineering Study estimates total initial capital costs of approximately €462 million for the implementation of the Converter (determined to a nominal accuracy of +/- 25%), including approximately €223 million in direct capital costs, €77 million in indirect capital costs, €80 million in owner's costs and a weighted contingency of 17.9%. The capital cost estimate includes the capital requirements to engineer, procure, construct and commission the Converter and project implementation costs for the period from a final investment decision to commissioning the Converter. It also includes procurement of long lead items and FEED costs. Initial capital cost estimates were generated from preliminary design, quotations and market data as of a base date of May 14, 2021.

A breakdown of the capital cost estimates from the Converter Engineering Study is presented in the following table:

Estimated Initial Capital Costs ⁽¹⁾⁽²⁾	
Earthworks	€1,044,383
Civil/Concrete	€7,918,393
Structural	€23,784,204
Architectural	€10,789,683
Rail/Rail Off-loading	€14,090,000
Mechanical/Platework	€95,600,468
Piping & Valves	€28,076,043
Electrical	€32,371,011
Controls & Instrumentation	€3,013,293
Equipment Acquisitions	€5,030,000
Land Acquisition	€1,130,877
Subtotal Direct Capital Costs ⁽³⁾	€222,848,355
Earthworks	€292,427
Civil/Concrete	€234,047
Structural	€6,659,577
Rail/Rail Off-loading	€1,549,900
Mechanical/Platework	€26,768,131
Piping & Valves	€4,649,114
Electrical	€15,538,085
Controls & Instrumentation	€843,722
Vendor Support	€750,000
Delivery	€11,848,501
Commissioning Spares	€1,664,381
Strategic/Maintenance Spares	€3,883,555
First Fills	€2,219,174
Subtotal Indirect Capital Costs ⁽⁴⁾	€76,900,614
Owner's Costs ⁽⁴⁾	€80,928,145
Contingency	€81,383,553
Total Estimated Initial Capital Costs	

8364,462,060,667

Notes:

1. See "Key Assumptions and Sensitivity Analysis" section below for further details.
2. Assumes that the Converter is developed using an Engineering, Procurement and Construction Management (EPC) execution strategy.
3. Most direct cost estimates were derived from quotes, tender submissions or statutory requirements.
4. Indirect and owner's cost estimates were derived from factors and experience deemed to be reflective of current market conditions and accuracy.

Operating Cost Estimates

The average annual operating costs of the Converter are estimated at approximately \$164 million per year (determined to a nominal accuracy of +/- 25%).

Prices used to develop operating cost estimates were based on preliminary market enquiries and analyst reports. Wave identified all activities relating to the procurement of materials, transportation and processing to produce an ex-works LHM product. A breakdown of the estimated average annual operating cost over the life of the Converter is presented in the following table:

Estimated Annual Operating Costs ⁽¹⁾⁽²⁾				
Major Cost Items	\$/t LHM	\$/year	U.S.\$/t LHM	U.S.\$/year
Raw Materials	3,444.90	82,677,556	4,176.70	100,240,800
Labour	452.30	10,854,960	548.40	13,161,600
Power ⁽³⁾	633.20	15,196,533	767.70	18,424,742
Diesel	55.90	1,342,514	67.80	1,627,705
Gas	157.20	3,773,760	190.60	4,574,400
Maintenance	217.10	5,211,243	263.30	6,319,200
Reagents ⁽⁴⁾	683.70	16,409,254	829.00	19,896,000
Transport	635.90	15,260,403	770.90	18,501,600
Contract/General Expenses	564.00	13,535,438	683.80	16,410,779
Total Estimated Annual Operating Costs	6,844.20	164,261,661	8,298.20	199,155,867

Notes:

1. See "Key Assumptions & Sensitivity Analysis" section below for further details.
2. Operating costs are calculated on nameplate annual production of 24,000 tonnes of LHM over 20-year life of project.
3. Includes a contingency of 5%.
4. Includes a contingency of 10%.

Key Assumptions and Sensitivity Analysis

Certain assumptions were relied upon in the Converter Engineering Study, including:

- 20-year life of Converter;
- nameplate annual production of approximately 24,000 tonnes of LMH from approximately 178,000 tonnes of spodumene concentrate sourced from multiple third parties through feedstock contracts;

- weighted average price of spodumene concentrate of U.S.\$573 per tonne, reducing from a peak price of U.S.\$69 in 2023 (current spodumene price: U.S.\$2,600) ²;
- weighted average price of LiOH of U.S.\$13,276 per tonne, reducing from a peak price of U.S.\$17,695 in 2023 (current price: U.S.\$29,000) ³; and
- exchange rates as follows: U.S.\$/C\$ = 0.8248; C\$/U.S.\$ = 0.8042 (current exchange rates: U.S.\$/C\$ = 0.7817) ⁴.

