

30 January 2023

Calix part of Australian-German consortium awarded funding to manufacture sustainable fuels from captured CO₂

Sydney, Australia | 30 January 2023 – Australian environmental technology company, Calix Limited (ASX: CXL) (“Calix” or “the Company”) announces today that the Solar Methanol Project (the Project), of which it is a consortium member, has been awarded funding to develop the production of sustainable fuels from captured process CO₂ emissions.

As announced by the Hon Chris Bowen MP, Minister for Climate Change and Energy on 27 January, the “HyGATE” Solar Methanol Project has been awarded AU\$19.48 million from the Australian Renewable Energy Agency (ARENA) and €13.2 million (~AU\$20.19m¹) from Germany’s Federal Ministry of Education and Research (BMBF) to develop a world-first green methanol demonstration plant in Port Augusta, South Australia.

Highlights

- The Solar Methanol Project, involving a consortium of partners from Australia and Germany, aims to develop a world-first methanol production demonstration plant using renewable energy, green hydrogen and captured industrial CO₂.
- The Project has been awarded funding of AU\$19.48 million and €13.2 million (~AU\$20.19m¹) as part of the German-Australian Hydrogen Innovation and Technology Incubator (HyGATE).
- To synthesise “green” methanol, the Project intends to use up to 15,000 tonnes per annum of CO₂ captured by Calix’s Low Emissions Intensity Lime and Cement (Leilac) technology during the production of low emissions lime.
- As part of its net zero emissions pathway, Adbri (ASX:ABC) is partnering with Calix and Leilac to explore opportunities to produce low and zero emissions lime.
- The green methanol produced by the Project will be developed into sustainable fuels for the maritime and aviation sectors, two of the hardest-to-abate transport sectors responsible for 4.3% of global CO₂ emissions².

The Solar Methanol Project

Exporting green hydrogen produced in Australia to Germany offers the promise of leveraging Australia’s abundant renewable energy resources to help the decarbonisation of German industry. Methanol is a versatile hydrogen derivative and has the potential to act as an effective green hydrogen carrier. Its clean and economical synthesis could help enable the decarbonisation of hard-to-abate transport sectors such as aviation and shipping.

In addition to Calix, the Solar Methanol Project consortium includes Australian cleantech company Vast Solar and leading engineering and consultancy firm Fichtner, and is supported by the Australian Solar Thermal Institute. The Project aims to integrate several innovative low emission technologies to source

¹ 1 Euro = 1.52 AUD, as at 30 January 2023

² <https://www.iea.org/reports/transport>

renewable power and process heat, green hydrogen electrolysis, and, with Calix's Leilac technology, renewably powered electric calcination of limestone and the efficient capture of unavoidable process CO₂ emissions.

The Project intends to renewably power a 10MW electrolyser to produce green hydrogen, and a lime plant that produces CO₂ as an unavoidable process emission. The clean energy, hydrogen and CO₂ will then be used to synthesise up to 7,500 tonnes per year of green methanol to be developed for use as a sustainable transport fuel.

The Project aims to be a catalyst for a solar methanol industry in Australia, with the potential to significantly scale domestic green fuel use as well as potential exports to Germany and other global markets.

Low emissions intensity lime

As part of its net zero pathway, Adbri is partnering with Calix and Leilac to enable the efficient capture of unavoidable process CO₂ emissions and the use of renewable sources of energy in the production of low and zero emissions lime.

In collaboration with the Project and subject to commercial agreements, Leilac and Adbri are pursuing opportunities to develop a renewably powered lime plant that would produce low emissions lime and capture process CO₂ for potential use in methanol synthesis by the Solar Methanol Project. While Calix and Adbri are not direct recipients of HyGATE funding, HyGATE represents excellent potential to derive direct value for captured CO₂ into an opportunity with significant potential to scale.

Lime is an essential material for several industries, including mining and metals refining, water treatment, steel, paper, pharmaceuticals and agriculture. Decarbonising the production of lime is a critical enabling step for reducing the carbon intensity of these hard-to-abate industries.

