

27 July 2021

## BluGlass June Quarter Activities Update

### Highlights

- Prototype 420nm laser diode products meeting commercial specifications in light output and wavelength
  - working with multiple expert fabrication specialists to resolve reliability issues
- Successfully raised \$8.42 million via oversubscribed Entitlement Offer and placements
- Laser diode pioneer Jean-Michel Pelaprat joins BluGlass as a Non-Executive Director

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Australian semiconductor developer BluGlass Limited (**ASX: BLG**) provides the following quarterly update and Appendix 4C Quarterly Report for the three months ended 30 June 2021 (Q4 FY21).

### Laser diode progress

During the quarter, BluGlass continued to progress the development of its 405nm, 420nm and 450nm direct-to-market commercial laser diode products.

The Company's 420nm laser diode products are demonstrating commercial specifications for light-output, voltage, and wavelength in both pulsing and initial continuous wave testing.

These results confirm the commercial quality of BluGlass' laser diode design and epitaxy (the semiconductor material growth steps). However, initial reliability testing of 420nm devices has shown a gradual loss of light output and laser performance during high power testing. BluGlass has observed flaws in the optical facet of the laser, which is contributing to the reliability issue.

The optical facet is in the post epitaxy production steps and involves third-party suppliers. BluGlass is working with multiple vendors and expert fabrication specialists with established production capabilities to expedite solutions. The Company continues to pursue improvement in the reliability of its laser diodes and currently has several iterations, running in parallel, already in development.

Once this issue is addressed, the solution will then be integrated across BluGlass' suite of laser diode products.

Gallium nitride (GaN) laser diodes are a high value, high margin product due to manufacturing complexity. BluGlass is initially targeting in-demand and under-served wavelengths for use in industrial, display, defence and scientific applications.

BluGlass Executive Chair James Walker said, "These manufacturing challenges are understood by the industry, and we remain confident of being able to solve this issue to launch a range of commercial laser diodes. To further support our technical activities, we are increasing our expert team, which will enable BluGlass to expedite solutions, and - once implemented - ramp-up commercial manufacturing.

"We have a large and growing addressable target market for our first direct-to-market products and are already in discussions with potential customers. Our manufacturing capability in both Australia and the US is supported by our supply chain partners, which will enable us to cost-effectively scale to meet demand."

BluGlass' enhanced laser diode designs, utilising the Company's proprietary remote plasma chemical vapour deposition (RPCVD) and tunnel junction technologies, are also progressing through the manufacturing supply chain.

While at an earlier stage of development, these novel laser diode designs combine both RPCVD and industry standard MOCVD processes into a single high-power device. They are designed to enable brighter, higher power and higher-efficiency laser applications.

A comprehensive update on the laser diode business progress and development plans was provided to shareholders at the Company's recent Meet the Chair and CTO briefing on June 30. A recording of the session is available to stream here: <https://www.bluglass.com.au/watch-meet-the-chair-and-cto-shareholder-session/>

### **DARPA Yale University laser diode program continues to progress**

BluGlass and Yale University continue to collaborate on the US government-funded contract, assisting the Defense Advanced Research Projects Agency (DARPA) with the development of novel laser diode technology. BluGlass and Yale University are conducting paid research and development under DARPA's Lasers for Universal Microscale Optical Systems (LUMOS) initiative, combining efficient integrated optical systems and complete photonics functionality onto a single substrate.

The paid joint development program has successfully completed the milestones of the first stage of Phase I, which is expected to run for 18-months. Together, Yale and BluGlass' research teams have commenced the second stage of Phase I and are working to combine lasers and photonics integrated circuit technologies in a single device; for applications such as compact optical phased array LiDAR and neuromorphic optical computing.

### **Funded to first commercial orders**

In June and July 2021 BluGlass has successfully raised a total of \$8.42 million; comprising an oversubscribed Entitlement Offer to existing shareholders and two separate Placements.

The Company's non-renounceable entitlement rights issue successfully raised the maximum \$5.92m before costs. Strong support from shareholders saw shortfall applications exceed the rights issue target and a pro-rata scale back of approximately 4% was applied to all shortfall applicants.

BluGlass also secured \$2.5 million from leading technology-focused fund, Regal Funds Management, and clients of Viriathus Capital, via Placements under the same terms as the rights issue.

Funds raised enable BluGlass to expedite delivery of its direct-to-market gallium nitride laser diode products, where the Company is targeting in-demand and underserved wavelengths for industrial cutting and welding, laser displays, general lighting, and defence applications. Proceeds will also be used for investment in sales, marketing and distribution channels for its laser diode products, as well as enhanced product development and working capital.

BluGlass Executive Chair James Walker said, "We are now funded to take the Company through to first commercial orders. We have multiple laser diode products in the manufacturing supply chain and expect to launch products as soon as the reliability challenge is overcome, to several customers patiently awaiting product delivery. There are significant unmet manufacturing needs and demand in the market at present and BluGlass is well-placed to capitalise on this opportunity."

### **Leadership changes**

In June, Giles Bourne stepped down as Managing Director and CEO after more than 13 years with the Company. BluGlass Chair James Walker has assumed the role of Executive Chair while the Company undertakes the search for an industry experienced CEO to lead BluGlass to commercialisation and profitability.

