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CALIX LIMITED

Full Year FY22 Presentation

August 24, 2022



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Mars is for quitters

We believe our responsibility starts at home.

That's why we're driven to use our unique technology to repair, preserve and prevent future harm to it.

Because there's only one Earth, and it's already ours.





Sustainability is in our DNA

Mission: *Delivering on our promises.*



FY22 ACHIEVEMENTS

- First Sustainability Report (COP Communication on Progress) published in Nov 2021.
- SDG Ambition Acceleration Program (6 months) completed.
- Awareness training on the Sustainable Development Goals conducted for all ANZ, SEA, US and EU employees.
- Strategic SDG prioritization - (using the “SDG Ambition Benchmarks” as defined by the UN):
 1. Science-based emissions reduction in line with the 1.5°C pathway
 2. Zero incidents of bribery and corruption
 3. Diversity across all levels of management
 4. 100% sustainability material inputs that are renewable, recyclable or reusable.

• CSR, giving back to the community:

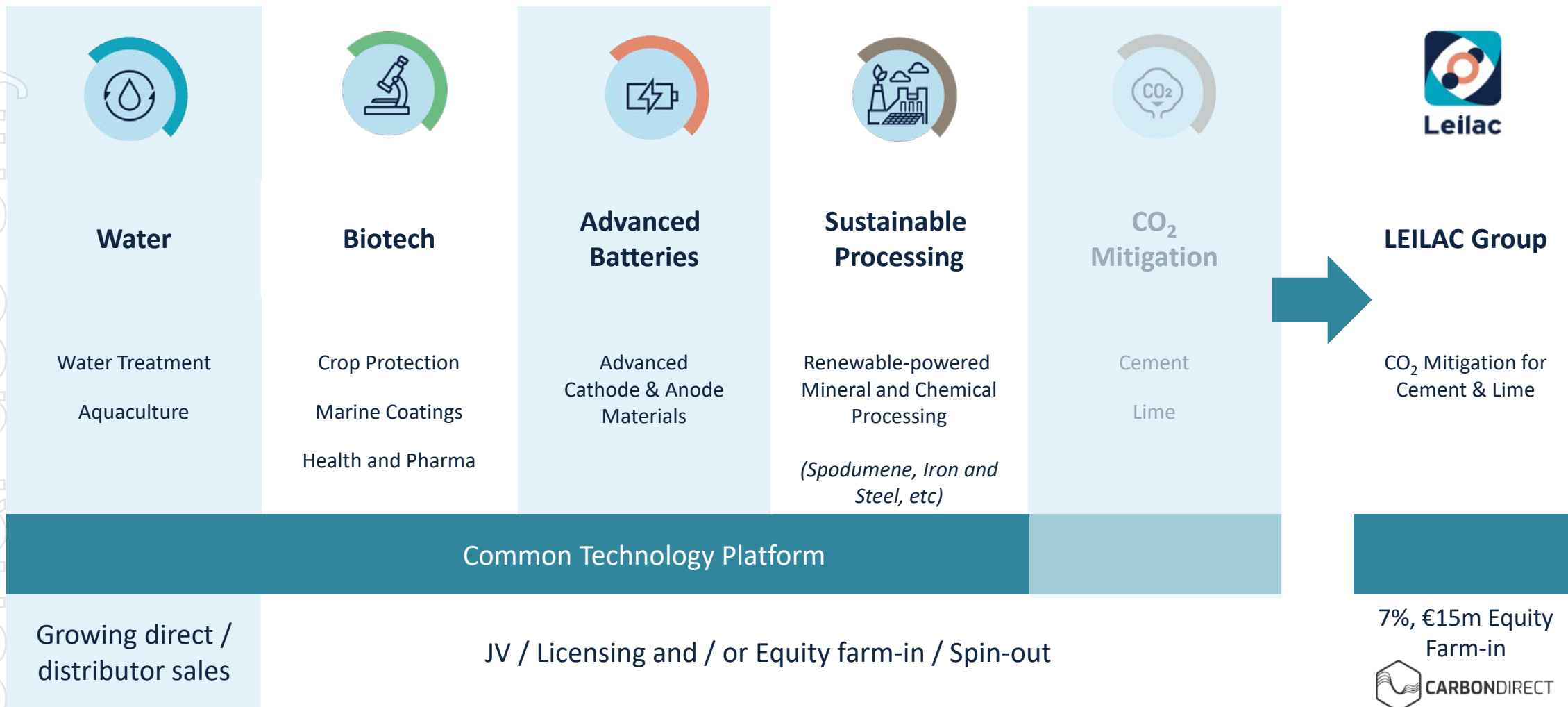
Calix has become a Silver partner of WaterAid, in recognition of our leadership and continued support. Calix continues to support Ocean Impact Organisation and the Bacchus Marsh Women Football Club.

FY23 COMMITMENTS

- UNGC commitment and CEO support renewed; Second COP report to be submitted before end of November 2022.
- Integration of the SDGs into Line of business strategy – to continue developing our technology with purpose.
- The Sustainability Team will work with Pangolin Associates to develop a roadmap to match or exceed the benchmark’s level of ambition on reducing CO₂ footprint in line with the Paris Agreement. We are committed to:
 1. Measure footprint and risks
 2. Create targets
 3. Reduce footprint
 4. Communicate and lead

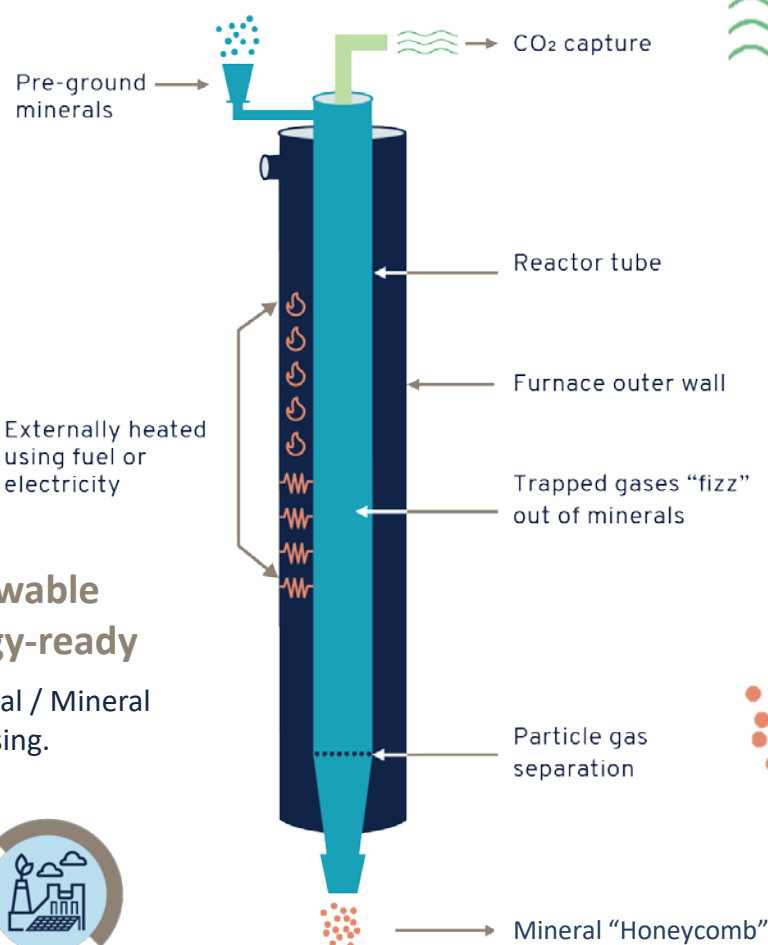
Calix is developing multiple environmental business opportunities...

..and looking to fast-track commercialisation and value-adding through JV / Licensing and Spin-Out strategies



Calix's core technology platform

A PATENTED PLATFORM TECHNOLOGY WITH THREE KEY FEATURES



CO₂ capture

When processing limestone, gas exhaust is high purity CO₂



Renewable energy-ready

Chemical / Mineral Processing.