Calix CEO and Managing Director, Phil Hodgson said:

“Calix's Leilac technology will be used to make zero emissions lime in partnership with Adbri for Adbri customers, using renewable electricity and efficient capture of unavoidable CO₂ emissions from limestone. At the same time, Calix and Adbri are excited to work with the Solar Methanol consortium to enable the supply of captured CO₂ emissions to make green methanol.

We are delighted to be progressing plans with Adbri for zero emissions lime with electrification and CO₂ capture. As part of the HyGATE consortium we look forward to the outcomes of the HyGATE project, which has the potential to further catalyse support for CO₂ capture and to pioneer new green fuels for aviation and shipping.”

Adbri Interim CEO, Mark Irwin said:

“As a leading Australian producer of cement and lime with a commitment to be net zero by 2050, we recognise partnership with companies such as Calix are essential for the development of technology necessary to reach our goal. We are excited about the potential to supply zero emissions lime to our customers, a critical product in a decarbonised economy.”

HyGATE

The objective of German-Australian Hydrogen Innovation and Technology Incubator, known as HyGATE, is to strengthen Australian-German cooperation on reducing the cost of producing hydrogen from renewable sources and to stimulate the innovation process in both countries.

The HyGATE Initiative is intended to support real-world pilot, trial and demonstration projects along the hydrogen supply chain and to facilitate collaboration between Australian and German partners.

Australia and Germany have respectively committed up to AU\$50 million and €50 million to establish the HyGATE Initiative.

The HyGATE Initiative is administered by the Australian Renewable Energy Agency on behalf of the Australian Government (through the Department of Industry, Science, Environment and Resources). Projektträger Jülich (PtJ) will administer the HyGATE Initiative on behalf of the German Government (through the German Federal Ministry of Education and Research).

-ENDS-

This announcement has been authorised for release to the ASX by:

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Appendix: Project funding terms

Funding received by the HyGATE consortium from ARENA, on behalf of the Department of Climate Change, Energy, Environment and Water (DCCEEW), and from BMBF is subject to the terms of a yet-to-be-executed agreement (Agreement) of the HyGate Initiative.

It is likely that the terms of the Agreement will state that a change in Australian Government policy with respect to ARENA, or funding provided by ARENA, that relates to ARENA's obligations under this Agreement, that ARENA may by notice terminate this Agreement or reduce the scope of the Project, effective from the time specified in the notice. It is also likely similar terms will be required by BMBF. Such provisions are typical in Government funding agreements.

The involvement of Calix and Leilac in the Project remains subject to the negotiation and agreement of commercial terms between all parties.

Further information about the HyGATE Initiative is available at:

<https://arena.gov.au/funding/german-australian-hydrogen-innovation-and-technology-incubator-hygate/>

About Calix

Calix is a team of dedicated people who are urgently developing great businesses, leveraging our patented technology, that deliver positive global impact.

The core technology is being used to develop more environmentally-friendly solutions for water treatment, CO₂ mitigation, biotechnology, advanced batteries, and more sustainable mineral and chemical processing.

Calix develops its technology via a global network of research and development collaborations, including governments, research institutes and universities, some of world's largest companies, and a growing customer base and distributor network for its commercialised products and processes.

Because there's only one Earth – Mars is for Quitters.

Website: <https://www.calix.global/>
Twitter: @CalixLimited
YouTube: [CalixLimited](#)

About Leilac

Leilac is the collaborative technology partner accelerating the transition to net zero by providing the most compelling decarbonisation solution for global cement and lime.

Leilac's technology seeks to efficiently separate unavoidable carbon emissions ready for use or storage, without additional chemicals or processes. It is designed to be scalable, retrofittable, energy agnostic and electrification ready to provide flexible and economical pathways to carbon free cement and lime.

Operating across Europe, the Americas and Asia Pacific, Leilac has imagined the future for sustainable cement and lime. And we're creating it. Today.

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