

## Quarterly Update – 1 July to 30 September 2020

- **BluGlass contributes laser diode development to Yale University for DARPA program**
- **Laser Diode business update**
  - demonstrated working 405nm, 420nm and 450nm laser diode designs
  - 405nm product development is approaching commercial specifications
- **BLG-500 update**
  - now contributing to tunnel junction projects, including laser diode development program
  - material growths with very good thickness uniformity
- **FY2020 R&D tax rebate of \$2.7M (received subsequent to the end of the quarter)**

Australian semiconductor developer, BluGlass Limited (ASX: BLG), is pleased to provide this Quarterly Update to accompany the Appendix 4C Quarterly Report for the three months ended 30 September 2020.

### **BluGlass contributes laser diode development to Yale University for US Defense Advanced Research Projects Agency (DARPA) program**

BluGlass has received a US government-funded sub-award contract from Yale University to assist DARPA to develop novel laser diode technology.

BluGlass and Yale University will conduct paid research and development under DARPA's *Lasers for Universal Microscale Optical Systems (LUMOS)* initiative which seeks to combine efficient integrated optical systems and complete photonics functionality onto a single substrate.

Part of the U.S. Department of Defense, DARPA pursues opportunities for transformational change rather than incremental advances. It does so collaboratively as part of a robust innovation ecosystem that includes academic, corporate, and governmental partners.

We are very excited to be part of the team selected to contribute to the DARPA LUMOS program. This opportunity allows BluGlass to showcase our capabilities in GaN Laser epitaxial growth technology, while demonstrating the integration of our technology into next generation laser applications such as Photonic Integrated Circuits, that could lead to further commercial opportunities.

### **Commercial scale RPCVD system, the BLG-500, commences product development**

BluGlass' commercial scale manufacturing platform, the BLG-500, has commenced contributing to the Company's laser diode and LED development programs. The remote plasma chemical vapour deposition (RPCVD) system has now overcome its previous intermittent hardware issue.

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large-scale wafers. The BLG-500 is growing GaN films with very good thickness uniformity across 6-inch wafer equivalent area.

The BLG-500 is now contributing to BluGlass' key tunnel junction projects, including the Company's laser diode and cascade LED commercialisation roadmaps.

### Laser Diode Development Progress

BluGlass is developing a range of laser diode products, including standard and novel RPCVD tunnel junction designs, across multiple market segments.

Three of BluGlass' standard laser diode designs are making good progress – with the Company's 405nm, 420nm and 450nm designs now demonstrating lasing behaviour.

The Company's 405nm design is showing performance that is approaching commercial specifications in brightness. These results have been verified through multiple fabrication vendors.

The company remains on track to deliver sample products of one of its standard laser diode designs to customers for testing this calendar year and into early 2021, on the back of promising technical results in these three product development roadmaps.

A portfolio of applications under design was published in the October business update available to download here: [www.bluglass.com.au/single-post/2020/10/13/business-update](http://www.bluglass.com.au/single-post/2020/10/13/business-update)

### Manufacturing Preparedness and Supply Chain Qualification

BluGlass has made significant efforts to secure a robust supply chain. The Company is in the process of qualifying multiple providers in each segment of the supply chain around the world to help mitigate future supply chain impacts and to ensure the business is working with the best possible suppliers to meet our manufacturing goals.

Processing timelines from design and epitaxial growth through to initial testing have now been significantly expedited with the provision of multiple suppliers. BluGlass' 2-inch manufacturing supply chain qualification is expected to complete on schedule in the December quarter.



Our US team, based out of our fully operational testing facility in Nashua, New Hampshire, has grown with the addition of two industry experienced, expert laser diode packaging and test engineers.

## 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	1,398
Micro LED and LED research and development	25
RPCVD equipment development	138
<b>Total direct expenditure</b>	<b>1,561</b>

In accordance with ASX LR 4.7C.3, during the quarter an amount of \$63,000 was paid to related parties, representing managing director and non-executive director fees.

Cash at end of the quarter was \$3.6M before the FY2020 R&D tax rebate of \$2.7M (received subsequent to the end of the quarter).

Customer foundry revenue for the quarter totalled \$33,000.

## ASX Listing Rule 4.10.16 Disclosure

Pursuant to ASX LR 4.10.16, the table below provides the number of holders in each class of unquoted securities on issue. This table below is an updated version of the table contained in section 6 on page 58 of the 2020 Annual Report.

Unquoted Security Description	Unquoted Securities	Number of Beneficial Holders
Incentive Plan Options expiring 1 Dec 2020, \$0.28 exercise price, subject to vesting criteria	2,000,000	2
Series A Performance Rights, expiring 17 December 2021, subject to vesting criteria	16,000,000	2
Series B Performance Rights, expiring 17 December 2021, subject to vesting criteria	2,960,112	14
Series C Performance Rights, expiring 17 December 2021, subject to vesting criteria	1,200,000	4

This announcement has been approved for release by the Board.

## About BluGlass

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")**

September 2020

<b>Consolidated statement of cash flows</b>	<b>Current quarter \$A'000</b>	<b>Year to date (three months) \$A'000</b>
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	33	33
1.2 Payments for		
(a) research and development	(1,003)	(1,003)
(b) product manufacturing and operating costs	-	-
(c) advertising and marketing	(4)	(4)
(d) leased assets	(79)	(79)
(e) staff costs	(830)	(830)
(f) administration and corporate costs	(75)	(75)
1.3 Dividends received (see note 3)		
1.4 Interest received	2	2
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	234	234
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(1,722)</b>	<b>(1,722)</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	(54)	(54)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (three 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>(54)</b>	<b>(54)</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)	(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>(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	5,430	5,430
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,722)	(1,722)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(54)	(54)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (three months) \$A'000
4.4	Net cash from / (used in) financing activities (item 3.10 above)	(16)	(16)
4.5	Effect of movement in exchange rates on cash held	(12)	(12)
4.6	<b>Cash and cash equivalents at end of period</b>	<b>3,626</b>	<b>3,626</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	181	37
5.2	Call deposits	3,445	5,393
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>3,626</b>	<b>5,430</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	63
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. 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. Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1 Net cash from / (used in) operating activities (item 1.9)	(1,722)
8.2 Cash and cash equivalents at quarter end (item 4.6)	3,626
8.3 Unused finance facilities available at quarter end (item 7.5)	-
8.4 Total available funding (item 8.2 + item 8.3)	3,626
8.5 <b>Estimated quarters of funding available (item 8.4 divided by item 8.1)</b>	2
<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: No. The R&D tax rebate of \$2.7 million was received subsequent to the end of the quarter and will change the operating cash flows for the next period.	
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: 30 October 2020 .....

Authorised by: Emmanuel Correia - Company Secretary ....  
(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.