



QEM



Q&A

Julia Creek Project

EPIC Environmental (Epic) is working with QEM Limited (QEM) on the approvals process for the Julia Creek Project (the Project). The purpose of this Q&A is to provide information on the Project, and to respond to questions raised by stakeholders.

WHO IS QEM?

QEM Limited is a publicly-listed company (ASX:QEM) focused on the exploration and development of its flagship project in Julia Creek, Queensland. QEM is the only company in the world currently in a position to develop a vanadium and oil combination project, which will progress under the leadership of a management team that has extensive experience in the resources sector.

WHAT IS INVOLVED IN THE PROPOSED JULIA CREEK VANADIUM PROJECT?

The Project holds a globally significant vanadium resource with the potential to deliver innovative renewable energy solutions. The project will supply vanadium pentoxide for conversion to electrolyte for large scale renewable storage in Vanadium Redox Flow Battery technology and to meet increasing demand for vanadium as a steel alloying mineral. The Project aims to produce three primary commodities including high purity vanadium pentoxide, fuel and/or hydrocarbon products, and power from renewables.

WHAT IS THE SCOPE OF THE PROJECT?

The Project's independently verified Resources comprise stratigraphic vanadium-bearing oil shale units of the Toolebuc Formation. The JORC Resource is measured at 2,850 million tonnes (Mt) with an average vanadium content of 0.31 percent. The deposit consists of 360 Mt of Indicated resource and 2,490 Mt of Inferred resource, making it one of the single largest vanadium deposits in the world. The ore body also

comprises oil-bearing shales and is measured at 79 million barrels in-situ oil equivalent (PRMS 2018 2C) and 696 million barrels of oil equivalent (SPE-PRMS 2028 3C).

QEM plans to develop a shallow-cut mine, processing facilities and infrastructure to produce three primary commodities including high purity vanadium pentoxide, fuel and/or hydrocarbon products, and power from renewables.

QEM intends to construct solar and wind farms to power the Project's industrial processes and to produce green hydrogen through a water electrolysis process. Hydrogen is a key element required to convert the oil into transport fuels. Excess renewable energy generated could be supplied to the National Electricity Market (NEM) via connection to the proposed CopperString 2.0 transmission line.

Once operating, the Project is forecast to produce 10,000 metric tonnes of high purity vanadium pentoxide per year, 250 MW of renewable electricity installed capacity and approximately 6,000 barrels per day of transportation grade fuel. All products will be produced onsite in Julia Creek and utilise innovative, low-carbon technologies.

The main components of the Project are illustrated below:

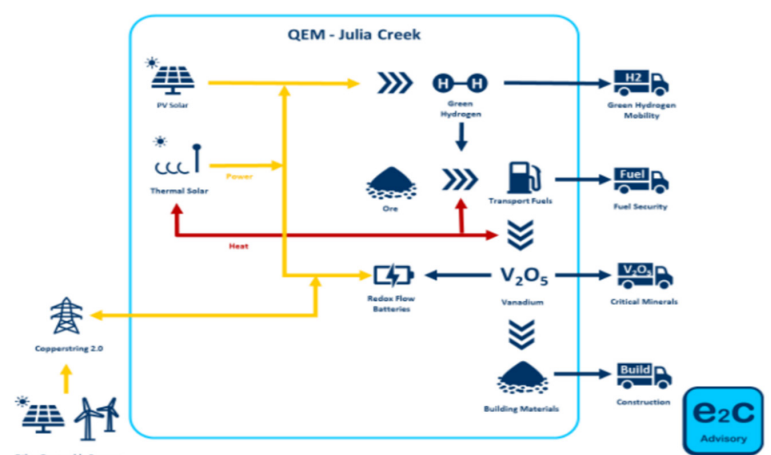


Figure 1: Project activities (QEM 2021)

WHERE IS IT LOCATED?

The Project covers four exploration permits totalling 250 square kilometres approximately 6 km south-east of the township of Julia Creek in Northwest Queensland (see Figure 2). The permits lie within the Eastern Resource Development Corridor (ERDC), the MITEZ corridor and NWMP, which is recognised as one of the world’s richest mineral-producing regions and has been prioritised for development by the Federal and State Governments.

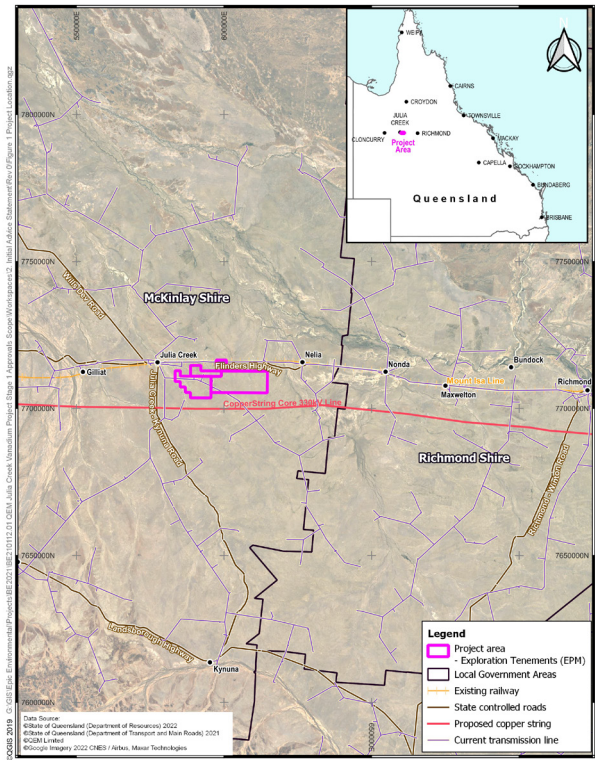


Figure 2: Project location (Epic Environmental 2021)

WILL THERE BE JOBS FOR LOCALS AND HOW DO I GET ONE?

