

## Quarterly Update – 30 September 2019

- Highlights from the quarter included:
  - Scaling of BluGlass' manufacturing facility, including commissioning the BLG-300II
  - *Buried activated p-GaN for tunnel junctions* patent granted
  - Bridgelux joint development agreement commenced
  - Customer revenues, costs and capex spend broadly as anticipated
- R&D Tax Rebate of \$2.36m received after the end of the quarter

Australian semiconductor developer BluGlass Limited (ASX: BLG) is pleased to provide this Quarterly Update to accompany its Appendix 4C Quarterly Report for the three months ended 30 September 2019.

During the period, BluGlass commissioned its most advanced remote plasma chemical vapour deposition (RPCVD) manufacturing platform, the BLG-300II. This new platform incorporates the learnings and hardware development expertise gained to date and represents the cutting edge in RPCVD process and hardware. The new system is being deployed across a number of projects to advance our customer and commercialisation activities.

In July, BluGlass was awarded a key US Patent for buried activated p-GaN for tunnel junctions. This important patent underpins BluGlass' breakthrough development in cascade LEDs and its unique Laser Diode designs. BluGlass now holds 68 internationally granted patents and 15 applications protecting the RPCVD hardware, process and unique applications.

BluGlass welcomed shareholders and stakeholders to a facility tour and investor day as the Company formally opened the Paul Dunnigan Laboratories on 26 August. The new laboratories house two new RPCVD systems, the BLG-300II and the larger AIX-2800 G4 which is currently undergoing its RPCVD system retrofit. BluGlass aims to commission the commercial scale AIX 2800 G4, in collaboration with global semiconductor equipment leader AIXTRON SE of Germany, in the coming quarter.

These additional systems in the new laboratories will more than triple BluGlass' RPCVD development capacity and customer output while demonstrating the scaling potential of the RPCVD technology. They also allow the Company to accelerate development and customer contract work to meet our commercialisation goals across a number of semiconductor markets.

In August, BluGlass commenced a paid Joint Development Agreement with leading US based LED company, Bridgelux. This agreement builds on BluGlass' RPCVD tunnel junction technology, to develop cascade LEDs. BluGlass and Bridgelux will work together to develop competitive applications for the growing general lighting market.

Bridgelux is a global leader, having designed and produced LED lighting solutions for the general lighting market that are high performing, energy efficient, cost effective and easy to integrate. The joint development program aims to

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successfully integrate BluGlass and Bridgelux's unique technologies in high performance commercial LED applications and to ultimately drive commercial adoption of RPCVD enabled cascade LEDs for general lighting - through the future provision of RPCVD equipment and process licensing. The terms of the JDA are non-exclusive and will provide revenues to BluGlass for its development work.

### **Laser Diode Business Unit launched**

After the end of the quarter (on 24 October 2019), BluGlass launched a new business unit to leverage the competitive advantages of RPCVD tunnel junctions for GaN Laser Diode applications. The Laser Diode market has a number of key differentiators to the LED market that warrant BluGlass establishing a direct market approach. This will allow BluGlass to capture more downstream value in this defined volume, high value market.

The total global market for laser diode applications is estimated to reach US\$27 billion by 2025. The GaN laser diode segment of this market is an emerging opportunity, expected to grow to represent a US\$658M addressable market for BluGlass by 2025. GaN lasers require a higher performance, lower cost technology solution to help address significant unmet needs in the industry. BluGlass will initially focus on industrial laser diodes for welding and cutting applications, targeting a market share of 6-10% (US\$40-65M) of the addressable market by 2025.

BluGlass is developing GaN laser diode prototypes and expects to deliver its first laser diode product next calendar year. These new products are expected to deliver a clear path to revenues from CY2021.

### **Operating metrics and R&D Grant received**

During the quarter, operational expenditure remained largely in line with the Company's budgeted expectations. The capital expenditure costs for this quarter are lower than estimated for this period, however this is mainly a timing variance and we expect capital expenditure to come in on budget. BluGlass has also now received its R&D tax rebate for FY2019 in the amount of \$2.36M.

### **Unlisted Securities**

Further to the release of its Annual Report on 30 September 2019, the number of security holders of each of the Company's unlisted securities on issue are:

- BLGSOP3 – 2 million unlisted incentive options, exercise price \$0.28, expiry 1 December 2020 – 2 holders
- BLGPRA – Series A Performance Rights – 2 holders
- BLGPRB – Series B Performance Rights – 14 holders
- BLGPRC – Series C Performance Rights – 4 holders

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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-performance LEDs and other devices. 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 such as power electronics and high-brightness (LEDs) used in next-generation vehicle lighting, virtual reality systems and device backlighting.

The RPCVD technology, because of its low temperature and flexible nature, offers many potential benefits over existing technologies including higher efficiency, lower cost, substrate flexibility (including GaN on silicon), and scalability.

