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Arche Energy works with project owners and investors to support them to navigate the energy transition in Australia and around the world.

Since 2021, we have been providing project development services to CQH2 — the Central Queensland Hydrogen Project.

CQH2 is the largest hydrogen project in Queensland. It will eventually scale up to around 3,000MW by the early 2030s.

Arche Energy's Martin Smith was seconded to Stanwell from 2021 providing engineering management expertise .

Working in collaboration with the Stanwell, APA and Iwatani teams, Martin has played a key role in steering the project by applying his international experience in major oil and gas projects in a clean hydrogen role.

Services Arche has supplied to the project included technical support and scoping, engaging technology original equipment manufacturers (OEMs) including electrolysers, key infrastructure stakeholder engagement (power generation and transmission, water, ports and other transport), relationship management to align the international consortium pre-MOU agreement, and procurement support and planning leading up to the commencement of the Feasibility Stage.

Key projects

C2X Concepts

Arche Energy developed and assessed a number of C2X (coal to other products) options for a major Queensland based coal developer.

The study identified a range of products from coal in its most basic form through power, hydrogen, ammonia, diesel, urea and methanol. For each option, the study estimated the product's value per tonne of coal mined and its net carbon intensity, with and without CCUS.

The study identified an option for integrated power, sequestration and methanation that was able to recycle carbon dioxide generated by a power station for reuse as pipeline quality methane.

Blue Hydrogen and Ammonia Concept Study

Arche Energy developed a concept for the production and export of blue hydrogen and ammonia from a major Queensland coal project.

The scope of work included process sizing, performance estimates, capital and operating cost estimates and a trade-off of export as hydrogen against export as ammonia.

The scope also included calculation of carbon sequestration requirements and identification of potential sequestration sites and an estimate of the cost of hydrogen and ammonia production.

Hydrogen and BESS Utilisation for WSA Operations

Arche Energy recently undertook an analysis to estimate the range of electrical demand that might be required under a range of future scenarios where both aircraft and ground transportation assets might be powered by renewable sources. The study was conducted for the utilisation of green hydrogen and batteries to power aircraft. The study estimated the demand of energy required for both options in diverse scenarios.

Confidential Prefeasibility Study

Arche Energy recently undertook a prefeasibility study for a confidential client that involved the sizing, capital and operating cost estimate and performance estimates for a large-scale hydrogen, ammonia, and clean fuel production facility.

Virtual Hydrogen Pipeline Assessment

Arche Energy recently completed an assessment of a hydrogen virtual pipeline and peaking power plant for a confidential Australian client. The study included concept level plant sizing, capital and operating cost estimates and a logistics plan for the operation of the tankers. The logistics plan had to operate within the constraints of electrolysis availability (driven by the specific solar resource), compression timeframes, road distances and the demand for peak generation.

Arche + LATAM

Arche is poised to support collaboration between LATAM and Australia with our:

- multicultural team based in Australia including professionals from Colombia, Chile and Mexico
- experience in developing clean energy technologies
- site and concept selection of large-scale wind/solar developments
- expertise in project development and delivery
- strategy to enter the Latin American market through project development

We have identified opportunities for hydrogen projects in LATAM due to:

- high levels of renewables in electricity grid and phase out of coal
- great prospectivity for installing wind and solar at low cost
- significant potential for CCUS development
- clean energy export with good sea-port access and markets proximity
- geographical advantages and high domestic interest in developing hydrogen economies.

Contact Arche

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