

## Quarterly Update – 1 January to 31 March 2021

- **Laser Diode product development**
  - Several products advancing through final stages of manufacturing supply chain
  - Multiple packaging solutions currently in manufacturing pipeline
  - Laser diode results continue to attract customer engagement with growing pipeline of prospects
- **Industry veteran joins BluGlass' US operations**
  - Appointed laser diode expert Dr Arkadi Goulakov as a Senior Laser Scientist
  - Dr Goulakov has more than 17 years' industry experience

Australian semiconductor developer, BluGlass Limited (ASX: BLG), is pleased to provide the following quarterly update and Appendix 4C Quarterly Report for the three months ended 31 March 2021.

### Laser Diode Development Progress

BluGlass continues to advance commercialisation of its laser diode product suite, with multiple products (405nm, 420nm, 450nm and others) progressing through the final stages in the manufacturing supply chain.

The Company's first products for launch have completed multiple design iterations and processing steps ahead of packaging. These products continue to demonstrate good performance and meet internal specifications as unpackaged devices.

Packaged devices, once complete, will commence accelerated reliability testing at BluGlass' US facility ahead of product launches. We anticipate that these tests will be underway within the next two months.



BluGlass is refining multiple packaging solutions; both internally at BluGlass' US facility and supported by our recent appointment of specialist laser packaging and integration expert, Dr Arkadi Goulakov; and with several expert packaging vendors.

BluGlass is confident it will deliver packaged products to its customers within the coming months. Following the launch of initial products, BluGlass and its suppliers will have qualified the manufacturing process for commercial production and the delivery of further product designs and applications later in the year.

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## Laser industry veteran joins BluGlass' US operations

In March, BluGlass appointed laser diode expert Dr Arkadi Goulakov as a Senior Laser Scientist in its US operations. He brings deep fabrication, packaging and product integration expertise to the development and operations team and is currently assisting in the final steps of the pre-launch and delivery of BluGlass' proprietary next generation GaN based laser-technology for the industrial, automotive, lighting and biotech markets.

Dr Goulakov has more than 30 years' experience developing and commercialising cutting edge opto-electronics, including more than 17 years' managing dynamic laser innovation projects. He has held technical leadership positions at leading US laser organisations including, II-VI Optoelectronic Devices, Western Digital, and Seagate Technologies, and has held technical roles at Microsemi, AlfaLight Inc and Corning Applied Technology.

This appointment provides enhanced depth to BluGlass' laser diode business development bringing extensive fabrication and back-end processing expertise to complement BluGlass' existing design and epitaxial capabilities.

Dr Goulakov completed his PhD in Physics at the prestigious Ioffe Institute in Saint Petersburg, one of Russia's largest research centres specialising in physics and technology. He is the Principal Inventor of four issued US patents, the author of multiple trade secrets, and a recipient of numerous Patent and Invention Disclosure Awards.



## BluGlass showcases product development and presents new RPCVD laser diode paper at Photonics West

During the quarter, BluGlass showcased its laser diode product development at SPIE Photonics West - the leading global event for the photonics and laser industries. The Company also presented its new RPCVD laser diode paper at the conference outlining recent enhanced laser diode development, utilising hybrid MOCVD and RPCVD techniques to improve the performance of laser diodes.

Titled '*InAlGa<sub>N</sub> based ridge-guide laser diodes using remote plasma chemical vapour deposition for enhanced performance*', the paper highlighted the latest results and confirmation of benefits of low temperature RPCVD for the manufacture of both traditional and novel laser diode structures.

A copy of the presentation is available to download from the Company's website at [www.bluglass.com.au/laser-diodes](http://www.bluglass.com.au/laser-diodes).

## 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	1,305
Micro LED and LED research and development	25
RPCVD equipment development	73

In accordance with ASX LR 4.7C.3, during the quarter \$146,000 was paid to related parties, comprising Managing Director and Non-Executive Director fees.

Customer revenue totalled \$117,000 for the March quarter; of which \$84,000 was for microLED and LED foundry services and \$33,000 was laser diode revenue, made up of the Yale and DARPA contract. While revenue was low for the quarter, customer engagement ahead of product launches remains high.

BluGlass expects to receive an R&D rebate of \$2.5 million to \$3.0 million following the end of the financial year. Cash at end of the quarter was \$2.5 million.

This announcement has been approved for release by the Board.

## About BluGlass

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BluGlass Limited (ASX: BLG) is a global leader commercialising a breakthrough technology using Remote Plasma Chemical Vapour Deposition (**RPCVD**) for the manufacture of high-value semiconductor devices such as **laser diodes**, next generation **LEDs** and **microLEDs**. BluGlass has invented a new process using RPCVD to grow advanced materials such as gallium nitride (GaN) and indium gallium nitride (InGaN). These materials are crucial to the production of high-efficiency devices used in next-generation devices from lighting, displays, virtual reality systems and industrial cutting and welding.

RPCVD's unique low temperature, low hydrogen growth platform offers many potential benefits to electronics manufacturers over existing growth techniques; including higher efficiency, lower cost, greater substrate flexibility and has the potential to enable novel applications.

In 2019, BluGlass launched its direct-to-market Laser Diode business unit to exploit its unique tunnel junction technology capability in the high-value and high-margin laser diode market. BluGlass expects to launch its first laser diode commercial product in 2021.

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## 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")**

March 2021

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (9 months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	117	337
1.2 Payments for		
(a) research and development	(870)	(2,908)
(b) product manufacturing and operating costs	(11)	(66)
(c) advertising and marketing	(1)	(20)
(d) leased assets	(86)	(264)
(e) staff costs	(884)	(2,534)
(f) administration and corporate costs	(105)	(602)
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	93	3,266
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(1,747)</b>	<b>(2,786)</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	-	(64)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
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>(64)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	-
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	-	(16)
3.5	Proceeds from borrowings	-	-
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>(16)</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	4,291	5,430
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,747)	(2,786)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	-	(64)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (9 months) \$A'000
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	(16)
4.5	Effect of movement in exchange rates on cash held	(7)	(27)
4.6	<b>Cash and cash equivalents at end of period</b>	<b>2,537</b>	<b>2,537</b>

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	339	44
5.2	Call deposits	2,198	4,247
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>2,537</b>	<b>4,291</b>

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	146
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
<i>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.</i>		

<b>7.</b>	<b>Financing facilities</b> <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>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	<b>Total financing facilities</b>	-	-
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.		

<b>8.</b>	<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)	1,754
8.2	Cash and cash equivalents at quarter end (item 4.6)	2,537
8.3	Unused finance facilities available at quarter end (item 7.5)	-
8.4	Total available funding (item 8.2 + item 8.3)	2,537
8.5	<b>Estimated quarters of funding available (item 8.4 divided by item 8.1)</b>	1.45
<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: 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 is expecting a refund of between \$2.5 - \$3 million from the R&D tax rebate due in September 2021. BluGlass has the option to finance a portion of the rebate when necessary.	
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.	
<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: 30 April 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.