Earlier in the quarter, renowned laser diode pioneer Jean-Michel Pelaprat joined the Board as a Non-Executive Director. He brings more than 30 years' experience within semiconductor and photonics businesses to the Board, and is a co-founder and Director of US-based laser diode leader Nuburu.

Commenting on the new Board appointment, BluGlass Executive Chair James Walker said, "Jean-Michel joined BluGlass at a pivotal time for the Company and his extensive technical and commercial expertise has already proved to be invaluable as we progress the development of our first direct-to-market laser diode products. His affiliation with BluGlass provides potential customers with a significant vote of confidence in the quality of our disruptive technology."

## Financial Summary

In accordance with ASX LR 4.7C.1, the following amounts were paid in relation to the material activities undertaken during the quarter:

Activity Undertaken	Amount paid during the Quarter \$'000
Laser Diode product development	1,181
Micro LED and LED research and development	3
RPCVD equipment development	73
<b>Total direct expenditure</b>	<b>1,257</b>

In addition to the funds raised in the Rights Issue and placements, BluGlass expects to receive an R&D rebate of approximately \$3.0 million in September 2021. Cash at end of the quarter was \$4.176 million.

In accordance with ASX LR 4.7C.3, during the quarter \$143,000 was paid to related parties, comprising Managing Director/Executive Chair and Non-Executive Director fees.

## Outlook

BluGlass is fully focused on overcoming the final technical hurdle to launch its range of in-demand laser diodes and secure first customer orders.

“Our direct-to-market approach provides us with a clear path to revenue. We are addressing a global industry need for end-to-end manufacturing capability, and during the year ahead will prepare our supply chain to scale rapidly to meet demand for both specialised custom batches to volume production for repeat orders”, said Executive Chair James Walker.

“Our collaborative laser diode customers continue to demonstrate their strong interest and support for our planned range of product launches, as they wait for us to deliver bespoke solutions to meet their specific industry needs.

“Once again, we thank our loyal shareholders for their continued support of the business during this time. We also welcome our new shareholders, as together we look forward to an exciting and transformative year ahead.”

The BluGlass Board and Management look forward to keeping the market up to date on the Company's progress.

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 2021

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (12 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	26	363
1.2 Payments for		
(a) research and development	(866)	(3,774)
(b) product manufacturing and operating costs	(2)	(68)
(c) advertising and marketing	(27)	(47)
(d) leased assets	(73)	(337)
(e) staff costs	(1,088)	(3,621)
(f) administration and corporate costs	(184)	(787)
1.3 Dividends received (see note 3)		
1.4 Interest received	-	5
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	54	3,320
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(2,160)</b>	<b>(4,946)</b>
<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire or for:		
(a) entities	-	-
(b) businesses	-	-
(c) property, plant and equipment	(26)	(90)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (12 months) \$A'000</b>
2.2	Proceeds from disposal of:		
	(a) entities	-	-
	(b) businesses	-	-
	(c) property, plant and equipment	-	-
	(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)	-	-
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(26)</b>	<b>(90)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	2,000	2,000
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	(132)	(148)
3.5	Proceeds from borrowings	1,953	1,953
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>3,821</b>	<b>3,805</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	2,537	5,430
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(2,160)	(4,946)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(26)	(90)

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date (12 months) \$A'000</b>
4.4	Net cash from / (used in) financing activities (item 3.10 above)	3,821	3,805
4.5	Effect of movement in exchange rates on cash held	4	(23)
<b>4.6</b>	<b>Cash and cash equivalents at end of period</b>	<b>4,176</b>	<b>4,176</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1	Bank balances	48	44
5.2	Call deposits	4,128	4,247
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
<b>5.5</b>	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>4,176</b>	<b>4,291</b>

<b>6.</b>	<b>Payments to related parties of the entity and their associates</b>	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	143
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.*

7. <b>Financing facilities</b> <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1 Loan facilities	1,953	1,953
7.2 Credit standby arrangements	-	-
7.3 Other (please specify)	-	-
7.4 <b>Total financing facilities</b>	-	1,953
7.5 <b>Unused financing facilities available at quarter end</b>		-
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.	<p>BluGlass executed a loan agreement with Radium Capital on 7 June 2021. The loan had a maturity date at 31 December 2021 with an annual interest rate of 14%. The loan was secured to the R&amp;D tax rebate claim due in September 2021.</p> <p>With the completion of the Rights issue and two separate placements in June and July 2021 this loan was repaid in full in July 2021.</p>	

8. <b>Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	2,160
8.2 Cash and cash equivalents at quarter end (item 4.6)	4,176
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	4,176
8.5 <b>Estimated quarters of funding available (item 8.4 divided by item 8.1)</b>	1.93
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: Yes.	
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: Yes. BluGlass in June and July 2021 completed a shareholder rights issue and two separate placements, raising \$8.42 million. BluGlass is also expecting an R&D tax refund of approximately \$3 million in September 2021 (offset by the Radium loan facility of \$1.953 million repaid in full in July 2021).	

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: Yes. BluGlass will continue its regular operations.

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.

### 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: 27 July 2021

Authorised by: By the 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.