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BLUGLASS 2019 AGM
ADDRESSES BY CHAIRMAN, MANAGING DIRECTOR, AND CTO & COO

Chairman's Remarks, William Johnson

Good Morning, it is now 11.00am, and as a quorum is present, I declare the meeting open.

My name is William Johnson, I am the Non-Executive Chairman of BluGlass Limited, and I am pleased to welcome you to the 2019 Annual General Meeting of the company.

I call upon the secretary to advise whether the meeting is properly constituted.

Next, I would like to introduce my fellow directors: our Managing Director, Mr. Giles Bourne, Mr. Vivek Rao, Mr. James Walker and Mr. Stephe Wilks.

I would also like to introduce the company's Chief Technology and Operations Officer (CTO / COO), Dr. Ian Mann, and our Company Secretary, Emmanuel Correia.

Representatives of our Auditors, Grant Thornton are also present.

I would like to begin by summarizing the strategic objectives and focus of BluGlass, and reviewing the past year, with an eye on 2020.

Giles will then update you on various operational decisions made by the company during the past year and opportunities for the next year.

Following this, Ian will present a technology update on the latest results that are not subject to partner confidentiality agreements and will introduce the background surrounding our new laser diode business venture.

Finally, after the formal presentations, I will provide you with an opportunity to ask questions before proceeding with the formal business of the meeting. I ask you to please hold your questions until that time.

The focus of BluGlass over the past year has been continued identification and validation of commercial markets for our technology, and refinement of our technology.

With our previous breakthrough development of tunnel junction technology utilizing RPCVD and the potential of that technology for cascade LEDs, laser diodes, and other GaN-based products, the company is engaging in product development on several fronts.

At the same time, with RPCVD technology transitioning from R&D into commercial product development, it was necessary to increase film growth capacity, as well as provide a platform to scale RPCVD to meet commercial production requirements; hence, the Silverwater facility has undergone a significant upgrade with new cleanroom capacity and equipment. Details of this upgrade will be discussed by Giles and Ian in their presentations.

As we continue to refine our tunnel junction capabilities, it has become apparent that there are more potential applications than just cascade LEDs; hence, the company has adapted its strategy, shifting to signing non-exclusive agreements that allow BluGlass to use tunnel junction technology in other applications without conflict and to work with multiple LED companies on cascade LEDs.

As a result, our agreement with Bridgelux, a large LED manufacturer, to further develop cascade LEDs using tunnel junction technology, is non-exclusive.

At the same time, a new application, laser diodes, has been identified and vetted during 2019 as a potentially important market opportunity. Applications of ultraviolet (UV) and visible light laser diodes are expanding rapidly, and the need for devices with higher brightness and efficiencies present significant opportunities. Through the use of RPCVD tunnel junction technology, laser diodes can be fabricated with reduced optical loss; hence lower contact and device resistance, leading to higher brightness and efficiency.

More details will be shared during Ian's presentation, but the net result is a new business opportunity for BluGlass. Unlike LEDs, which are a high-volume, low-margin business requiring a licensing and/or royalty model, the laser diode opportunity is lower volume, but much higher margin per device, which will allow BluGlass to be the manufacturer of the finished product. Although it is early in the product development cycle we now believe the laser diode business will begin to deliver BluGlass customer revenue within calendar year 2020, initially off paid-for prototypes built for customers.

At the same time, our commercial strategy for BluGlass continues to revolve around a "portfolio" model, with multiple business streams contributing to the company's revenue. During the past year, in addition to our partnership with Bridgelux, we continued our existing relationship with X-Celeprint, with the former agreement to finish cascade LED development, and the latter to supply wafers for a product that was jointly developed over several years of work with X-Celeprint in our EpiBlu foundry.

Our IP position strengthened once again in FY2019, with a new US tunnel junction patent granted in July. Our patent portfolio remains a critical asset that we will continue to grow, which will then protect the competitive position of our business ventures.

I'd now like to go through some highlights of our financials.