As part of the Converter Engineering Study, a sensitivity analysis was conducted on the Converter's pre-tax NPV and IRR to key variables, including spodumene concentrate price and LiOH price. Using the base case as a reference, the key variables were changed between +/-30% at 10% intervals while holding other variables constant. Spodumene concentrate price and LiOH price sensitivities are presented below:

Spodumene Concentrate Price - Sensitivity Analysis					
	70.00%	80.00%	90.00%	100.00%	110.00%
Pre-Tax NPV	\$566,714,106	\$495,896,959	\$425,079,811	\$354,262,663	\$283,445,515
Pre- Tax IRR	21.49%	20.03%	18.53%	16.98%	15.37%
After-Tax NPV	\$388,375,756	\$336,907,459	\$285,431,195	\$233,935,657	\$182,377,118
After-Tax IRR	18.14%	16.97%	15.76%	14.50%	13.19%

LiOH Price - Sensitivity Analysis					
	70.00%	80.00%	90.00%	100.00%	110.00%
Pre-Tax NPV	\$(313,145,900)	\$(90,676,379)	\$131,793,142	\$354,262,663	\$576,731,184
Pre- Tax IRR	0.00%	5.15%	11.64%	16.98%	21.73%
After-Tax NPV	\$(313,145,900)	\$(100,357,003)	\$71,993,336	\$233,935,657	\$395,871,000
After-Tax IRR	0.00%	4.71%	10.17%	14.50%	18.32%

² Source: S&P Global Platts, CIF North Asia (as of November 26, 2021).

³ Source: S&P Global Platts, FOB Australia (as of November 26, 2021).

⁴ Source: Bloomberg Market Data (as of November 25, 2021).

By-Products

The following table provides a breakdown of the non-lithium by-products expected to be generated from production activities at the Converter:

Non-Lithium By-Products	Estimated Production (t/year)
Alumino-silicate by-product	260,000
Gypsum	24,000
Sodium sulphate	46,500
Zero Liquid Discharge (ZLD) by-product	7,500

The results of the Converter Engineering Study are based on an assumed disposal cost for all such non-lithium by-products of approximately €18 per tonne, except with respect to sodium sulphate, which is assumed to be cost neutral.

Nevertheless, preliminary testwork undertaken during the Converter Engineering Study has identified that alumino-silicate by-product, which is expected to be the largest volume non-lithium by-product generated from production activities at the Converter, is suitable for use in cement manufacturing. Other potential uses for alumino-silicate by-product include construction and other potential manufactured products such as Zeolites or Kaolinites.

The Company has established a research and development collaboration with GP Papenburg, to work collaboratively to identify applications and potential offtakes for alumino-silicate by-product. As a risk mitigation, testwork has identified alumino-silicate by-product as a class D0 waste, which is the lowest classification of waste product in Germany and as such it can be disposed of in waste management facilities, if required.

Converter Overview

The proposed Converter will be based in Guben, Germany, in a designated and historical industrial area. As announced by the Company on October 10, 2021, Rock Tech has entered into an agreement to acquire a twelve-hectare site in the Guben South industrial park. Closing of the site acquisition is expected to occur in April 2022, subject to the satisfaction of customary closing conditions, including Rock Tech's payment of the €1,130,877 purchase price.

The Guben site was selected after a rigorous site assessment. With access to existing utility and transportation infrastructure and proximity to potential customers, the Guben South industrial park is well situated to allow the Company to satisfy growing demand for LHM in the European electric vehicle manufacturing market. At the proposed Converter site, approximately 500 metres of rail spur will be required to connect the proposed facility with the region's existing rail network. The Converter is expected to benefit from the structural and logistical advantages associated with long-term access to feedstock through the region's well-developed transportation infrastructure and proximity to car manufacturers seeking to localize their supply chain around European production facilities.

It is expected that Converter will be designed to process spodumene concentrate from multiple potential sources using the sulphation-causticisation process route to mitigate technical risk and increase speed to market. This base process chemistry was developed in the 1950's, is currently employed almost exclusively in China for the production of lithium hydroxide from spodumene concentrates, and has also been adopted for three projects under development in Australia.

The Company has commenced the process of soliciting targeted lender groups, including international banks, in connection with its evaluation of potential project financing arrangements in respect of the Converter. Through its corporate advisor Blackbird Partners, the Company has retained a leading global mineral industry advisory firm to prepare an independent expert's report (the "IER") on the proposed Converter. The results of the IER will assist potential lenders in their due diligence process, assessing the Converter Engineering Study and the Company's ongoing FEED study. It is anticipated that the IER and the FEED study will be complete in the first half of 2022, with a final investment decision on the Converter expected to be made by the middle of 2022. Subject to receipt of necessary regulatory, environmental and internal approvals, construction of the Converter is expected to begin in mid-to-late 2022, with production

commencing in 2024.

