

For personal use only



Half Year Results FY2024

Calix Limited

23 February 2024

calix.global



Important Disclaimer

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

SUMMARY INFORMATION

This presentation contains summary information about the Company and its subsidiaries ("Calix") and their activities current as at 23 February 2024. The information in this presentation is a general background and does not purport to be complete.

NOT FINANCIAL PRODUCT ADVICE

This presentation is for information purposes only and is not a prospectus, product disclosure statement or other offer document under Australian law or the law of any other jurisdiction. This presentation is not financial product or investment advice, a recommendation to acquire Calix securities or accounting, legal or tax advice. It has been prepared without taking into account the objectives, financial or tax situation or needs of individuals. Before making an investment decision, prospective investors should consider the appropriateness of the information having regard to their own objectives, financial and tax situation and needs and seek legal and taxation advice appropriate to their jurisdiction. Calix is not licensed to provide financial product advice in respect of Calix securities. Cooling off rights do not apply to the acquisition of Calix securities.

FINANCIAL DATA

All dollar values are in Australian dollars (\$) or A\$) and financial data is presented as at or for the full financial year ended 30 June 2021, unless stated otherwise.

PAST PERFORMANCE

Past performance information given in this presentation is given for illustrative purposes only and should not be relied upon as (and is not) an indication of the Company's views on its future financial performance or condition. Investors should note that past performance, including past share price performance, of Calix cannot be relied upon as an indicator of (and provides no guidance as to) future Calix performance including future share price performance.

FUTURE PERFORMANCE

This presentation contains certain "forward-looking statements". The words "expect", "future", "anticipate", "estimate", "intend", "believe", "guidance", "should", "could", "may", "will", "predict", "plan" and other similar expressions are intended to identify forward-looking statements. Indications of, and guidance on, future earnings and financial position and performance are also forward-looking statements. Forward-looking statements, opinions and estimates provided in this presentation are based on assumptions and contingencies which are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. Forward-looking statements, including projections, guidance on future earnings and estimates are provided as a general guide only and should not be relied upon as an indication or guarantee of future performance. Such forward-looking statements are by their nature subject to significant uncertainties and contingencies and are based on a number of estimates and assumptions that are subject to change (and in many cases are outside the control of Calix and its directors) which may cause the actual results or performance of Calix to be materially different from any future results or performance expressed or implied by such forward-looking statements. The forward-looking statements should not be relied on as an indication of future value or for any other purpose.. No representation, warranty or assurance (express or implied) is given or made in relation to any forward-looking statement by any person (including the Company). In particular, no representation, warranty or assurance (express or implied) is given that the occurrence of the events expressed or implied in any forward-looking statements in this presentation will actually occur. Actual results, performance or achievement may vary materially from any projections and forward-looking statements and the assumptions on which those statements are based. The forward-looking statements in this presentation speak only as of the date of this presentation. Subject to any continuing obligations under applicable law, the Company disclaims any obligation or undertaking to provide any updates or revisions to any forward-looking statements in this presentation to reflect any change in expectations in relation to any forward-looking statements or any change in events, conditions or circumstances on which any such statement is based. Nothing in this presentation will under any circumstances create an implication that there has been no change in the affairs of Calix since the date of this presentation.

INVESTMENT RISK

An investment in Calix securities is subject to investment and other known and unknown risks, some of which are beyond the control of Calix, including possible delays in repayment and loss of income and principal invested. Calix does not guarantee any particular rate of return or the performance of Calix, nor does it guarantee the repayment of capital from Calix or any particular tax treatment. Persons should have regard to the risks outlined in this presentation and appendices.

NOT AN OFFER

This presentation is not and should not be considered an offer or an invitation to acquire Calix securities or any other financial products and does not and will not form any part of any contract for the acquisition of Calix securities.

This presentation does not constitute an offer to sell, or the solicitation of an offer to buy, any securities in the United States or to, or for the account or benefit of, any 'U.S. person' (as defined in Regulation S under the U.S. Securities Act ("U.S. Person")). The new shares to be offered and sold in the placement ("Offer") have not been, and none of them will be, registered under the U.S. Securities Act or the securities laws of any state or other jurisdiction of the United States. In addition, Calix has not been, and will not be, registered under the U.S. Investment Company Act of 1940, as amended (the "U.S. Investment Company Act") in reliance on the exception from the definition of "investment company" provided by Section 3(c)(7) thereof. The New Shares to be offered and sold in the Offer may not be offered and sold to, directly or indirectly, any person in the United States or any person that is, or is acting for the account or benefit of, a U.S. Person except pursuant to an exemption from, or in a transaction not subject to, the registration requirements of the U.S. Securities Act and applicable U.S. state securities laws and pursuant to an exception from the registration requirements of the U.S. Investment Company Act provided by Section 3(c)(7) thereof. This presentation may not be distributed or released in the United States or to any U.S. Person. The distribution of this presentation in other jurisdictions outside Australia may also be restricted by law and any such restrictions should be observed. Any failure to comply with such restrictions may constitute a violation of applicable securities laws. Offers in Australia of the shares are only being made to persons who are "sophisticated investors" or "professional investors" (within the meaning of section 708(8) and section 708(11) of the Australian Corporations Act (Act) respectively) or otherwise pursuant to one or more exemptions under Section 708 of the Act so that it is lawful to offer the shares in Australia without disclosure to investors under Part 6D.2 of the Act.

NO ADVICE

None of Calix's respective advisers or any of their respective affiliates, related bodies corporate, directors, officers, partners, employees and agents, have authorised, permitted or caused the issue, submission, dispatch or provision of this presentation and none of them makes or purports to make any statement in this presentation and there is no statement in this presentation which is based on any statement by any of them. For the avoidance of doubt, the advisers and their respective affiliates, related bodies corporate, directors, officers, partners, employees and agents have not made or purported to make any statement in this presentation and there is no statement in this presentation which is based on any statement by any of them. To the maximum extent permitted by law, Calix and its advisers and their respective affiliates, related bodies corporate, directors, officers, partners, employees and agents exclude and disclaim all liability, for any expenses, losses, damages or costs incurred by you as a result of your participation in the Offer and the information in this presentation being inaccurate or incomplete in any way for any reason, whether by negligence or otherwise. To the maximum extent permitted by law, Calix and its advisers and their respective affiliates, related bodies corporate, directors, officers, partners, employees and agents make no representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of information in this presentation and Calix's advisers and its affiliates, related bodies corporate, directors, officers, partners, employees and agents, take no responsibility for any part of this presentation or the Offer. Calix and Calix's advisers and their affiliates, related bodies corporate, directors, officers, partners, employees and agents make no recommendations as to whether you or your related parties should participate in the Offer nor do they make any representations or warranties to you concerning the Offer, and you represent, warrant and agree that you have not relied on any statements made by any of them in relation to the Offer and you further expressly disclaim that you are in a fiduciary relationship with any of them. Statements made in this presentation are made only as the date of this presentation. The information in this presentation remains subject to change without notice. Calix reserves the right to withdraw the Offer or vary the timetable for the Offer without notice.



About Calix

Calix is an environmental technology company developing applications of its unique platform technology to solve global challenges in industrial decarbonisation and sustainability.

We are building multiple businesses to deliver positive global impact in CO₂ mitigation, sustainable processing, advanced batteries, biotechnology and water treatment.

Because there's only one Earth...

MARS IS FOR
QUITTERS.