Highly-active materials

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



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A new way to "heat stuff up"



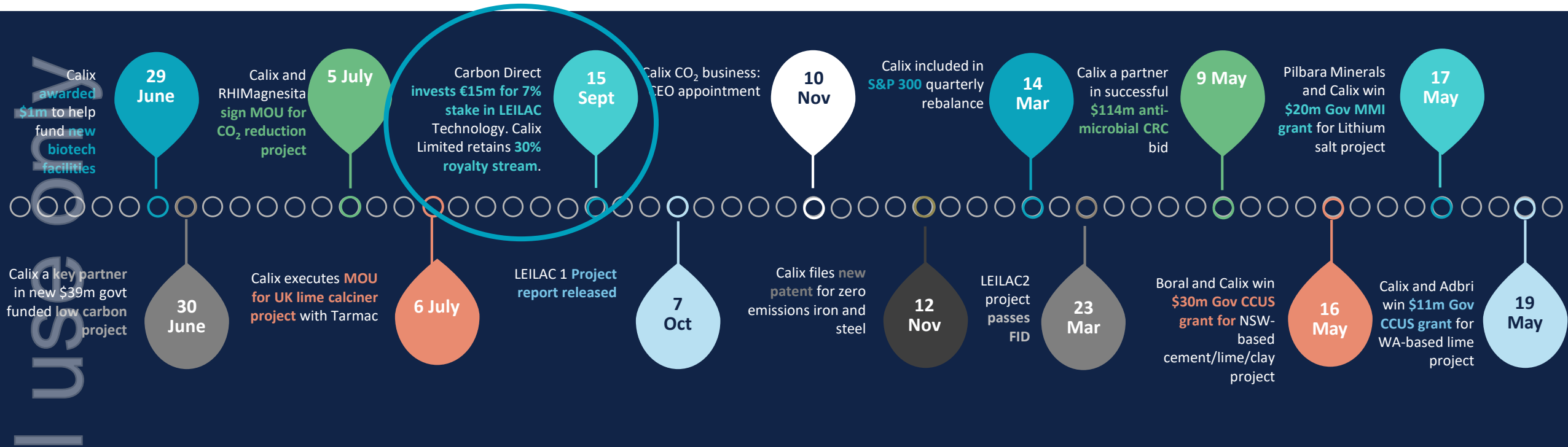
28 patent families covering core technology and applications



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

Key Highlights – FY22

SIGNIFICANT PROGRESS ACROSS MULTIPLE LINES OF BUSINESS,
“LOOK THROUGH” VALUE ACHIEVED FOR CO₂ MITIGATION TECHNOLOGY



Investing for growth

Employed 10 engineers,
1 finance and business development
and 6 R&D FTEs

Invested \$7.0m on capital items to enhance
and accelerate our technology development

Invested \$1.8m on external commercial /
advisory / legal / tax to advance our
commercialisation along multiple business
lines and geographies

FY22 priorities...and Report Card

- ✓ Successfully Completed
- Significant Progress
- Behind



Water	CO ₂ Mitigation	Biotech	Advanced Batteries	Sustainable Processing
Revenue and Gross Margin growth via... US: At least <ul style="list-style-type: none"> 1 new plant ○ 1 major new US state entry ✓ EU: <ul style="list-style-type: none"> First partner agreement ✓ Convert paid trials to customers — 1 new plant — Asia: <ul style="list-style-type: none"> Re-establish Chinese AQUA-Cal+ sales ○ 	Cement and Lime <ul style="list-style-type: none"> Successful test campaign conclusion – LEILAC-1 ✓ Successful FID – LEILAC-2 ✓ Convert at least two MOU's to full project / license agreements – “full-scale” application ○ 	Crop Protection <ul style="list-style-type: none"> 2nd license agreement ✓ APVMA approval ✓ Marine Coatings <ul style="list-style-type: none"> Successful initial trials with MTA partners ✓ Next new biotech application...health / pharma <ul style="list-style-type: none"> Successful in-vitro study ✓ 	<ul style="list-style-type: none"> Successful full (coin) cell results ✓ Initial positive pouch cell results ✓ Scale-up production trials – cathode materials ✓ First battery module – commercial format ○ 	Refractories <ul style="list-style-type: none"> Convert MOU to full Project or License agreement ○ Spodumene <ul style="list-style-type: none"> Successful feasibility study ✓ Convert MOU to full Project or License MOU ✓ Develop next new sustainable processing application <ul style="list-style-type: none"> ZESTY – iron and steel decarbonisation development underway ✓

Look-through valuation achieved – Carbon Direct investment into the LEILAC Group





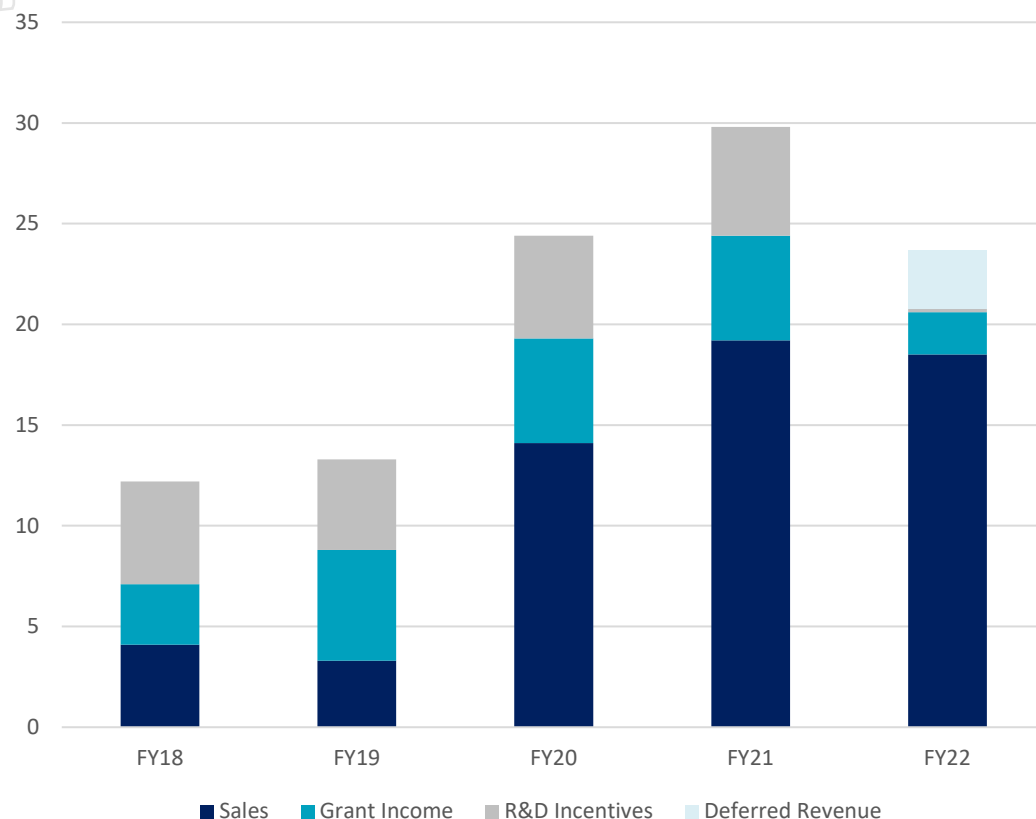
FY22 Financial Results

Progress in FY22

EVOLUTION OF REVENUE PROFILE



Revenue & Other Income



Key takeaways...

