

31 May 2023

Calix Investor Presentation – May 2023

Sydney, Australia | 31 May 2023 – Australian environmental technology company, Calix Limited (ASX: CXL) (“Calix” or “the Company”) is pleased to provide a copy of its presentation to the NWR Vantage Point Conference.

Investors can register for the presentation using the link below:

https://us02web.zoom.us/webinar/register/WN_FLhbPZ0NRje5Wo7T9k9KFg

The following presentation is to be delivered by Managing Director and CEO, Phil Hodgson at 2:30pm on Wednesday 31 May 2023.

-ENDS-

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

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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/>

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Decarbonisation technology for multiple industries

NWR Vantage Point Conference
May 2023

Important Disclaimer



This presentation has been prepared by Calix Limited (ABN 36 117 372 540) ("Company").

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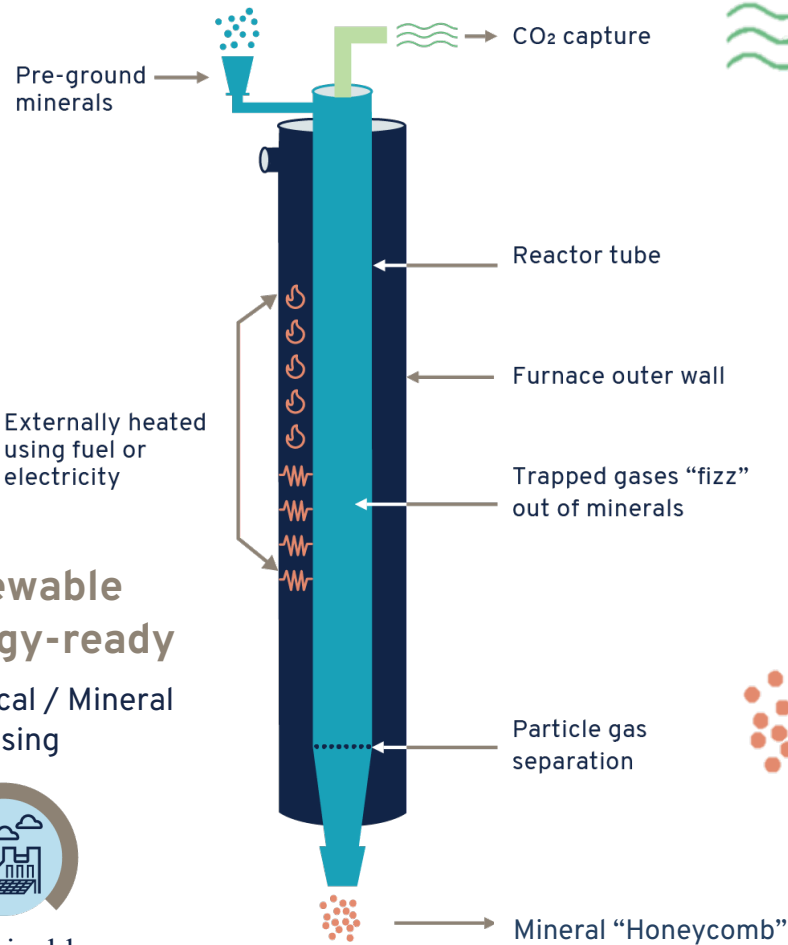
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Calix's core technology platform

A new way to heat stuff up...



 **CO₂ capture**
Capture of high purity CO₂ when processing limestone




 **Renewable energy-ready**

Chemical / Mineral processing



Sustainable Processing

 **Highly-active materials**
Highly porous "honeycomb" structure = more chemical- and/or bio-activity



Biotech



Battery Materials



Water

An AUSTRALIAN invention...



28 patent families covering core technology and applications



>A\$120m has been invested to date in developing the technology



Industrial decarbonisation tailwinds

Calix's mission is being propelled by net zero commitments



Government policy

~90%

of global GDP now under net zero commitments.¹

Investor activity

US\$42tn

assets of signatories to the '2022 Global Investor Statement to Governments on the Climate Crisis'.²

Net zero spending

US\$275tn

Estimated spend required by 2050 to fund the global energy transition.³



1. <https://zerotracker.net/>
2. 2022 Global Investor Statement to Governments on the Climate Crisis. The Investor Agenda
3. The net-zero transition: What it would cost, what it could bring. McKinsey Sustainability.