2005
FOUNDED



UNGC
signatory
= SINCE 2020 =

120+
employees



A\$120m
technology investment



9 operational
SITES

28
PATENT
families

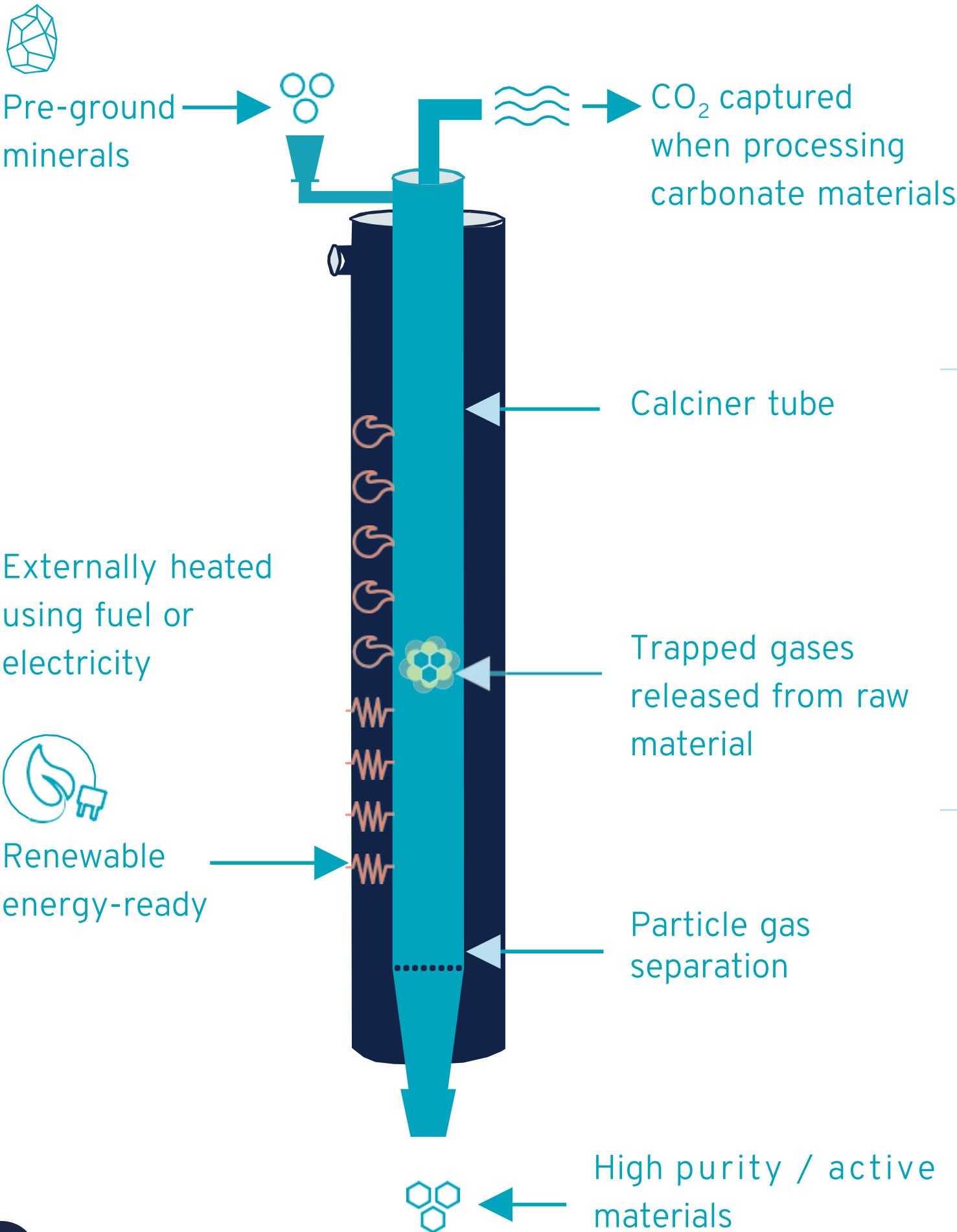
ACTIVE IN

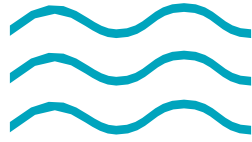
75

countries continents

Calix's core platform technology

A new way to “heat stuff up”




CO₂ CAPTURE

  **Leilac**
Unavoidable process CO₂ emissions from cement and lime production and CO₂ from the atmosphere are captured for use or storage.


ELECTRIFICATION & RENEWABLE ENERGY-READY

 **Sustainable Processing**
Compatible with electricity and alternative fuels to provide viable, flexible and economical pathways to sustainable processing.


HIGHLY-ACTIVE MATERIALS

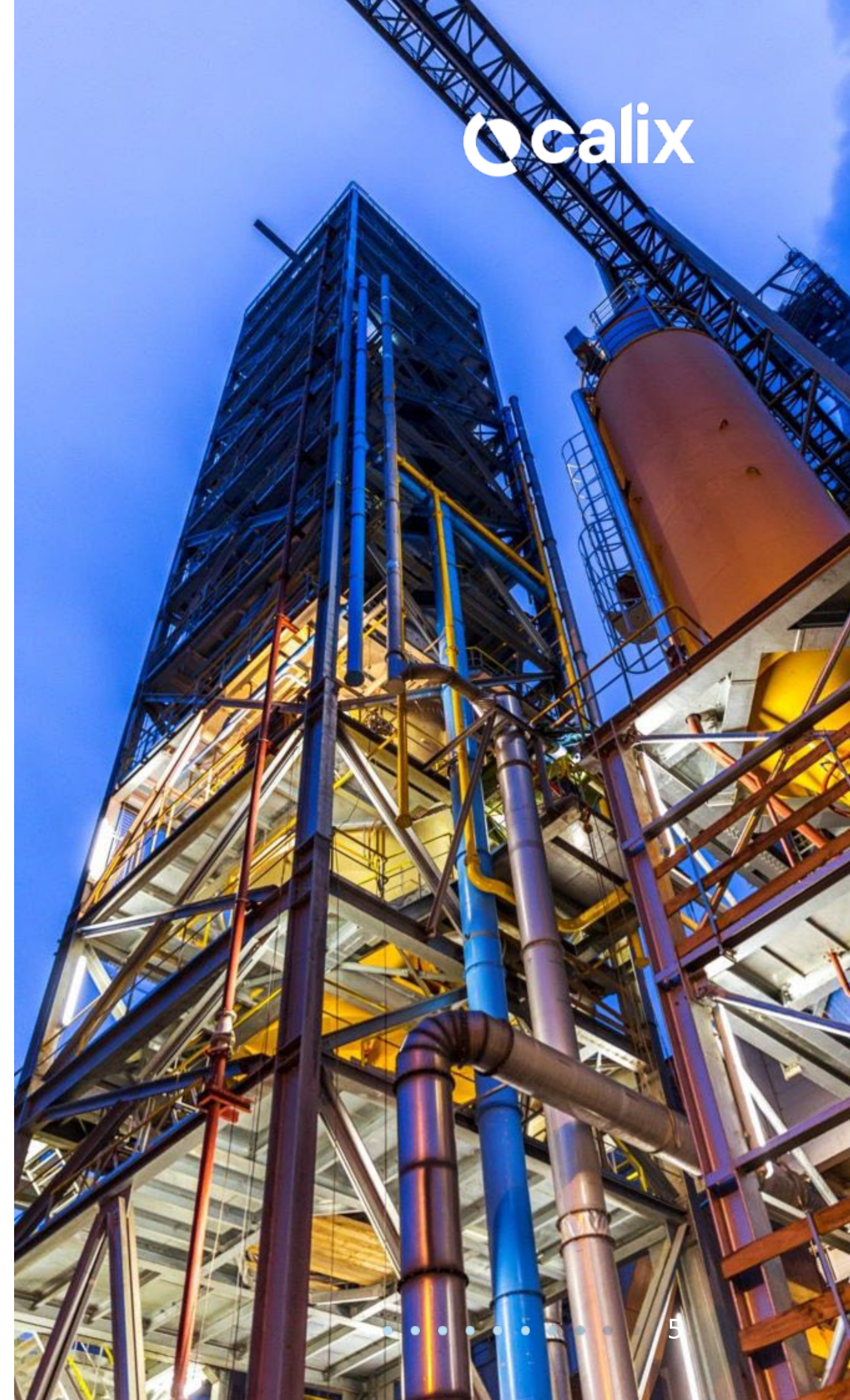
 **Magnesia**
Produces high purity / active materials with enhanced chemical and/or bioactivity.



Competitive advantage

A unique platform technology with multiple applications in major global markets

- **Global demand for industrial decarbonisation** is being driven by government policy and regulation, climate commitments, and investor pressure.
- Calix's patented core platform technology is **uniquely positioned to address major global decarbonisation** challenges in 'hard-to-abate' industries.
- Calix's technology is designed to enable:
 - The **lowest cost** solution for **capture of unavoidable process emissions** in cement and lime
 - Efficient **electrification** of conventional carbon-intensive **mineral processing**
 - The **lowest cost** solution for the **production of zero emissions iron and steel**
 - Zero emissions lime for **direct capture of atmospheric carbon dioxide**
 - Value-adding and low waste **refining solutions at the mine site**
 - **Secure and stable critical mineral supplies** to global trading partners
 - Effective, low cost, and **sustainable products** for water and agriculture
- Calix is applying its core technology platform to develop multiple environmental business opportunities, each focused on a specific target application and market.
- **Each application is a multi-billion dollar opportunity**, collectively targeting **over 20% of global carbon emissions**.
- Funding through licensing, joint ventures and spin-offs at the subsidiary level facilitates accelerated growth and commercialisation.



