BELL POTTER

Speculative

See key risks on page 19, and early stage company risk warning on page 22. Speculative securities may not be suitable for Retail Clients.

11 January 2023

Analyst
Joseph House 613 9235 1624
(change of analyst)

Authorisation
Stuart Howe 613 9235 1856

Calix Limited (CXL)

Cementing a greener future

Recommendation
Buy (unchanged)
Price
$4.73
Valuation
$9.00 (previously $9.21)
Risk
Speculative

GICS Sector

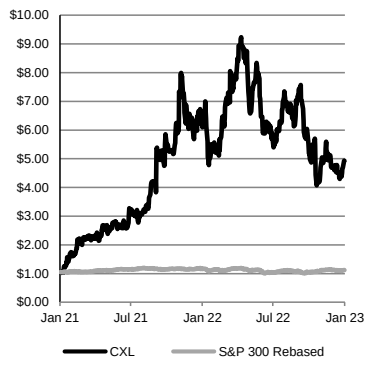
Materials

Expected Return	
Capital growth	**90%**
Dividend yield	**0%**
Total expected return	**90%**
Company Data & Ratios	
Enterprise value	**$750m**
Market cap	**$854m**
Issued capital	**180m**
Free float	**81%**
Avg. daily val. (52wk)	**$3.6m**
12 month price range	**$4.02-9.65**

Price Performance

	(1m)	(3m)	(12m)
Price (A$)	4.73	6.02	6.73
Absolute (%)	0.0	-21.4	-29.7
Rel market (%)	1.3	-25.9	-23.5

Absolute Price



SOURCE: IRESS

Transfer of coverage; positive view maintained

We have transferred analyst coverage of CXL, with our investment thesis unchanged. Our Buy (Spec.) recommendation is underpinned by: (1) ongoing commercial validation of LEILAC (utilising proprietary CXL flash calciner or "CFC" technology), bolstering the formation of a capital-light royalty business model; (2) commercialisation of non-LEILAC CFC applications, underpinning further value upside; (3) a structurally favourable medium to long term social and economic imperative to drive LEILAC development and success; (4) an adequately capitalised financial position to fund construction of maturing projects and accelerate development of novel CFC applications; and (5) CXL's deep and long-standing relationships with multinational development partners, counterparties and investor (Carbon Direct), providing valuable technical and commercial endorsements of LEILAC technology.

Heading into 2023 with a catalyst-rich pipeline

2023 will be another catalyst-rich and important year for CXL. Starting with LEILAC, expect progress updates on LEILAC-2 construction, an expanding pipeline of development projects (currently >65), with progression of several projects from BOD (Basis of Design) into FEED, and announcement of additional commercial agreements, including with CEMEX (BMV:CX; not rated). Successful FEED and FID for the mid-stream lithium processing venture (by Q2 2023) and a successful expanded iron ore testing ZESTY program are key Sustainable Processing milestones.

Investment thesis: Buy (Spec.), Val$9.00/sh (prev. $9.21/sh)

CXL's growing suite of CFC applications target global challenges, including decarbonisation of hard-to-abate industrial processes (lime, cement and steel making), and to improve supply chain efficiency (lithium concentrate value adding). CXL represents a valuable sustainable investing opportunity for ESG-focussed investors.

CXL is a development company with prospective operations and cash flows only. Our Speculative risk rating recognises this higher level of risk and volatility of returns.

Earnings Forecast

Year ending 30 June	2022a	2023e	2024e	2025e
Sales (A$m)	18	27	35	56
EBITDA (A$m)	(12)	(9)	(7)	10
NPAT (reported) (A$m)	(17)	(14)	(14)	(1)
NPAT (adjusted) (A$m)	(16)	(14)	(14)	(1)
EPS (adjusted) (¢ps)	(10.3)	(8.1)	(7.8)	(0.7)
EPS growth (%)	na	na	na	na
PER (x)	-46.1x	-58.6x	-61.0x	-647.9x
FCF Yield (%)	1.3%	-3.3%	-4.5%	-2.7%
EV/EBITDA (x)	-58.3x	-85.6x	-108.2x	69.5x
Dividend (¢ps)	-	-	-	-
Yield (%)	0.0%	0.0%	0.0%	0.0%
Franking (%)	0%	0%	0%	0%
ROE (%)	-40%	-18%	-14%	-1%

SOURCE: BELL POTTER SECURITIES ESTIMATES

Investment thesis and recommendation

Investment thesis: Buy (Spec.), Val$9.00/sh (prev. $9.21/sh)

Following a change in analyst, we maintain our Buy (Spec.) recommendation noting the following drivers:

Developing a capital-light royalty business model: The global licence agreement with Heidelberg Materials (ETR:HEI; not rated) (one of the largest building materials companies globally) in October 2022 was a major commercial milestone for CXL, defining a framework for LEILAC Group (93% CXL) to monetise its flash calciner technology in lime and cement production applications. The agreement formally connects application of LEILAC technology to a royalty structure that is linked to the European carbon price and is subject to a royalty floor and cap. We expect this agreement will set a benchmark for commercial discussions with other counterparties, including CEMEX (BMV:CX; not rated).Though we expect medium term early-adopter risk-sharing of project capital via a Build, Own, Operate and Transfer (BOOT) strategy, we believe the business model will shift to capital expenditure and LEILAC reactor ownership being assumed by CXL's counterparties once sufficient technical de-risking has occurred, eliminating the need for CXL to commit significant capital.

LEILAC technology commercially and technically validated: CXL has received key commercial and technical validation for LEILAC technology from the following milestones: signing of the foundational global licence agreement with Heidelberg; release of the LEILAC-1 techno-economic report; €15m Carbon Direct investment; and ongoing collaboration with LEILAC consortium participants (comprises several building materials companies and research organisations).

Commercialisation of non-LEILAC CFC applications provide further value upside: CXL has demonstrated successful application of the Calix Flash Calciner (CFC) beyond LEILAC, including lithium processing (through the Sustainable Lithium Chemical Concentration (SLiCC) project with joint venture partner Pilbara Minerals (PLS, not rated)), Zero Emissions Steel TechnologY (ZESTY), biotechnology, cathode manufacturing and calcined clay for the cement industry. Commercialisation of these CFC applications have the potential to drive further value and financial upside for CXL in the medium to long term.

Social and economic imperative to support development success: Medium to long term social and economic incentives are currently in place (discussed in depth later in this report) should continue to support technical and commercial developments for LEILAC. This theme also supports CXL's Zero Emissions Steel TechnologY (ZESTY) development, targeting emissions reduction in the hard-to-abate steel making industry.

Adequately capitalised to advance a growing project pipeline: Following the October 2022 $60m institutional placement and subsequent $22m SPP, CXL is well capitalised (BPe pro forma 30 June 2022 net cash of $104m) to achieve its development milestones over the forecast period (FY23-25), with funds already committed to the construction of LEILAC-2, the Sustainable Lithium Chemical Concentration (SLiCC) project and ZESTY development activities.

CXL is a prime candidate for further government grants: Given the CFC's ability to facilitate emission reduction in hard-to-abate industries including, lime, cement and steel, we expect CXL will remain a credible contender for ongoing government grants. Grants provide CXL with a non-dilutionary source of funding.

Attractive investable ESG credentials: CXL's ESG credentials are likely to draw investment from ESG-focussed investors, potentially attracting a lower cost of capital.

Upcoming value catalysts

LEILAC

- **2023:**
  - Announcement of a commercial agreement with CEMEX;
  - Conversion of at least another MoU into a full-scale project / licence agreement; and
  - Progression of projects into more advanced development stages.
- **Ongoing:**
  - Expansion of development project pipeline with new and existing partners; and
  - Receipt of CCUS grants to supplement project financing.

Sustainable Processing

- **2023:**
  - FEED completion for the SLiCC project and FID by Q2 2023;
  - Positive results from an expanded iron ore testing program for ZESTY; and
  - BOD completion for the 30ktpa DRI ZESTY development.
- **Ongoing:** Lithium phosphate market engagement update.

Biotech

- **2023:**
  - Third crop protection license agreement; and
  - Demonstration of a new health / pharmaceutical application.

Advanced Batteries

- **2023:**
  - Delivery of first battery module using CXL's lithium manganese oxide electrode material in a commercial format;
  - Integration and demonstration of a battery pack in an EV application; and
  - Creation of at least one new cathode chemistry - pouch cell success.