Policies driving decarbonisation



Carbon penalties, value & support in Europe, US, & now Australia...

EUROPE

Emissions Trading Scheme

- €80 – 2022 average EU ETS price, up from €50 in 2021
- 2.2% year-on-year reduction in free CO₂ permits to 2030

Carbon Border Adjustment Mechanism

- A new carbon tariff, commencing in 2023
- Paves the way for phase out of exemptions for heavy industry

Innovation Fund

- Energy, CCU/S, Energy Storage
- €10b funding from 2020 to 2030
- Up to 60% project cost contribution

Net-Zero Industry Act

- CCS identified as a strategic priority
- 50 million tonnes of annual CO₂ storage capacity to be developed by 2030

US

Inflation Reduction Act

- US\$85 / tonne of CO₂ permanently stored
- US\$180 / tonne for DAC + permanent CO₂ storage
- US\$130 / tonne for DAC + used CO₂

US-Australia Climate, Critical Minerals & Clean Energy Transformation Compact

- Fast-track critical mineral supply chains
- Access to US capital and IRA benefits for Australian companies
- Australia to be a 'domestic source' under DPA, enabling financing and purchasing of Australian minerals

DAC hubs

- US\$3.5 billion to establish Regional Direct Air Capture hubs
- Develop networks to facilitate sequestration or carbon utilization

AUSTRALIA

Safeguard Mechanism

- A price on carbon, capped at AU\$75
- ### AU\$15b National Reconstruction Fund
- Up to AU\$3b for renewables and low-emission technologies & AU\$1b for value-adding in resources.

AU\$1.9b Powering the Regions Fund

- AU\$400m over 3 years for Critical Inputs to Clean Energy Industries, such as steel, cement & lime, & alumina

Carbon Capture Technologies Program

- AU\$141m for hard-to-abate industries, such as cement

Critical Minerals Strategy

- Value-add, downstream processing & decarbonisation

Carbon Border Adjustment Mechanism

- Review of an Australian CBAM imminent

Largest single source of industrial emissions

- ~8% of global emissions¹
- Unavoidable process emissions released directly from limestone.

Net zero commitments

- GCCA member companies covering 40% of global cement production (80% outside of China) – have set a net zero by 2050 target.²
- 1.4 billion tonnes of CO₂ from cement needs to be captured and stored annually by 2050 to reach net zero.²

“Carbon Capture and Storage (CCS) plays a major role in decarbonizing the industry sector in the context of 1.5° C and 2° C pathways, especially in industries with higher process emissions, such as cement.” – IPCC³

Market drivers



Carbon pricing: 36 carbon taxes & 32 Emissions Trading Systems, covering 23% of global emissions & generating \$84bn in revenue⁴



