

Sunrise to be a true 'mine of the future'

CLEAN TeQ Holdings CEO Sam Riggall says battery materials mines will require a different development mindset.

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Last week, Clean TeQ reported a project execution plan for the US\$1.8 billion Sunrise nickel-cobalt-scandium project in New South Wales.

Riggall said on Thursday the plan implemented a design philosophy that was built on direct input from the company's engagement with the automotive industry.

"This input recognised the significant risks associated with securing large volumes of key battery metals, particularly nickel and cobalt," he told Clean TeQ's Battery Day.

"Risks that cannot be easily outsourced or contracted away by carmakers."

Riggall said carmakers wanted lower cost metal and stability in pricing, diversified sources of supply from lower risk jurisdictions, transparency in environmental and community management, simpler supply chains with ease of traceability, a cradle-to-cradle mindset from suppliers that incorporates recycling, and the availability of metals in the form required when needed.

"It was with these objectives in mind that the Sunrise project execution plan was conceived," he said.

"Let me be clear - this is not the way mines are usually built. Sunrise is a template for how two very different industries - mining and auto - can work together to improve supply chain efficiency, lower costs and improve transparency.

"Ultimately this is about protecting the enormous investments made as capital transitions from old industries to new.

"Have we got it all right? Probably not. There is always room for improvement. But in our view, Sunrise is the closest the mining industry has come to defining a design and operating philosophy to meet the needs of an automotive industry that is now focused on building a completely new supply chain model for electric cars."

Average annual metal equivalent production, based on autoclave throughput of 2.5 million tonnes per annum, is expected to be 21,293 tonnes of nickel and 4366t of cobalt over years 2-11, and 18,439t of nickel and 3179t of cobalt over years 2-25.

Riggall said it would be enough metal to support the production of one million electric vehicles each year.

Sunrise will also be the largest producer of cobalt outside the Democratic Republic of Congo.

"While we expect to see continued efforts to thrift cobalt in cathode chemistries, we believe the value of cobalt will ultimately be underpinned by both life cycle and safety considerations in the battery," Riggall said.

Sunrise will also produce 10-15tpa of scandium oxide, which could be expanded to as much as 80tpa, depending on demand.

Average C1 operating costs are set to be an "incredibly competitive" negative 80c/lb after by-product credits, in years 2-25.

In years 2-11, C1 costs are expected to average negative \$1.97/lb after by-product credits.

Riggall noted the "mixed fortunes" of previous laterite projects, but said Clean TeQ had already spent \$200 million to de-risk the project.

"If the world is to have any hope of producing enough nickel to satisfy global battery demand for the auto industry, most of the heavy lifting will need to be done by laterite resources," he said.

"Good nickel sulphide resources are geologically scarce and they typically have short mine lives.

"There are simply not enough of them in our global resources inventory to support a global electric vehicle industry.

"What this means is that significantly higher nickel and cobalt prices should be expected if we are to incentivise development of new laterite projects."

Riggall said the company can't provide a timeline on funding, but it believes Clean TeQ has positioned Sunrise "as the most strategic and development-ready battery materials asset in the industry".

"If the car industry wants nickel and cobalt by the middle of this decade, projects need to be in construction today," he said.

The mine design was based around four pillars: a lower cost flow sheet via the use of Clean-iX technology; a low-carbon footprint plant design; a refinery design that allows for recycling; and the production of scandium.

"In referring to Sunrise as a mine of the future, we don't use that term lightly. This is how mines will need to be conceived and built in a decarbonising world," Riggall said.

"If we are going to succeed as an industry in being able to supply the automotive sector, we have to bring something different to the table.

"The old mentality of dig and deliver won't be enough going forward to supply these types of materials. They are incredibly taxing with very high specifications and the supply chains have very high expectations of how the materials are to be delivered, and that's everything that we've tried to build into Sunrise.

"That design and operating philosophy is fundamental to what needs to be delivered in the future."