Water treatment & aquaculture

- **2023:**
  - Build two hydration plants in the US (for magnesium hydroxide liquid production);
  - Entry of a second major US state; and
  - Re-establish entry into the Chinese market.

Valuation methodology & assumptions

Development assumptions

We have valued CXL's:

- 93% owned LEILAC Group, with considerations made on large-scale adoption of CFC technology and medium-term project developments (LEILAC-2, LEILAC-3, a project with Adbri (ABC; not rated) and a potential project with Boral (BLD; not rated);
- SLiCC demonstration project;
- other assets including ZESTY and CXL's operating water treatment business as well as provisions for Group overheads.

Each business unit is valued using DCF modelling, applying a nominal WACC of 9.7% and a terminal growth rate of 3.0% per annum (also nominal).

Table 1 - CXL sum of the parts valuation

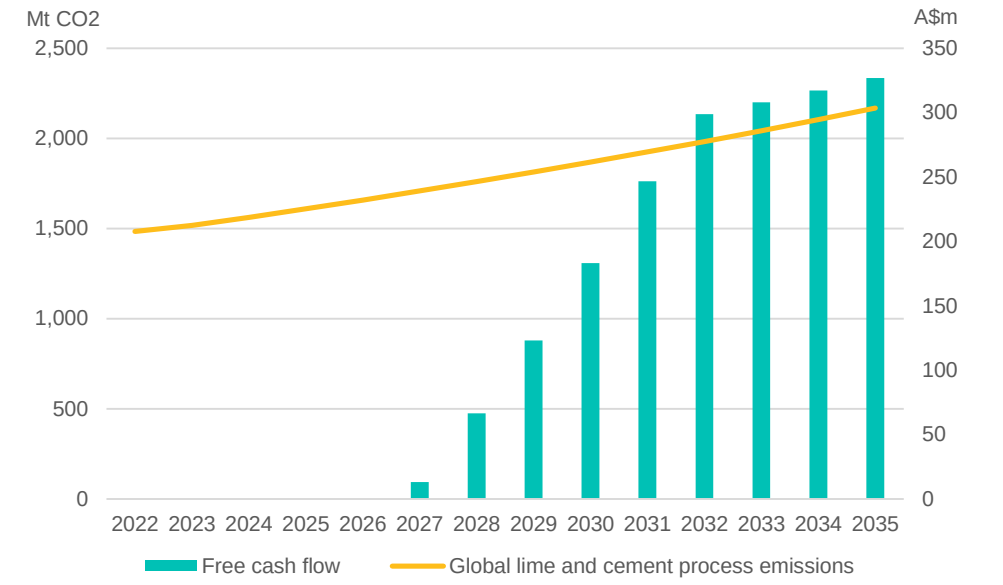
Diluted shares on issue	**186m**			
Current valuation	**Previous**		**New**	
	A$m	**A$/sh**	**A$m**	**A$/sh**
LEILAC Group blue sky (ownership 93%; risked 50%)			1,027	5.51
Calix Group LEILAC royalty stream (ownership 100%; risked 50%)			495	2.65
LEILAC Group near-term projects (ownership 93%; risked 20%)			56	0.30
SLiCC demonstration project (ownership 45%; risked 15%)			90	0.48
Other assets (including ZESTY)			85	0.46
Corporate & admin			-74	-0.40
Research & development			-104	-0.56
Enterprise value			**1,574**	**8.44**
Net debt / (cash)			-104	-0.56
Total equity value	**1,487**	**9.21**	**1,678**	**9.00**

SOURCE: BELL POTTER SECURITIES ESTIMATES

LEILAC GROUP: BLUE SKY SCENARIO (OWNERSHIP 93%; RISKED 50%)

We have developed a conceptual 'Blue Sky' scenario designed to capture commercial-scale adoption of CXL's LEILAC reactor technology at 5% market penetration for all existing and new cement facilities globally. Key factors driving our Blue Sky valuation include a rising process CO_2 emissions profile across the global cement industry, growing from ~1,500mtpa in 2022 to ~2,200mtpa by 2035 (~3% CAGR) and a long term €4/t CO_2 abated royalty (based on a long term EUA price of €80/t CO_2). We expect capital and operating expenditures associated with the LEILAC reactor will be assumed by cement producers, eliminating the need for CXL to employ a BOOT approach for recycling capital. We risk our valuation by 50% to recognise further technical and commercial de-risking required to validate our conceptual Blue Sky scenario. De-risking catalysts include encouraging operational information from LEILAC-2, additional commercial agreements with large cement and lime producers and a growing pipeline of LEILAC projects.

Figure 1 - LEILAC Blue Sky scenario FCF (gross) @ €4/t CO_2 abated royalty



SOURCE: BELL POTTER SECURITIES ESTIMATES

CALIX GROUP ROYALTY STREAM (OWNERSHIP 100%; RISKED 50%)

We have derived valuation for the licence agreement between CXL and LEILAC Group under which CXL will retain 30% of royalties earned by the LEILAC Group from deployment of the patented calciner technology, regardless of CXL's equity interest in LEILAC Group. This valuation is driven by assumptions applicable to all of our LEILAC technology valuations (Blue Sky and LEILAC Group near-term projects), producing similar trends for free cash flow generation. Again, we risk our valuation by 50% to account for the technical and commercial de-risking milestones required to satisfy underlying assumptions of our longer term Blue Sky scenario.

SLICC DEMONSTRATION PROJECT (OWNERSHIP 45%; RISKED 15%)

Assumptions underpinning our PLS-CXL mid-stream demonstration plant DCF can be found on pages 13-14 of this report. Our risk discount recognises uncertainty associated with projects at the pre-FID stage.

LEILAC GROUP NEAR-TERM PROJECTS (OWNERSHIP 93%; RISKED 20%)

We have modelled short-to-medium term LEILAC development projects with similar commercial arrangements to those underpinning our Blue Sky scenario. This valuation component provisions for the LEILAC-2 project as well as potential LEILAC developments with BLD, ABC and Tarmac (private). A BOOT approach enables capital recycling and is applied to our modelling to consider early-adopter risk-sharing by lime and cement producers. Once sufficient technical understanding is achieved by LEILAC development partners and industry peers, we believe it is reasonable to assume development partners will assume ownership of the LEILAC reactor from construction, eliminating CXL's upfront capital expenditure requirements.

OTHER ASSETS: ZESTY & WATER TREATMENT BUSINESS

A provision combining CXL's water business valuation (DCF driven) and an allowance for the ZESTY development (risked).

CORPORATE AND RESEARCH AND DEVELOPMENT COSTS

We assume $5m in annual corporate costs and $7m in annual research and development overheads in perpetuity.

Valuation cross-check

We view Carbon Direct Capital Management's (Carbon Direct; private) 6.98% interest acquisition of LEILAC Group for €15m (A$24.5m) in September 2021 as a credible valuation endorsement for CXL's patented technology in cement and lime applications. This transaction implies a 'look-through' valuation for the LEILAC Group subsidiary of ~A$350m.

We view the subsequent relatable catalysts as material drivers of LEILAC technology valuation and are supportive of our current CXL valuation:

- **LEILAC-1 project techno-economic study release (7 October 2021):** A published report by the LEILAC Consortium detailing commercial and technical aspects of CXL's CO_2 capture technology, informed by the LEILAC-1 project. Key conclusions from the report include: the expectation that a CO_2 capture cost for full-scale LEILAC-fitted plants would be the lowest reported of any carbon capture technology, with scope for further cost reductions; and full-chain CO_2 abatement costs of €39-80/t CO_2, which compares favourably with current EUA prices of ~€81/t CO_2.
- **LEILAC-2 FID confirmed (23 March 2022):** A major development milestone, enabling project construction, and eventually larger-scale testing of LEILAC technology beyond LEILAC-1 scope. Project financing is supported by the EU's Horizon 2020 Scheme and the LEILAC consortium - an entity led by LEILAC Group and comprises several large, multinational building material companies and research and technology organisations. The LEILAC-2 kiln will be integrated with Heidelberg Material's cement plant in Hannover, Germany, targeting CO_2 capture capacity of 100ktpa (LEILAC-1 25ktpa).
- **Global licence agreement with Heidelberg Materials (19 October 2022):** A significant commercial milestone, defining a framework for LEILAC Group (and CXL) to monetise its technology. The agreement formally connects application of LEILAC technology to a royalty structure that is linked to the European carbon price / value and is subject to a royalty floor and cap. We expect this agreement will set a benchmark to assist further commercial discussions with other counterparties, including CEMEX (to be negotiated).
- **Expanding LEILAC development pipeline (ongoing):** As outlined in Table 2, LEILAC's pipeline of developments with cement and lime producers has grown significantly over the past 15 months, with a notable increase in detailed scoping / MoU activities and development progression into the pre-FEED / BOD stage. This trend (which we expect to continue) not only indicates an urgency by building material companies to decarbonise their operations (incentives discussed earlier in this report), it also represents a strong technical and commercial endorsement of LEILAC technology in cement and lime applications. Notable projects in LEILAC's pipeline include: an electric lime facility with ABC (20ktpa CO_2 capture capacity; pre-FEED stage); cement facilities with BLD (up to 120ktpa (under review); pre-FEED); and a lime facility with Tarmac (30ktpa; FEED).