Sales in FY22 impacted by loss of low margin refined coal customer anticipated in acquisition valuation – offset by higher margin sales with gross profit increases

Fluctuations in grant income relates to timing of spend profile on our projects. Almost \$3m received in FY22 but deferred – further 12 announced grant funded projects secured over the last 12 months, whose income will be recognised over the life of those projects

As our “aggregated turnover” exceeded \$20m, we cannot claim the R&D cash rebate – which averaged \$5m over the previous 4 years. In place of this rebate, we earn accelerated tax credits instead

Sales revenues will include contributions beyond Water in FY 22/23 with paid studies for customers in Leilac and SusPro

Summary of Results FY22 – Profit & Loss Highlights

INVESTING HEAVILY IN CAPABILITY TO CAPITALISE ON TECHNOLOGY COMMERCIALISATION



	FY22 (\$m's)	FY21 (\$m's)	Comments
Sales revenue	18.5	19.2	
Gross Profit	5.2	5.0	Focus on higher margin sales
Grant and other income recognised	2.3	5.2	Leilac 1 to Leilac 2 transition
R&D tax incentive	-	5.4	Tax rebate to tax incentive
Total revenue	20.8	29.8	
Sales & Marketing expenses	7.7	5.9	Investing in commercialisation
R&D	7.1	7.1	
Admin	4.9	2.6	Includes non-recurring expenses, mainly LEILAC Group deal
Operating Profit	(12.1)	0	

Balance Sheet strength

BALANCE SHEET STRENGTHENED THROUGH STRATEGIC SELL DOWN IN ONE OF OUR LINES OF BUSINESS



	30 June 22 (\$m's)	30 June 21 (\$m's)
Cash & Cash equivalents	25.0	15.1
Total Assets	61.2	51.6
Total Liabilities	16.4	13.5
Net Assets/Total Equity	44.8	38.1
<i>Excluding deferred revenue</i>		
Current assets	31.6	27.0
Current liabilities	5.8	5.2
Net surplus of current assets over current liabilities [ex deferred revenue]	25.8	21.8
Property, plant & equipment	18.7	14.5
Intangible assets, including goodwill	10.1	8.9

Key Take-aways...

Sale of minor stake [~7%] in Calix's LEILAC Group demonstrated underlying value in the assets and technology platform the Company has built.

Carbon Direct investment approach is an example of the flexible funding options that Calix has to accelerate and scale lines of business.

\$25.0m of cash on hand and minimal debt, providing financial and balance sheet flexibility.

Progress in FY22

INVESTING IN TECHNOLOGY PLATFORM FOR MULTIPLE ENVIRONMENTAL OUTCOMES

Recent history demonstrates efficient use of capital driving material outcomes...

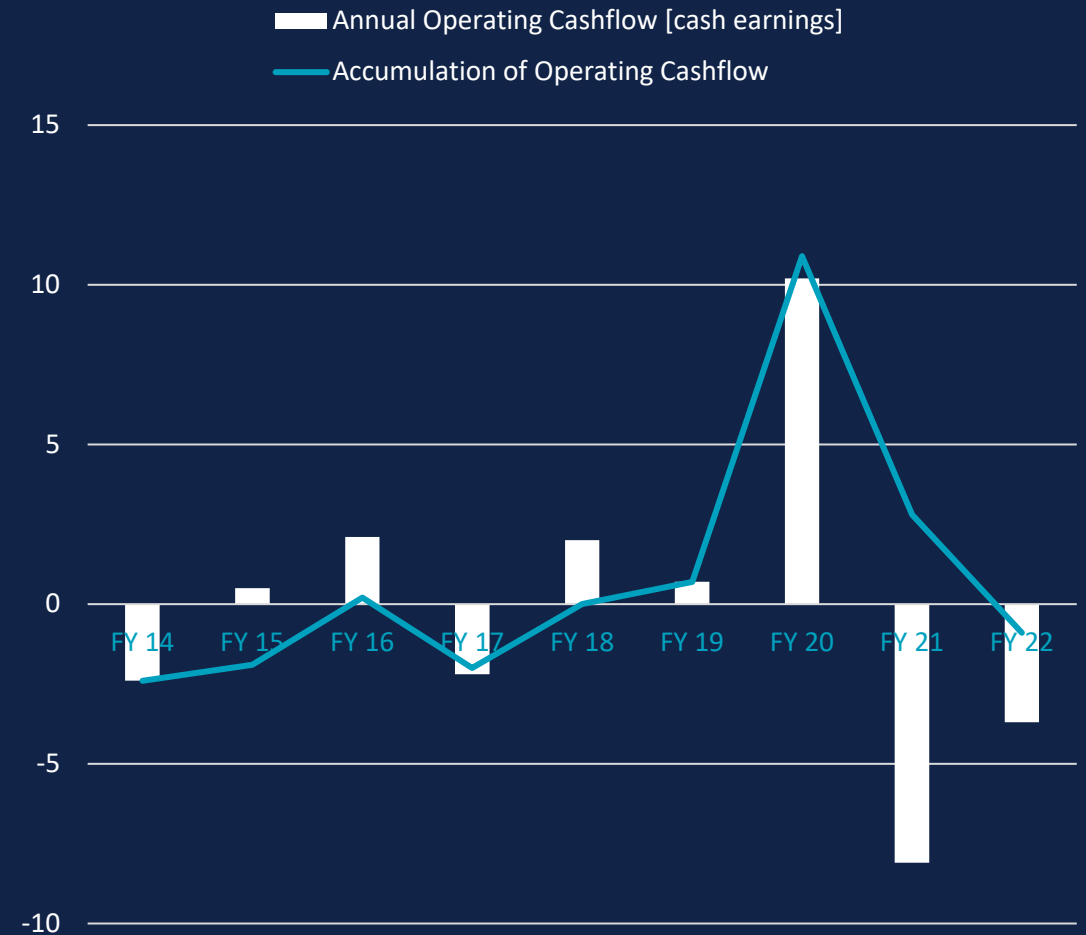
Since Calix's first commercial scale demonstrator plant came online in 2013, the Company has been diligently managing OPEX and CAPEX to grow the business and the technology platform.

Over those 9 years, the accumulated net operating cashflow was -\$1m, largely driven from successful grants, from which Calix has delivered significant outcomes

From a single application in wastewater treatment many years ago, this investment created a platform to launch opportunities in:

- CO₂ capture for lime & cement
- Decarbonization & electrification for multiple minerals processing applications
- Advanced battery materials, and
- Biotech applications

This fiscal prudence has given Calix a unique opportunity to grow multiple successful lines of business into large addressable markets.



Progress in FY22

DETAILED ALLOCATION OF FUNDS BY LINE OF BUSINESS



	REVENUES	EXPENSES	CAPEX	NET INVESTMENT	MARCH 21 CAP RAISE ALLOCATIONS	CARBON DIRECT INVESTMENT	WHAT DID WE ACHIEVE?
 Leilac	\$1.9m [\$2.8m grant cash received – but deferred]	(\$5.9m)	(\$5.1m)	(\$9.1m)	\$1.5m	\$24.5m	Carbon Direct investment – L2 to FID, 52 projects in the pipeline – new projects with Adbri & Boral - \$41m in additional grant funding for those 2 projects.
	\$1.4m	(\$3.5m)	(\$0.6m)	(\$2.7m)	\$1.0m		JV agreement with PLS – 45% share in 3ktpa Lithium Salt production plant – operational by 2025. \$20m in grant funding for the project with PLS. Zesty – pilot scale proof of concept at 2ktpa
	\$0.4m	(\$2.4m)	(\$0.8m)	(\$2.8m)	\$4.5m		Pouch cell production and pilot scale manufacturing tested to 300kgs
	\$0.1m	(\$1.5m)	-	(\$1.4m)	\$2.5m		APVMA approval for 1st insecticide label 2 nd license agreement in Europe
	\$16.9m	(\$11.8m) in COGS - 30.1% GP - (\$7.4m) in Opex	(\$1.0m)	(\$3.3m)	\$2.0m		Expanded margins across Water to 30.1% [up from 26%] positioned for growth in US at healthier margins [US margin at 33%]



Decarbonisation – CO₂ and Sustainable Processing

“Environment / Social / Governance” (ESG) Interest Continues to Strengthen

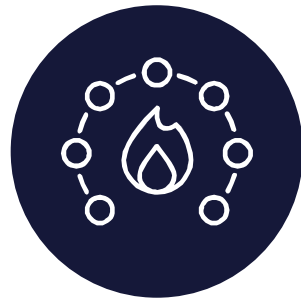


GLOBAL ECONOMIES, COMPANIES AND INVESTMENT FUNDS ARE ALL HEADING IN ONE DIRECTION



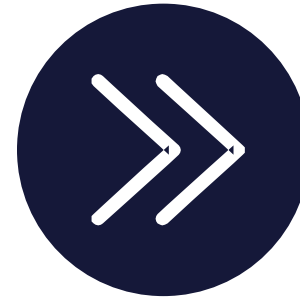
66% of global GDP*
and carbon emissions currently
under net-zero commitments.

