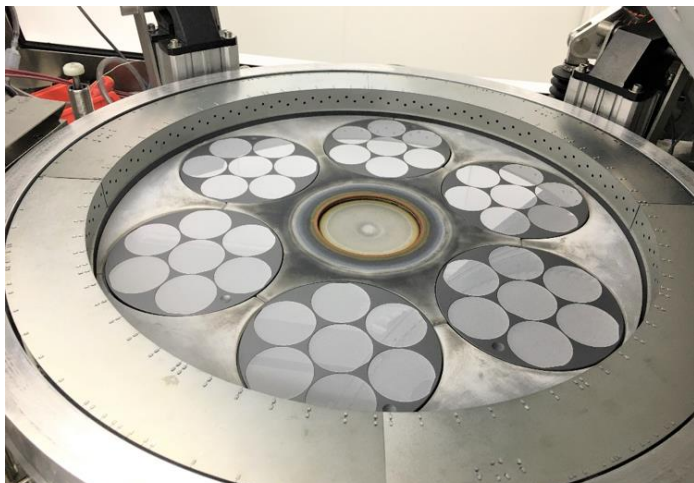


## Quarterly Update – 1 April to 30 June 2020

- Successful commissioning of the commercial scale RPCVD system, the BLG-500
- Awarded a \$250k co-funded advanced manufacturing grant
- Laser diode business progress
  - Commissioned laser diode test facility in the US
  - Engaged laser diode customers to develop test products for delivery end of CY2020
  - Optical results on initial RPCVD tunnel junction laser diodes demonstrate good progress

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 June 2020.



### Commercial scale RPCVD system, the BLG-500, comes online

BluGlass has successfully commissioned the largest remote plasma chemical vapour deposition (RPCVD) manufacturing platform to date, the BLG-500.

The BLG-500 is a retrofitted AIXTRON 2800 G4 - a modern generation manufacturing platform, completed in collaboration with the platform's original manufacturer - global semiconductor leader, AIXTRON SE.

The commercial scale system is capable of 6 x 6-inch wafer deposition or 42 x 2-inch wafers. Its planetary deposition design features dual axes of rotation to improve deposition uniformity of the thin film properties across revolving and rotating wafers. This commissioning is a major milestone towards demonstrating both uniformity and commercial scalability of RPCVD.

Performance testing and optimisation on the new system continues before the BLG-500 can start to contribute to the product development roadmap for laser diodes and LEDs.

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## **BluGlass wins \$250K advanced manufacturing grant**

BluGlass has been awarded a \$250K co-funding grant by the Federal Government's Advanced Manufacturing Growth Centre (AMGC) to develop a novel large-scale plasma source for the Company's 300 series machines. The grant project aims to deliver a scalable and uniform plasma source suitable for even the largest industrial machines, accommodating multiple 8-inch wafers and for the BLG-300 a single 12-inch wafer.

BluGlass is collaborating with several industry partners and organisations including the Space Plasma, Power and Propulsion (SP3) Laboratory at the Australian National University on plasma source design, simulation and testing, AKELA Laser on laser diodes device packaging and testing and Objective 3D on metal 3D design, test and rapid prototyping of critical plasma source components for the successful delivery of the project.

The new design will support scalability on virtually any MOCVD platform in the industry and be capable of hybrid (both metal organic chemical vapour deposition (MOCVD) and RPCVD growth) in a single deposition chamber, enabling the advantages of each growth technique for the first time in a single platform.

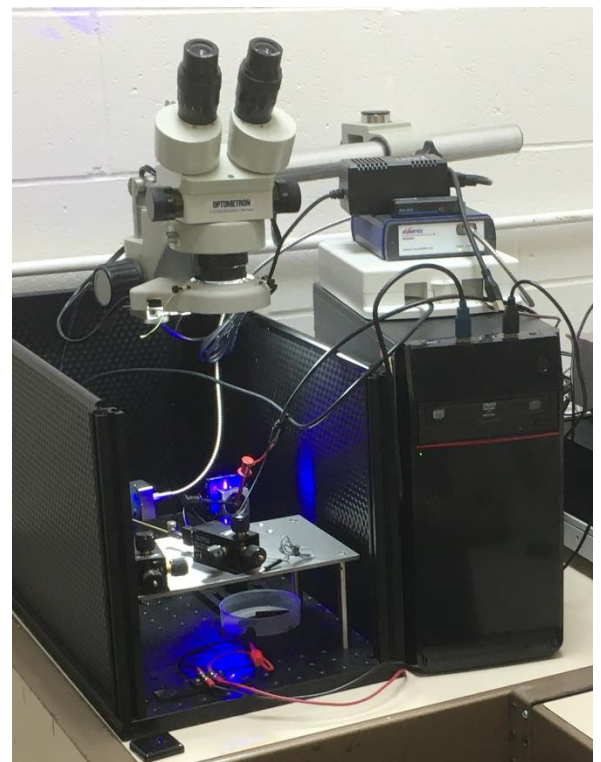
## **Laser diode test facility is commissioned in the US**

BluGlass has commissioned its laser diode test facility in New Hampshire, USA.