Calix Flash Calciner technology

Calix Flash Calciner proprietary technology 101

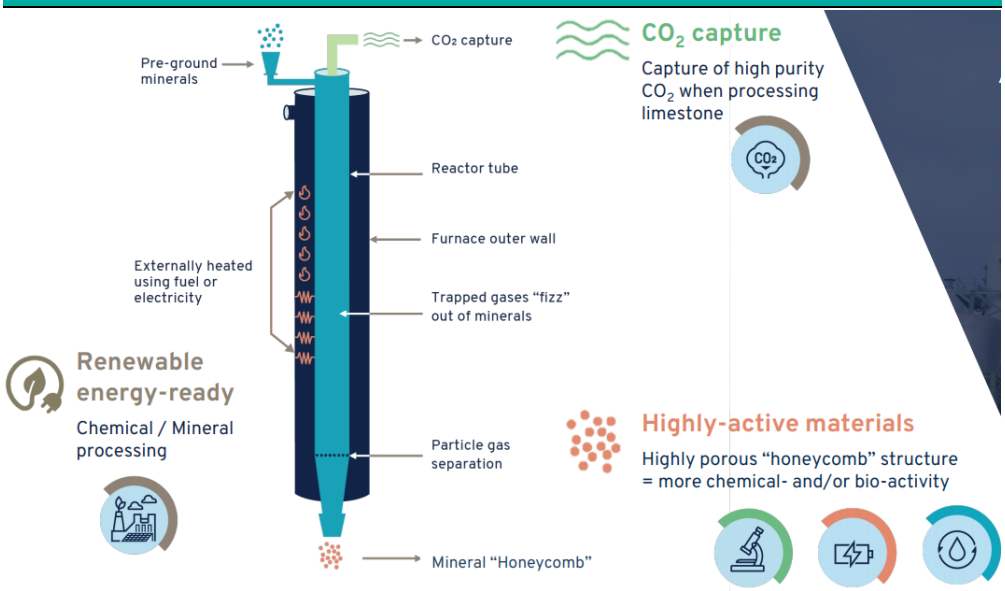
CXL's adaptation of conventional calciner technology is a vertical kiln with an inner reactor tube that is externally heated using fuel or electricity. In practice, fine mineral is loaded into the top of the kiln and is flash heated as it falls down the reactor tube. The CFC has three key features:

- Enables CO_2 capture during decomposition of limestone (for applications in lime and cement production);
- Controls the nanoporosity of minerals, creating materials with highly porous "honeycomb" structures (more chemical surface area and / or bio-activity); and
- Enables electrification of calcination processes, reducing CO_2 emissions during fuel combustion for heating.

CXL has demonstrated several CFC applications, including in lime and cement (LEILAC); sustainable processing (SLiCC and ZESTY developments); biotech (crop protection, marine coating and health / pharmaceuticals), advanced batteries (production of lithium manganese oxide materials with hierarchical porous onion microcrystal structures), calcined clay for the cement industry (CALIPSOTM) and water treatment / aquaculture (magnesium hydroxide liquid).

CXL has invested over A$120m to date in developing the CFC and has over 28 patent families covering the technology and its applications.

Figure 2 - Calix Flash Calciner technology



SOURCE: COMPANY DATA

LEILAC

LEILAC adoption ramping up; more collaborations to come

The table below outlines the evolution of CXL's project pipeline with LEILAC development partners since August 2021. CXL has almost doubled its project pipeline within a 15 month period (from August 2021) with a notable uplift in detailed scoping / MoU activities and development progression into the pre-FEED / BOD stage.

Table 2 - Evolution of LEILAC project pipeline and current CO2 emissions abatement capacity

Growth pipeline as at	Project discussions	Initial scoping	Detailed scoping / MoU	Pre-FEED / BOD	FEED	FID + construction	Operational	Total
August 2021	21	7	4	1	0	0	1	34
August 2022	25	13	9	5	0	1	1	54
November 2022	**33**	**15**	**9**	**6#**	**1^**	**1***	**1**	**66**
Pipeline breakdown (as at November 2022)								
Cement projects (No.)								~44
Lime projects (No.)								~22
Average CO_2 capture capacity per cement project (ktpa CO_2)								500
Average CO_2 capture capacity per lime project (ktpa CO_2)								80
CO_2 capture capacity for cement projects (Mt CO_2)								22
CO_2 capture capacity for lime projects (Mt CO_2)								2
Total CO_2 capture capacity across all projects (Mt CO_2)								**24**

SOURCE: COMPANY DATA
NOTE: * LEILAC 2 (RETROFIT R&D PROJECT FOR 100KTPA CO_2 CAPTURE AT HEIDELBERG MATERIALS' CEMENT PLANT IN HANOVER);
^30KTPA CO_2 CAPTURE LIME FACILITY WITH TARMAC; &
#UP TO 120KTPA CO_2 CAPTURE ACROSS CEMENT / LIME / CLAY FACILITIES & 20KTPA CO_2 CAPTURE AT AN ADBRI ELECTRIC FACILITY

We view advancement of existing and new LEILAC project collaborations as de-risking milestones, with technical due diligence completed by project partners validating LEILAC technology. Further testing at LEILAC-2 (expected to be commissioned by mid-to-late 2024) will inform performance parameters at a larger scale (compared with 25ktpa CO_2 capture capacity at LEILAC-1) while demonstrating fuelling compatibility with a variety of alternative fuels. Successful LEILAC-2 project development and operation should enable further technical de-risking of LEILAC technology for potential improvements in TRL and greater uptake of technology by existing and new project partners, while enabling enhanced discussions with financiers.

To this extent, we expect further commercial agreements to be secured between LEILAC Group and lime and cement producers, building on from LEILAC Group's foundational global licence agreement with Heidelberg Materials (ETR:HEI; not rated; announced 19 October 2022); a global licence agreement with CEMEX (BMV:CX; not rated) is currently under negotiation, and will cover three retrofit projects at existing plants in Germany, Poland and the US. These CEMEX projects are in FEED stage.

LEILAC versus competing carbon capture technologies

Table 3 - Carbon capture technology comparison in cement manufacturing application

Technology	Technology Readiness Level (TRL) (1)	Process description	Advantages	Challenges
Direct separation (LEILAC)	6(2)	Calcination process and thermal energy source are separated, yielding a pure stream of CO_2 process emission	Enables electrification Relatively easy to retrofit to existing plants Relatively low OPEX (full-chain costs forecast to be ~€39-80/t CO_2) No handling of solvents or sorbents required during capture	Only captures process CO_2 emissions; fuel combustion CO_2 capture required (renewable energy required for full CO_2 abatement)
Amine scrubbing	6-8	Reactive absorption and desorption of CO_2 from flue gas with aqueous amine solvents	Relatively easy to retrofit to existing plants	Relatively high OPEX (eg. Aker Carbon Capture full-chain cost forecast to be ~€75-175/t CO_2) and CAPEX Energy penalty
Calcium looping	6-7	Exploitation of lime's ability to capture CO_2	Enables partial desulphurisation of flue gas Purged calcium oxide can be used in cement production Cheap sorbent (calcium oxide)	Relatively energy-intensive process given 650-700°C carbonation process Degradation of calcium-based sorbent occurs upon cycling requiring ongoing supply Relatively high capex Relatively more difficult to retrofit to existing plants (integrated system)
Chilled ammonia	6-7	Reactive absorption and desorption of CO_2 from flue gas with chilled ammonia	Chemically stable in the presence of SOx and NOx impurities Competitive energy penalty Ammonia is readily available and low cost Relatively easy to retrofit to existing plants	Relatively high OPEX Ammonia loss in vapour streams
Membrane-assisted CO_2 liquefaction	6	CO_2 capture via polymeric membranes from flue gas, with liquefaction and purification of the captured stream	Relatively easy to retrofit to existing plants	Relatively high CAPEX and OPEX Membrane units degrade over time, requiring ongoing replacement
Oxyfuel combustion	6-7	Concentrating atmospheric conditions of the rotary kiln and/or calciner with oxygen, creating a CO_2 enriched flue gas for purification	Relatively low OPEX Allows for greater use of biomass and other alternative fuels given enhanced burn-out and ignition	Relatively more difficult to retrofit to existing plants (integrated system) Air leakage / ingress into kiln Relatively high capex (integrated system)

