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30 October 2023

Leilac and Heirloom sign global licence and collaboration agreements for Direct Air Capture

Sydney, Australia | 30 October 2023 – Australian environmental technology company, Calix Limited (ASX: CXL) ("Calix" or "the Company") announces today that Leilac, Calix's 93% owned subsidiary, has signed a binding and perpetual global licence agreement and a collaboration agreement with Heirloom Carbon Technologies ("Heirloom"), a Direct Air Capture ("DAC") company.

Highlights

- Leilac, a Calix subsidiary, has signed a binding and perpetual global licence agreement for the use of its technology by Heirloom for carbon dioxide removal by DAC.
- The agreement specifies Leilac and Heirloom will work together exclusively for DAC applications and that the Leilac technology will be used at all future Heirloom DAC facilities, subject to conditions and both parties achieving agreed milestones.
- Under the terms of the agreement, Leilac will receive a royalty based on the value of the CO_2 captured with the technology. The royalty uses Leilac's standard licensing model with rates specific to the DAC application.
- The royalty will have a floor price set at the greater of US$3/tonne of CO_2 separated in a Leilac kiln, or 3.5% of the prevailing CO_2 price for lime decarbonisation. A variable royalty rate, based on the prevailing CO_2 price or value less the amortised cost of capital of the Leilac kiln per tonne of CO_2 separated, will apply when above the floor price.
- In addition, a collaboration agreement has been executed which includes a US$3m contribution by Heirloom towards mutually agreed upon DAC and lime-related research and development activities.
- Leilac will retain all intellectual property relevant to its technology.
- Heirloom, whose investors include Bill Gates-backed Breakthrough Energy Ventures, use lime as a low-cost solution to directly capture CO_2 from the atmosphere.
- Heirloom has signed a long-term contract with Microsoft for the purchase of up to 315,000 metric tons of CO_2 removal over a multi-year period, in one of the largest carbon dioxide removal deals to-date.
- Heirloom is a partner in Project Cypress, one of two projects notified for selection by the US Department of Energy ("DOE") for up to US$1.2b provided through the Bipartisan Infrastructure Law's Regional DAC Hubs program.
- Carbon dioxide removal in the order of 1-10 billion tonnes per annum is expected[1] to be needed to limit or return global warming to 1.5 °C, as committed to in the Paris Agreement.

Leilac and Heirloom's partnership

Leilac's partnership with Heirloom, whose investors include existing Leilac shareholder Carbon Direct Capital Management, as well as Bill Gates-backed Breakthrough Energy Ventures, Ahren Innovation Capital and Microsoft, brings together two complementary climate technologies to provide an efficient approach to atmospheric carbon dioxide removal by DAC.

[1] IPCC Special Report on Global Warming of 1.5°C

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The partnership aims to accelerate the deployment of renewably powered electric calcination technology for DAC and the decarbonisation of hard-to-abate industries, such as cement and lime. It enables the DAC industry to leverage and benefit from many years of investment and technology development, including from the European Union and the cement and lime industries.

In turn, Heirloom's ambitions for rapid deployment of large-scale carbon dioxide removal – with significant government and private sector support – has the potential to aid industrial decarbonisation efforts, particularly the electrification of heavy industry at scale. This complementary and collaborative approach aims to support a just transition to sustainable local industries.

Heirloom projects

Following the signing of a non-binding memorandum of understanding in February 2023, Leilac and Heirloom have progressed the engineering and design of DAC plants using Leilac's electric calcination and CO_2 capture technology, including a research and development campaign using Calix's electric calciner pilot-plant in Bacchus Marsh, Victoria. This work is informing the design of new commercial DAC facilities.

Heirloom installations are targeted to rapidly increase in scale. Project Cypress, located in southwest Louisiana, USA, aims to capture more than 1 million metric tons of existing CO_2 from the atmosphere each year and store it permanently underground. Heirloom is one of two DAC technology companies participating in the project, and the project is one of two that were notified of selection by the U.S. DOE for up to US$1.2 billion in funding under the Bipartisan Infrastructure Law's Regional DAC Hubs program.

Heirloom has also signed a long-term contract with Microsoft for the purchase of up to 315,000 metric tons of CO_2 removal over a multi-year period, in one of the largest carbon dioxide removal deals to-date.

The licence agreement

Under the terms of the agreement, Leilac will receive a royalty based on the value of the CO_2 captured with the technology. The royalty uses Leilac's standard licensing model with rates specific to the DAC application. The royalty will:

i. Have a floor price set at the greater of US$3/tonne of CO_2 separated in a Leilac kiln, or 3.5% of the prevailing CO_2 price for lime decarbonisation; and
ii. Have a variable price based upon the total volume of CO_2 capture capacity installed and the prevailing CO_2 price or value, less the amortised cost of capital of the Leilac kiln per tonne of CO_2 separated.