Dirk Harbecke, Chief Executive Officer of Rock Tech Lithium, explains, "We are pleased with the results of the Converter Engineering Study, which support our plans to build the first high-quality merchant battery-grade lithium hydroxide converter in Europe. A FEED study, supporting project financing, is underway and estimated for completion in the first half of 2022. In addition to selecting the site in Guben, we have commenced building our project execution team which is based in the Company's offices in Ratingen, Germany. This team is responsible for finalizing and implementing the contracting and construction strategy to build and commission the converter commencing by the end of next year."

About Rock Tech Lithium Inc.

Rock Tech Lithium is a cleantech company with operations in Canada and Germany that aims to supply the automotive industry with high quality lithium hydroxide "made in Germany". As early as 2024, the company plans to commission Europe's first lithium converter with a nameplate production capacity of 24,000 tonnes per year. This is equivalent to the volume needed to equip around 500,000 electric cars with lithium-ion batteries.

The cleantech company has set itself the goal of creating the world's first closed loop for lithium, thus closing the raw material gap on the road to clean mobility. Rock Tech owns the Georgia Lake lithium project in Ontario, Canada and, as early as 2030, around 50 percent of the raw materials used are expected to come from the recycling of batteries.

Rock Tech Lithium - The fuel for the battery age

www.rocktechlithium.com

Cautionary Note Concerning Forward-Looking Information

The following cautionary statements are in addition to all other cautionary statements and disclaimers contained elsewhere in, or referenced by, this press release.

Certain information set forth in this press release contains "forward-looking information" and "forward-looking statements" (collectively, "forward-looking information") within the meaning of applicable securities laws, which are based on Rock Tech's current expectations, estimates, and assumptions in light of its experience and its perception of historical trends. All statements other than statements of historical facts may constitute forward-looking information. Often, forward-looking information can be identified by the use of words or phrases such as "estimate", "project", "anticipate", "expect", "intend", "believe", "hope", "may" and similar expressions, as well as "will", "shall" and all other indications of future tense. All forward-looking information set forth in this press release is expressly qualified in its entirety by the cautionary statements referred to in this section.

In particular, this new release contains forward-looking information pertaining to: the features of the proposed Converter; statements regarding the Company's future plans, estimates, and schedules relating to the Converter project; Rock Tech's expectations regarding the FEED study, IER, including the related activities, findings and uses thereof; potential financing arrangements; the expected economic performance of the Converter and anticipated production of LHM and related processing methods; the capital and operating costs of the Converter; the anticipated timing of a final investment decision, construction activities and potential in-service date of the Converter; expectations regarding non-lithium by-products and the production thereof; the anticipated features of the Guben site and expected benefits thereof; demand for and pricing of LMH and the benefits therefrom; Rock Tech's opinions, beliefs and expectations regarding the Company's business strategy, development and exploration opportunities and projects, and plans and objectives of management for the Company's operations and properties.

The forward-looking information contained in this press release also includes financial outlooks and other forward-looking metrics relating the Company, including references to financial and business prospects of the proposed Converter and future results of operations and performance, including NPV, IRR and EBITDA. The purpose of these forward-looking metrics is to assist readers in understanding the expected financial and operating results of the proposed Converter project. However, readers are cautioned that this

information may not be appropriate for other purposes and should not be relied upon as necessarily indicative of future results and that actual results may differ significantly from such projections.

Forward-looking information is based on certain estimates, expectations, analysis and opinions of the Company and in certain cases, third party experts, that are believed by management of Rock Tech to be reasonable at the time they were made. This forward-looking information was derived utilizing numerous assumptions regarding, among other things, the supply and demand for, deliveries of, and the level and volatility of prices of, intermediate and final lithium products, expected growth, performance and business operation, future commodity prices and exchange rates, prospects and opportunities, general business and economic conditions, results of development and exploration, Rock Tech's ability to procure supplies and other equipment necessary for its business. The foregoing list is not exhaustive of all assumptions which may have been used in developing the forward-looking information. While Rock Tech considers these assumptions to be reasonable based on information currently available, they may prove to be incorrect. Forward-looking information should not be read as a guarantee of future performance or results.