Source: Energy and Climate
Intelligence Unit



**Top companies committing
to net-zero emissions**

CAC 40, DOW 30, FTSE100 and
IBEX 35. Source: ECOACT



**ESG Exchange Traded Funds
dramatically up again in 2021**
US\$78b in assets allocated to ESG
funds in 2019 has grown to US\$391b
in 2021. Source: Statista



**From USD1.3 to USD4
trillion *per*
year by 2030**

Global investment capital
required to achieve
net zero outcome**

**Includes US – re-joined the Paris Accord in 2021*

***IEA World Energy Outlook 2021*

Calix's business opportunities and ESG tailwinds

MULTIPLE "SHOTS ON GOAL" ESG OPPORTUNITY USING ONE PATENTED CORE PLATFORM TECHNOLOGY



Water

- Safe, environmentally friendly water treatment product
- In-market since 2014
- Growing revenue engine for the business
- Successful US acquisition 2019



Biotech

- Safe, environmentally friendly biotech product – multiple applications
- Crop Protection – initial sales
- Anti-Foul Marine Coatings – major trial underway
- Health – antibiotic crisis



Advanced Batteries

- Targeting safe, environmentally friendly, more recyclable, better performing batteries
- Highly prospective early results
- Substantial global battery development network



Sustainable Processing

- Targeting renewable-energy driven industrial processes
- First license agreement executed- energy storage
- Several opportunities being developed – chemical industries



LEILAC Group

- LEILAC technology for cement and lime – no theoretical energy penalty
- Developing with €28m of EU funding
- Partnering with some of the largest cement and lime companies

Our Business

ESG Issue

Waste-water discharge limits becoming tougher

Increasing concern with respect to biocides and their impact on the environment, and growing resistance

Increasing concern with respect to expensive battery materials and their recyclability, cost, safety and provenance

Industrial processes coming under increasing pressure to identify how they will electrify

Top economies, and cement companies, committing to net zero CO₂ by 2050

ESG Examples

Germany taken to court by the EU for polluting European waterways with P and N

The EU has banned one of the largest selling broad spectrum fungicides from Feb 2021 - Mancozeb

Tesla announces a return to simpler, cheaper, safer chemistries at Battery Day - September 2020

Recent Deloitte survey found industrial manufacturers targeting 45% overall electrification by 2035

The price of CO₂ – as measured by the EU Emissions Trading Scheme - has jumped >10-fold in 4 years

INDUSTRIAL DECARBONISATION

With significant thematic tailwinds, Calix's business is very well positioned to benefit...

LEILAC Group: Scaling Up Calix's LEILAC Technology

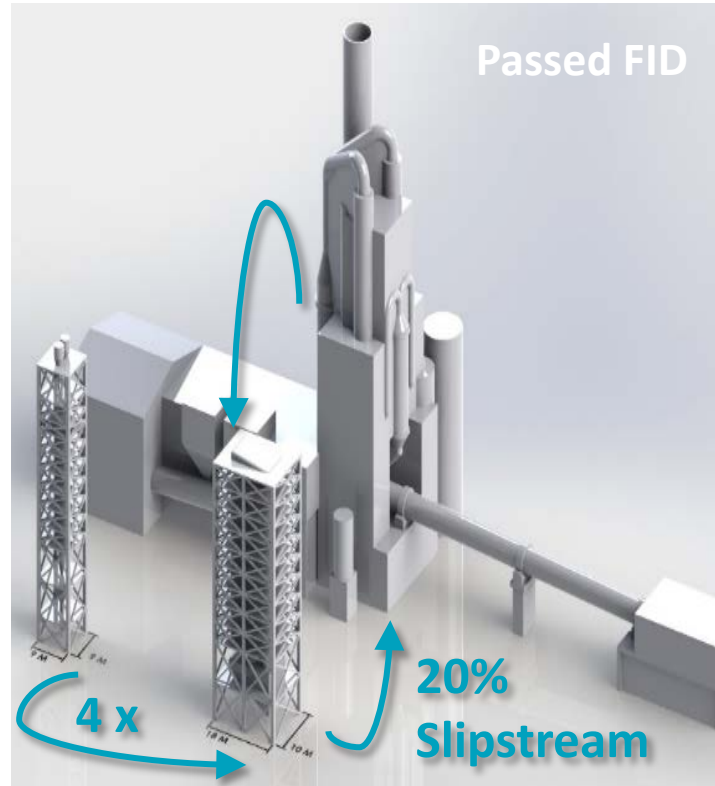


LEILAC-1 Belgium 2019
25,000 Tonnes / Year CO₂



Built

LEILAC-2 Hanover 2024
100,000 Tonnes / Year CO₂

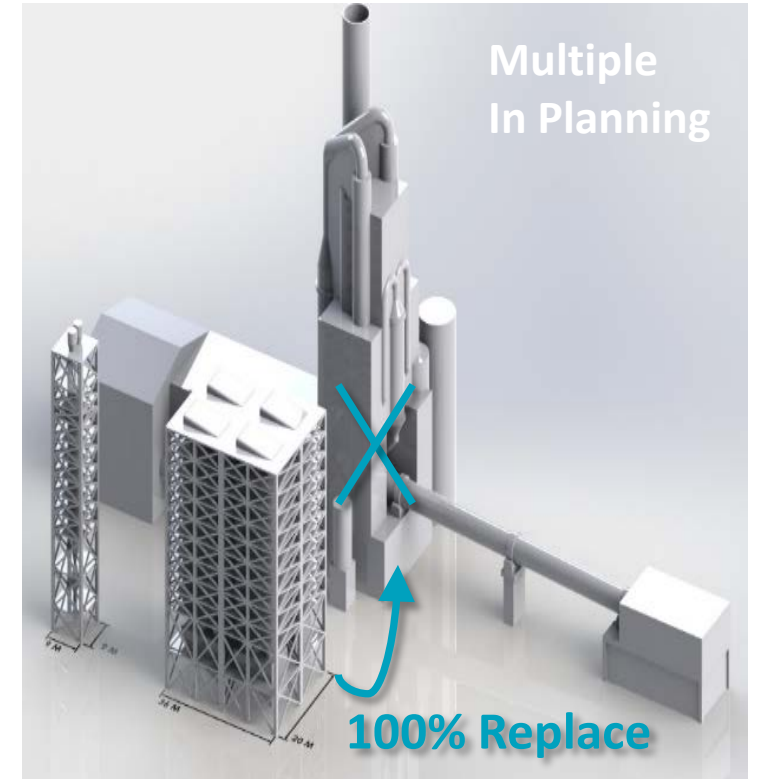


Passed FID

20% Slipstream

4 x

LEILAC-3
500,000 Tonnes / Year CO₂



Multiple In Planning

100% Replace

20 partners, including

HEIDELBERGCEMENT






**BUT we need to mitigate 1.5 billion tonnes pa process CO₂ emissions = 3,000 LEILAC-3's
~2 built every week from now until 2050 !!**

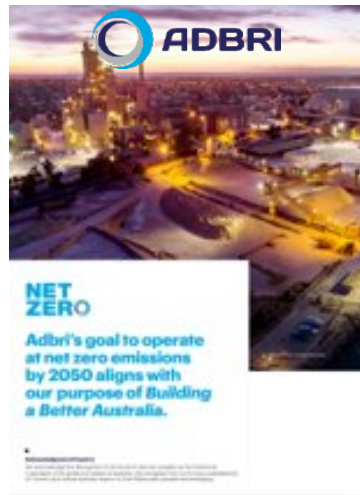
LEILAC Group: A growing pipeline of projects...