>€80/tonne average EU carbon price for 2022



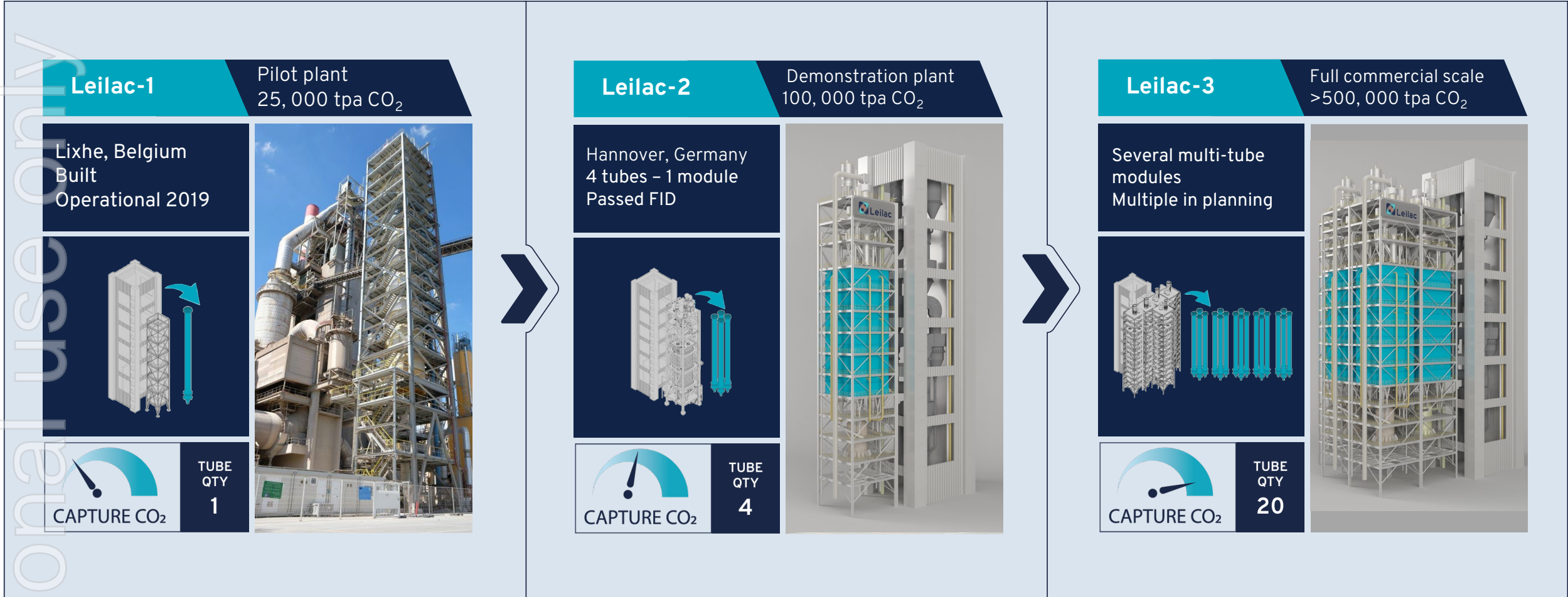
US\$85/tonne US tax credit for stored CO₂

SDG Impact



1. Trends in global CO2 emissions; 2016 Report, The Hague: PBL Netherlands Environmental Assessment Agency
 2. Global Cement & Concrete Association. Concrete Future Roadmap.

3. SR1.5 Chapter 2. IPCC. 2018
 4. <https://zerotracker.net/>, <https://carbonpricingdashboard.worldbank.org/>



Leilac's full-scale vision

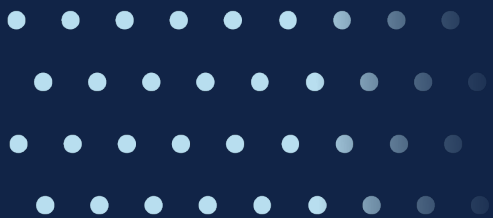
BUT...we need to mitigate 1.4 billion tonnes per annum of process CO₂ emissions

= up to 3,000 Leilac-3s

~2 built every week from now until 2050 !!