SOURCE: CXL, BELL POTTER SECURITIES AND VARIOUS RESEARCH AND INDUSTRY REPORTS
NOTES:
(1) TRL - TECHNOLOGY READINESS LEVEL IS A METHOD FOR ESTIMATING THE MATURITY OF TECHNOLOGIES TO ENABLE CONSISTENT AND UNIFORM DISCUSSIONS OF TECHNICAL MATURITY ACROSS DIFFERENT TYPES OF TECHNOLOGY
(2) BASED ON LEILAC-1 PROJECT

Additional notes:

The listed technologies (except for LEILAC) aim to capture 90-100% of total cement plant CO_2 emissions; LEILAC is designed to capture >90% of 'process' emissions from limestone decomposition (around two thirds of calcination CO_2 emissions).

Natural gas is used as fuel for the LEILAC-1 pilot plant and the planned LEILAC-2 project intends to demonstrate an ability operate using a variety of alternative fuels, including refuse-derived fuel, biomass, and renewable fuels. Ultimately, we see scope for near elimination of CO_2 emissions from fuel combustion in the long term as wide-scale renewable energy infrastructure (wind, solar and hydro) is developed, addressing, in our opinion, LEILAC's major short-to-medium term competitive challenge.

Incorporating the LEILAC kiln into a greenfield cement plant or as a calciner that is due for replacement in an existing plant would yield favourable capital and operating expenditure synergies. These synergies are driven by lower cost penalties of capture because the cost of conventional calciners can be discounted against the cost of the LEILAC reactor.

Key drivers for change: Policy & economic driven incentives

SUPPORTIVE POLICY SETTING BOLSTERS EMISSIONS REDUCTION IMPERATIVE

The following policies are instrumental in building a supportive backdrop to encourage investment in carbon capture technology research and development to ultimately enable integration of such technologies into hard-to-abate industries including lime and cement production. These policies are either legislated or proposed by the US Government and the EU parliament:

European Union Allowances (EUA; launched in 2005): EUAs are tradable units (permits), through the European Union Emissions Trading System (EU ETS) which gives a holder the right to emit 1 tonne of CO_2 or the equivalent amount of nitrous oxide or perfluorocarbons. The overall volume of greenhouse gases emitted by industrial users, power plants and the aviation sector is limited by a 'cap' on the number of emission allowances for the EU, with the cap decreasing every year to ensure the total volume of greenhouse emissions falls.

The European Green Deal: The EU adopted a series of legislative proposals that took aim at achieving carbon neutrality in the EU by 2050, including an intermediate 2030 target: at least 55% net reduction in greenhouse gas emissions by 2030 (compared with 1990 levels). As part of the 'Fit for 55' legislative proposals, a revision to the EU ETS directive was adopted - Phase 4 (2021-2030) - involving a reduced emissions allowance cap and a more aggressive annual linear reduction factor for GHG emissions (% reduction of total number of emission allowances each year).

EU Cross Border Adjustment Mechanism (CBAM; yet to be legislated): A key element of the 'Fit for 55' package, the CBAM's objective is to address carbon leakage: a situation where companies shift some or all of their carbon-intensive operations to countries that enforce more lenient policies or a lower carbon price, thus potentially resulting in further carbon emissions. The CBAM legislation will involve a price penalty mechanism on carbon-intensive imports (in compliance with international trading rules). The CBAM is particularly important for hard-to-abate industries, including the EU lime and cement industries as it allows domestic producers to market goods competitively against imported products. The price penalty mechanism will be applied concurrent to a phasing out of free EUA allocations to EU suppliers in hard-to-abate industries (including building material companies). The regime commencement date is yet to be confirmed. As a result, lime and cement producers will incur greater carbon-emission-linked expenses in the absence of emission reduction technology deployment. We believe this important legislation will accelerate the urgency to decarbonise by hard-to-abate industry suppliers, encouraging a quicker take-up of carbon capture technology, a positive for CXL.

Inflation Reduction Act (US legislation; passed August 2022): The Carbon Capture and Storage provision in this legislation increased the existing '45Q' tax credits to up to US$85/t (previously up to US$50/t) for each tonne of CO_2 captured and reused or stored by applicable entities. A seven year extension was also proposed for projects to qualify for tax credits; projects commencing construction by January 2033 will be eligible for 45Q tax credits.

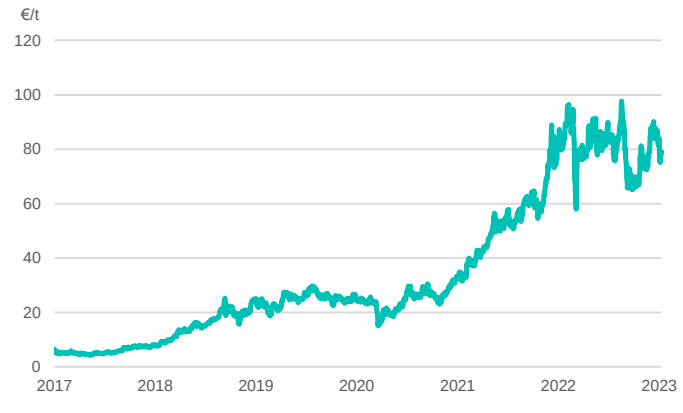
EU CARBON PRICE AND US CREDITS CREATE AN ECONOMIC INCENTIVE

Carbon pricing and tax schemes provide carbon capture and storage innovators and developers with an economic incentive to invest and develop carbon emission abatement technologies. The recent increase in EUA prices (see Figure 3) from around €20-30/t in 2020 to an average of €81/t in 2022 represents a three-to-fourfold increase in the cost of emitting 1 tonne of CO_2 in the EU. Intuitively, a higher price for emitting CO_2 increases a carbon-intensive operator's cost base. Assuming no relocation of operations, businesses would be incentivised to assess economically viable emission-reducing solutions. These solutions may involve carbon capture and storage, use of alternative fuels and energy efficiency initiatives. In the US, carbon capture technology providers and users are awarded tax credits of up to US$85/t CO2 captured and reused or stored.

In theory, deployment of carbon capture abatement technologies with operating costs (full-chain, including capture, compression, transport and storage/use) below the cost of emitting carbon emissions (or the value of a tax credit) should yield positive economic savings. We believe CXL's LEILAC technology offers lime and cement producers one of the lowest cost sources of carbon emission abatement, underpinning positive economic savings for users in the long term (subject to future EUA prices / tax credits) and supporting wide-scale adoption of CXL's calciner technology.

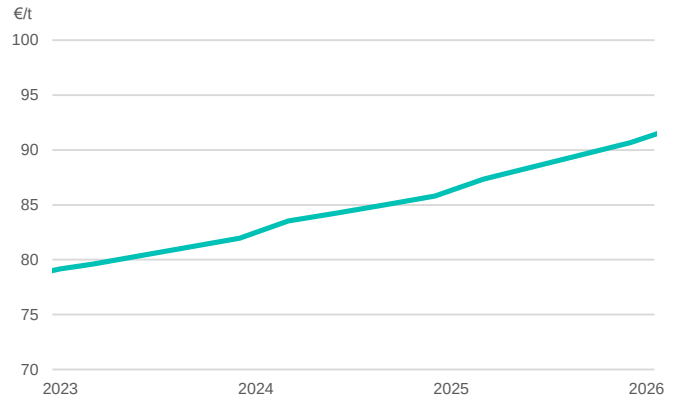
Figures 3 and 4 outline historical EUA prices and the EUA forward curve, respectively.