For personal use only

Our strategy and business structure

One core technology with multiple, low carbon applications into huge global industries

ONE CORE PLATFORM TECHNOLOGY

Our businesses	 Leilac CO₂ Mitigation		 Sustainable Processing			 Magnesia	
Target industries	 Cement & lime	 Direct Air Capture	 Lithium	 Alumina	 Iron & steel	 Water	 Ag / Marine / Bio
Market size	1.4 BTpa CO ₂ ¹		US\$7Bpa ²	US\$45.5Bpa ³	US\$640Bpa ⁴	~US\$100m ⁵	Multi-US\$Bpa ⁶
Partners	    Heirloom			 Heavy Industry Low-carbon Transition			
Strategy	Spin-out & Licensing (\$ per tonne CO ₂)		JV / spin-out & Licensing (% Total Revenues)			Growing direct / distributor sales	



1H FY24 Results

23 February 2024

1.

GCCA 2050 Net Zero Global Industry Roadmap

2.

Estimated as 50% of total lithium market as measured by lithium carbonate equivalent (LCE) derived from spodumene - <https://www.mckinsey.com/industries/metals-and-mining/our-insights/australias-potential-in-the-lithium-market>

3.

Alumina global market revenue estimated at <https://www.precedenceresearch.com/press-release/alumina-market#:~:text=The%20global%20alumina%20market%20size,combination%20of%20aluminum%20and%20oxygen.>

4.

Estimated as US\$400 per tonne of iron @ 1.6BTpa <https://www.statista.com/statistics/589979/metal-content-of-the-global-iron-ore-production/>

5.

US magnesium hydroxide market management estimate, caustic replacement market likely several multiples of this

6.

Frost and Sullivan – Independent Market Report – Calix IPO Prospectus 2018

Policies driving decarbonisation

Carbon penalties, value, tariffs, & policy support continue in Europe, US, & coming in Asia-Pacific...

Europe – Latest news

- **Jan 2024: Free EU ETS allowances will be progressively phased out** following the introduction of CBAM, reducing by **48.5% by 2030** and **100% by 2034**.¹
- **Feb 2024: European Commission releases 2040 Roadmap recommending 90% CO₂ reduction by 2040**.²
- Feb 2024: European Commission **Industrial Carbon Management** communication states:³
 - To 2030: *“focus will be on capturing CO₂ from process emissions”*
 - **280 million tonnes of CCS** targeted by **2040**
 - **450 million tonnes of CCS** targeted by **2050**
 - Capture of CO₂ from the atmosphere is an *“essential complement”* to emissions reduction

Supporting policies

- Emissions Trading Scheme (EU ETS)
- Carbon Border Adjustment Mechanism (CBAM)
- Innovation Fund
- Net-Zero Industry Act

US – Latest news

- **Nov 2023: Strong bipartisan support for 45Q**⁴
 - Introduced in 2008, **45Q is a US tax incentive underpinning investment in CCUS & DAC**
 - **Most beneficiaries** are oil & gas companies located in **Republican states**
- **Nov 2023: Democrats & Republicans propose a US CBAM**⁵
 - A US CBAM is gaining bipartisan support
 - Democrats have proposed a CBAM to support emissions reduction efforts
 - Republicans have proposed a CBAM to protect US manufacturers from higher carbon imports
- **Aug 2023: Project Cypress selected for up to US\$600 million in funding**⁶
 - Heirloom one of two DAC firms in Project Cypress

Supporting policies

- 45Q Tax credit
- US-Australia Climate, Critical Minerals & Clean Energy Transformation Compact
- Direct Air Capture (DAC) hubs

Asia-Pacific – Latest news

- **Jan 2024: China carbon pricing**⁷
 - China expected to add cement, steel and alumina to its Emissions Trading Scheme (ETS)
 - The CCER voluntary carbon market is expected to be restarted
 - Prices expected to remain low before increasing as emissions peak closer to 2030
- **Jan 2024: ETS momentum emerging across APAC**⁷
 - **Malaysia, Indonesia, Thailand, Vietnam** and others have **introduced regulatory framework for future ETS** launch
 - **India introduced the Carbon Credit Trading Scheme (CCTS) as a framework for an ETS launch**
- **Australian CBAM under review**

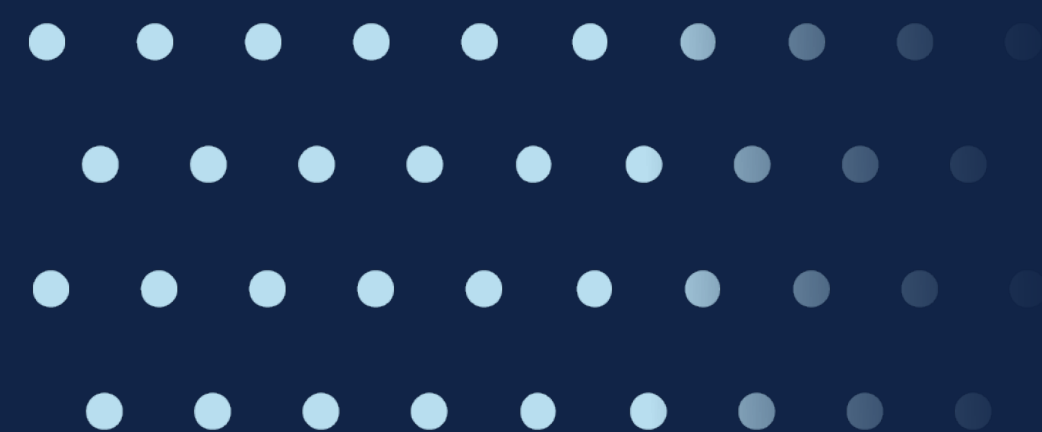
Supporting policies

- Safeguard Mechanism
- AU\$15b National Reconstruction Fund
- AU\$1.9b Powering the Regions Fund
- Carbon Capture Technologies Program
- Critical Minerals Strategy



1. Carbon border adjustment mechanism as part of the European Green Deal. European Parliament. 20 Jan 2024
2. Europe's 2040 climate target and path to climate neutrality by 2050 building a sustainable, just and prosperous society. European Commission. 6 Feb 2024
3. Industrial Carbon Management Communication. European Commission. 6 Feb 2024
4. Ranking Member Shelley Moore Capito's Opening Statement to the Environment and Public Works Committee "Opportunities in Industrial Decarbonisation". 15 Nov 2023
5. Senate Republicans introduce a climate bill – aimed at China. Politico. 2 Nov 2023
6. Biden-Harris Administration Announces Up To \$1.2 Billion For Nation's First Direct Air Capture Demonstrations in Texas and Louisiana. 11 Aug 2023
7. China Carbon Pricing. J.P. Morgan .10 Jan 2024

1H FY24 FINANCIAL RESULTS



1H FY24 financial update

Growth in revenue streams as decarbonisation applications progress

- Revenues grew to **\$16.3m**, up 28% on the same period last year.
 - Products & service revenues up **41% to \$12.2m**.
 - Grants & other income of **\$4.1m** was in line with prior period.
- Gross profit increased by 126% to \$5.9m.
- Revenue growth driven from:
 - Magnesia: Growing revenues in US & ANZ with strong margin improvement **Gross Margin of 38%**, up from 29% in prior period
 - Leilac: \$2.3m, up almost 1500% revenue stream associated with engineering services in support of customers.
- The combination of revenues and other income as well as the **\$3.4m** JV gain contributed **\$19.7m** to the comprehensive statement of profit or loss.
- Total operating expenses increased to \$19.8m (1H23: \$13.1m) as the Group continued to invest in technology development and commercialisation.



