

BluGlass

FY21 results

Transition to direct-to-market components model

During FY21 BluGlass continued the transition from an equipment sales and licensing business to a direct-to-market components operation focused on rapidly expanding opportunities in the laser diode industry. While the launch of its first laser diodes has been delayed by reliability issues relating to third-party processing steps, management notes that the fund-raising activities this June and July should provide a cash runway through to initial customer revenues from laser diode sales.

Year end	Revenue (A\$m)	EBITDA (A\$m)	PBT* (A\$m)	EPS* (c)	DPS (c)	P/E (x)
06/18	0.7	(3.8)	(3.8)	(0.97)	0.00	N/A
06/19	0.4	(5.1)	(5.1)	(1.21)	0.00	N/A
06/20	0.7	(3.6)	(4.8)	(1.01)	0.00	N/A
06/21	0.4	(4.6)	(6.8)	(0.94)	0.00	N/A

Note: *PBT and EPS are normalised, excluding amortisation of acquired intangibles, exceptional items and share-based payments.

Fully funded to laser diode commercialisation

Revenues from customers, which were entirely attributable to epitaxy services, fell by 45% year-on-year during FY21 to A\$0.4m because orders were delayed by coronavirus related lockdowns and the company was focused on laser diode development. Costs widened, reflecting high levels of R&D activity on laser diodes and investment in the US operation, which was set up to manage the sequence of third-party processing steps required once the laser diode epitaxy has been manufactured in the group's Australian manufacturing facility. Adjusted EBITDA losses consequently widened by A\$1.0m to A\$4.6m. The year-end balance sheet had A\$4.2m cash and a A\$2.0m short-term loan, which was repaid following an oversubscribed entitlement offer and private placing collectively raising A\$6.4m (gross) in July 2021. Management notes that these fund-raising activities should provide a cash runway through to initial customer revenues from laser diodes.

On the cusp of revenue growth

BluGlass had hoped to start shipping samples of its first-generation laser diodes by the end of FY21 (June 2021). The product launch has been delayed until problems in the post-epitaxial processing steps carried out by third parties have been resolved. The company is currently working with multiple vendors and expert fabrication specialists with established production capabilities to solve this issue.

Valuation: Aiming to secure 6–10% of global laser diode market

While management has not provided formal guidance, it aims to secure 6–10% of the global laser diode market by 2026, which it estimates will then total US\$658m (A\$849m). This represents annual revenues of around A\$60–90m. This level of market penetration is dependent on BluGlass successfully completing the development of the second generation of higher-performance laser diodes using its remote plasma chemical vapour deposition (RPCVD) technology. Our scenario analysis calculates this level of revenues would generate EBITDA of A\$14.1–21.6m.

Tech hardware & equipment

6 October 2021

Price **A\$0.03**
Market cap **A\$32m**

Net cash (A\$m) at end June 2021 (excluding lease liabilities and A\$6.4m raised in July 2021) 2.2

Shares in issue 1,003m

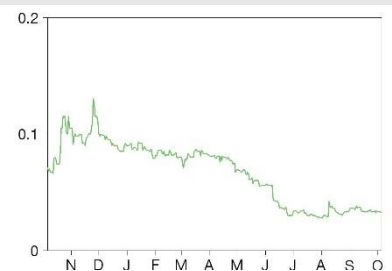
Free float 87.3%

Code BLG

Primary exchange ASX

Secondary exchange N/A

Share price performance



% 1m 3m 12m

Abs (11.1) (3.0) (53.2)

Rel (local) (7.7) (2.4) (61.9)

52-week high/low A\$0.12 A\$0.03

Business description

BluGlass is an Australian technology company that is developing and commercialising a breakthrough compound semiconductor technology for the production of high efficiency devices such as laser diodes, light emitting diodes (LEDs) and micro-LEDs.

