

The Manager  
ASX Announcements Platform

19 November 2018

## 2018 ANNUAL GENERAL MEETING MANAGING DIRECTOR ADDRESS

Thank-you Bill. Good morning, my name is Giles Bourne and I am the Managing Director of BluGlass. I'd like to add my thanks to those of you who have joined us here today and also to those of you who are joining us online.

### **Significant Partnerships and Collaborations**

During the year a lot of our efforts were centered around the key RPCVD technology milestones of our various collaborations with our strategic partners with particular emphasis on the ones closest to commercialisation.

I want to acknowledge the efforts of the BluGlass technical staff who so passionately apply their talents and expertise to developing our cutting-edge technology.

It has been both an exciting and challenging year, however I am very pleased with the progress that we have been able to make on the technology, including in our collaborative projects. In particular on the project that we have been working on with Lumileds on high-brightness (HB) LEDs.

### **Lumileds**

We have been working on the second phase of our collaboration with Lumileds since October 2016 to exploit the low temperature RPCVD technology to improve efficiency for HB-LEDs. This has been a key project for BluGlass as the first major mainstream application for our technology.

Most of our recent efforts have been focused on delivering on the technology milestones of the Phase II Lumileds exclusive collaboration. The nature of this work is bound by a confidentiality agreement so we are currently restricted in what we can say about how we are applying the technology, but needless to say we feel that it is significant enough in terms of commercial potential that it has consumed a lot of our lab time.

I am pleased to inform you that BluGlass has now commenced commercial negotiations with Lumileds and we will provide the market with further details when possible.

The results of the project to date has shown clear promise that our proprietary technology could substantially improve LED efficiency for high powered LED applications.

A key consideration for BluGlass in these negotiations is assessing the potential value of extending the company's exclusive collaboration with Lumileds compared to the potential value of engaging with others in the LED industry.

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## **LED Market Opportunity**

As Bill mentioned earlier, the market opportunities for the RPCVD technology continue to grow. The LED market has grown faster than expected, with renewed focus on reducing power consumption in devices.

BluGlass is interested in the high-brightness segment of the LED market, with applications in both mid and high power markets. Allied Market Research in its Global LED Market, Opportunity Analysis and Industry Forecast 2018-2024, predict a strong CAGR of 15.9% until 2024 to reach approximately US \$96.71 billion.

The biggest gains will be in automotive, display and the general lighting market segments.

## **Automotive LED market**

Of particular interest to BluGlass is how LED technology is playing a key role in the widespread transition to solid-state lighting in automotive applications. This market is expected to grow from USD 6.87B in 2017 with the highest sector CAGR of 17.4% to an estimated USD 22.03B by 2024, taking a 22% share of the total LED market.

## **microLED Strategic Collaborations & Projects**

Another main development during the year has been our work on our microLEDs projects.

The microLED has the potential to be an industry game-changer and revolutionise how we use technology in the future – from how we work, view the world and are entertained. The race to develop this game changer and address the innovation challenge to deliver this novel technology is very much on.

We see microLEDs as being an important future application for the RPCVD technology. As a result we are collaborating with some of the emerging leaders in this space, including with a leading European microLED developer along with other global players.

BluGlass and our collaboration partners believe that RPCVD could emerge as a solution of choice for this burgeoning market, as the inherent low temperature advantages of RPCVD to create smaller, higher performing and importantly longer wave-length devices are well matched to the innovation challenges of microLEDs.

Like with so much of our development work we are bound by confidentiality agreements with our partners and customers that prohibit us from revealing much about the detailed technical work that we are doing. Needless to say we will inform the market about key technical and commercial milestones as and when we are able.

## **microLED market**

The market for microLEDs is set to start next year, but take off from 2022. BluGlass is working to ensure that our technology is positioned to make the most out of a market that is expected to grow at a CAGR of more than 80% to reach USD 20.5B by 2025.

## **Power Electronics**

Another key strategic project during the year was working with our partners Griffith University and the IMCRC on a normally off GaN HEMT, a power electronics device.

Wide-bandgap semiconductors (GaN and silicon carbide) promise improvements in nearly all performance criteria over traditional silicon devices. They are smaller, lighter, more power efficient, faster switching, can withstand higher operating temperatures, higher breakdown voltages, and are tolerant to higher currents. This technology has gained more attention in recent years as silicon devices approach physical limits in terms of power density, breakdown voltage, and operating frequency.

While silicon carbide is a suitable alternative to silicon power electronics and will play a role in developing the market, the industry believes GaN has the potential to be a more disruptive although longer term solution.

### **Power electronics market**

Yolé Developpement predict that the emerging global GaN power devices market will grow from a near zero base from 2017 to reach USD~270 M by 2021, with a CAGR of over 80%.