The Project will require a localised workforce during the construction phase, with an ongoing workforce required for the operational life of the Project. QEM is prioritising the employment of a local workforce and businesses to meet Project needs, with a goal to sustainably develop the local community through employment and spending. Information about how to become involved will be made readily available to the local community as the Project moves closer towards construction and operational phases.

WHAT ARE THE PROJECT TIMEFRAMES?

A Scoping Study for the Project has been completed and a pre-feasibility study (PFS) is well advanced.

The project is to systematically progressed in phases in line with key milestones for key project components as summarised below.

Milestones	Anticipated Completion Dates
Scoping Study	Completed
Bench Scale Pilot Plant Construction	H1 2022
PFS Stage 1 – PFS Renewables	Q2 2022
PFS Stage 2 - Mining, processing, and infrastructure	Q2 2024
Feasibility study completed	Q2 2025
Submission of EIS	Q2 2024
Release of EIS for public consultation	Q3 2024
ML and EA approval (including EPBC Act Approval)	H2 2025
Financial Investment Decision	H2 2025
Start construction	H2 2025
Production to commence	H2 2028

*Anticipated completion dates are subject to change.

WILL THERE BE A FLY-IN FLY-OUT WORKFORCE USED?

While QEM will target local employment, additional workers or specialists may be required, particularly during construction. Any required Fly-in Fly-out (FIFO) and Drive-in Drive-out (DIDO) workers will likely utilise either the Julia Creek, Cloncurry or the Mount Isa Airports before transiting via road to the site. Accommodation options for these workers is currently under investigation, and may include developing accommodation villages or housing offsite, taking into account responsible safe post-work travel distances.

WHERE WILL PEOPLE LIVE & WHAT IMPACT WILL THAT HAVE ON JULIA CREEK’S INFRASTRUCTURE?

QEM will continue working with the McKinlay Shire Council and relevant government departments to forecast the availability of existing and planned infrastructure in Julia Creek for the Project’s workforce. This will include necessary housing, water, sewerage, hospital, educational and social services available for use by the Project’s workforce.

WILL I BE ABLE TO SEE THE SITE FROM THE ROAD?

The site will be adjacent to the Flinders Highway so it is expected that parts of the Project would be visible from the road. However, visual amenity impacts and management options will be assessed as part of the EIS process.

WHAT WILL BE THE IMPACT ON THE ROAD NETWORK?

The Project is expected to require the use of local and state roads to access the site. This would mean that increased volumes of traffic will be generated from the Project mainly during construction, and the impacts of this will be assessed during the EIS.

WHERE WILL THE PROJECT SOURCE WATER DURING OPERATIONS?

Operational demand will be sourced from dewatering of open pits, and allocation from regional dams or from the Flinders River. A water distribution network including dams and pipelines will be established. Further detailed works will be undertaken during the Pre-Feasibility and Feasibility Studies.

WILL THE MINE HAVE AN IMPACT ON GROUND WATER?

Preliminary estimates indicate that the depth of resource is between 50 metres to 80 meters below ground level (mbgl). It is currently understood that an artesian aquifer occurs approximately 240 mbgl. Further studies will be undertaken as part of the EIS, and any impacts that may occur due to the Project activities will be identified.



WILL THERE BE A LOT OF DUST & NOISE?

Operations and earthworks associated with mining can generate dust (especially during dry weather) and noise. However, impacts will be minimised by adhering to best-practice construction principles and appropriate management. For instance, noise management options may include limiting mining operations to certain times of the day. Dust impacts may be mitigated by staging earthworks so areas are only exposed to elevated dust levels for a short amount of time.

Mitigation options and best-case approaches will be further investigated during the noise, vibration, dust, and air quality studies that are required for the EIS process.

WILL THERE BE AIR EMISSIONS FROM THE PROCESSING PLANT?

Processing methods and potential emissions will be examined as a part of the processing demonstration plant operation which will be developed in mid-2022. Additional studies will also be undertaken for the EIS to assess potential air quality (including odour) impacts, and to develop appropriate mitigation strategies. These mitigation strategies are of particular importance to QEM given the innovative methods proposed and the proximity of the Project to Julia Creek town.

WILL I BE ABLE TO INVEST IN THE COMPANY?

QEM is a publicly listed company on the Australian Stock Exchange (ASX). For more information on QEM Limited please see our Investor Centre.

<https://www.qldem.com.au/investor-centre/>

FURTHER INFORMATION

If you would like to register as an interested stakeholder please:

- Send your contact details to info@qldem.com.au
- Call us on +61 7 5646 9553

For more information on this project see <https://www.qldem.com.au/project/>