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## Appendix 4C

### Quarterly report for entities subject to Listing Rule 4.7B

Introduced 31/03/00 Amended 30/09/01, 24/10/05, 17/12/10, 01/09/16

**Name of entity**

Bluglass Limited

**ABN**

20 116 825 793

**Quarter ended ("current quarter")**

30 September 2019

Consolidated statement of cash flows	Current quarter \$A'000	Year to date (3 months) \$A'000
<b>1. Cash flows from operating activities</b>		
1.1 Receipts from customers	129	129
1.2 Payments for		
(a) research and development	(865)	(865)
(b) product manufacturing and operating costs	-	-
(c) advertising and marketing	(11)	(11)
(d) leased assets	(73)	(73)
(e) staff costs	(858)	(858)
(f) administration and corporate costs	(205)	(205)
1.3 Dividends received (see note 3)	-	-
1.4 Interest received	10	10
1.5 Interest and other costs of finance paid	-	-
1.6 Income taxes paid	-	-
1.7 Government grants and tax incentives- R&D tax rebate	-	-
1.8 Other (provide details if material)	-	-
<b>1.9 Net cash from / (used in) operating activities</b>	<b>(1,873)</b>	<b>(1,873)</b>

<b>2. Cash flows from investing activities</b>		
2.1 Payments to acquire:		
(a) property, plant and equipment	(291)	(291)
(b) businesses (see item 10)	-	-
(c) investments	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (3 months) \$A'000
	(d) intellectual property	-	-
	(e) other non-current assets	-	-
2.2	Proceeds from disposal of:		
	(a) property, plant and equipment	-	-
	(b) businesses (see item 10)	-	-
	(c) investments	-	-
	(d) intellectual property	-	-
	(e) 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	<b>Net cash from / (used in) investing activities</b>	<b>(291)</b>	<b>(291)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of shares	-	-
3.2	Proceeds from issue of convertible notes	-	-
3.3	Proceeds from exercise of share options	-	-
3.4	Transaction costs related to issues of shares, convertible notes or options	-	-
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)	-	-
3.10	<b>Net cash from / (used in) financing activities</b>	<b>-</b>	<b>-</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 quarter/year to date	6,116	6,116
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(1,873)	(1,873)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(291)	(291)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	-

Consolidated statement of cash flows		Current quarter \$A'000	Year to date (3 months) \$A'000
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	<b>Cash and cash equivalents at end of quarter</b>	<b>3,952</b>	<b>3,952</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	30	38
5.2	Call deposits	3,922	6,078
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>3,952</b>	<b>6,116</b>

**6. Payments to directors of the entity and their associates**

- 6.1 Aggregate amount of payments to these parties included in item 1.2
- 6.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 6.3 Include below any explanation necessary to understand the transactions included in items 6.1 and 6.2

Current quarter \$A'000
76
-

**7. Payments to related entities of the entity and their associates**

- 7.1 Aggregate amount of payments to these parties included in item 1.2
- 7.2 Aggregate amount of cash flow from loans to these parties included in item 2.3
- 7.3 Include below any explanation necessary to understand the transactions included in items 7.1 and 7.2

Current quarter \$A'000
-
-

8. <b>Financing facilities available</b> <i>Add notes as necessary for an understanding of the position</i>	Total facility amount at quarter end \$A'000	Amount drawn at quarter end \$A'000
8.1 Loan facilities	-	-
8.2 Credit standby arrangements	-	-
8.3 Other (please specify)	-	-
8.4 Include below a description of each facility above, including the lender, interest rate and whether it is secured or unsecured. If any additional facilities have been entered into or are proposed to be entered into after quarter end, include details of those facilities as well.		

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9. <b>Estimated cash outflows for next quarter</b>	\$A'000
9.1 Research and development	(700)
9.2 Product manufacturing and operating costs	-
9.3 Advertising and marketing	(40)
9.4 Leased assets	(80)
9.5 Staff costs	(800)
9.6 Administration and corporate costs	(200)
9.7 Other (Cashflow from investing activities- property plant and equipment)	(400)
<b>9.8 Total estimated cash outflows</b>	<b>(2,220)</b>

10. <b>Acquisitions and disposals of business entities (items 2.1(b) and 2.2(b) above)</b>	Acquisitions	Disposals
10.1 Name of entity	-	-
10.2 Place of incorporation or registration	-	-
10.3 Consideration for acquisition or disposal	-	-
10.4 Total net assets	-	-
10.5 Nature of business	-	-

### **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.

Sign here: Emmanuel Correia  
Company Secretary

Date: 30 October 2019

Print name: Emmanuel Correia

### **Notes**

1. The quarterly report provides a basis for informing the market how the entity's activities have been financed for the past quarter and the effect on its cash position. An entity that wishes to disclose additional information is encouraged to do so, in a note or notes included in or attached to this report.
2. If this quarterly 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 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.