Figure 3 - European Union Allowance historical price



SOURCE: BLOOMBERG

Figure 4 - European Union Allowance forward curve



SOURCE: BLOOMBERG

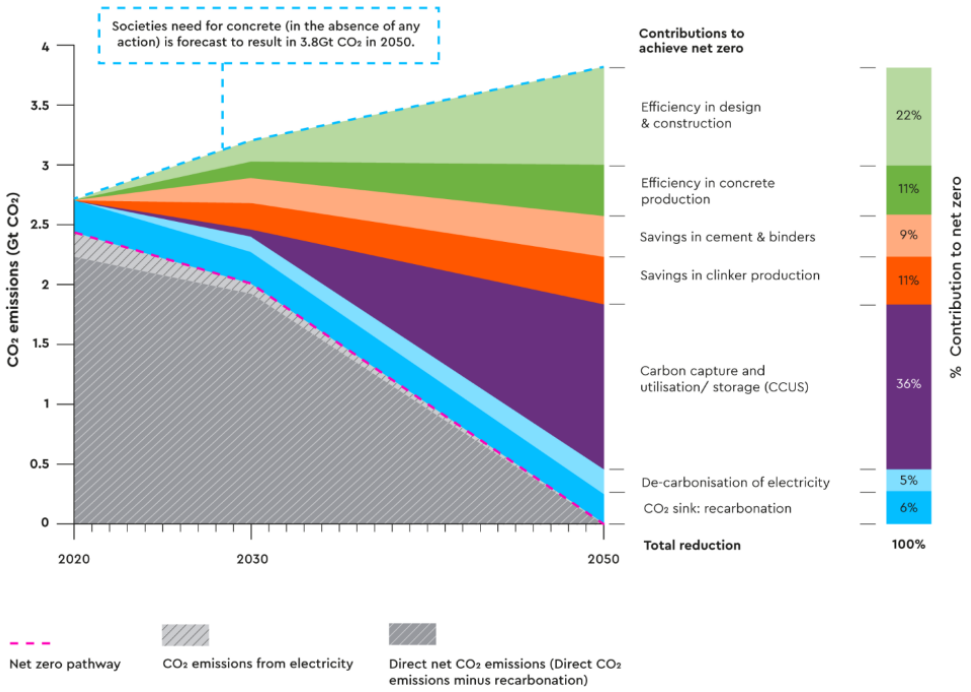
Factors likely to influence future EUA prices include:

- Upward adjustments to the linear reduction factor; and
- Phase out free allowances by introducing the CBAM.

CCUS' importance in the net zero push for the cement industry

The Global Cement and Concrete Association (GCCA) is a CEO-led organisation of producers of Portland cement clinker and other natural cementitious clinkers for the manufacture of cement. The GCCA has identified Carbon Capture, Utilisation and Storage (CCUS) as the largest contributor for achieving net zero by 2050, with 36% of total CO_2 emissions to be abated by such technologies by 2050. GCCA forecasts CCUS contribution to be significant from 2030 when CCUS commercial viability and necessary infrastructure have been established. The GCCA aims to have carbon capture technology applied to 10 operational, industrial scale member plants by 2030; 35 projects have been publicly announced and are being developed.

Figure 5 - The net zero pathway - Global cement / concrete industry



SOURCE: GLOBAL CEMENT AND CONCRETE ASSOCIATION (GCCA)

2030 CO_2 reduction commitments

The table below outlines 2030 CO_2 emission reduction targets disclosed by several cement and lime producers. Many of these companies are committed to achieving net zero by 2050.

Table 4 - List of CO2 emission reduction pledges made by Building Materials companies

Company name (ticker)	Market cap (A$m)	Net CO2 emissions reduction target
Holcim (SIX:HOLN)	49,282	475kg of scope 1 CO2/t* by 2030 (553kg CO2/t in CY21)
CRH (LON:CRH)	47,248	430kg CO2/t* by 2030 (573kg CO2/t in CY20)
UltraTech cement (NSE:ULTRACEMCO)	35,416	69% reduction in scope 2 GHG emissions per tonne* by FY32 (compared with FY17)
Heidelberg Materials (ETR:HEI)	17,833	400kg CO2/t* by 2030 (551kg CO2/t in 1H CY22)
Cemex (BMV:CX)	9,470	475kg CO2/t* by 2030 (574kg CO2/t in 1H CY22)
Boral (ASX:BLD)	3,420	46% reduction in scope 1 and 2 CO2 emissions by FY30 (compared with 1.8Mt CO2 in FY19)
Grupo Argos (CSE:ARG)	2,300	523kg CO2/t* by 2030 (635kg CO2/t in CY21)
Adbri (ASX:ABC)	1,116	446kg CO2/t cement and 990kg CO2/t lime by FY30 (557kg CO2/t cement and 1,100kg CO2/t lime in FY20)
Lhoist (private)	na	50% reduction in fuel combustion CO2 by 2030 (compared with 2018)
Votorantim Cimentos (private)	na	520kg CO2/t* by 2030 (597kg CO2/t in CY21)

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES NOTE: * TONNE OF CEMENTITIOUS MATERIAL

SLiCC demonstration project

PLS-CXL JV; addressing Li sector sustainability challenges

CXL, through its joint venture partnership with Pilbara Minerals (PLS, not rated), will test its patented calciner technology in a 'mid-stream' lithium application to produce value added lithium phosphate (LP; a lithium salt), as well as explore potential licencing of the process to other spodumene producers. The JV (PLS 55% and operator; CXL 45%) is currently working towards a Final Investment Decision (targeted by Q2 2023) to develop a 3ktpa LP demonstration scale plant at the Pilgangoora Project. In the lead up to FID, PLS and CXL will continue to progress engineering design work, feasibility studies and market engagement from samples generated from a pilot test work programme.

We believe CXL's calciner technology in this mid-stream lithium processing application has the potential to address the following:

- Operational challenges / optimisation by:
    1. Enabling electrification of calciners in mid-stream lithium processing applications;
    2. Improving lithium ore body recovery from phase transformation of fine-grained spodumene (traditionally stockpiled as waste given issues arising during calcination); and
    3. Potentially improving the cost profile for lithium salt production.
- Environmental and sustainability challenges by:
    1. Reducing CO_2 emissions intensity of mid-stream lithium processing;
    2. Supplying two direct inputs (Li and P elements) into lithium-ferro-phosphate (LFP) battery supply chains;
    3. Reducing waste movement contained in spodumene by concentrating lithium units in salt form (LP Li_2O eq. >36% vs spodumene 5-6% Li_2O); and
    4. Logistic cost savings given reduced trucking and shipping volumes.

When compared with lithium chemical processing (spodumene into LC or LHM), we believe mid-stream processing routes provide an attractive value-add investment proposition to spodumene producers given capital cost and technical expertise barriers.

Medium-term cash flow generation uplift in sight

STEP-CHANGE IN EARNINGS AND CASH FLOW GENERATION EXPECTED

We forecast the demonstration plant will provide CXL with a meaningful uplift in annual EBITDA and FCF generation from 2H FY25 of +$18.3m and +$13.1m, respectively. Our technical assumptions are consistent with published scoping study parameters (announced 31 March 2022); realised LP prices are forecast to be 15% lower than Bell Potter Securities' latest published lithium carbonate price outlook (long term LC US$21,750/t (technical grade); LP US$18,488/t). Operating costs are informed by downstream lithium chemical feasibility studies.

At this stage, we await demonstration of mid-stream processing capabilities and market engagement to assess technical and economic feasibility of a larger scale plant. Should the demonstration plant and LP marketing yield encouraging results, we believe a ten-fold expansion in annual LP production to 30ktpa is reasonable, with similar scalable implications to our forecast annual EBITDA and FCF estimates likely. This expansion is subject to availability of low-grade, fine spodumene from the Pilgangoora project or other acceptable feedstock supply.

DEMONSTRATION PLANT FINANCED; FREE-CARRY LOWERS NET BUILD COSTS

A $20m Modern Manufacturing Initiative Grant (MMI; awarded May 2022) will be applied to the gross upfront capital expenditure of the project, and together with a 10% capital expenditure free-carry by PLS (in return for CXL providing its technology exclusively and royalty-free for lithium processing applications by the JV) will reduce CXL's share of total project build cost to $10.5-17.5m (BPe $21.2m; includes inflation contingencies). This amount compares with gross capital expenditure budget estimates of $50-70m (scoping study level) and $30-50m after adjustments for the MMI. The project will be financed by funds raised in the October 2022 equity raising.