Next event

AGM 22 November 2021

Analysts

Anne Margaret Crow +44 (0)20 3077 5700

Dan Ridsdale +44 (0)20 3077 5729

tech@edisongroup.com

[Edison profile page](#)

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FY21 performance

Revenues still attributable only to epitaxy services

Revenues up to this point have been derived entirely from epitaxy services. Revenues from customers fell by 45% year-on-year during FY21 to A\$0.4m because EpiBlu foundry orders were delayed by coronavirus related lockdowns in Europe and the United States and the company was highly focused on laser diode development.

Costs rising ahead of laser diode launch

Exhibit 1: FY21 and FY20 compared

A\$000s	FY21	FY20
Sales revenue	364	656
Grants and tax rebate	3,993	3,136
Consumables	(3,070)	(1,898)
Other expenses	(5,911)	(5,510)
EBITDA	(4,624)	(3,616)
Depreciation and amortisation	(2,133)	(1,072)
Share-based payments	536	(1,237)
Reported operating loss	(6,221)	(5,925)
Finance costs (net)	(78)	(69)
Reported loss before tax	(6,298)	(5,994)
Tax	0	0
Reported loss after tax	(6,298)	(5,994)
Reported EPS (c)	(0.87)	(1.27)

Source: Company data.

The cost of consumables rose by A\$1.2m to A\$3.1m because of high levels of R&D activity on laser diodes, including the outsourcing of multiple wafer processing steps once the epitaxial layers on the wafer have been deposited in BluGlass's manufacturing facility in Australia. Employee costs increased by A\$0.6m to A\$3.6m reflecting the establishment of the group's US operations, which manage the group's laser diode fabrication processes and supply chain, including packaging and reliability testing of the laser diodes prior to shipping to customers. However, the company benefited from A\$0.7m in government grants, including funding from the Job Keeper programme and a A\$3.3m R&D tax rebate relating to FY21, so EBITDA losses widened by only A\$1.0m to A\$4.6m. Depreciation charges were A\$1.1m higher, reflecting commissioning of the BLG-500 reactor, which is a high capacity metal organic chemical vapour deposition (MOCVD) system retrofitted to include RPCVD capability at the start of the fiscal year, so losses before tax (adjusted for share-based payments) widened by A\$2.1m to A\$6.8m. EPS losses (adjusted for share-based payments) narrowed by 6% as a result of the dilutive effect of a rights issue and shortfall placement in April 2020 and a private placement in June 2021 (see below).

Fully funded to laser diode commercialisation

Net cash (excluding A\$1.6m lease liabilities at end June 2021) was reduced by A\$3.2m during FY21 to A\$2.2m at the year-end. This total included A\$4.2m cash and a short-term loan of A\$2.0m agreed with Radium Capital in June 2021 that was completely repaid in July following a fund-raising (see below). Investment in capital equipment was minimal (A\$0.1m) as the investment in production capability in Australia completed during FY20. All R&D activity was expensed. A A\$0.4m increase in trade and other receivables primarily related to the R&D tax rebate provided by the Australian government. During the fiscal year the company raised A\$2m (gross) at A\$0.03/share in June 2021 through a private placement to technology focused fund Regal Funds Management. This activity was followed in July (ie after the year-end) by an oversubscribed entitlement offer to existing shareholders raising A\$5.92m (gross) and a A\$0.5m (gross) placement to clients of Viriathus

Capital, both at A\$0.03/share. Management notes that it expects to receive a c A\$3.3m R&D tax refund in October 2021. Management notes that the recent fund-raising activity should provide a cash runway through to initial customer revenues from laser diode sales.