The test facility became fully operational in June and will be used to assess the quality and performance of BluGlass' laser diode products prior to shipping to customers.

The new facility is already being used for R&D testing during product development and will ultimately enable fully automated testing of commercial volumes of the laser diode products.

BluGlass has hired an experienced laser diode characterisation and testing expert, based at the new facility and we are in the process of adding more scientific and engineering staff to the team in the US.



## **Laser Diode Development Progress**

BluGlass has engaged with several laser diode target customers to undertake bespoke laser diode development across multiple market segments, including industrial, display and biotech applications.

A portfolio of applications under design was published in the June business update available to download here:

[www.bluglass.com.au/single-post/2020/06/17/BLUGLASS-BUSINESS-UPDATE---LD-TEST-FACILITY-OPENS-IN-THE-US](http://www.bluglass.com.au/single-post/2020/06/17/BLUGLASS-BUSINESS-UPDATE---LD-TEST-FACILITY-OPENS-IN-THE-US)

Development of our novel RPCVD tunnel junction laser diodes has also made good progress during the quarter. Optical testing of our initial RPCVD tunnel junction laser diode wafers are in line with our simulation and modelling experiments. These early results help validate the current approach and build on the results presented earlier this year at Photonics West.

The Company continues to develop and strengthen our global supply chain by working with and qualifying multiple partners on the fabrication of laser diode devices. Our laser diode product development efforts remain on track to deliver test products by the end of CY2020, with customer revenues anticipated to commence early CY2021 (as per our published roadmap).

## Foundry and laser diode revenue for the quarter

Customer foundry and laser diode revenue for the quarter was slightly up on the previous quarter with COVID-19 restrictions starting to ease in Europe and the USA. Foundry receipts for the quarter totalled \$98,000 of which \$25,000 was for laser diode services.

Foundry and laser diode receipts for the financial year totalled \$656,000 which comprised \$150,000 for laser diode services.

This announcement has been approved for release by the Board.

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## 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. **Contact:** Stefanie Winwood +61 2 9334 2300 [swinwood@bluglass.com.au](mailto:swinwood@bluglass.com.au)

## 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")**

30 June 2020

<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	98	656
1.2 Payments for		
(a) research and development	(932)	(3,004)
(b) product manufacturing and operating costs	-	-
(c) advertising and marketing	-	(55)
(d) leased assets	(84)	(362)
(e) staff costs	(683)	(3,271)
(f) administration and corporate costs	(5)	(1,030)
1.3 Dividends received (see note 3)		
1.4 Interest received	1	30
1.5 Interest and other costs of finance paid	(10)	(10)
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives	170	2,536
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(1,445)</b>	<b>(4,510)</b>
<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) entities		
(b) businesses	-	-
(c) property, plant and equipment	(8)	(1,682)
(d) investments	-	-
(e) intellectual property	-	-
(f) other non-current assets	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 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>(8)</b>	<b>(1,682)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	5,858	5,858
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	5
3.4	Transaction costs related to issues of equity securities or convertible debt securities	(357)	(357)
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>5,501</b>	<b>5,506</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	1,382	6,116
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,445)	(4,510)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(8)	(1,682)

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (12 months) \$A'000
4.4	Net cash from / (used in) financing activities (item 3.10 above)	5,501	5,506
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	<b>Cash and cash equivalents at end of period</b>	<b>5,430</b>	<b>5,430</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	37	58
5.2	Call deposits	5,393	1,324
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>5,430</b>	<b>1,382</b>

**6. Payments to related parties of the entity and their associates**

- 6.1 Aggregate amount of payments to related parties and their associates included in item 1  
\*payments to Managing Director and Non-Executive Directors
- 6.2 Aggregate amount of payments to related parties and their associates included in item 2

**Current quarter  
\$A'000**

59

-

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. Financing facilities**

*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.*

	<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 **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.

<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)	(1,445)
8.2 Cash and cash equivalents at quarter end (Item 4.6)	5,430
8.3 Unused finance facilities available at quarter end (Item 7.5)	-
8.4 Total available funding (Item 8.2 + Item 8.3)	5,430
8.5 <b>Estimated quarters of funding available (Item 8.4 divided by Item 8.1)</b>	4

8.6 If Item 8.5 is less than 2 quarters, please provide answers to the following questions:

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:

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:

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:

## 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: 29 July 2020.....

Authorised: By the Board.....

## 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.