Electric vehicle driven exponential demand growth outlook

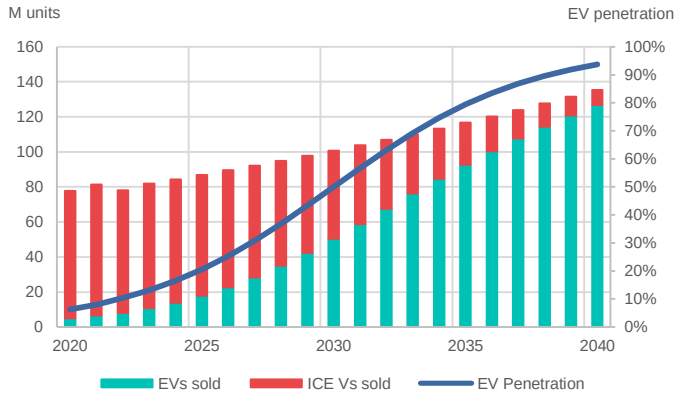
It is well understood that battery technology, via the rapid scaling of electric vehicle manufacturing and changing consumer preferences, will cornerstone the global push towards decarbonisation across many developed and developing economies. A key feedstock in the manufacturing process of mainstream EV batteries is lithium via the synthesis of lithium carbonate (LC) or lithium hydroxide monohydrate (LHM) in cathode active material. We estimate a CAGR of 25% for EV sales and 20% for primary LCE demand (lithium carbonate equivalent) between 2021 and 2030.

Though we have not yet completed a detailed supply-side analysis of the lithium market, we expect Australia, currently the largest producer of lithium (on a LCE basis), will lift supply from 300ktpa LCE in 2022 to almost 700ktpa LCE in the five years to 2027, driven mostly by lower risk brownfield expansions. We view this supply growth as highly aspirational. It is likely that permitting, logistical, inflationary and labour constraints will limit this production growth. Our analysis suggests that a significant proportion of expected lithium demand growth will have to be met by sources of supply we regard as higher risk or not yet commercially tested (South American brines and clay hosted lithium projects).

Considering these supply-demand profiles, we expect long term prices of US$1,300/t for spodumene (SC6), US$25,000/t for LC (battery grade) and US$29,000/t for LHM (battery grade) to incentive incremental supply in the long term. Figures 6 and 7 outline Bell Potter Securities' outlook for light vehicle sales and LCE demand.

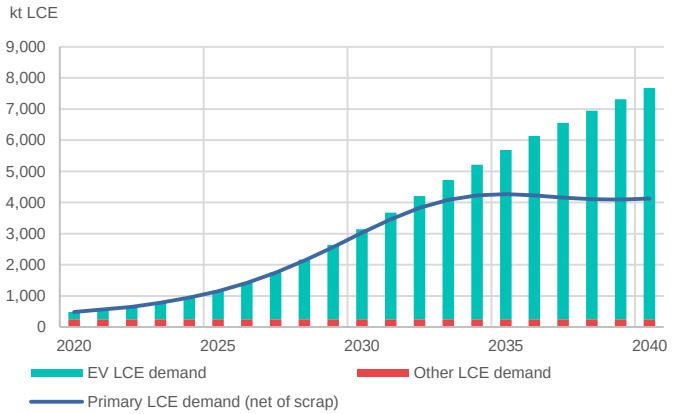
A more in-depth analysis of lithium markets can be found in our latest Eye on Lithium report.

Figure 6 - Light vehicle sales & EV penetration



SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Figure 7 - Lithium demand kt LCE



SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Other applications

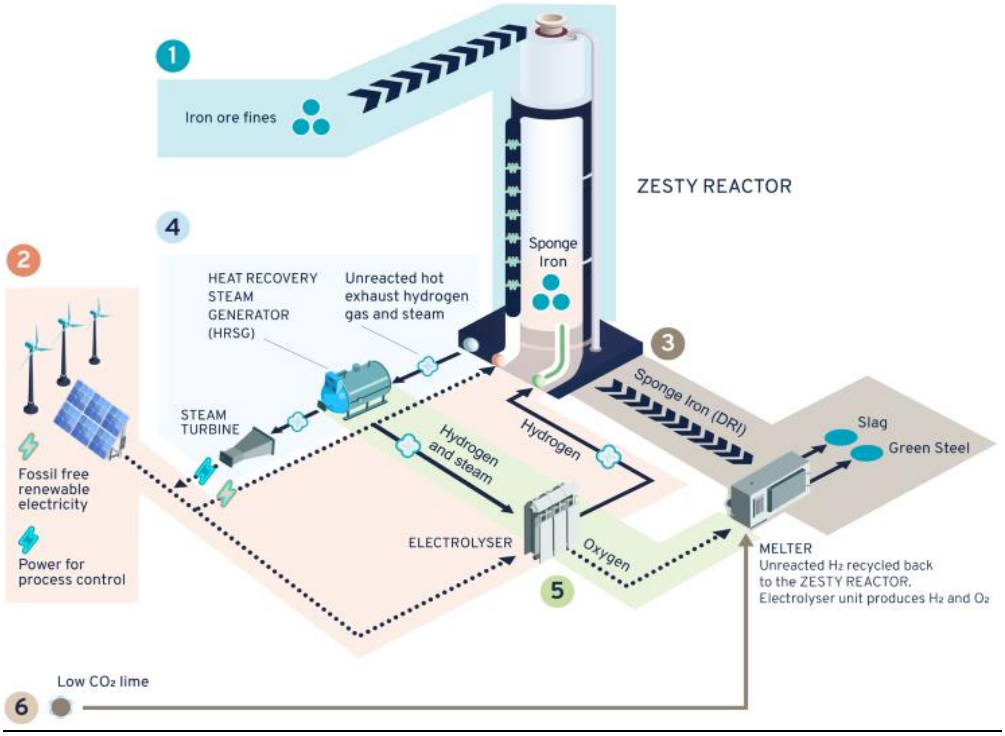
Zero Emissions Steel TechnologY (ZESTY)

ZESTY is a sustainable processing application of the CFC testing various iron ore types to produce green Direct Reduced Iron (DRI / sponge iron) for use in the steel industry. The ZESTY process has the potential to lower carbon emission associated with iron and steel making (these industries contribute ~7% of global CO_2 emissions) by using hydrogen as a reducing agent to make DRI. The use of primary reductants including coking coal in Blast Furnaces / Basic Oxygen Furnaces and natural gas in DRI production are leading causes of CO_2 emissions in steel making.

ZESTY uses the CXL electric calciner, enabling use of renewably sourced power, and is targeting the theoretical minimum use of hydrogen, facilitating potentially the most efficient and economical use of this reductant. Initial processing of haematite resulted in very high conversion to metallic iron under increasingly lower temperature than traditional reduction routes. Haematite is the predominate type of iron ore produced by Australian miners.

While a pilot scale plant (2ktpa; BATMn) has tested proof-of-concept DRI production using CFC technology, hydrogen as a reductant, various iron ore types, iron ore fines and low temperatures, an extensive ore testing program is planned in early 2023 to further inform the development of an up-scaled demonstration plant. Basis of Design (BOD activities are currently underway for the 30ktpa demonstration facility; recent awarding of Australian Renewable Energy Agency (ARENA; ~$947k) funding will support further engineering activities to ultimately define project location, development cost and FID by 2023.

Figure 8 - ZESTY development



SOURCE: COMPANY DATA

Advanced Batteries: Testing novel structure of LMO chemistry

CXL is testing a novel Hierarchical Porous Onion (HPO) structure within the Lithium Manganese Oxide (LMO) micro-crystals to be used in electric vehicle applications (EV pack testing targeted Q1 2023). To date, CXL has successfully pilot-produced small batches of LMO pouch cells for battery packs, with encouraging initial testing results recorded. These results indicated no observed decay in the HPO structure, following extended cycling, with cells demonstrating stable performance after 5,500 cycles of fast (15 minute) charge/discharges. CXL notes that the HPO structure in the LMO crystals permits easier passage of lithium ions in battery cells making it useful in high power applications (fast charging / discharging).

Simply put, the CXL calciner flash-calcines manganese carbonate particles to produce strong, flexible micro-crystals while controlling for nano-porosity. Conventional methods require using a sintering furnace at 800°C for 2 hours. CXL estimates its kiln requires around 6 times less energy compared with conventional production methods. Ongoing test work will target further reductions the time and energy required for "product lithiation" to minimise the CO_2 footprint and cost of cathode material produced.