In addition, forward-looking information involves known and unknown risks and uncertainties and other factors, many of which are beyond Rock Tech's control, that may cause Rock Tech's actual events, results, performance and/or achievements to be materially different from that which is expressed or implied by such forward-looking information. Risks and uncertainties that may cause actual events, results, performance and/or achievements to vary materially include the results of the validation study, the Company's ability to access funding required to invest in available opportunities and projects (including the proposed Converter) and on satisfactory terms, the current and potential adverse impacts of the COVID-19 pandemic, including future outbreaks and any associated policies or restrictions on business, the risk that Rock Tech will not be able to meet its financial obligations as they fall due, changes in commodity and other prices, Rock Tech's ability to retain and attract skilled staff and to secure feedstock from third party suppliers, unanticipated events and other difficulties related to construction, development and operation of the Converter, the cost of compliance with current and future environmental and other laws and regulations, title defects, competition from existing and new competitors, changes in currency exchange rates and market prices of Rock Tech's securities, Rock Tech's history of losses, impacts of climate change and other risks and uncertainties described from time to time in Rock Tech's public disclosure documents available on the Company's SEDAR profile at www.sedar.com, including those discussed under the heading "Financial Instruments and Other Risks" in Rock Tech's most recently filed Management Discussion and Analysis. Such risks and uncertainties do not represent an exhaustive list of all risk factors that could cause actual events, results, performance and/or achievements to vary materially from the forward-looking information.

We cannot assure you that actual events, results, performance and/or achievements will be consistent with the forward-looking information and management's assumptions may prove to be incorrect. Forward-looking information reflects Rock Tech management's views as at the date the information is created. Except as may be required by law, Rock Tech undertakes no obligation and expressly disclaims any responsibility, obligation or undertaking to update or to revise any forward-looking information, whether as a result of new information, future events or otherwise, to reflect any change in Rock Tech's expectations or any change in events, conditions or circumstances on which any such information is based.

Given these uncertainties, readers are cautioned not to rely on the forward-looking information set forth in this press release.

Non-GAAP Measures

This press release also refers to non-GAAP financial measures, including EBITDA, which are not defined by IFRS but are used by management to evaluate the performance of Rock Tech and its business. Such non-GAAP measures do not have a standardized meaning prescribed by IFRS and, therefore, may not be comparable to similar measures presented by other companies and should not be considered in isolation or used in substitute for measures of performance prepared in accordance with IFRS.

EBITDA is a non-GAAP measure calculated as net earnings before finance costs, income taxes, depreciation and amortization and excludes the following from net earnings (its most directly comparable measure under IFRS): income tax expense, finance costs and finance income. Management believes that EBITDA provides useful information to investors as an indicator of a company's ability to generate liquidity through capital invested. EBITDA is also used by investors and analysts for assessing financial performance, including calculating financial and leverage ratios.

Disclaimer

The Converter Engineering Study does not constitute a preliminary economic assessment, preliminary feasibility study or feasibility study within the definitions adopted by the Canadian Institute of Mining, Metallurgy and Petroleum, as it relates to a standalone lithium hydroxide converter and does not concern a mineral project of Rock Tech. As a result, disclosure standards prescribed by National Instrument 43-101 - Standards of Disclosure for Mineral Projects are not applicable to the scientific and technical information included in the Converter Engineering Study or this press release.

View original content to download

multimedia:<https://www.prnewswire.com/news-releases/rock-tech-lithium-inc-announces-results-from-lithium-hydroxide-converter-engineering-study>

SOURCE [Rock Tech Lithium Inc.](#)

Contact

Thomas Rolfes, Head of Public Relations, [Rock Tech Lithium Inc.](#), 777 Hornby Street, Suite 600, Vancouver, B.C., V6Z 1S4, Telephone: (778) 358-5200, Facsimile: (604) 670-0033, Email: trolfes@rocktechlithium.com

Dieser Artikel stammt von [Rohstoff-Welt.de](#)

Die URL für diesen Artikel lautet:

<https://www.rohstoff-welt.de/news/400899--Rock-Tech-Lithium-Inc.-Announces-Results-from-Lithium-Hydroxide-Converter-Engineering-Study.html>

Für den Inhalt des Beitrages ist allein der Autor verantwortlich bzw. die aufgeführte Quelle. Bild- oder Filmrechte liegen beim Autor/Quelle bzw. bei der vom ihm benannten Quelle. Bei Übersetzungen können Fehler nicht ausgeschlossen werden. Der vertretene Standpunkt eines Autors spiegelt generell nicht die Meinung des Webseiten-Betreibers wieder. Mittels der Veröffentlichung will dieser lediglich ein pluralistisches Meinungsbild darstellen. Direkte oder indirekte Aussagen in einem Beitrag stellen keinerlei Aufforderung zum Kauf-/Verkauf von Wertpapieren dar. Wir wehren uns gegen jede Form von Hass, Diskriminierung und Verletzung der Menschenwürde. Beachten Sie bitte auch unsere [AGB/Disclaimer!](#)

Die Reproduktion, Modifikation oder Verwendung der Inhalte ganz oder teilweise ohne schriftliche Genehmigung ist untersagt!
Alle Angaben ohne Gewähr! Copyright © by Rohstoff-Welt.de -1999-2026. Es gelten unsere [AGB](#) und [Datenschutzrichtlinien](#).