Calix Limited 1H FY24 financial result highlights



\$16.3m up 28%

Total 1H24 revenue
(1H23: \$12.7m)



\$5.9m up 126%

1H24 gross profit
(1H23: \$2.6m)



\$3.4m

Gain on contribution of the
PLS JV



\$3.7m

Grants and tax rebates



Profit & Loss highlights



Revenue and margin growth supports investment in technology development and commercialisation

	1H 24 (\$m's)	1H 23 (\$m's)
Revenue & other income	16.3	12.7
Magnesia revenues	9.9	8.5
Leilac revenues	2.3	0.2
Grants & other income	4.1	4.0
Gross Profit	5.9	2.6
Operating expenses	19.8	13.1
Sales & Marketing expenses	5.6	4.3
R&D	10.2	5.5
Admin	4.0	3.3
Operating result	(9.8)	(6.5)
Other Items		
Sustainable Processing – gain on investment in JV	3.4	-

Key takeaways

- Diversification of revenue streams
 - Continued growth in Water business
 - New revenue through Leilac customer engineering studies - \$2.3m
- Increase in R&D spend in:-
 - Leilac to support Heirloom, Leilac-2 & growing pipeline
 - Sustainable processing – PLS JV & ZESTY
- Gain resulting from co-investment with PLS in UJV - \$3.4m



Balance Sheet strength



Balance sheet strength & flexibility to pursue commercialisation opportunities

	31 Dec 23 (\$m's)	30 June 22 (\$m's)
Total current assets	67.6	89.1
Total Assets	113.2	127.5
Total Liabilities	19.0	22.6
Net Assets/Total Equity	94.2	105.0
<i>Excluding deferred revenue</i>		
Current assets	67.6	89.1
Current liabilities	7.6	7.7
Net surplus of current assets over current liabilities [<i>ex deferred revenue</i>]	60.0	81.4
Property, plant & equipment	29.4	24.4
Intangible assets, including goodwill	14.3	12.7

Key takeaways:

- Balance sheet remains strong & essentially debt free
- Flexibility retained to pursue the right capital & commercialisation strategy at the subsidiary level.



Consolidated cash flows

Balance sheet strength to pursue commercialisation opportunities



	1H 24 (\$m's)	1H 23 (\$m's)
Cash flows used in operating activities	(16.4)	(11.0)
Receipts	10.4	9.0
Payments	(26.8)	(20.0)
Cash flows used in investing activities	(10.0)	(5.2)
Property, plant & equipment	(9.8)	(3.8)
Intellectual property	(3.2)	(1.4)
Cash flows from financing activities	(0.2)	80.0
Proceeds from issue of shares	-	79.4
Payment of lease	(0.3)	(0.2)
Movements in loans/borrowings	0.1	0.8
Cash at the end of the year	47.8	88.8

Key takeaways:

- Working capital for investment in capability will be partially offset through draw down on receivables and working capital in coming months
- Investing in:
 - adding US manufacturing capacity to support growth opportunity
 - Leilac-2 long lead item procurement
 - Midstream pilot plant UJV with PLS (joint operation).



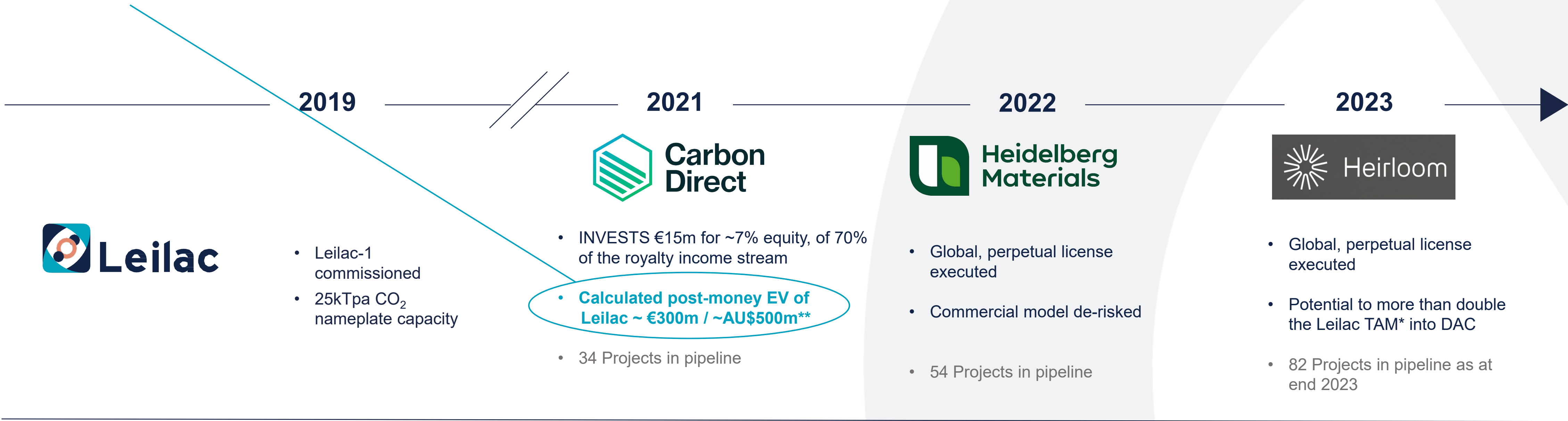
1H FY24

OPERATIONAL UPDATE
CO₂ Mitigation



Valuing the Opportunity – Leilac and Svante Inc...benchmark?

Since 2021, we have undertaken significant commercial de-risking and expanded the total addressable market into Direct Air Capture (DAC)



Svante Benchmark ?

- Power plant pilot commissioned
- ~10kTpa CO₂ nameplate capacity
- First cement pilot commissioned
- ~0.4kTpa CO₂ nameplate capacity



- Cap raise of US\$100m, late 2021
- Post-money valuation not disclosed (likely > US\$300m / AU\$500m)

- Cap raise of US\$318m, Dec 2022:
 - Post-Money Valuation > US\$1b* / AU\$1.5b**

Unknown / unstated projects in pipeline
Unknown / unstated end-user licences



**<https://www.svanteinc.com/coverage/ogci-climate-investments-continues-to-back-svante-a-new-unicorn-in-latest-funding-round/>*
*** AU\$ / US\$ assumed at 0.66*

Leilac Project Updates

Leilac-2

- Leilac-2 – targeting 100,000 tonnes per annum of CO₂ separation at an operating cement plant.
- 26th January – Heidelberg Materials announced the **Leilac-2 Project will be relocated** to another site following their decision to end clinker production in Hanover, Germany.
- Heidelberg Materials is working with Leilac to expedite confirmation of a suitable new site, and **detailed site assessments are underway**.
- The Leilac-2 project is **ready for construction**. After a site is chosen, ~6 months site-specific engineering is envisaged at an estimated cost of €100k /month.
- Engineering studies and commercial **discussions continue for full scale projects** with multiple partners at sites around the world.
- Leilac-2 project is an important pre-cursor project to roll-out to the **alternative fuel cement plant market**.
- **Fully electric applications** in cement, lime and Direct Air Capture (DAC) are **unaffected** by this slight delay.



Business line	Leilac
Value proposition	CO ₂ capture
Industries	Cement, lime & direct air capture
Market size	1-10 Btpa CO ₂
Investor	Carbon Direct (2010 - €15m for 7%)
Partners	Heidelberg Materials, Heirloom, Cemex, Lhoist, ++



For personal use only

Leilac Project Updates



Direct Air Capture

- Leilac and Heirloom have signed a global and perpetual licence agreement that applies to all future Heirloom facilities, with a royalty floor of US\$3 / tonne CO₂ captured.
- Heirloom is a Direct Air Capture (DAC) company with an objective of capturing 1 billion tonnes of CO₂ by 2035.
- Heirloom part of Project Cypress, one of 2 projects selected for the US Department of Energy’s US\$1.2b DAC Hubs program.¹
- Microsoft has purchased 315,000 tonnes of carbon dioxide removal (CDR) from Heirloom at an estimated value of US\$200million.²
- A collaboration agreement includes US\$3m in R&D contribution from Heirloom.
- Extensive and successful “calcium looping” test work has been completed at Calix’s Bacchus Marsh facility
- **Paid engineering work has commenced on Heirloom’s first commercial module**



Business line	Leilac
Value proposition	CO ₂ capture
Industries	Cement, lime & DAC
Market size	1-10 Btpa CO ₂
Investor	Carbon Direct (2010 - €15m for 7%)
Partners	Heidelberg Materials, Heirloom, Cemex +



1. [Biden-Harris Administration Announces Up To \\$1.2 Billion For Nation’s First Direct Air Capture Demonstrations in Texas and Louisiana](#)
2. <https://www.wsj.com/us-news/climate-environment/microsoft-will-use-carbon-absorbing-rocks-to-meet-climate-goals-57ea802a>

A robust pipeline of projects



	Project discussions	Initial scoping	Detailed scoping / MOU	Pre-FEED / BOD	FEED	FID + construction	Operational	Total
Aug 2021	21	7	4	1			1	34
Aug 2022	25	13	9	5		1	1	54
Feb 2024	34	28	11	 ADBRI 5 	2  Heirloom	1 Leilac-2	1 Leilac-1	82

- Pipeline growth: as of February 2024, there are **82 projects** in the pipeline.
 - Projects are ~ 2/3 cement and 1/3 lime, at average capacity of 500kTpa CO₂ for cement and 80 kTpa CO₂ for lime.
 - Leilac pipeline represents potential for over **20 Mtpa of CO₂ abatement projects**.
- **The focus in FY24 is on moving projects down the pipeline...and increasingly recovering engineering fees as projects advance. Engineering fees in the half year to December 2023 were \$2.3m compared to \$0.2m in the half year to December 2022.**

For personal use only

Leilac's full-scale vision

FOR CEMENT...