In FY23, CXL aims to advance BOD for a demonstration-scale cathode production facility and to successfully test a new cell chemistry.

Biotech: Commercialising bioactive materials

CXL is targeting the crop protection, marine coatings and antimicrobials markets with its high surface area and bioactive magnesium oxide materials:

Crop protection: Demand is growing for safer and sustainable crop protection products. CXL's crop protection product BOOSTER-mag was approved by the Australian Pesticides and Veterinary Medicines Authority (APVMA) in March 2022. The approval permits the sale and use of BOOSTER-mag by farmers as a non-lethal insecticide for suppression of two-spotted mite in tomatoes and cucurbits in Australia.

Marine coatings: CXL's bioactive magnesium oxide additive provides an effective and environmentally friendly substitute to copper-heavy marine coatings and can reduce end-user maintenance costs. The global coatings addressable market is estimated to be A$6b; CXL are targeting consumers in Europe, New Zealand and Australia.

Antimicrobials: CXL are testing the efficacy of its bioactive materials on pathogenic antibiotic resistant bacteria. CXL believe these materials can suppress pathogens, have negligible toxicity and reduce antibiotic dependence. In May 2022, CXL was announced as a Tier 1 partner in a A$34.5m Australian-back research project to address antimicrobial resistance in agribusiness, food and the environment, leveraging more than $112m in cash contributions, and will operate for a 10-year period.

CALIPSO^{TM}: Calcined clay for the cement industry

CXL are working with industry and partners, including Suvo Strategic Materials (SUV; not rated), to manufacture calcined clay as a supplementary cement material (SCM) for use in lower-emission cement blends. These cementitious materials (example: limestone calcined clay cement) contain up to 50% less clinker and have characteristics on-par with Portland cement. Calcined clay can potentially address expected diminishing supply of fly ash (an existing, suitable SCM used as clinker substitution; a by-product of thermal coal power generation) as coal-fired power plants are shut down. Incorporation of 50% clinker blends in building codes and standards globally should support further uptake of calcined clay cement blends.

Changes to estimates & valuation

Earnings changes

We have updated our CXL financial model, making following key changes:

- Rebased our revenue growth expectations for CXL's water treatment and aquaculture business; and
- Rebased our sales and marketing, research and development and corporate overhead estimates.

Table 5 - Changes to earnings estimates from operational adjustments only

	Previous			New			Change		
Year ending 30 June	FY23	FY24	FY25	FY23	FY24	FY25	FY23	FY24	FY25
Revenue $m	33	47	60	**27**	**35**	**56**	-21%	-26%	-8%
EBITDA (underlying) $m	2	3	9	**-9**	**-7**	**10**	na	na	18%
NPAT (underlying) $m	-1	-2	3	**-14**	**-14**	**-1**	na	na	na
EPS (underlying) cps	-0.8	-1.2	1.9	**-8.1**	**-7.8**	**-0.7**	na	na	na
DPS cps	0.0	0.0	0.0	**0.0**	**0.0**	**0.0**	na	na	na
Valuation $/sh	9.21			**9.00**			-2%		

SOURCE: COMPANY DATA AND BELL POTTER SECURITIES ESTIMATES

Valuation changes

We lift our valuation to $9.00/sh (previously $9.21/sh), reflecting the changes listed above and an updated financial position. We have applied a WACC (nominal) assumption of 9.7% to our DCF models used to derive a CXL valuation. We maintain our Buy (Spec.) recommendation.

Summary: Calix Limited (CXL)

Company Description

Calix (CXL) is an emerging environmental technology company that is commercialising and developing a range of environmentally friendly solutions for industry, that are derived from its patented minerals processing technology, the Calix Flash Calciner (CFC).

The CFC is a patented reinvention of the calcination process (kiln) that produces very high surface area (highly reactive) nano-active materials, without the safety concerns or high production costs of nanoparticles. The technology can also be used to separate and capture the CO2 by-product when decomposing carbonates into oxides, as in the manufacture of cement and lime. The key difference to traditional calcination is the use of indirect heating, which prevents contact between the minerals and combustion gases, ensuring purity, and also provides greater control of temperatures and residence time of calcination.

While the CFC technology can be adapted for a broad range of applications based on a variety of minerals, the company has prioritised solutions for five target areas with a combined addressable market of $70bn. Nano-active materials are produced for wastewater treatment, lake remediation, aquaculture, crop protection, and advanced batteries, while the direct separation technology is being developed to capture the process CO2 emissions from lime and cement production, a traditionally CO2 intensive industry . The products are at varying stages of commercialisation and development, with CXL's wastewater products in-market and expanding globally, its aquaculture and crop protection products in the early stages of commercialisation, and the CO2 mitigation and advanced battery solutions in continuing research and development (R&D) stages.

Investment thesis: Buy (Spec.), Val$9.00/sh (prev. $9.21/sh)

CXL's growing suite of CFC applications target global challenges, including decarbonisation of hard-to-abate industrial processes (lime, cement and steel making), to improve supply chain efficiency. CXL represents a valuable sustainable investing opportunity for ESG-focussed investors.

CXL is a development company with prospective operations and cash flows only. Our Speculative risk rating recognises this higher level of risk and volatility of returns.

Valuation methodology

Our CXL valuation is based on discounted cash flow models of the company's various developments. Key inputs underpinning our DCF valuations include a WACC of 9.7% and a terminal growth rate of 3.0% per annum (both nominal).

Key risks to investment thesis

Key risks to CXL include, although are not limited to:

- **Competition risk:** The advent of superior products or applications by a competitor may erode CXL: competitive advantage and therefore its sales and margins;
- **Execution risk:** CXL's products and solutions are at varying stages of commercialisation and development. There is a risk that industry adoption of commercialising products takes longer than expected or doesn't occur at all. There is also no guarantee that projects in R&D proceed to commercialisation;
- **Acquisition risk:** The recent acquisition of IER in North America represents a material percentage of forecast revenue growth. There is a risk that CXL will be unable to execute the IER, or future acquisitions, as expected, with risks to integration, retention of key people, realisation of synergies and execution of pro forma financial forecasts;
- **Operational risk:** Any disruption to CXL's integrated supply chains or technical procedures may result in delays to customer fulfilments or ongoing R&D Projects that could adversely affect CXLs operations, financial position and performance;
- **Regulatory risk:** CXLs products are sold and marketed in a variety of different regulatory and legal jurisdictions. There is a risk that its products may require specific registration now, or in the future. There is no guarantee that CXL will be able to fulfil these requirements. There is also a risk that changes to regulatory requirements in some markets cause CXL to need additional approvals, or adds product liability risks;
- **Funding risk:** CXL funds a considerable amount of its R&D programs via grant income. The grants are generally extended under binding agreements, with conditions on cancellations and claw-backs. There is a risk that CXL violates specific protocols regarding valid expenditures that cause the claw-backs to be exercised. There is also no guarantee that CXL will continue to be awarded grants for further research, adversely effecting CXL's ability to develop new technologies and applications for CFC;
- **Innovation risk –** There is no guarantee that CXL will be able to continue to develop its technology into new products and applications. An inability to innovate could diminish CXL's future R&D projects, grant funding, and ultimately growth options;
- **Product liability risk:** CXL is exposed to potential product liability risks regarding its R&D programs, operations, and the use and sale of its products. While CXL has procedures and insurance to mitigate liability risks, there is no guarantee that these risks will adequately manage or cover the risk;
- **Intellectual property risk:** CXL relies on its ability to obtain and maintain valid patent protection and trade secrets. There is a risk that competitors may create, or have already created intellectual property rights (including patents) that restrict CXL's ability to exploit its own technology. There is also a risk that CXL will not be able to enforce its intellectual property rights or that employees, former employees or third parties will breach confidentiality agreements, infringe or misappropriate CXLs intellectual property;
- **Key Staff risk:** The loss of key management personnel, delays in their replacement, and/or failure to attract new talent, may adversely affect CXL's operations and future performance;
- **Exchange rate risk:** CXL is forecast to generate an increasing amount of revenues in foreign currencies, and is also exposed to a material amount of grant funding in foreign currencies. Any adverse movement in exchange rates could negatively impact CXL's financial performance and also expose the company to translation risks within the company's financial statements.