This will be driven by high frequency devices including data centre applications as the transition to cloud based storage continues.

## **Other Partnerships and Projects**

As you know we have an ongoing partnership with leading UK foundry business IQE to develop a range of electronic applications using RPCVD and IQE's cREO technology

We expect to explore this activity further in the year ahead as our new deposition systems come online and give us significantly greater RPCVD development capacity to manage multiple collaborations and projects.

As per the IQE collaboration, our projects with Veeco and HC Semitek have also been limited due to our capacity constraints, which have been predominately dedicated to our Lumileds and microLED opportunities.

When the new facility comes on line in 2019 we expect to be able to increase the number of projects, collaborations and application projects in our development pipeline.

## **EpiBlu Services**

Our EpiBlu service business continues to provide a strategic value for the company and fulfils two purposes for the business.

The first is to make use of our MOCVD system to generate revenue while also exposing our technology team to the innovation challenges and requirements of customers within the opto-electronics industry. This provides a useful platform for customers seeking prototyping services, contract R&D or small runs of unique devices.

The EpiBlu business is also a strategic vehicle for BluGlass. Our service arm attracts new customers and potential collaboration partners who are working on innovative nitride applications and that could benefit from the low temperature advantages of our unique RPCVD technology. This forms an important part of our industry acceptance and marketing strategy for our technology.

Both of these present an important revenue generating opportunity for the business with potential for significant growth from 2020 onwards as we bring our new expanded facility and capacity online.

Having a greater presence in the US with the appointment of our Vice President of Business Development, and presenting at leading conferences, continues to grow the industry awareness of RPCVD and our technology development. Future commercial partnerships and revenue will result from EpiBlu.

### **Paths to Market for RPCVD Intellectual Property**

RPCVD is a dynamic platform technology with multiple GaN market opportunities.

All of our current development activity is industry led - where we are working with customers and partners to deliver real solutions that address the industry problems of today and the future.

Although in the short term our focus is on our key applications in LED, microLED and power electronics as discussed earlier today, there are further commercialisation opportunities for the technology to expand into in the future, including in solar, UV LEDs and Laser diode applications.

In order to drive maximum value from our RPCVD technologies platform process and equipment, BluGlass will commercialise the RPCVD technology through a combination of:

- Licensing and royalty payments based on the growing IP portfolio;
- Retrofitting installed MOCVD equipment on customer sites;
- Equipment partnership (JV / strategic partnership) with one of the major equipment manufacturers; and
- Through RPCVD custom epitaxy and foundry services

### **The Year in Review – Major progress over the period**

During the year significant progress was made across all of our key focus areas of technology development, strategic collaborations and also preparing the business for commercialisation.

Some of the highlights include the Company proving its performance potential and demonstrating a performance improvement in green LEDs, which also enabled us to publish our best material performance data to date and file new patent applications.

We also made strong advancement in our strategic projects with our US and European based partners, and are now in commercial negotiations with Lumileds, as well as selecting an additional strategic collaboration partner for the microLED market opportunity.

Increasing project demands and an expanding global marketing and commercialisation focus meant that during the year strengthening our leadership and expanding our team become a priority for the Company.

We appointed two technology commercialisation specialists to the Board with James Walker and Stephe Wilks both joining as Non-Executive Directors.

We also appointed two US based industry experts. Brad Siskavich joined us as the Global Vice President of Business Development to facilitate the growth of our customer pipeline and grow our EpiBlu revenues. Dr. Mike Krames joined us as a technical and commercial advisor to the Company to assist the business as we enter commercial negotiations with our partners.

We are also in the process of hiring additional engineers to coincide with our new capacity coming online in 2019 and meet the growing demands of our collaborative and customer projects.

### **The Year Ahead**

It is a very exciting outlook for the Company in the year ahead.

We will continue to advance our commercial negotiations with Lumileds and look forward to keeping the market informed.

We will also be delivering our significant facility upgrade and capacity expansion over the coming months. We will be installing two new RPCVD systems onsite at Silverwater, including the first commercial scale manufacturing system.

We will continue to advance our microLED applications with our collaboration partners.

And as capacity allows, continue to grow our revenue generating and strategic service business, EpiBlu.

In 2019 our significantly increased capacity will enable BluGlass to further assess the merit of entering into new collaboration and evaluation agreements with high value partners who also seek to capitalise on the competitive advantages of RPCVD.

As always, before I hand you over to our Chief Operations and Technology Officer, Dr. Ian Mann, I would like to thank-you, our shareholders and stake-holders for your continued support and belief in the RPCVD technology and its future market impact.

The 2018 financial year has been a very important year for the company laying the foundations for our industry acceptance and we look forward to keeping the market informed of the continued negotiations with Lumileds as we seek to deliver the best possible commercial outcomes for our breakthrough technology and stakeholders in the year ahead.