POTENTIAL LOWEST COST CEMENT AND LIME CO₂ MITIGATION SOLUTION



	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 <i>LEILAC-2</i>	1 <i>LEILAC-1</i>	54

- Both Adbri and Boral have committed to net zero by 2050
- Both projects have commenced pre-FEED phase under project MOU's in parallel with commercial discussions regarding on-going use after demonstration
- Continue to look at risked equity / Build-Own-Operate-Transfer (BOOT) support to accelerate deployment



SEPT 2021: LEILAC-1 Output Report Released – Roadmap “2050” - Confirms LEILAC has potential to be lowest cost CO₂ capture technology for lime and cement

Key Updates

- Watch point – COVID + Ukraine/Russia war has impacted supply chain / construction / people – budget and timeline
- Final Investment Decision milestone LEILAC2 - taken. Flag-points remain to address financial and technical watchpoints.
- 3 lime projects progressing well - \$41m in government funding* announced for Boral and Adbri projects in Australia, and Tarmac Buxton lime project proceeds to second round in UK BEIS decarb. projects

Project Pipeline Movements

- From February 2022 to June 2022, another 4 projects have come into the pipeline
- Progression of a number of projects through initial design and scoping work
- LEILAC-2 has passed FID and is in detailed engineering

Sustainable Processing

CALIX TECHNOLOGY ... EVERYWHERE!



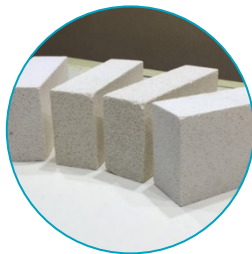
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SPODUMENE

Revolutionary at-mine low CO₂ footprint Li salt manufacturing in Australia

MOU



REFRACTORY

CO₂ reduction into existing magnesia production processes

MOU



IRON AND STEEL

New patent filed for Calix's ZESTY process



LC3

Next Generation Clay Cement



ALUMINA

Electrifying Aluminium Oxide production

Feasibility study proceeding under binding MOU terms. Pilot plant testing of full flowsheet has produced Li₃PO₄ at specification for market testing. \$20mil in Australian government support announced in May 2022

Successful pre-FEED. Industrial testing awaiting client plant trials. FEED study delayed whilst RHIM evaluate location options. Other Magnesium oxide projects under discussion

Successful initial testing with a range of Fe ore types. Planning well advanced for next phase of development testing and demonstration-scale plant

High electricity costs delaying projects in Europe. Opportunities elsewhere being reviewed

Strong industry interest in first trials scheduled for Q3/4 CY22

World Bank modelling shows 500% growth of Lithium to 2050^{*3}

15 million tonnes ^{*2} per annum global addressable market

Iron and steel is responsible for 7% of global CO₂ emissions^{*6} – just behind cement and lime

Potential Clay production to meet demand 1.1B Tonnes p.a. ^{*4}

Global Alumina production on steady growth past 125Mtpa in 2021 ^{*5}

^{*1} Environment and Energy Study Institute (2019)

^{*2} Based on RHIM being 15% of the global market (RHIM Annual Report 2020)

^{*3} Forecasts indicate that Lithium is on a 500% growth curve by 2050 (World Bank 2017)

^{*4} Mining Industry worldwide statistics and facts (M. Garside 2021, Statista)

^{*5} Global aluminium oxide production survey, Statista 2021

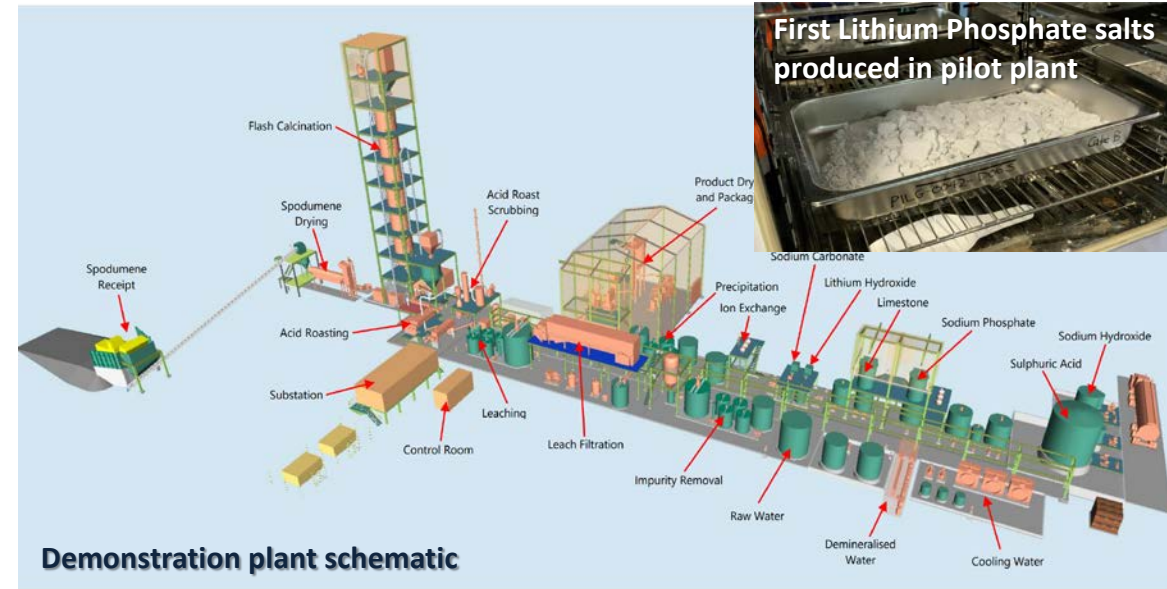
^{*6} IEA – Iron and Steel Technology Roadmap <https://www.iea.org/reports/iron-and-steel-technology-roadmap>

Development of lithium salt project with Pilbara Minerals

TARGETING JV FORMATION AND COMPLETION OF FEED IN FY23



- PILBARA MINERALS (ASX:PLS): JV MOU Executed with \$20m in Federal Government funding announced under the Modern Manufacturing Initiative¹
- Project CAPEX budget estimate from scoping study is \$50-70m
- CXL will own 45% of the JV and contribute 35% of the capital (10% free carry negotiated as per Calix IP contribution)
- Majority of world's lithium forecast to be sourced from hard rock lithium – projected to grow 5x in this decade²
- Global market Lithium Carbonate and equivalents: 0.54 MTpa in 2021; 3.3 MTpa by 2030³
- The demonstration plant will have 2 distinct advantages:
 - Low-carbon: solar-powered electrification of calcination
 - Recovery: Calix technology gives higher recovery from ore body
- **At current lithium prices, the demonstration scale plant running at full capacity could generate ~US\$180m revenue for the JV⁴ on an annual basis**



Next Steps

JV established (Demo plant, joint marketing of technology) - target CY 2022

FID targeted H1 2023

Market development – lithium phosphate salt

Construction targeted from Q2 2023 to Q1 2024

Commissioning and testing during 2024, on way to achieving full production and sales, subject to market developing for lithium phosphate salt product

Li-salt production technology to then be licensed by the JV to Pilbara Minerals and the global spodumene industry

1. Grant funding announced, awaiting contract finalisation following change in Federal Government in May 2022

2. Benchmark Minerals Intelligence, Oct 2020

3. McKinsey Apr 2022

4. Calix share is projected to be 45% of the JV. JV total revenue Assumes prevailing lithium prices Li-Carbonate-equivalent of US60.5k/tonne (87k A\$/tonne) and targeted lithium phosphate production of ~3,000tpa (source: Argus metals 18 May 2022)