Calix Limited
as at 11 January 2023

Recommendation	Buy, Speculative
Price	$4.73
Valuation	$9.00

Table 6 - Financial summary

Date		**11/01/23**
Price	**$/sh**	**4.73**
Target price	**$/sh**	**9.00**

Bell Potter Securities
Joseph House (jhouse@bellpotter.com.au, +61 3 9235 1624)

PROFIT AND LOSS

Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e
Revenue	**$m**	**19**	**18**	**27**	**35**	**56**
Expenses	$m	(21)	(31)	(35)	(41)	(45)
Underlying EBITDA	**$m**	**(2)**	**(12)**	**(9)**	**(7)**	**10**
Depreciation & amortisation	$m	(3)	(4)	(5)	(7)	(12)
EBIT	**$m**	**(5)**	**(17)**	**(14)**	**(14)**	**(1)**
Net interest expense	$m	(0)	(0)	(0)	(0)	(0)
Profit before tax	**$m**	**(5)**	**(17)**	**(14)**	**(14)**	**(1)**
Tax expense	$m	(1)	0	-	-	-
NPAT (underlying)	**$m**	**(6)**	**(16)**	**(14)**	**(14)**	**(1)**
Adjustments (post-tax)	$m	(3)	(0)	-	-	-
NPAT (reported)	**$m**	**(9)**	**(17)**	**(14)**	**(14)**	**(1)**

CASH FLOW STATEMENT

Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e
OPERATING CASH FLOW						
Receipts from customers	$m	19	18	23	32	48
Payments to suppliers and employees	$m	(30)	(35)	(28)	(32)	(36)
Tax paid	$m	-	-	-	-	-
Net interest	$m	(0)	(0)	(0)	(0)	(0)
Other	$m	3	13	(6)	(7)	(9)
Operating cash flow	**$m**	**(8)**	**(4)**	**(11)**	**(7)**	**2**
INVESTING CASH FLOW						
Capex	$m	(6)	(7)	(14)	(29)	(22)
Disposal of assets	$m	-	-	-	-	-
Other	$m	(1)	21	(2)	(2)	(3)
Investing cash flow	**$m**	**(7)**	**14**	**(16)**	**(31)**	**(25)**
Free cash flow	***$m***	***(15)***	***10***	***(27)***	***(38)***	***(23)***
FINANCING CASH FLOW						
Debt proceeds/(repayments)	$m	0	(1)	-	-	-
Dividends paid	$m	-	-	-	-	-
Proceeds from share issues (net)	$m	19	1	78	-	-
Other	$m	(0)	(0)	-	-	-
Financing cash flow	**$m**	**19**	**(0)**	**78**	**-**	**-**
Change in cash	**$m**	**4**	**10**	**51**	**(38)**	**(23)**

BALANCE SHEET

Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e
ASSETS						
Cash	$m	15	25	76	38	15
Receivables	$m	10	3	7	9	17
Inventories	$m	2	3	3	3	3
Property, plant & equipment	$m	15	19	28	51	62
Intangibles	$m	9	10	11	13	15
Other assets	$m	1	1	1	1	1
Total assets	**$m**	**52**	**61**	**126**	**114**	**113**
LIABILITIES						
Payables	$m	3	3	3	4	4
Borrowings	$m	0	1	1	1	1
Provisions	$m	2	2	2	2	2
Leases	$m	1	1	1	1	1
Other liabilities	$m	7	10	11	12	11
Total liabilities	**$m**	**13**	**16**	**17**	**19**	**18**
NET ASSETS	**$m**	**38**	**45**	**109**	**95**	**94**
Share capital	$m	71	73	151	151	151
Reserves	$m	4	23	24	24	24
Retained earnings	$m	(36)	(53)	(67)	(81)	(82)
SHAREHOLDER EQUITY	**$m**	**38**	**45**	**109**	**95**	**94**
Weighted average shares	m	150	160	174	180	180

FINANCIAL RATIOS

Year ending 30 June	Unit	2021a	2022a	2023e	2024e	2025e
VALUATION						
EPS (adjusted)	c/sh	(4.2)	(10.3)	(8.1)	(7.8)	(0.7)
EPS growth (Acps)	%	na	na	na	na	na
PER	x	-111.5x	-46.1x	-58.6x	-61.0x	-647.9x
DPS	c/sh	-	-	-	-	-
Franking	%	0%	0%	0%	0%	0%
Yield	%	0.0%	0.0%	0.0%	0.0%	0.0%
FCF/share	c/sh	(10.0)	6.3	(15.5)	(21.1)	(12.6)
FCF yield	%	-2.1%	1.3%	-3.3%	-4.5%	-2.7%
EV/EBITDA	x	-388.9x	-60.1x	-88.1x	-111.4x	71.6x
NTA	$/sh	0.19	0.22	0.56	0.46	0.44
P/NTA	x	24.4x	21.9x	8.4x	10.3x	10.7x
LIQUIDITY & LEVERAGE						
Net debt / (cash)	$m	(14)	(24)	(74)	(36)	(14)
Net debt / Equity	%	-36.3%	-52.5%	-68.3%	-38.3%	-14.6%
Net debt / Net debt + Equity	%	-57.0%	-110.5%	-215.7%	-62.0%	-17.1%
Net debt / EBITDA	x	7.2x	1.9x	8.8x	5.4x	-1.3x
EBITDA /net interest expense	x	-21.3x	-239.5x	-50.8x	-39.5x	61.5x
PROFITABILITY RATIOS						
EBITDA margin	%	-10.0%	-67.6%	-32.1%	-19.5%	18.7%
EBIT margin	%	-26.7%	-90.3%	-52.1%	-39.9%	-2.0%
Return on assets	%	-13.5%	-29.2%	-15.0%	-11.6%	-1.2%
Return on equity	%	-19.8%	-39.7%	-18.2%	-13.6%	-1.4%
ROIC	%	-21.2%	-66.5%	-50.7%	-30.0%	-1.9%

HALF YEARLY ASSUMPTIONS

Year ending 30 June	Unit	1H 2022a	1H 2023e	1H 2024e	1H 2025e	1H 2026e
Revenue	**$m**	**10**	**12**	**16**	**21**	**42**
Expenses	$m	(15)	(17)	(20)	(22)	(24)
Underlying EBITDA	**$m**	**(5)**	**(4)**	**(4)**	**(1)**	**19**
Depreciation & amortisation	$m	(2)	(2)	(3)	(4)	(9)
EBIT	**$m**	**(7)**	**(7)**	**(7)**	**(6)**	**10**
Net interest	$m	(0)	(0)	(0)	(0)	(0)
Pre-tax profit	**$m**	**(7)**	**(7)**	**(7)**	**(6)**	**10**
Tax expense	$m	0	-	-	-	-
Tax rate	*%*	*1%*	*0%*	*0%*	*0%*	*0%*
NPAT (underlying)	**$m**	**(7)**	**(7)**	**(7)**	**(6)**	**10**
Adjustments (post-tax)	$m	(0)	-	-	-	-
NPAT (reported)	**$m**	**(8)**	**(7)**	**(7)**	**(6)**	**10**

VALUATION

Diluted shares on issue	**186m**			
Current valuation	**Previous**		**New**	
	A$m	**A$/sh**	**A$m**	**A$/sh**
LEILAC Group blue sky (ownership 93%; risked 30%)	-	-	1,027	5.51
Calix Group LEILAC royalty stream (ownership 100%; risked 30%)	-	-	495	2.65
LEILAC Group near-term projects (ownership 93%; risked 20%)	-	-	56	0.30
SLiCC demonstration project (ownership 45%; risked 15%)	-	-	90	0.48
Other assets	-	-	85	0.46
Corporate & admin	-	-	(74)	(0.40)
Research & development	-	-	(104)	(0.56)
Enterprise value	**-**	**-**	**1,574**	**8.44**
Net debt / (cash)	-	-	(104)	(0.56)
Total equity value	**1,487**	**9.21**	**1,678**	**9.00**
Current share price				4.73
Upside to current share price %				90%

SOURCE: BELL POTTER SECURITIES ESTIMATES

Recommendation structure

Buy: Expect >15% total return on a 12 month view. For stocks regarded as 'Speculative' a return of >30% is expected.

Hold: Expect total return between -5% and 15% on a 12 month view

Sell: Expect <-5% total return on a 12 month view

Speculative Investments are either start-up enterprises with nil or only prospective operations or recently commenced operations with only forecast cash flows, or companies that have commenced operations or have been in operation for some time but have only forecast cash flows and/or a stressed balance sheet.

Such investments may carry an exceptionally high level of capital risk and volatility of returns.

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