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!!

FOR DAC...

potentially a similar scale opportunity !



1H FY24 OPERATIONAL UPDATE Sustainable Processing



Zero Emissions Steel Technology

Targeting lowest cost zero emissions iron & steel

About ZESTY

- Calix technology applied to Hydrogen Direct Reduction of Iron ore (H-DRI)
- Can be easily and efficiently renewably-powered
- Targeting theoretical minimum hydrogen use – simple gas recycle, no hydrogen wastage
- Processes “iron ore fines” (<~0.3mm) – typically low value or waste material
- No pelletisation or sintering required
- Compatible with multiple ore types
- An enabling and complementary technology for multiple decarbonisation pathways* for iron and steel, including:
 - H-DRI -> Electric Smelting (ESF) -> Blast Furnace (BF/BOF)
 - Electric Arc Furnace (EAF)

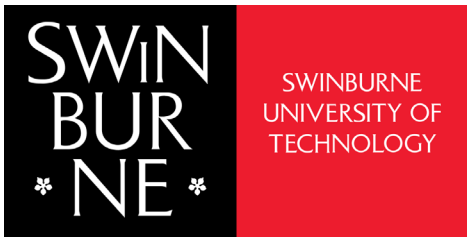
**in conjunction with Calix’s “Leilac” zero emissions lime*
1. Estimated as US\$400 per tonne of iron @ 1.6BTpa <https://www.statista.com/statistics/589979/metal-content-of-the-global-iron-ore-production/>



Business line	Sustainable Processing
Industries	Iron & Steel
Value proposition	Electrification and hydrogen reduction
Market size	US\$640Bpa ¹
Partners	ARENA, HILT CRC, Swinburne



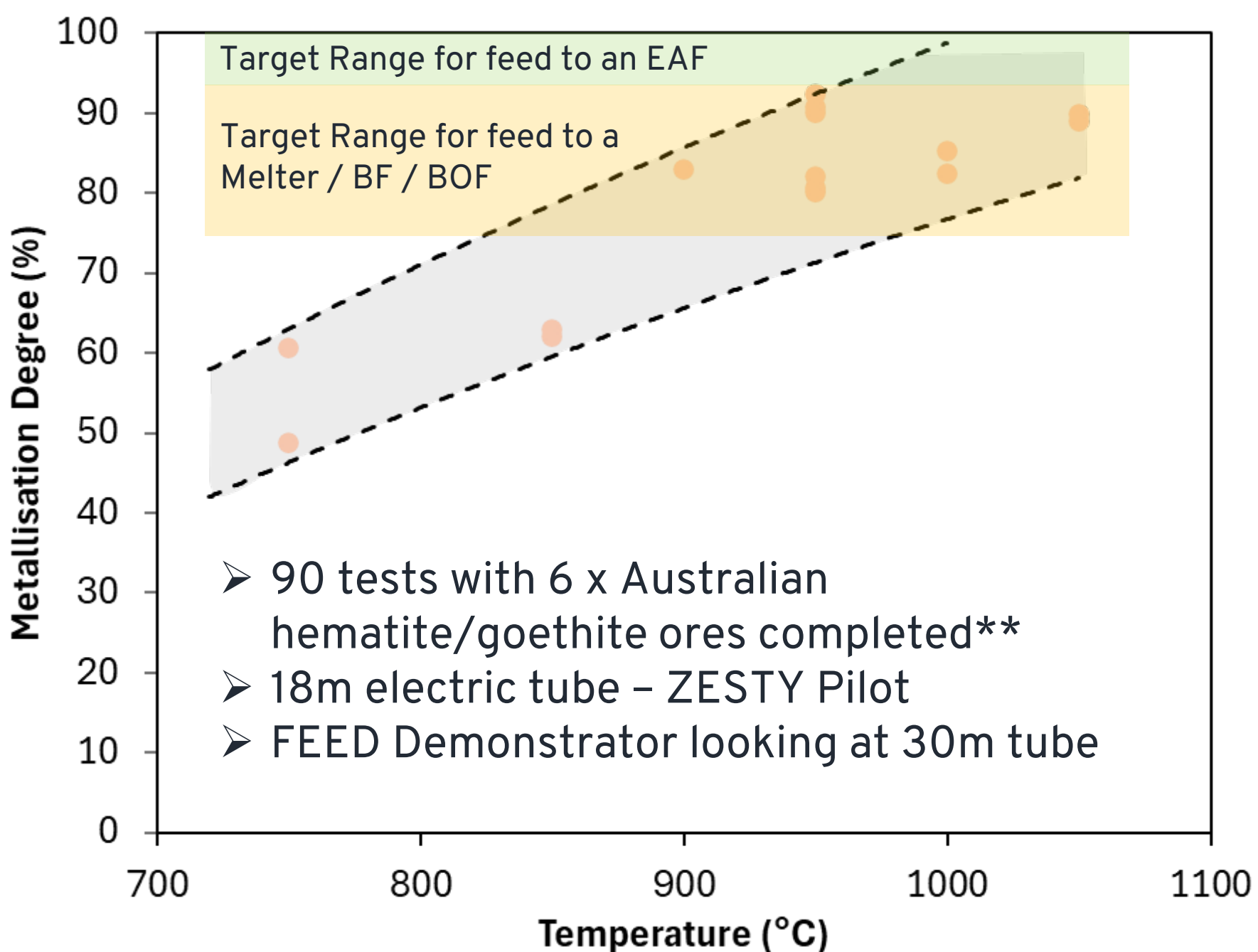
1H FY24 Results
23 February 2024



Zero Emissions Steel Technology

ZESTY Demonstration Plant FEED study results

- The ZESTY FEED study for a 30,000 tonne per annum demonstration facility and an extended ore testing program have been completed.
- The FEED study estimates ZESTY can produce near-zero emissions hot briquetted iron (HBI) from low grade iron ore for ~AUD\$630–800 per tonne of HBI.
- This cost is close to the range of existing, carbon-intensive HBI processing costs.
- The ZESTY technology is therefore a potential economic proposition for the production of HBI *before* the cost of carbon is taken into account.
- Carbon pricing would further strengthen ZESTY’s value proposition.
- An expansive ore testing program demonstrated metallisation degrees of commercial grade for a range of ores, including low grade Australian hematite ore.
- ZESTY’s low cost of production is driven by efficient hydrogen use, efficient electric heating, and the elimination of additional processing steps.
- Further cost savings are expected as the technology is scaled and refined.
- Calix is progressing the site selection and commercial arrangements necessary to reach a Final Investment Decision for the project.

