

Kvanefjeld warms up

Greenland Minerals and Energy project nears development

THE CONSIDERED AND systematic approach by Greenland Minerals and Energy (ASX:GGG) to its unique and large-scale Kvanefjeld project is paying off as it approaches development.

The first of three key assessments has just been approved for public consultation and GGG is finetuning processing and project optimisations to feed into an updated feasibility study next year.

"All the pieces of the puzzle are there, it's just a matter of working through the final steps," managing director Dr John Mair explains from his Perth office ahead of a visit to the company's strategic partner and major shareholder, Shenghe Resources Holdings (CH:600392) in China.

Mair has been working towards this point for close to 10 years and describes Kvanefjeld's rare earths and uranium resource as a unique and important project that will be of increasing relevance in the growing new energy sector.

"There are more than 150 countries that have put in legislation for renewables-based power," he said.

"Rare earths remain integral to this, they're a big part of offshore wind turbines, a large number of electric vehicles will draw on rare-earth magnets and then there's demand from smart phones and more.

"At a time that the traditional supply node is undergoing a significant restructure as China

moves to curtail production, Kvanefjeld is becoming very important.

"You really want to time a project of this scale for a structural change in supply dynamics, and that's what we're positioned well to do."

The project has a 37-year mine life based on about 10% of its 1 billion tonne multi-element resource, its 108 million tonne reserve.

The resource contains 593 million pounds of U₃O₈ in addition to the 11.14 million tonnes of total rare earth oxides (TREO), which include praseodymium, neodymium, europium, terbium and dysprosium.

Uranium, zinc and fluorspar are among the expected by-products and Mair anticipates more could be identified thanks to the processing optimisation work that is underway around the globe.

"It's quite a unique resource, there's no parallel for it – and it's the polymetallic nature that ultimately brings strength," Mair said.

"From a metallurgical point of view, you have to develop processes for it that did not exist, but we've been able to use well-known processes and bring them together and prove up a new flowsheet, through a number of successful pilot-plant campaigns."

Kvanefjeld's minerals are non-refractory, enabling simpler processing and both its rare earths and uranium can be leached in acidic solutions under atmospheric conditions.

As part of GGG's global strategy, the company engaged with China

early on to understand the end users for rare earths and the industrialists involved in downstream processing and Mair said there had been a strong alignment with major rare-earth producer and strategic partner Shenghe.

Mair said the project was a real international collaboration, with European industrial parties already involved in talks about infrastructure and power provision.

"It's a project that brings together a real cross-section of stakeholders to ultimately see a successful development," he said.

"In Europe, it's quite a high-profile project and I think it's an interesting reflection of the standing of the project to have a diverse international shareholder base."

The proposed project has also been part of a game-changing development for Greenland, which is emerging as a new mining jurisdiction.

Four years ago this month, the autonomous country within the Kingdom of Denmark overturned a uranium mining ban and Greenland officially became a signatory to International Atomic Energy Agency conventions in September 2016.

"There's a real willingness and desire from Greenland to see resource projects come to life," Mair said.

He said it was sometimes difficult for people outside the process to see the level of work being done behind the scenes, explaining the level of consultation, recommendations and amendments that were required

before the Maritime Safety Study could be approved for public consultation this month.

"When dealing with projects of this nature it's very important you get the starting point right because you are dealing with something that could be up and running for a very long period of time," he said.

The maritime study was prepared by independent Danish company Blue Water Shipping and contains studies to determine the safest and most environmentally acceptable shipping methods, with Kvanefjeld's location in southern Greenland enabling year-round shipping into the North Atlantic Ocean.

"The government can say with confidence it has been reviewed by international experts, recommendations have been appropriately addressed and when it's presented, it's already been through a fairly rigorous assessment," Mair said.

He expected the two remaining assessments, social and environmental (SIA and EIA), would be completed before the end of the year.

"The EIA has many different components, from air quality to hydrologic modelling to tailings studies and we're progressively closing those individual subsets out," he said.

"We've made a lot of progress through 2017."

The company has also made advances through its joint technical committee with top-tier partner Shenghe to work on optimisations and downstream integration.

"We've drawn on their expertise to run through the Greenland site as well as bring about optimisation and ultimately, improvements to the cost structure," Mair said.

He met with Shenghe founder, director and 7% shareholder Quangen Wang during his trip to China this month and said Wang was

one of the pre-eminent rare-earth technical experts globally, with a deep understanding of the market.

"As a member of the technical committee overseeing optimisation work on Kvanefjeld, Mr Wang's experience is of enormous value," he said.

Work is being done on the concentrator circuit in China, hydrometallurgical work is underway in Australia and the results are due in the first quarter of 2018.

"We had developed a strong technical blueprint for the project which attracted Shenghe, they bring the technology to supercharge it, along with the financial capacity and market presence to develop it," Mair said.

The results will feed into an update of the 2016 feasibility study, which is expected to be finalised by the end of 2018.

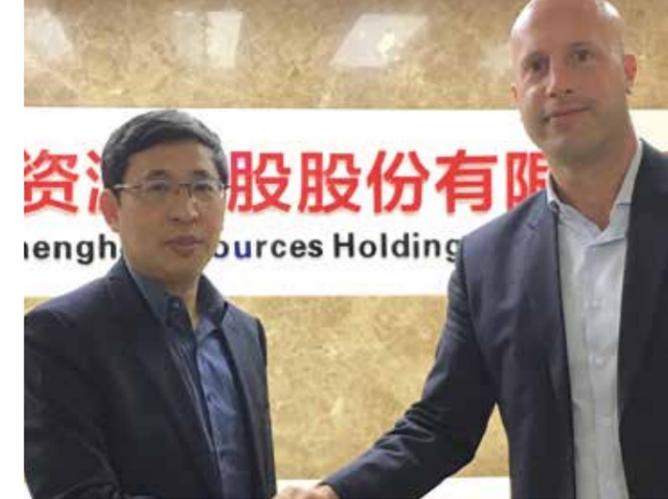
The 2016 feasibility study put the capital cost at US\$832 million and Mair said along with updating the project's metrics, the company would also look at how Greenland mapped out its royalty and tax framework for mineral resource projects.

He said it had been a fascinating journey to reach this stage of pre-development in an emerging mining jurisdiction and be part of the rise of minor metals and their significance to global agendas.

"From this point, we move forward with what is a pretty complete development strategy," he said.

"The foundation is there to see the project move forward in terms of the legislation and regulation side, we've got impact assessments that are very advanced, the maritime study is ready to go and we've got a top-tier industrial partner that is well and truly involved in the project.

"2018 is an important year, a lot of things will come to a head."

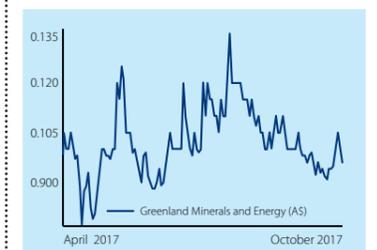


Shenghe founder, director, and 7% shareholder Mr Quangen Wang (left) with Dr John Mair at Shenghe headquarters in Chengdu, China, October 2017

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– DR JOHN MAIR
MANAGING DIRECTOR

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MARKET CAPITALISATION

A\$105.5 million (October 13)

QUOTED SHARES ON ISSUE

1 billion

MAJOR SHAREHOLDERS

Shenghe Resources Holdings 12.4%;
Global X Uranium ETF 8.8%; Tracor Ltd 5.3%

Kvanefjeld's location enables year-round shipping