In 2019 our foundry revenue was down from the previous year mainly as a result of lower MOCVD orders. BluGlass has shifted the foundry focus more to the RPCVD capability as not only a revenue generator, but also a strategic vehicle for new customers and applications. We are convinced that these decisions will pay off for BluGlass in the medium term, however, in particular as a result of now being able to launch the laser diode business; we also see paid work in our EpiBlu foundry recovering in calendar year 2020, taking advantage of our increased capacity.

As mentioned earlier, our foundry revenue did decrease last year as we prioritized our tunnel junction and cascade LED R&D efforts; however, with a new deposition system now in place, and the second system coming online in the next few months, we fully expect our foundry revenue to recover next calendar year, restoring the balance between commercial revenue and R&D.

You will notice that our net assets dropped by about 50%, because of the board's decision to write down the value of the original patents from Macquarie University, and absorb the impairment costs immediately. The value of the original Macquarie patents had been extracted, while our new IP portfolio has taken over. For reference, BluGlass expenses the maintenance of our patent portfolio each year; therefore, this drop in net assets should be regarded only as an accounting adjustment.

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Our monthly burn rate has increased slightly as a result of expanded capacity and the consumables expense associated with that capacity expansion; the Board is confident that the management team controls these expenses adequately. As a side note, as R&D expense increased, so did the R&D tax rebate from the Federal Government.

In summary, during the past year BluGlass has:

- revised the existing business model for LEDs and engaged non-exclusively with a major LED manufacturer to develop the cascade LED technology and ultimately bring it to market
- embarked on a new business in laser diodes utilizing tunnel junction technology that will lead to direct product revenue over the next few years
- and added needed new capacity to our Silverwater facility to increase our commercial output and foundry revenue.

Goals for next year include:

- continuing our cascade LED development with Bridgelux (and others) to refine the technology and ultimately bring it to market
- generate initial laser diode revenues from prototypes utilizing tunnel junction technology
- utilize our new capacity to our Silverwater facility to increase our foundry revenue and provide a growing customer base with material for their products
- continue exploring new applications through technology partnerships targeting micro-LEDs and other products
- continue adding to our patent portfolio as our technology progresses

This will all be done while enhancing our IP leadership and with a focus on long-term opportunities for our shareholders.

On behalf of the Board, I'd like to thank all of you shareholders for your continued support and patience, and I would to thank our management team and employees for their dedication and commitment to making BluGlass a commercial success.

I will now hand over to our Managing Director and CEO, Giles Bourne.

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Managing Director’s Remarks, Giles Bourne

Thank you Bill. Good morning ladies and gentlemen, my name is Giles Bourne and I am the Managing Director of BluGlass.

This morning I will talk about the operations and results of FY19, before handing over to Ian Mann who will guide you through the technical achievements and opportunities for our unique RPCVD technology.

As Bill has already noted, we delivered a number of important results in FY2019 that have already created a number of opportunities with commercial merit.

The way we decide which commercial opportunities to pursue, and the associated research and development work we carry out, remains unchanged: we always seek to deliver the best-possible returns to shareholders with the resources we have available to us. FY2019 saw us increase those resources considerably, and deliver research results that create new foundations for commercialisation.

That focus in FY2019 was largely on tunnel junctions and cascade LEDs because both represent tangible opportunities for the commercialisation of our technology, in high-brightness LEDs and now in laser diodes. We also continued to work on other applications, in particular on microLEDs and power electronics. These opportunities are driven by needs being explicitly discussed by the market, for improved efficiencies in device performance and production processes.

Our strategy in addressing these needs has been validated by our strategic and alliance partners and also by the continued interest in our RPCVD-grown tunnel junction and cascade LED technology.

We delivered a number of commercial agreements in CY2019, and they continue into FY2020. With Bridgelux, a leading developer and manufacturer of LED lighting solutions for the commercial, industrial and outdoor markets, we’re collaborating on the development of tunnel junctions and cascade LEDs in a non-exclusive partnership. We expect to enter other tunnel junction and cascade LED collaborations with leading LED manufacturers in the coming year. Bridgelux is investing in the development work with the objective to embed our RPCVD tunnel junction technology into future applications, to drive performance advantages of LEDs for the general lighting market. For Bridgelux, exploring the potential of RPCVD is aligned with its leading role in solid state lighting innovation, and its commitment to work on new technologies for the lighting industry.

