

21 July 2022

June Quarter Activities Update

Highlights

- Shipped first alpha products to a customer for testing
- Latest prototypes demonstrating improved light-output and performance
- BluGlass' Silicon Valley facility has been awarded its Environmental Protection Authority (EPA) permit

Australian semiconductor developer BluGlass Limited (**ASX: BLG**) provides the following update and Appendix 4C Quarterly Report for the three months ended 30 June 2022 (Q4 FY22).

First laser diode products shipped

During the quarter, BluGlass shipped its first fully packaged alpha laser diodes to a customer for integration and testing within the customer's product design and development cycle. BluGlass' 405nm and 420nm multi-mode alpha products are now suitable for customer evaluation. An alpha product is an advanced prototype still in the design phase and is a valuable tool to collect customer feedback in real-world applications.

As these products are still in the design phase, design improvements and customer feedback can be incorporated ahead of beta products and mass production.

BluGlass President Jim Haden said, "Shipping our first prototype products is an important technical and commercial milestone, marking the start of our engagement with potential customers and real-world qualification within future applications. Implementing customer feedback while we are still in the design phase is crucial, as it is very expensive to adapt and change product design and manufacturing processes once you've moved into the beta or volume production phase."

Laser diode progress

The delivery of the Company's first alpha products to customers was enabled by improvements in light-output, electrical performance, and reliability due to enhanced epitaxy, metals, heat management, and packaging. BluGlass has multiple 405nm, 420nm, and 450nm single-mode and multi-mode iterations progressing through the manufacturing supply chain in both short-loop and full-loop cycles.

BluGlass' technical team continues to work with its contract manufacturers to enhance the design and performance of the four key laser diode elements – epitaxy, metals, facets, and bonds – to meet commercial lifetime reliability requirements. Initial laser diodes are being produced by BluGlass' contract manufacturers while the Company's newly acquired Silicon Valley fab is retrofitted for gallium nitride production. BluGlass has been awarded its Environmental Protection Authority (EPA) permit, which allows BluGlass to operate much of the facility and complete the air quality and waste management permits.

"While we are only just beginning to bring our fab online, we are already seeing the significant development cycle benefits that will come with being able to control the entire manufacturing process. The ability to accelerate our development cycles of core components is critical, particularly as we look to finalise product design and release beta products. Short-loop performance data from our latest iterations is encouraging, and we continue to fine-tune production processes to create brighter, better-performing laser diodes that cater to market demand in the 405nm, 420nm, and 450nm wavelengths," said Jim Haden.

During the quarter, BluGlass demonstrated its best epitaxial optical and voltage performance to date. This next-generation epitaxy design has been extensively modelled and processed through short-loop cycles, demonstrating advanced performance, light-output, and efficiency. These new epitaxy designs are now being released to the wafer fabs for processing into laser diodes.

The Company has now demonstrated successful implementation of 'epi-down' fabrication processing at its contract manufacturers and in-house at its Nashua facility. Epi-down processing is commonly implemented in the industry to significantly improve the heat-management in the laser diode enabling higher power operation. This approach results in a significantly reduced thermal path, better heat management, and paves the way for higher value products.

MOCVD foundry contract

In June, BluGlass' MOCVD epitaxy foundry services contract with a European wafer developer was broadened to include additional GaN applications, which will lead to continued foundry revenues for the Company. The paid development contract has the potential to become a commercial manufacturing agreement.

Financials

Revenues increased over the previous quarter to \$249,000 due to additional MOCVD epitaxy foundry services from a European wafer manufacturer.

BluGlass' total net operating expenditure in Q2 FY22 was \$2,482k. Research and development expenses, including salaries, materials, and fabrication costs, accounted for \$1,998k while non-R&D related staff costs totalled \$195k. Payments to related parties in Q2 FY22 were \$144k, comprising Executive Chair and Non-Executive Director fees. Cash at end of the quarter was \$5.360 million.

Activity Undertaken	Amount paid during the Quarter \$'000
Laser Diode product development	\$1,998k
Micro LED and LED research and development	\$18k
RPCVD equipment development	\$49k
Total direct expenditure	\$2,065k

Outlook

BluGlass continues to optimise its laser diodes to solve its reliability challenges and secure first commercial orders. Customer feedback from alpha laser diodes will be incorporated into designs leading to product reliability validation, product launch, and subsequent volume production. At the same time, BluGlass will ramp development and manufacturing at its Silicon Valley fab in the coming quarters.

"We've made significant progress in the design and performance of our GaN laser diodes, culminating in sample products being integrated and tested by an initial customer, and we are engaging with other prospective customers. The high level of interest in our alpha products is indicative of the significant unmet demand in the market, reaffirming the need for alternative GaN laser diode suppliers.

"BluGlass has a large and growing addressable market with significant barriers to entry. Our latest performance data and customer interest reaffirms our ability to compete by catering to underserved wavelengths and offering greater flexibility to meet our customer's requirements. Our own production fab is key to executing this strategy, allowing us to expedite development and bring forward next generation products."