ZESTY: Zero Emissions Steel Technology Development

SUCCESSFUL ACCELERATED DEVELOPMENT TO PILOT SCALE TESTING IN 6 MONTHS



Calix's first fully-electric calciner "BATMn" for battery materials research, but also now testing DRI in hydrogen up to 250 kg/hr

Phase 1: Jan 2022 to Mar 2022

LAB Scale: H_2 reduction kinetics, Ore variability and performance. Kinetic theoretical work combined with Imperial College lab data ✓

Reactor modelling based upon kinetics and known reactor performance from multiple other mineral fingerprinting runs ✓

ZESTY potential theoretical confirmation ✓

Conversion of Calix's Bacchus Marsh BATMn electric calciner facility to run hydrogen ✓

Phase 2: April 2022 to June 2022 – PILOT Scale:

Conversion of Calix BATMn fully electric calciner to run iron ore feed / hydrogen atmosphere – completed in 4 weeks ✓

Confirmation of electric calciner + reduction performance – various H_2 concentrations, ores, temp. profiles and flowrates ✓

FIRST ORES PROCESSED SUCCESSFULLY

- Processing test runs of **siderite** produced **complete conversion to metallic iron**
- Processing of **hematite** produced **very high conversion to metallic iron** under increasingly lower **temperature** operation – further runs underway
- Processing of **magnetite** produced **lower but reasonable conversion results** – optimisation runs being carried out

Next steps: further ore testing, commence basis-of-design for 30kTpa demonstration facility



Water



Water business – Magnesium Hydroxide Liquid “MHL” – a safe alkali chemical

TOUGH CONDITIONS BUT REVENUE AND GROSS MARGIN GROWTH UNDERWAY IN CORE WATER BUSINESS



Corporate Office:

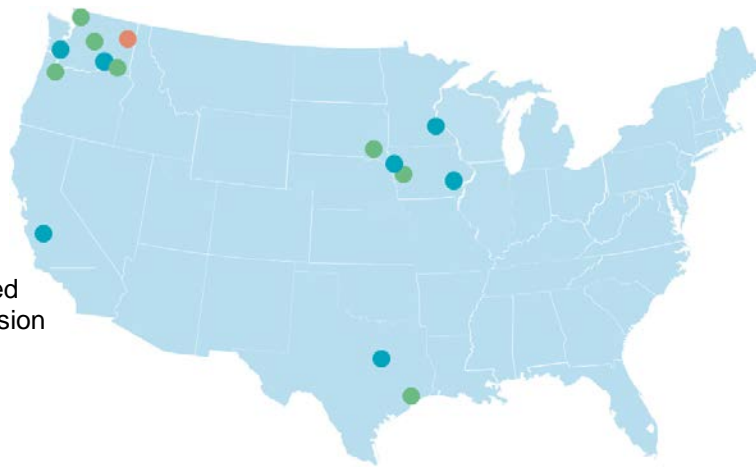
- Spokane, WA

Operations:

- Pasco, WA
- Centralia, WA
- Sioux City, IA
- Muscatine, IA
- Texas
- California
- Mid West

} Planned Expansion

US



Sales/Technical Support Staff:

- Wenatchee, WA
- Sumas, WA
- Walla Walla, WA
- Houston, TX
- Sioux Falls, SD

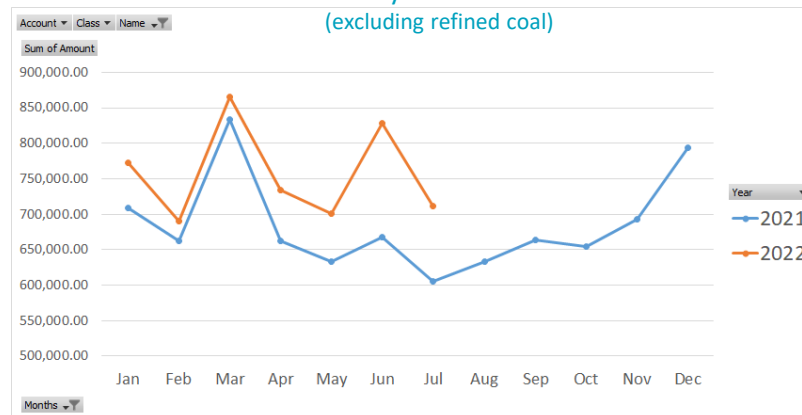
} New Sales Staff

Strategy:

Aggressive growth plan continues – Continue to Seed market in 2 new US states ...

- Still targeting 1 to 2 new hydration plants in CY2022
- Growth in 2 new states
- Focus on Caustic Industrial Segment and Odour Control Municipalities
- Complete Successful trial in Drinking Water
- Hire 3 new sales resources

Monthly Sales Revenue
(excluding refined coal)



FY22 Updates:

- **Revenues** – US\$9.7m FY22 vs \$US11.4m FY21 down 15 % on prior period - Key issue second half revenue is cessation of refined coal tax credits during H2 FY22 = no more MHL sales into refined coal (heavily weighted to H2).
- Tough conditions with 2 sales resources. 4 truck drivers and logistics support leaving.
- Despite these conditions - Sales excluding refined coal were up 11% compared to H2 FY21 and 15% compared to Q4 FY21.
- **Gross Margins** – was also up year on year FY22 to 33% vs FY21 27% - good trend continues. These higher margins enabled generation of **higher gross profit** despite lower reported sales.
- TX market entry continues – run-rating at \$US500k+ sales, growing pipeline, plant location found and lease agreed, procurement underway



Water business – Magnesium Hydroxide Liquid “MHL” – a safe alkali chemical

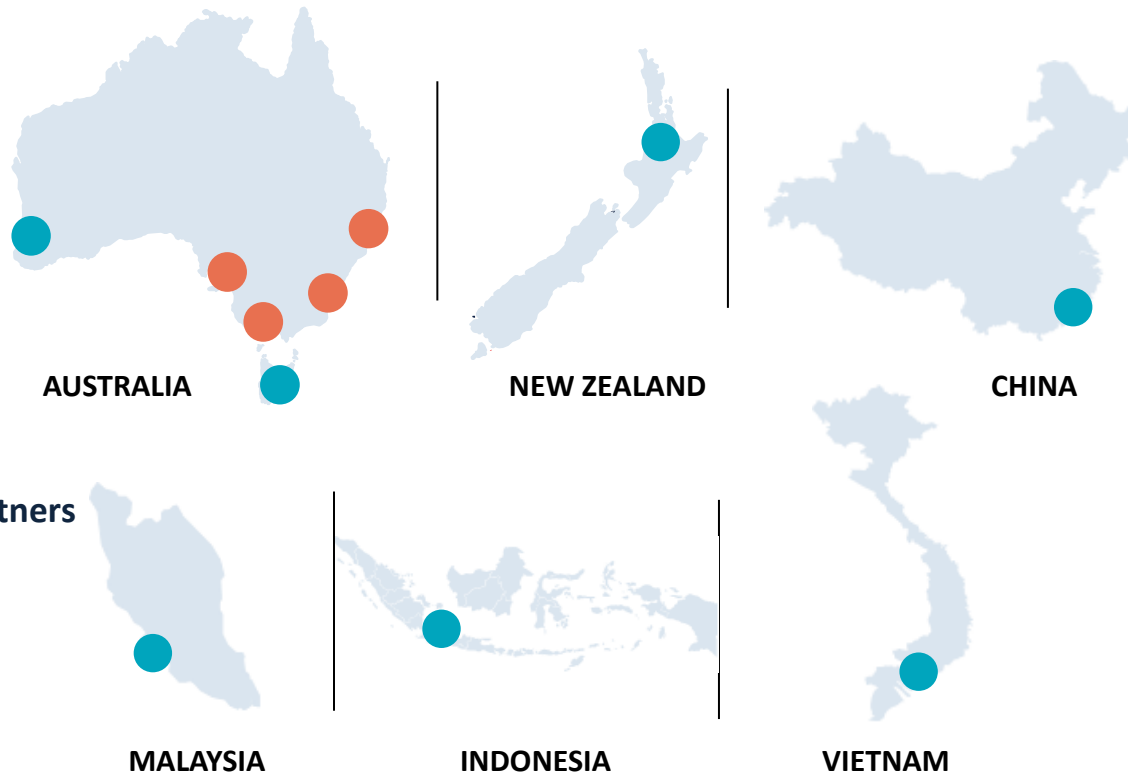
AUS / NZ STEADY, SE GROWTH EXPERIENCING HEADWINDS...BUT PROGRESSING



Operations
Locations



Distribution Partners



Strategy:

- AUS/NZ – **SHARE OF WALLET:** Focus on organic growth in key accounts - industry leading monitoring & dosing solutions with ongoing service and maintenance.
- China – **RE-ESTABLISH GROWTH:** COVID pressures continued in H2 FY22, but new channel to market agreement being progressed
- SEA – **GROW:** Trial success leading to new partner agreements for Thailand, India
- EU - **NEW MARKET ENTRY:** Under review given inflationary and freight pressures

FY22 Update:

- AUS/NZ/SEA – Revenue FY22 \$3.4m vs \$3.5m in FY21 - slight decline 3% on prior period. Overall GM up to FY22 19% (FY21 17%) - despite significant increase in input (gas) prices.
- SEA – positive new trial results in growth markets
Thailand, China Quanzhou, China Tianjin
- EU - COVID, cost increases (gas) , raw material and sea freight impact has delayed establishment of EU business / plant. Market entry strategy under review.





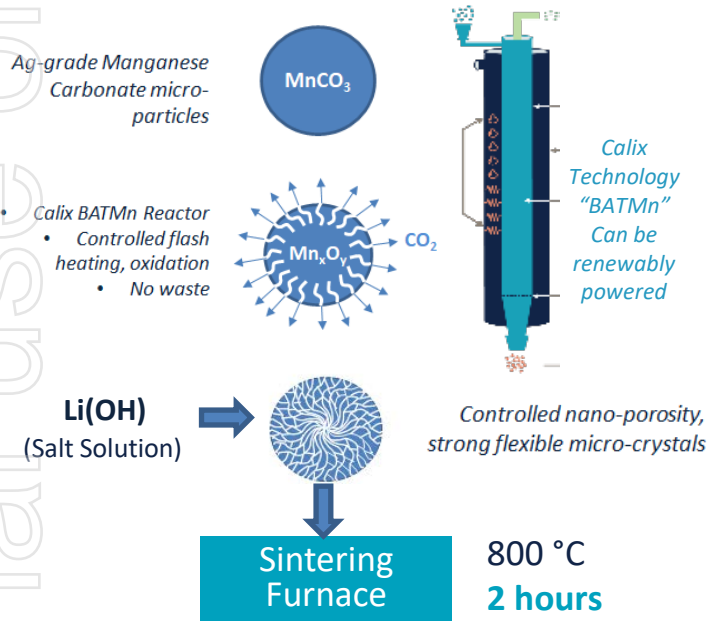
Advanced Batteries

Advanced Batteries – novel structured high power electrode materials

PILOT PRODUCTION ON TRACK, FIRST EV TEST APPLICATION EARLY 2023

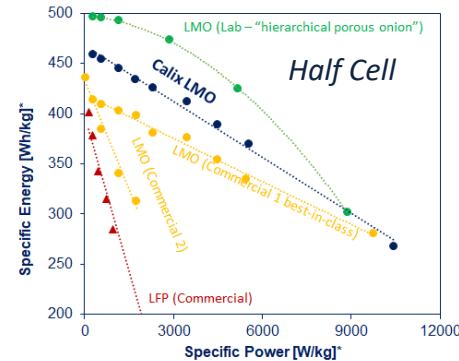
LOWER COST, SIMPLE, SAFE CHEMISTRY

Approx. 6x **lower energy** route than conventional lithium manganese oxide (LMO) production, and is producing **strong, active** “hierarchical porous onion” (HPO) structures in the tiny crystals...”

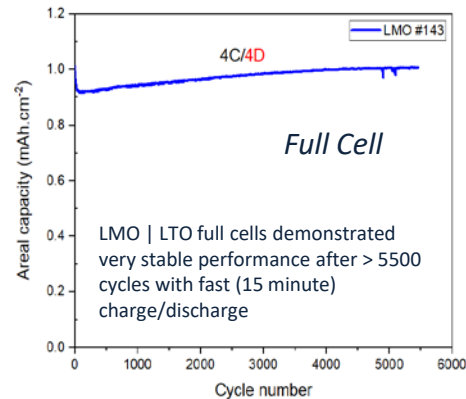


... we continue to develop and scale the process to further reduce the time and energy required for “product lithiation” = minimise the CO₂ footprint, and cost, of our cathode materials.

PROMISING PERFORMANCE



* Specific energy and power presented on a per unit weight of the cathode active material (CAM) basis
* All results are from half-cell electrochemical discharge rate screening tests with CAM loadings of 0.5 mAh/cm²

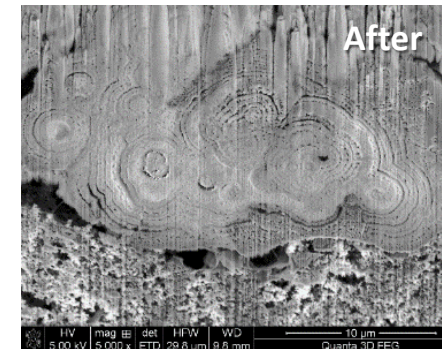
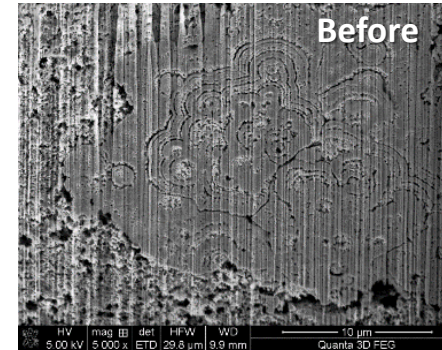


*full LMO | LTO coin cell, 1mAh/cm² cathode loading

Very promising early test results! Novel “HPO” (Hierarchical Porous Onion) structure suited to high power (fast charging/discharging) applications.

NOVEL STRUCTURE

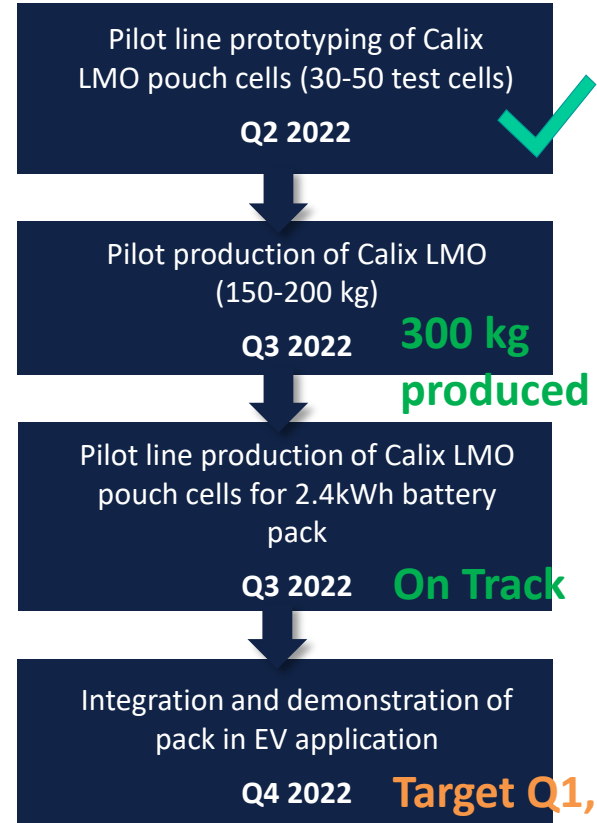
Early test results very promising



Structure of Calix HPO LMO is preserved with no observed decay in novel structure of Calix LMO following extended electrochemical cycling (high magnification, cross-sectional images of cathode foils)