Preparing to launch beachhead products

Developing the direct-to-market laser diode portfolio

Launch of first-generation product delayed

BluGlass had hoped to start shipping samples of its first-generation laser diodes by the end of FY21 (June 2021). The performance of these devices could not be confirmed until the epitaxy processed at BluGlass's facility had been packaged into fully functional devices by third parties. Tests on the packaged prototype devices showed lasing results consistent with commercial specifications for output power and wavelength. This showed the soundness of BluGlass's epitaxial process. However, when the prototypes went through reliability testing, they showed a gradual loss of light output over time, which did not meet with commercial specifications. This issue is related to the part of the devices where light leaves the diode and is caused by problems in the post-epitaxial processing steps carried out by third parties. While this is the first time that BluGlass has experienced this issue with its devices, the phenomenon is well understood within the laser diode industry. The company is currently working with multiple vendors and expert fabrication specialists with established production capabilities to solve this reliability issue, which is the final technical hurdle before products can be launched. At present there are several iterations of devices progressing in parallel through the supply chain. Once a solution has been identified and confirmed, it will be integrated across BluGlass' entire suite of laser diode products. This means that instead of launching different wavelength laser diodes one after the other as the designs are completed, the company will be able to launch multiple products simultaneously once the reliability issue has been fixed.

RPCVD laser diodes successfully demonstrate lasing behaviour

In August BluGlass [successfully demonstrated](#) the world's first working tunnel junction laser diodes manufactured using its proprietary RPCVD technology (described in [our initiation report](#)). The uncoated, unpackaged prototype devices have demonstrated good lasing behaviour. While further development work is required to optimise the design and performance, this milestone helps confirm the potential of the RPCVD laser diode designs for higher power, more efficient, high value, gallium nitride laser diodes for use in commercial applications such as 3D printing and industrial welding.

Strengthening management with laser diode experts

Following the resignation of the former CEO in June 2021, BluGlass has [recently appointed laser diode executive Jim Haden as president](#). Jim has held senior executive and advisory roles at several of BluGlass's prospective customers and competitors, including Kyocera SLD, nLight, Coherent and JDS Uniphase. His operational and technical leadership experience, together with a track record of solving technical challenges, delivering products to market and driving revenue growth, will be highly beneficial as BluGlass transitions from R&D to commercialisation. Jim joins Non-executive Director Jean-Michel Pelaprat, who is co-founder of blue laser pioneer Nuburu and was appointed in May 2021, and Senior Laser Scientist Dr Arkadi Goulakov, who joined the group's US operations in March 2021 to assist with fabrication, back-end processing and reliability. Dr Arkadi has more than 30 years' experience in developing and commercialising cutting-edge opto-electronics components including over 17 years in the laser diode industry.

Scaling up operations for commercial deliveries

During FY21, the company set-up a supply chain for manufacturing laser diodes in volume on 2" diameter wafers. In July 2020 BluGlass successfully commissioned the first large-scale RPCVD manufacturing platform to date, the BLG-500. The system is able to process six 6" diameter wafers or 42 2" diameter wafers simultaneously, ensuring there is enough production capacity in-house for the epitaxial wafers used to make laser diodes. The company also evaluated and engaged the third parties who carry out the sequence of steps that convert these epitaxial wafers to fully functional devices. These steps include cutting the wafer into individual laser diode chips, adding an optical coating, packaging the chips and burn-in. The company also set-up its own facility in the United States for testing the finished devices prior to shipping to customers and for managing the third parties involved in the supply chain.

Valuation

Aiming to secure 6–10% of the laser diode market by 2026

While management has not provided formal guidance, it aims to secure 6–10% of the global laser diode market by 2026, which it estimates will then total A\$849m. This would represent annual revenues of around A\$60–90m. In our opinion, BluGlass will need to complete the development of its next-generation, higher brightness laser diodes manufactured using RPCVD for certain key epitaxial layers to achieve these levels of market penetration. The scenario analysis presented in [our initiation note](#) calculates this level of revenues would generate EBITDA of A\$14.1–21.6m.