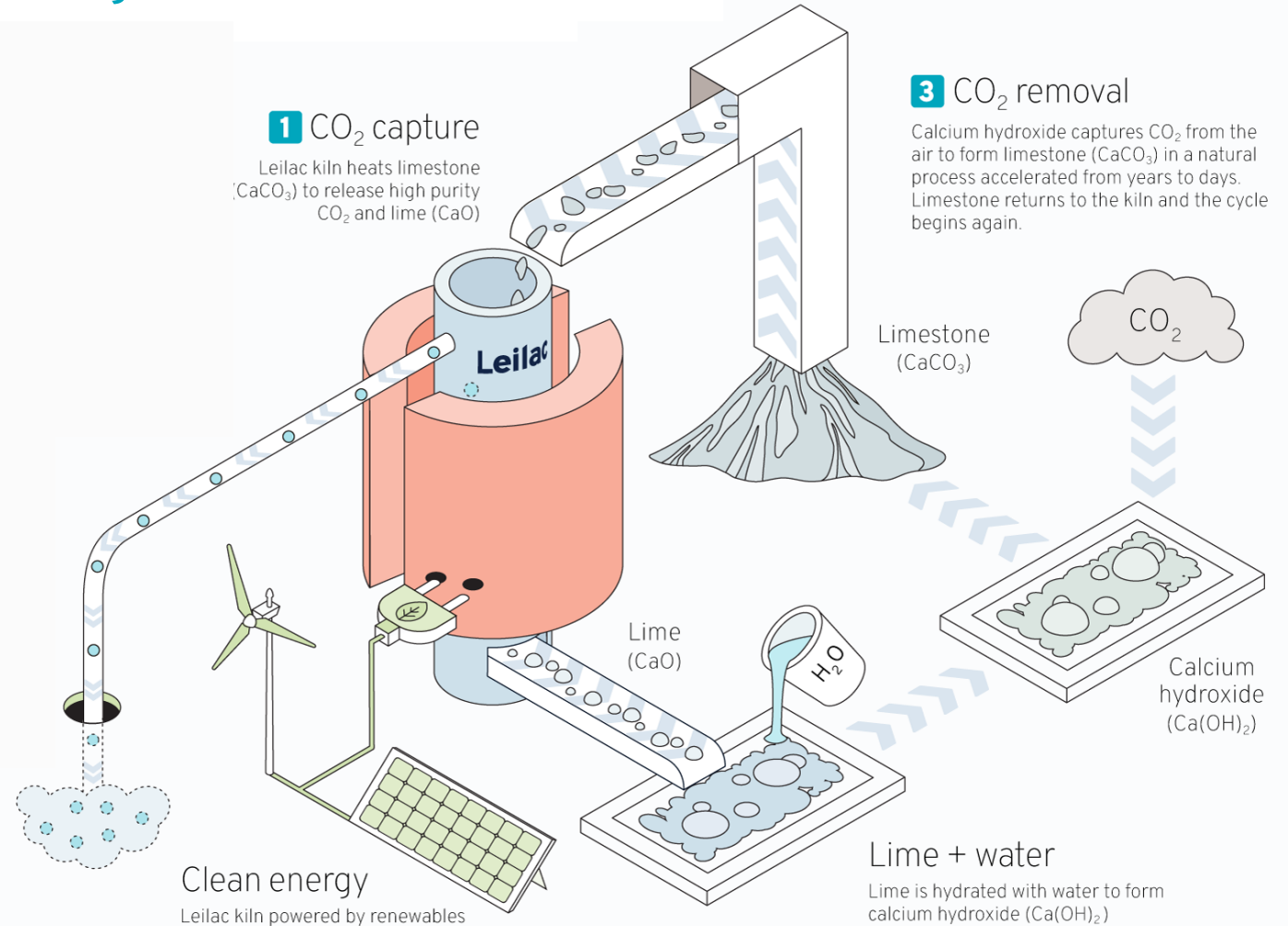


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Non-binding MOU for DAC global licence agreement with Heirloom

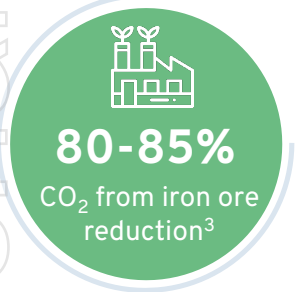
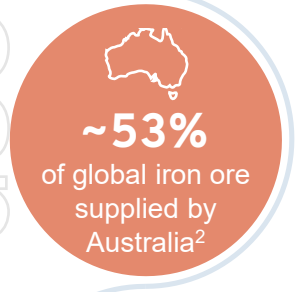
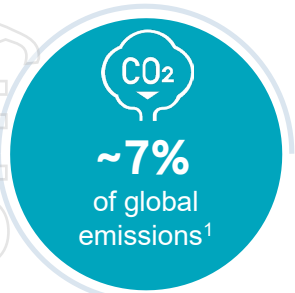
- Heirloom¹ is a Direct Air Capture company with an objective of capturing 1 billion tonnes of CO₂ by 2035.
- Heirloom's backers include Gates-led Breakthrough Energy Ventures, Carbon Direct and Microsoft.
- The MOU outlines key collaboration terms, including US\$3m in R&D contribution from Heirloom to advance Leilac calcium looping.
- The MOU also covers key terms for a global licence agreement, which once executed, will apply to any Heirloom facility.
- The technology licence fee comprises:
 - i. A royalty floor of US\$3 per tonne of CO₂ captured; and
 - ii. A variable royalty rate based on the prevailing CO₂ price for lime decarbonisation, less the amortised cost of capital of the Leilac kiln per tonne of CO₂ separated.