SCALE-UP UNDERWAY



MEP Technologies
Battery Systems & Support

amte
QINETIQ





Biotech

Calix's biotech business...very high surface area magnesium oxide - "nano/bio-active"

GOOD PROGRESS ON ALL FRONTS: EARLY REVENUES + COMMERCIALISATION STEPS CONTINUE



CROP PROTECTION

Proof-Of-Concept

- 6th consecutive year of field trials
- broad spectrum anti-fungal & anti-pest efficacy
- Initial sales commenced FY21 0.07m
- Similar sales FY22 0.07m – COVID impacts

Market Value Drivers

- reduced toxic pesticide use
- substitute for banned actives
- safe, sustainable

MARINE COATINGS

Proof-Of-Concept

- 26-month exposure trial completed – Bowen QLD – material efficacy vs control
- End-user trials at 18-month with 2 x coatings manufacturers and 1 major end-user; cold and tropical waters
- Phase 2 trials planned – multiple formulations, 12 months

Market Value Drivers

- reduced expensive + toxic copper use
- safe, sustainable

ANTI-MICROBIALS

Proof-Of-Concept

- Calix materials suppress anti-biotic resistant bacteria = "Superbugs"
- Initial 6-month program with QU "Centre for Super Bugs Solutions" positive outcome - efficacy
- Next stage trials in planning

Market Value Drivers

- pathogen suppression, not a biocide
- excellent safety profile
- low / limited antibiotic resistance
- safe, sustainable

Latest Updates

Commercialisation: progress

- Australia: label registration; **ACHIEVED** ! - APVMA (Australian Pesticides and Veterinary Medicines Authority)
- 2nd license **ACHIEVED** ! ! - EU distribution – Profyto (<https://www.profyto.nl/>)
- 3rd license in negotiation

18 months' exposure – Williamstown, Vic – **Successful 50% Cu Substitution**



Test formulation 1.
- 50% of Cu substituted with bioactive MgO

In Market Formulation

Development pathway; Anti-Microbial Resistance (AMR); Academic & Industry Engagement

1. Queensland Uni. Centre for Super Bug Solutions;

- 6-month collaborative research agreement & program complete
- broad spectrum bactericidal activity on pathogenic bacteria
- low resistance development pathway confirmed
- efficacy equally apparent on drug susceptible & resistant strains

2. Australian Research Council (ARC) \$4.5m CEA-StAR program

- focus on AMR solutions in veterinary / livestock
- Calix invited to participate; 5-year fundamental research program

3. Cooperative Research Centre (CRC) \$34.5m SAAFE program

- focus on AMR in agriculture broadly; on farm crop, post harvest, live-stock
- Calix a partner, multi-year research program



Calix's FY23 priorities...

CONTINUED ACCELERATION – ESPECIALLY DECARBONISATION PROJECTS...



Water

Water Treatment

Aquaculture

US: At least

- 2 new plants
- A second major new US state entry

EU / China:

- Re-establish market entry



Biotech

Crop Protection

Marine Coatings

Health and Pharma

Crop Protection

- 3rd license agreement

Marine Coatings

- Successful phase 2 trials with MTA partners

Next new biotech application...health / pharma

- Successful initial in-vivo studies



Advanced Batteries

Advanced Cathode & Anode Materials

First battery module – commercial format

Basis of Design – demonstration facility for cathode production

At least 1 new chemistry = pouch cell success



Sustainable Processing

Renewable-powered Mineral and Chemical Processing

Refractories

- Convert MOU to full Project or License agreement

Spodumene

- Full JV Agreement
- Successful FEED study leading to FID

Iron and Steel

- Successful expanded ore program
- Basis of Design: Demonstration facility



LEILAC Group

CO₂ Mitigation for Cement & Lime

- Convert at least two MOU's to full project / license agreements – “full-scale” application
- Convert at least 2 projects from BOD's to FEED studies
- LEILAC-2 long lead items procured, site works commenced



Board of Directors, Equity Structure



Glossary

Board of Directors



Peter Turnbull, AM
Non-Executive
Chair

Experienced Chair and Non-Executive Director with significant board and senior executive experience in the Australian and global resource, energy and technology commercialisation sectors.

Non-Executive Director of Karoon Energy Ltd. (ASX: KAR), Chair of medtech Auxita Pty Ltd, Chair of Airlie Energy, Chair of QADO Group/QADO Ventures and President of the Chartered Governance Institute (London).

Chair of Calix Remuneration and Nomination Committee, and Member of Audit and Risk Management Committee.



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 Calix Audit and Risk Management Committee and member of the Rem and Nom Committee



Jack Hamilton
Non-Executive
Director

30 years multidisciplinary experience in local and overseas energy industries, including as a Director of NWS Ventures (Woodside North-West Shelf project).

Currently a Non-Executive Director of Hazar Group (ASX:HZR). Previous Non-Executive Director positions include AnteoTech Ltd (ASX:ADO), Renu Energy (ASX:RNE) and DUET Group (ASX:DUE).

Chair of Calix Technology Committee, and member of Audit and Risk, and Rem and Nom Committees.



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 and is a member of Calix's Technology Committee.



Dr Mark Sceats
Executive
Director And
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.

Author of more than 165 academic papers in physical chemistry and inventor of 55 patented inventions.

Listed on the ASX in July, 2018

ASX:CXL



Share Price Performance Since Listing



Further Equity Detail

As at 23 August 2022

Free Float	161.6m shares
Employee Incentive Scheme Options	5.6m options

As at 23 August 2022

Shares on issue	~161.6m
Share price on IPO	\$0.62 per share
Current Share price	\$6.60 per share
Market capitalisation	~\$1.07b

Major shareholders

As at 23 August 2022

Board & Management	14.5%
Australian Super Pty Ltd	8.2%
Nicholas Merriman and associates	6.8%
Paul Crowther and family	5.3%

Glossary



Term	Meaning
Aluminium (Al)	Chemical element with the symbol Al
Anode	The negative electrode of a battery
APVMA	Australian Pesticides and Veterinary Medicines Authority
BATMn	Calix's core kiln technology – electrified – for battery and catalyst materials production
C, 2C, 4C, D	Charge rate, 1 C = charge in 1 hour, 2C charge in 30 min, 4C charge in 15 min etc. D is discharge – same metrics
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
CO₂	Carbon Dioxide
Copper (Cu)	Chemical element with the symbol Cu
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
ESG	Environment, Social and Governance considerations
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 and electrolyser using renewable energy
HBI	Hot Briquetted Iron – “bricks” of relatively high purity iron ready for steel-making
HPO	“Hierarchical Porous Onion” - a crystal structure of lithium manganese oxide resembling tiny onion layers – allowing both strength and easier passage of lithium ions

Term	Meaning
Iron	The chemical element, represent 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
LFP	Lithium Iron Phosphate – a battery cathode material
LMO	Lithium Manganese Oxide – a battery cathode material
Lithium (Li)	Chemical element with the symbol Li
Lithium Concentrate / 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
LTO	Lithium Titanium Oxide – a battery anode material
LEILAC	Calix’s core kiln technology for Low Emissions Intensity Lime and Cement production with CO ₂ capture
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
Metallurgical Coal	Very high carbon coal
MgO	Magnesium Oxide
MHL	Magnesium Hydroxide Liquid

Term	Meaning
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
Separator	The barrier between the anode and the cathode that prevents them touching, inside the battery
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
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
Tpa	Tonnes per annum
Wh / kWh	Watt-hours / kilowatt-hours - a measure of energy

Because there's only one Earth...



...Mars is for quitters

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