It is expected that the floor price will be the initial royalty rate. As the technology application develops in scale and maturity, the costs of deployment may fall and cause the variable price to become the prevailing future royalty rate. As part of a collaboration agreement, Heirloom will contribute US$3m towards mutually agreed upon DAC and lime related research and development activities. Leilac will retain all intellectual property relevant to its technology.

Leilac and Heirloom will work together exclusively for DAC applications and the global and perpetual licence agreement covers the exclusive use of the Leilac technology at all future Heirloom DAC facilities, subject to conditions and the fulfilment of milestones by both parties. These include achievement of target CO_2 capture volumes by agreed dates and the delivery of technology performance criteria.

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Calix Managing Director and CEO, Phil Hodgson said:

"Calix is pleased to announce a binding and perpetual licence agreement between Leilac and Heirloom. Our partnership with Heirloom creates the opportunity to apply the Leilac technology into a new and rapidly developing market. It is also an example of our commercialisation strategy in action, with partnerships and licensing arrangements enabling our core platform technology to be simultaneously applied to multiple large addressable markets."

Leilac CEO, Daniel Rennie said:

"These agreements establish the collaborative foundation for the combination of two highly complementary technologies. Our rapid progress to date is testament to the dedication and ingenuity of both the Leilac and Heirloom teams. Together, we have the potential to deliver a significant impact on removing legacy emissions.

"Leilac is also excited to apply our core technology, developed for and with the cement and lime industries, to DAC. In turn, we expect our partnership with Heirloom will accelerate the development of electric calcination, as we work with all of our partners and clients in support of a just-transition towards an industrially sustainable low-carbon society. It's a win-win arrangement that aims to maximise the scale and speed at which we can reduce industrial and atmospheric CO_2."

Heirloom CEO, Shashank Samala, said:

"Heirloom is committed to our DAC facilities running on renewable energy and we're excited to further a partnership with Leilac to achieve low-cost carbon dioxide removal at future facilities on the way to achieving gigaton scale."

Heirloom & Leilac's unique approach to DAC

Heirloom's DAC solution harnesses limestone, one of the world's most abundant minerals, to provide a fast and low-cost path to permanent CO_2 removal. With a typical cost of approximately US$10-$50/tonne, limestone is inexpensive and easy to source.

Leilac's indirectly heated calcination technology is being developed to efficiently separate and capture high purity CO_2 from limestone and produce decarbonised lime. The technology does not require the use of additional chemicals, solvents, or energy intensive processes to separate and capture carbon dioxide, enabling Leilac to target the most efficient solution for the capture of CO_2 from limestone. It is also compatible with a variety of fuel sources, including renewably sourced electricity.

Heirloom's DAC technology uses lime in a novel carbonation process to directly capture CO_2 from the air and form limestone. This process accelerates the natural binding of CO_2 and lime from a period of years to three days, and without large energy requirements. After binding and removing CO_2 from the air, the reformed limestone is fed back into the renewably powered Leilac kiln, where the CO_2 is separated and captured, and the cycle begins again. The CO_2 removed from the air will be mineralised, where it is bound to rocks or other materials, or injected underground into existing natural geological structures, where it remains safely and permanently stored.

The integrated Heirloom and Leilac DAC solution will be 100% renewably powered to deliver the maximum net reduction of atmospheric carbon dioxide.