1. <https://www.heirloomcarbon.com/>

Decarbonising iron and steel

Indispensable, carbon-intensive & hard-to-abate.



Australian iron

- >A\$150b...44% of Australian export earnings in 2021⁴
- 96% of Australian iron ore is haematite⁵
- Value creation opportunity
 - 3-4x value add: iron ore → iron
 - Green Iron...

Decarbonisation solutions...ideally:

- Resource efficient
 - Compatible with multiple ore types
 - Low waste
- Minimal supply chain disruption
- Fast route to impact
- Economical
 - Leverage existing assets
 - Efficient use of energy, reductant & raw material

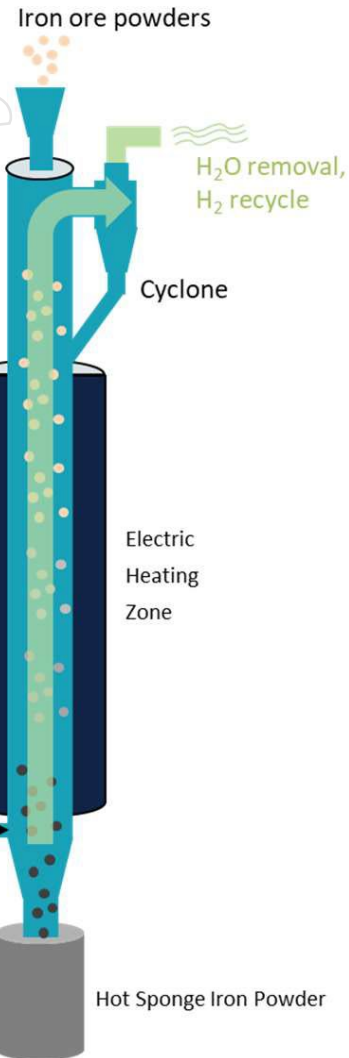
1. Climate change and the production of iron and steel. World Steel Association. 2021
2. www.statista.com
3. Climate change and the production of iron and steel. World Steel Association. 2021

4. <https://www.minerals.org.au/news/record-high-resources-export-revenue>
Global Cement & Concrete Association. Concrete Future Roadmap.
5. Iron Ore | Geoscience Australia
6. <https://zerotracker.net/>

Zero Emissions Steel Technology



Potential lowest cost zero emissions iron & steel



About ZESTY

- Hydrogen reduction of iron ore
- Can be easily and efficiently renewably powered
- Targeting theoretical minimum hydrogen use – simple gas recycle
- Processes fines <~0.3mm, no pelletisation
- Targeting zero emissions iron and steel*

	Simple process (low pressure / no fluid beds)	Compatible with fines & lower grade ores	No fossil fuel requiremen t	No CCS required	H ₂ not combusted / easily recycled
BF / BOF + H ₂	✓	✗	✗	✗	✗
DRI-MIDREX	✓	✗	✗	✗	✗
DRI- HISARNA	✓	✓	✗	✗	✗
FINMET	✗	✓	✗	✗	✗
HYBRIT	✓	✗	✓	✓	✗
DRI_MIDREX H ₂	✓	✗	✗	✗	✗
Flash iron making	✓	✓	✓	✓	✗
HYFOR	✗	✓	✓	✓	✗
ZESTY	✓	✓	✓	✓	✓