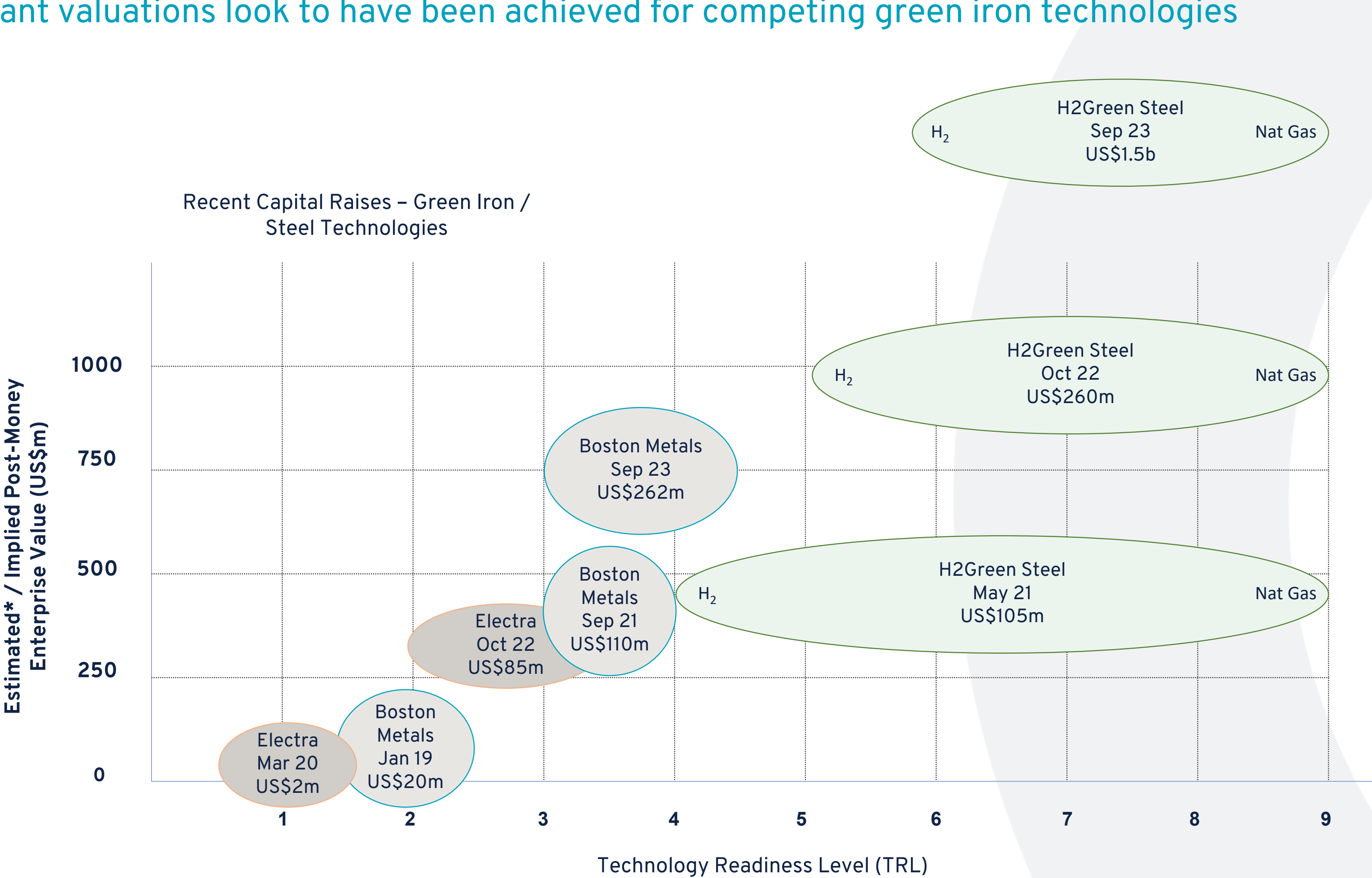


Ore type	Fe	D80	SSA	Pore Volume
(6 variants)	(Wt %)	(µm)	(m²/g)	(cm³/g)
Goethite / Hematite	56-61	50-185	9-15	0.03-0.05

*Assumed electricity price range AU\$ 34 -48 / MW
**Only some data points approved for public disclosure
Fe Wt% = the percentage of Iron by weight in the ore
D80 = the particle size at which 80% of particles are smaller, in millions of a metre (µm)
SSA = specific surface area in square meters per gram, a measure of how porous the ore is
Pore Volume = the volume of pores in the ore in cubic centimetres per gram

Valuing the opportunity - iron and steel

Significant valuations look to have been achieved for competing green iron technologies



- Midrex technology – TRL9 for Nat Gas, maybe 6 for H₂ **
- No data on production capacity – still lab scale
- No data on production capacity – still lab scale

- Calix ZESTY TRL?**
- Core Tech definitely “out of the lab” / TRL4 +
 - Current piloting at up to ~500 Tpa feed rates
 - Front End Engineering and Design complete for 30kTpa Demonstration Plant***

Sustainable lithium demonstration plant



Project is proceeding well – *remains on time and budget*

- Calix and Pilbara Minerals (ASX: PLS) are building a 45%/55% JV mid-stream lithium-phosphate demonstration plant, which will use Calix’s electric calciner and be located at Pilbara Minerals’ Pilgangoora Operation.
- Project objectives:
 - Reduce carbon intensity and waste transportation
 - Demonstrate lower CAPEX and OPEX with electric calcination
 - Create a higher value lithium product at the mine site
- Construction expected to commence in Apr-Jun Qtr 2024.
- Targeting production of first lithium salt in Apr-Jun Qtr 2025.
- Demonstration Plant CAPEX is ~ AU\$105m
 - Supported by \$20m in Australian Government funding
 - Calix will receive ~24% free carried equity in the facility, targeting \$17.5m CAPEX contribution for 45% equity



Business line	Sustainable Processing
Industries	Spodumene / lithium
Value proposition	Electrification, lower carbon lithium production
Market size	US\$7Bpa ¹
Partners	Pilbara Minerals (ASX: PLS)



1. Estimated as 50% of total lithium market as measured by lithium carbonate equivalent (LCE) derived from spodumene - <https://www.mckinsey.com/industries/metals-and-mining/our-insights/australias-potential-in-the-lithium-market>

Advanced Batteries restructure

Now included as part of the Sustainable Processing line of business

- Calix has produced Lithium Manganese Oxide based batteries in a commercial format battery pack and expanded its capability to new battery chemistries.
- Analysis of Calix’s battery applications identified the potential for improved performance, cost and carbon-intensity of cathode materials.
- This value proposition mostly relates to the technology’s application as a process improvement.
- As such, the Advanced Batteries business will be incorporated into Calix’s Sustainable Processing line of business
- Further development of battery material applications will be prioritised relative to other Sustainable Processing applications.
- All people, IP and know-how from the batteries team have been retained.
- The restructure will support Calix in continuing to appropriately allocate resources to the technology applications that can have the largest environmental impact and create the greatest shareholder value.



Business line	Sustainable Processing
Industries	Rechargeable Batteries
Value proposition	Electrification, lower carbon cathode production
Partners	FBI CRC, Deakin



1H FY24 OPERATIONAL UPDATE Magnesia



1H FY24 Results
23 February 2024



Magnesia

Water

- Revenue grew to \$9.9m, up 17% from the \$8.5m in 1H23, supported by US sales from new product, ALKA-Mag at improved gross margins - 38%
- Two new hydration plants now commissioned and able to support further growth in new and existing sales regions

Agriculture:

- EU field trials continue to provide further and compelling evidence that **Calix bioactive materials are both antibacterial and antifungal.**
- Excellent recent results for treatment of globally significant **olive leaf spot disease** have generated new technology licencing opportunities.

Marine:

- Static tests with global coatings firms continue in North America, Korea, Australia, and New Zealand. **Testing is progressing well** with additional in-field static trials in planning.
- **Dynamic tests and coatings formulation work underway** in sites across North America, Australia, New Zealand and Asia.

Antimicrobial Resistance (AMR):

- The initial CRC SAAFE livestock health project has confirmed **Calix materials provide control of pathogenic and drug resistant bacteria.**
- An additional project is being developed to prevent **fungicide resistance** in crop protection.
- Calix joined Australia’s **ARC CEA StAR** collaborative research program with three new projects.

Magnesium Metal

- Critical mineral – US / EU – we have a mine and the low carbon technology!
 - work continues on this opportunity.



Business line	Magnesia
Value proposition	Sustainable, bioactive MgO products
Industries	Water, agriculture, marine, biotech
Market size	Multi-US\$Bpa
Partners	CRC SAAFE

Sustainability Update

Ambition	1H FY24 achievements
Science-based emission reduction in line with the 1.5-degree pathway	• Data collection for FY23 greenhouse gas collection completed • Continuous process improvements for more accurate emissions data collection. • Supplier engagement to obtain more accurate scope-three emissions data.
Gender balance of 40:40 at all levels of the organisation by 2030	• Job advertisement practices reviewed and updated to support attracting a diverse range of candidates. • Parental leave entitlements increased • Introduction of wellbeing leave.
100% sustainable material inputs that are renewable, reusable or recyclable by 2030	• Waste and water usage measured from MHL production at Australian operational sites. • Hazard waste tracked at all sites globally. • Circular economy model in development for IBC & pallet waste.