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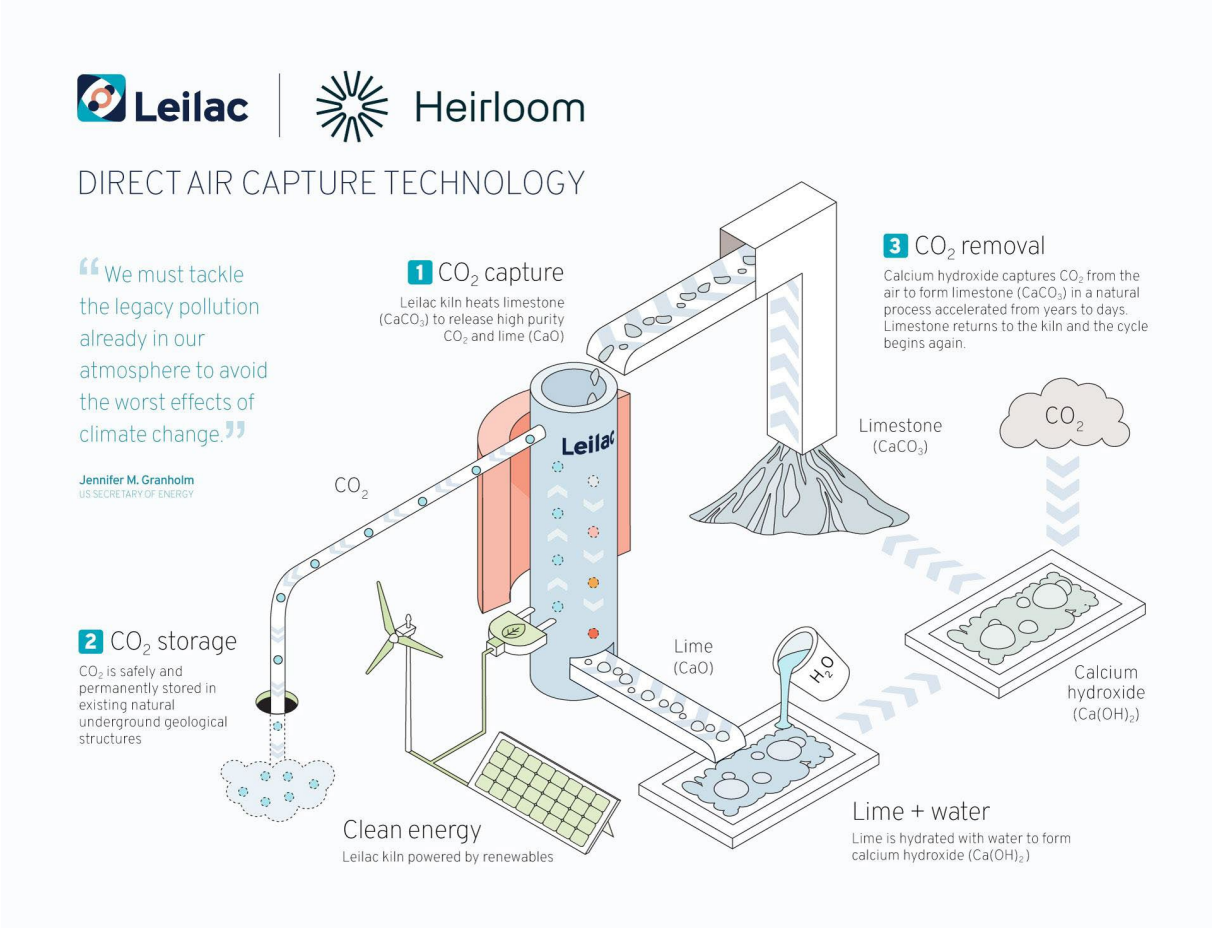

Caption: Heirloom's Direct Air Capture process powered by Leilac's renewably powered electric kiln.

Why Direct Air Capture?

Industrial decarbonisation is vital to achieving net zero emissions by 2050 and avoiding the most catastrophic effects of climate change. However, urgently decarbonising our industries will not be enough to achieve global climate goals. The excess carbon dioxide already in the atmosphere must also be mitigated.

The Intergovernmental Panel on Climate Change projects that carbon dioxide removal in the order of 1-10 billion tonnes of CO_2 per year could mitigate residual emissions and, in most scenarios, achieve net negative emissions to return global warming to 1.5 °C, following a peak.[2]

Modular, scalable and low-cost DAC technology, paired with geological carbon storage, can offer a path to removing ambient CO_2 at the gigatonne scale.

–ENDS–

[2] IPCC Special Report on Global Warming of 1.5°C

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

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About Calix

Calix Limited (ASX: CXL) is an environmental technology company solving global challenges in industrial decarbonisation and sustainability, including CO_2 mitigation, sustainable processing, advanced batteries, biotechnology and water treatment.

Calix's patented core technology platform delivers efficient indirect heating of raw materials to enable electrification of industries, efficient capture of unavoidable emissions, and green industrial processing solutions. Its flash heating approach can also produce unique nanoporous materials with enhanced chemical and/or bio-activity.

Leveraging its core technology platform and a global network of research and development collaborations, Calix is urgently developing multiple environmental businesses that deliver positive global impact. Because there's only one Earth, and it's already ours.

Mars is for quitters.

www.calix.global

About Leilac

Leilac Limited, a Calix subsidiary, is the collaborative technology partner accelerating a just transition to net zero by providing the most compelling decarbonisation solution for global cement and lime.

Leilac's technology is being developed 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, providing 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.

More information: www.leilac.com

About Heirloom

Heirloom builds low-cost Direct Air Capture technology that will permanently remove CO_2 at a billion-ton scale. Our technology rapidly accelerates the natural ability of minerals to absorb CO_2 from the air from a timespan of years to days. Heirloom has the only operating Direct Air Capture facility in North America, and its customers are the world's biggest buyers of carbon removal including Microsoft, Stripe, Klarna, Shopify and more. Heirloom is funded by Bill Gates' Breakthrough Energy Ventures,

Carbon Direct Capital, Ahren Innovation Capital, Prelude Capital, Lowercarbon Capital and others.

See how Heirloom's technology works here.

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