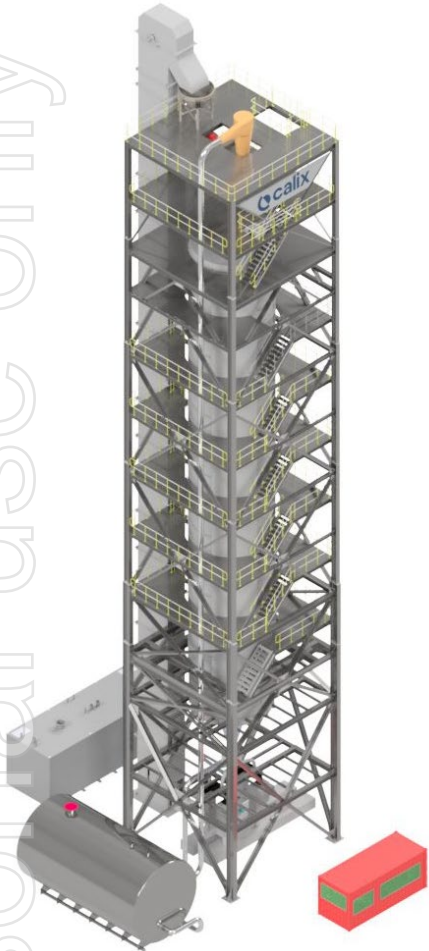
Calix's ZESTY Technology: pre-FEED / FEED study



Towards Financial Investment Decision by end-2023

Pre-FEED / FEED study

- A\$947,035 ARENA grant.
- Proposed 30,000 tpa, zero CO₂ emissions ZESTY-iron demonstration plant.
- Study towards final investment decision, including:
 - Testing / confirmation / design input from pilot test runs
 - Beneficiation / passivation / briquetting / smelting trials
 - Multiple ore testing
 - Site determination
 - Knowledge sharing & partnership development



A render of the Calix fully electric ZESTY reactor rated for 30kTpa iron production

HILTCRC

Heavy Industry
Low-carbon Transition



Australian Government
Australian Renewable
Energy Agency

ARENA
10 YEARS



The ZESTY reactor will be the same scale as Leilac-1 reactor for cement and lime

Sustainable lithium Joint Venture with Pilbara Minerals

Electrification and mid-stream mineral processing

Joint Venture Executed

- JV Full Documentation Executed with \$20m in Federal Government funding announced under the Modern Manufacturing Initiative¹
- Project CAPEX budget estimate from scoping study is \$50-70m
- Calix will own 45% of the JV and contribute 35% of the capital (10% free carry negotiated as per Calix IP contribution)
- Targeting an innovative mid-stream process:
 - Increase lithia concentration: ~6% → 35%
 - Reduce waste ~94% → 0
 - Reduce carbon intensity with solar-powered electrification of calcination
 - Increase ore recovery

1. Grant funding announced, contract executed with Federal Government in April 2023
2. Lithium mining: How new production technologies could fuel the global EV revolution – McKinsey April 2022
3. Electrification in Industrials. Deloitte Insights. August 2020



Sustainable lithium tailwinds

6x

6x growth in lithium carbonate & equivalents market by 2030²

45%

Electrification of industrial manufacturing target by 2035³

CO₂

Increasing demand for sustainable & dependable supply of essential mineral products

SDG Impact



Calix's FY23 priorities and progress...

Continued acceleration – especially decarbonisation projects...

- Successfully completed
- On track
- Watch point
- Near-term focus



Water

Water treatment
Aquaculture

US: At least

- 2 new plants (1x June commissioning, 1x Q1 FY24 target)
- A second major new US state entry

China:

- Re-establish market entry

EU:

- Re-establish market entry



Biotech

Crop protection
Marine coatings
Health & pharma

Crop Protection

- 3rd licence agreement

Marine Coatings

- Successful phase 2 trials with MTA partners

Biotech

- Next new biotech application...health/pharma
- Successful initial in-vivo studies



Advanced Batteries

Advanced cathode & anode materials

- First battery module – commercial format (commercial format pack June – testing Q1 FY24)
- Basis of Design – demonstration facility for cathode production
- At least 1 new chemistry = pouch cell success



Sustainable Processing

Renewable-powered mineral & chemical processing

Refractories

- Convert MOU to full Project or licence agreement

Spodumene

- Full JV agreement
- Successful FEED study leading to FID

Iron and Steel

- Successful expanded ore program (commenced + even more ores to test, will continue into Q1 FY24)
- Basis of Design: Demonstration facility



Leilac

CO₂ mitigation for cement & lime

- Convert at least two MOUs to full project / licence agreements – “full-scale” application
- Convert at least 2 projects from BODs to FEED studies
- Leilac long lead items procured, site works commenced (site demolition works proceeding, L2 permitting - critical path - on-going)

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