Exhibit 2: Financial summary

	A\$'k	2018	2019	2020	2021
Year end 30 June		AASB	AASB	AASB	AASB
INCOME STATEMENT					
Revenue (excluding grants)		714	425	656	364
Cost of Sales (excluding direct labour)		(1,158)	(1,745)	(1,898)	(3,070)
Gross Profit		(444)	(1,320)	(1,242)	(2,707)
EBITDA		(3,750)	(5,109)	(3,616)	(4,624)
Normalised operating profit		(3,941)	(5,287)	(4,687)	(6,757)
Amortisation of acquired intangibles		0	0	0	0
Exceptionals		0	(8,695)	0	0
Share-based payments		(56)	(674)	(1,237)	536
Reported operating profit		(3,997)	(14,656)	(5,925)	(6,221)
Net Interest		157	236	(69)	(78)
Profit Before Tax (norm)		(3,784)	(5,052)	(4,757)	(6,835)
Profit Before Tax (reported)		(3,840)	(14,421)	(5,994)	(6,298)
Reported tax		0	0	0	0
Profit After Tax (norm)		(3,784)	(5,052)	(4,757)	(6,835)
Profit After Tax (reported)		(3,840)	(14,421)	(5,994)	(6,298)
Basic average number of shares outstanding (m)		389.4	418.3	473.1	724.6
EPS - basic normalised (c)		(0.97)	(1.21)	(1.01)	(0.94)
EPS - diluted normalised (c)		(0.97)	(1.21)	(1.01)	(0.94)
EPS - basic reported (c)		(0.99)	(3.45)	(1.27)	(0.87)
Dividend (c)		0.00	0.00	0.00	0.00
Revenue growth (%)		29.8%	-40.5%	54.5%	-44.6%
Gross Margin (%)		N/A	N/A	N/A	N/A
EBITDA Margin (%)		N/A	N/A	N/A	N/A
Normalised Operating Margin		N/A	N/A	N/A	N/A
BALANCE SHEET					
Fixed Assets		8,954	5,395	7,883	5,840
Intangible Assets		8,695	0	0	0
Tangible Assets		259	5,395	7,883	5,840
Investments & other		0	0	0	0
Current Assets		17,716	8,558	8,547	7,718
Stocks		54	137	140	131
Debtors		2,253	2,262	2,919	3,351
Cash & cash equivalents		15,354	6,116	5,430	4,176
Other		55	43	58	59
Current Liabilities		(963)	(1,003)	(1,154)	(3,378)
Creditors		(530)	(473)	(408)	(566)
Lease liabilities		0	0	(168)	(184)
Short term borrowings (excluding lease liabilities)		0	0	0	(1,954)
Provisions		(433)	(530)	(578)	(674)
Long Term Liabilities		(318)	(1,306)	(2,882)	(2,670)
Long term borrowings (excluding lease liabilities)		0	0	0	0
Provisions and lease liabilities		(318)	(1,306)	(2,882)	(2,670)
Net Assets		25,389	11,644	12,393	7,509
Minority interests		0	0	0	0
Shareholders' equity		25,389	11,644	12,393	7,509
CASH FLOW					
Net operating cash flow		(3,514)	(4,931)	(4,348)	(4,809)
Capex		(114)	(4,308)	(1,681)	(90)
Acquisitions/disposals		0	0	0	0
Net interest		0	0	(9)	0
Equity financing		10,471	1	5,507	1,859
Dividends		0	0	0	0
Other		0	0	0	0
Net Cash Flow		6,843	(9,237)	(532)	(3,040)
Opening net debt/(cash) (excluding lease liabilities)		(8,511)	(15,354)	(6,116)	(5,430)
FX		0	0	0	0
Other non-cash movements		0	0	(154)	(168)
Closing net debt/(cash) (excluding lease liabilities)		(15,354)	(6,116)	(5,430)	(2,222)

Source: Company accounts

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Frankfurt +49 (0)69 78 8076 960
Schumannstrasse 34b
60325 Frankfurt
Germany

London +44 (0)20 3077 5700
280 High Holborn
London, WC1V 7EE
United Kingdom

New York +1 646 653 7026
1185 Avenue of the Americas
3rd Floor, New York, NY 10036
United States of America

Sydney +61 (0)2 8249 8342
Level 4, Office 1205
95 Pitt Street, Sydney
NSW 2000, Australia