MARS IS FOR QUITTERS



SUSTAINABLE
DEVELOPMENT
GOALS

Calix supports the Sustainable Development Goals

1
NO
POVERTY

2
ZERO
HUNGER

3
GOOD HEALTH
AND WELL-BEING

4
QUALITY
EDUCATION

5
GENDER
EQUALITY

6
CLEAN WATER
AND SANITATION

7
AFFORDABLE AND
CLEAN ENERGY

8
DECENT WORK AND
ECONOMIC GROWTH

9
INDUSTRY, INNOVATION
AND INFRASTRUCTURE

10
REDUCED
INEQUALITIES

11
SUSTAINABLE CITIES
AND COMMUNITIES

12
RESPONSIBLE
CONSUMPTION
AND PRODUCTION

13
CLIMATE
ACTION

14
LIFE
BELOW WATER

15
LIFE
ON LAND

16
PEACE, JUSTICE
AND STRONG
INSTITUTIONS

17
PARTNERSHIPS
FOR THE GOALS

Board of Directors

Board further strengthened with two new Directors – Dr Sarah Ryan and Peter Dixon



Peter Turnbull, AM
Non-Executive Chair
(Retiring 2024)

- Experienced Chair and Non-Executive Director with significant board and senior executive experience in the Australian and global resource, energy and technology sectors.
- Non-Executive Director of Karoon Energy Ltd. (ASX: KAR), Chair of Canadian medtech Auxita Pty Ltd, and Immediate Past President of the Chartered Governance Institute (London).
- Member of People, Culture and Nomination Committee, and Member of Audit and Risk Management Committee



Alison Deans
Non-Executive Director
(Chair-Elect)

- Experienced Chair and Non-Executive Director with significant board and senior executive experience in technology-enabled growth companies.
- Currently chair of Cochlear Limited (ASX: COH), Non-Executive Director at Ramsay Health Care Limited (ASX: RHC), and Non-Executive Director at Deputy Group Pty Ltd. Venture Partner at Main Sequence Ventures (CSIRO's innovation fund) and member of the Investment Committee.
- Previously CEO at eBay Australia and New Zealand, and two technology investment companies (eCorp Limited, and netus Pty Ltd) and a consultant with McKinsey & Company.
- MBA from the Stanford Graduate School of Business and a MA (Natural Sciences) from Cambridge University.



Helen Fisher
Non-Executive Director

- CEO and Managing Director of Bio Capital Impact Fund (BCIF), a Non-Executive director and Chair of the Audit and Risk Management Committee of Paradigm Biopharmaceuticals Ltd (ASX:PAR) and Chair of the Victorian branch of AusBiotech.
- Previously a partner of Deloitte for over 11 years, and led Deloitte's life sciences practice in Australia for 5 years, specialising in the financial services sector, with significant M&A transactions and strategic tax advice to publicly listed and large multinational companies.
- Chair of Audit and Risk Management Committee and Sustainability Committee



Dr Sarah Ryan
Non-Executive Director

- Non-executive director of Viva Energy Group Limited (ASX:VEA), Aurizon Holdings Limited (ASX:AZJ), Transurban Group (ASX:TCL) and the Future Battery Industries Co-operative Research Centre.
- Previously a non-executive director of Oz Minerals Limited (ASX:OZL) and Woodside Energy Group Limited (ASX:WDS).
- Strategic Advisory Panel Member of the ARC Centre of Excellence for Green Electrochemical Transformation of Carbon Dioxide, Chair of the Energy Forum for the Australian Academy of Technological Sciences and Engineering.
- Fellow of the Australian Academy of Technological Sciences and Engineering (ATSE), the Australian Institute of Energy,
- Bachelor of Science in Geology from the University of Melbourne, a Bachelor of Science (First Class Honours) in Geophysics from the University of Adelaide, PhD in Petroleum Geology and Geophysics from the University of Adelaide.
- Chair of Technology committee



Peter Dixon
Non-Executive Director

- Over 25 years of diverse corporate experience across the legal, investment banking, strategy and funds management sectors.
- Provides deep expertise in corporate strategy, investment management, corporate advisory (including equity capital markets) and legal governance to the Calix board.
- Currently Chief Strategy Officer for HPX Group Pty Ltd and a non-executive director at Johns Lyng Group Limited (ASX:JLG).
- Investment banking and legal experience includes private legal practice experience at Mallesons Stephen Jacques (Sydney) and Linklaters (London), and corporate advisory experience at MA Financial Group (ASX:MAF) and Macquarie Group Limited (ASX:MQG).
- Bachelor of Commerce (Finance) and a Bachelor of Laws from the University of New South Wales.
- Chair of People, Culture and Nomination Committee



Dr Phil Hodgson
Managing Director & Chief Executive Officer

- 14 years of multidisciplinary experience with Shell, including as the General Manager and Alternate Director of its subsidiary Fuelink Pty Ltd, a \$700m revenue, 300-employee distribution and sales subsidiary.
- 7 years running a private consultancy providing strategy and M&A services across energy, food, infrastructure and water sectors.
- Joined Calix in 2013 as CEO, became a Director in 2014.
- Member of Calix's Technology Committee.



Dr Mark Sceats
Executive Director & Chief Scientist

- Co-founder of Calix, and a member of Calix's Technology Committee.
- Qualified physical chemist with over 52 years' experience, numerous academic roles, and numerous fellowships and recognitions.
- CEO of the Australian Photonics CRC for 14 years.
- Fellow of the Australian Academy of Technological Sciences and Engineering (ATSE).
- Author of more than 165 academic papers in physical chemistry and inventor of 55 patented inventions.

FY24 KPI Dashboard

Strong progress so far, with most KPIs on track

KPI Dashboard for FY24

- ON TRACK
- WATCH POINT
- BEHIND

GATEWAY
All High Level
SHESQ action
items
completed on
time



CO₂ Capture

- Leilac2 all permitting and civil works complete
- Continue to move projects down the pipeline
- BOD for green methanol consortia project



Sustainable Processing

- Spodumene**
 - Spodumene Project Construction commenced
- Iron and Steel – “ZESTY”**
 - Successful expanded ore program
 - Completed FEED study leading to FID
- Alumina**
 - First successful Pre-FEED study
- Advanced Batteries***
 - Consumer Product Battery Module + new electrode chemistry



Magnesia

- Water**
 - Continued growth US, Asia; Lufkin operational; Ripon in Feb
- Mg Metal**
 - BOD for Mg Metal plant
- Specialties**
 - Continued commercialisation of Ag, Coatings and Biotech applications

*From January 2024, Advanced Batteries will be developed as part of the sustainable processing line of business, given the key value proposition involves electrification, lower carbon and more efficient processing

Summary and H2 FY24 outlook

- Calix has developed a unique technology that can be applied across many industries, with a focus on key projects for the decarbonisation of cement and lime, iron and steel, and lithium processing.
- Strong demand for Calix's technology is being driven by government policy and a need for urgent, affordable and scalable solutions.

Capital

- Building head company revenues and gross margins.
- Strong balance sheet and prudent, focused investment to build technology value.
- Equity farm-in at the subsidiary level continues to be an interesting option to facilitate accelerated growth, commercialisation, and look-through value.

Leilac

- Heidelberg Materials has reiterated its commitment to the Leilac-2 project. Leilac is working with Heidelberg Materials to expedite confirmation of a suitable new site and minimise delays to the project.
- Leilac continues to develop fully electric applications for cement, lime, and Direct Air Capture.

Pilbara Minerals JV

- Calix's joint venture with Pilbara Minerals, which aims to develop a low carbon, low waste, and high value mid-stream lithium salt product, remains on track and on budget.

ZESTY

- A FEED study found ZESTY has the potential to produce HBI at prices close to existing, carbon-intensive methods, before the cost of carbon is accounted for.
- Following the completion of the ZESTY FEED study, Calix aims to progress the site selection and commercial arrangements necessary to reach a Final Investment Decision for the project.



For personal use only

Calix Limited 1H FY24 Results

23 February 2024



Thank you

Acknowledgement of country

Calix acknowledges the First Nations people and traditional custodians of the lands upon which we live and work. We acknowledge their rich cultures and their continuing connection to land, waters and community. We pay respect to the culture and people, their Elders and leaders, past, present and emerging.

Social inclusion statement

Calix embraces diversity and inclusion. It is one of our core values. We promote an inclusive and safe space for all and proudly welcome and support people of any race, ability, gender and identity.

Sustainability statement

At Calix, sustainability means meeting our own needs without compromising the ability of future generations to meet their own needs. It is deeply embedded in our purpose: Mars is for quitters.