This announcement has been approved for release by the BluGlass Board.

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About BluGlass

Developing leading-edge semiconductor manufacturing technology and devices for more than a decade, **BluGlass Limited (ASX:BLG)** is a provider to the global GaN photonics industries, delivering cutting-edge, custom **laser diode** and LED development across the industrial, defence, display, and scientific markets.

Listed on the ASX, we are an Australian public company established to power the smarter, cleaner, more efficient photonics of tomorrow with our proprietary low temperature, low hydrogen, **remote plasma chemical vapour deposition** (RPCVD) manufacturing technology.

Backed by an extensive network of supply-chain partners, BluGlass is developing a suite of laser diode products, from small batch custom lasers through to high-volume and off-the-shelf products.

Appendix 4C

Quarterly cash flow report for entities subject to Listing Rule 4.7B

Name of entity

BluGlass Limited

ABN

20 116 825 793

Quarter ended ("current quarter")

June 2022

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (12 months) \$A'000
1. Cash flows from operating activities		
1.1 Receipts from customers	249	605
1.2 Payments for		
(a) research and development	(1,244)	(4,377)
(b) product manufacturing and operating costs	-	-
(c) advertising and marketing	(20)	(36)
(d) leased assets	(195)	(529)
(e) staff costs	(1,043)	(4,483)
(f) administration and corporate costs	(229)	(1,037)
1.3 Dividends received (see note 3)		
1.4 Interest received	-	-
1.5 Interest and other costs of finance paid	-	(32)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	-	3,648
1.8 Other (provide details if material)	-	-
1.9 Net cash from / (used in) operating activities	(2,482)	(6,241)
2. Cash flows from investing activities		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(537)	(3,967)
(d) investments	-	-
(e) intellectual property	-	-

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (12 months) \$A'000
(f) other non-current assets(Security Deposit)	(297)	(297)
2.2 Proceeds from disposal of:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	361	361
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-
2.3 Cash flows from loans to other entities	-	-
2.4 Dividends received (see note 3)	-	-
2.5 Other (provide details if material)	-	-
2.6 Net cash from / (used in) investing activities	(473)	(3,903)

3. Cash flows from financing activities		
3.1 Proceeds from issues of equity securities (excluding convertible debt securities)	4,053	13,889
3.2 Proceeds from issue of convertible debt securities	-	-
3.3 Proceeds from exercise of options	-	-
3.4 Transaction costs related to issues of equity securities or convertible debt securities	(120)	(608)
3.5 Proceeds from borrowings	-	-
3.6 Repayment of borrowings	-	(1,953)
3.7 Transaction costs related to loans and borrowings	-	-
3.8 Dividends paid	-	-
3.9 Other (provide details if material)	-	-
3.10 Net cash from / (used in) financing activities	3,933	11,328

4. Net increase / (decrease) in cash and cash equivalents for the period		
4.1 Cash and cash equivalents at beginning of period	4,382	4,176
4.2 Net cash from / (used in) operating activities (item 1.9 above)	(2,482)	(6,241)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(473)	(3,903)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	3,933	11,328
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	Cash and cash equivalents at end of period	5,360	5,360

5.	Reconciliation of cash and cash equivalents at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	Current quarter \$A'000	Previous quarter \$A'000
5.1	Bank balances	634	420
5.2	Call deposits	4,726	3,962
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	Cash and cash equivalents at end of quarter (should equal item 4.6 above)	5,360	4,382

6.	Payments to related parties of the entity and their associates	Current quarter \$A'000
6.1	Aggregate amount of payments to related parties and their associates included in item 1	144
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-

Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.

Quarterly cash flow report for entities subject to Listing Rule 4.7B

7. Financing facilities	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
<i>Note: the term "facility" includes all forms of financing arrangements available to the entity.</i>		
<i>Add notes as necessary for an understanding of the sources of finance available to the entity.</i>		
7.1 Loan facilities	-	-
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 Total financing facilities	-	-
7.5 Unused financing facilities available at quarter end		-
7.6 Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

8. Estimated cash available for future operating activities	\$A'000
8.1 Net cash from / (used in) operating activities (item 1.9)	(2,482)
8.2 Cash and cash equivalents at quarter end (item 4.6)	5,360
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	5,360
8.5 Estimated quarters of funding available (item 8.4 divided by item 8.1)	2.16
<i>Note: if the entity has reported positive net operating cash flows in item 1.9, answer item 8.5 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.5.</i>	
8.6 If item 8.5 is less than 2 quarters, please provide answers to the following questions:	
8.6.1 Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
Answer: N/A	
8.6.2 Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
Answer: N/A	
8.6.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?	
Answer: N/A	
<i>Note: where item 8.5 is less than 2 quarters, all of questions 8.6.1, 8.6.2 and 8.6.3 above must be answered.</i>	

Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 21 July 2022

Authorised by: the BluGlass Board
(Name of body or officer authorising release – see note 4)

Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standard applies to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.