For personal use only



Investor relations
Investorrelations@calix.global

www.calix.global

Media enquiries
media@calix.global

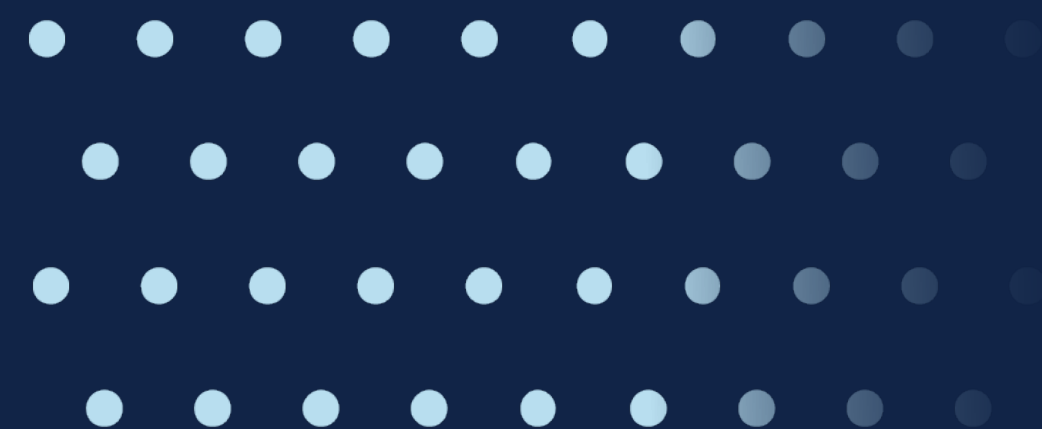


[Subscribe to our Newsletter](#)

Mars is for quitters



Glossary



Glossary

Term	Meaning
Aluminium (Al)	Chemical element with the symbol Al
Anode	The negative electrode of a battery
Antimicrobial	Antimicrobial products kill or slow the spread of microorganisms, including bacteria, viruses and fungi.
AMR	Antimicrobial resistance – the development of resistance in bacteria, viruses, fungi and parasites to antimicrobials
ARENA	The Australian Renewable Energy Agency
ASX	The Australian Securities Exchange
APVMA	Australian Pesticides and Veterinary Medicines Authority
BATMn	Calix’s core kiln technology – electrified – for battery and catalyst materials production and other applications testing
BOD	Basis of Design
BOS	Basic Oxygen Steelmaking
CAGR	Compound Average Growth Rate (%)
Calcium (Ca)	Chemical element with the symbol Ca
Carbonation	The capture of carbon dioxide by contacting with lime (calcium oxide), to form limestone (calcium carbonate)
Cathode	The positive electrode of a battery
CCS	Carbon Capture and Storage
CCUS	Carbon Capture, Utilisation and Storage
CO ₂	Carbon Dioxide
Copper (Cu)	Chemical element with the symbol Cu
CRC	Cooperative Research Centre – Australian Government supported industry-led collaborative research centres
CRC SAAFE	Cooperative Research Centre Solving Antimicrobial Resistance in Agribusiness, Food, and Environments
DAC	Direct Air Capture – the extraction of carbon dioxide directly from the atmosphere
EAF	Electric arc furnace – a furnace that heats material by means of an electric arc between two electrodes

Glossary

Term	Meaning
EAP	Employee Assistance Program
EBITDA	Earnings Before Interest, Tax, Depreciation and Amortisation
Electrode	The material that stores the lithium ions in a charged (anode) or discharged (cathode) state in a lithium-ion battery
Electrolyte	The medium that allows ions to move between the battery electrodes, via the separator
ESF	Electric Smelting Furnace – Used to convert Direct Reduced Iron (DRI) to iron suitable for a Basic Oxygen Steelmaking (BOS) process.
ESG	Environment, Social and Governance considerations
FEED	Front-End Engineering Design
FID	Final Investment Decision
Fines	Small particles, which are usually very difficult to handle in kilns etc as they simply get blown out
Green Hydrogen	Hydrogen that is produced from an electrolyser using renewable energy
Goethite	A mineral that is an ore of iron
HBI	Hot Briquetted Iron – “bricks” of relatively high purity iron ready for steel-making
H-DRI	The process of directly reducing iron ore to metallic iron with hydrogen as the reductant
Hematite	A mineral that is an ore of iron
HILT CRC	Heavy Industry Low-carbon Transition Cooperative Research Centre
HPO	“Hierarchical Porous Onion” - a crystal structure of lithium manganese oxide resembling tiny onion layers – allowing both strength and easier passage of lithium ions
Hydrometallurgy	A metal recovery method used to obtain metals from ores and waste materials
Iron (Fe)	The chemical element, represented by “Fe” on the periodic table
Iron Ore	Iron oxide mixed with various other minerals, as mined and “pre-processed” (purified) as best as possible
Leilac	Calix’s core kiln technology for Low Emissions Intensity Lime and Cement production with CO ₂ capture
LFP	Lithium Iron Phosphate – a battery cathode material

Glossary

Term	Meaning
LHM	Lithium Hydroxide Monohydrate – used in the production of cathode active materials for lithium-ion batteries
Lithium (Li)	Chemical element with the symbol Li
Lithium-phosphate / Lithium Salt / “Mid-Stream” Lithium	A form of lithium that is high in lithium content, to be shipped and utilised by battery producers
Lithium ion	The ionic form of lithium (Li+) – a positively charged atom of lithium
LMO	Lithium Manganese Oxide – a battery cathode material
LNMO	Lithium Nickel Manganese Oxide – a battery cathode material
LTO	Lithium Titanium Oxide – a battery anode material
Manganese Carbonate (MnCO3)	Form of manganese used mainly in agriculture as a fertiliser supplement
Magnesium (Mg)	Chemical element with the symbol Mg
Manganese (Mn)	Chemical element with the symbol Mn
Magnetite	A mineral that is an ore of iron
Metallurgical Coal	Very high carbon coal
MgO	Magnesium Oxide
MHL	Magnesium Hydroxide Liquid
MOU	Memorandum of Understanding
Nanoporous	A material with a regular, porous structure, with a pore size generally less than 100 nanometres.
Nickel (Ni)	Chemical element with the symbol Ni
NCA	A battery cathode material made from nickel, aluminium and cobalt
NCM, or NMC	A battery cathode material made from nickel, manganese and cobalt
Pelletisation	The formation of pellets from finer materials to aid in handling
Potassium (K)	Chemical element with the symbol K

Glossary

Term	Meaning
Process emissions	Process emissions are inherent to the chemical reaction and are released directly and unavoidably from the chemical processing of raw material. They are distinct from energy related emissions that may result from the consumption of fuel to heat the reaction.
SDGs	The UN's Sustainable Development Goals or Global Goals are a collection of seventeen interlinked objectives designed to serve as a "shared blueprint for peace and prosperity for people and the planet, now and into the future."
Separator	The barrier between the anode and the cathode that prevents them touching, inside the battery
Siderite	A mineral that is an ore of iron
SLP	Single layer pouch cells – a soft battery design where most of the cell components are enclosed in a aluminium-coated plastic film.
Sodium (Na)	Chemical element with the symbol Na
Spodumene	A high lithium-containing ore, and the source of the majority of the world's lithium supply
α -Spodumene	A tight Li-crystal formation, from which extraction of Li is difficult
β -Spodumene	A loose Li-crystal formation, from which extraction of Li is much easier than the alpha-form
Reduce / Reduction	The process by which oxygen is removed
Reductant	A material that, through its chemical properties, carries out reduction
RDF	Refuse-derived fuel – a fuel produced from various types of waste
Sponge Iron	Iron Ore that has been reduced (had the oxygen removed)
Steel	Mainly iron, with some carbon and other trace metals such as nickel, manganese etc depending upon the grade of steel being made
Sulphur (S)	Chemical element with the symbol S
TAM	Total Addressable Market
Tpa	Tonnes per annum
TRL	Technology Readiness Level, as measured on the NASA scale
UNGC	The United Nations Global Compact, the world's largest corporate sustainability initiative
Wh / kWh	Watt-hours / kilowatt-hours - a measure of energy
ZESTY	Calix's Zero Emissions Steel Technology



For personal use only



Investor relations
Investorrelations@calix.global

calix.global

Media enquiries
media@calix.global

 [Subscribe to our Newsletter](#)

Mars is for quitters