We are also in discussion with a number of other leading global LED manufacturers which are also looking at ways of improving the device performance for various applications including general lighting, automotive lighting, architectural lighting, and other applications such as projection systems. Lumileds remains one of these companies with which we are sharing data. As Lumileds builds out its own corporate strategy, we will assess how our tunnel junction technology can be applied to that strategy, and continue to have discussions with Lumileds as appropriate.

Turning to the microLED space, we have been working closely with a number of partners, most notably X-Celeprint, which has been using BluGlass’ blue and green RPCVD technology to manufacture microLED displays. X-Celeprint plans to move from prototype to pilot product, and we aim to continue our partnership with X-Celeprint on this development.

Deposition equipment remains a key part of what we do. In this space, we continue our focus on retrofitting MOCVD tools with our own RPCVD technology. We now have five tools on site, with four already commissioned. Our primary partner in this is AIXTRON, a global leader in deposition equipment for the semiconductor industry, which is looking to bring novel technology onto its equipment platforms, to provide its customers with advanced capabilities. Bridgelux is evaluating

RPCVD for this purpose. AIXTRON already works with us to support the tool upgrades and is actively looking at ways to integrate RPCVD technology into future tool builds. We expect this relationship to continue to grow over the coming months.

In August of this year, we opened the new Paul Dunnigan labs, named after our dedicated colleague who sadly passed away in November 2015. These new labs provide BluGlass with an increased capability to do more paid-for development work though our EpiBlu foundry business, enhanced R&D, and enhanced commercial work.

As I noted earlier, our strategy remains to position the company as a platform technology across multiple applications, leveraging the finite resources that we have, now expanded, to their fullest extent: as a relatively small organisation, that means focusing on market segments where we see the best opportunities for RPCVD to have the biggest impact.

We have developed our tunnel junction and cascade LED technology significantly in the last 12 months, leading to a paid collaboration, with others to follow. We aim to move these projects as quickly as possible into licensing opportunities for the business, and our new laser diode business is an example of that – more on that later.

Our equipment partner AIXTRON is exploring the potential of RPCVD technology to open up new possibilities for optoelectronic devices and markets.

We are also in dialogue with three other semiconductor equipment suppliers which continue to be interested in RPCVD for low-temperature nitride applications in a market where device performance and cost continue to be critical.

Our work with IQE remains paused. Both parties have focused on other projects for much of FY2019 but the collaboration relationship remains in place and we are in the process of reviewing the next steps for this collaboration.

Finally, BluGlass has been approached by a number of organisations from other market segments wishing to assess the applicability and advantages of RPCVD to their businesses. BluGlass is evaluating a number of these, which we believe represent valuable future commercial opportunities.

In October we formally launched our laser diode business and I now want to take you through more of the details and strategy behind this business. The application that we are addressing here is a very specific blue GaN high-performance laser diode market.

This new business is the culmination of a year's work in partnership with a US university under the direction of Brad Siskavich, our Senior Vice President of Business Development based in the US, who will manage the business. The opportunity derives from our tunnel junction results that demonstrated the applicability of RPCVD-grown tunnel junctions in the manufacture of high-brightness LEDs, combined with our success in developing LEDs via our MOCVD customer foundry services. By adding tunnel junctions to laser diodes we are able to redesign these devices and improve their performance. More on this later from Ian Mann.

This additional business stream complements our existing business activities in high-brightness LEDs.

It will be a direct-to-market business whereby BluGlass will manufacture and deliver laser diode product direct to systems integrators, rather than using a licensing model.

We estimate that this addressable market will be US$658 million by 2025, and our initial focus will be on the industrial cutting and welding market segment, with other segments such a biomedical, automotive, venue and display lighting, and government and R&D, to follow.

The validation of our decision to launch this business has been quick: we launched in October 2019 and have already been approached by laser diode manufacturers seeking new types of laser diode to embed into their systems.

We now expect revenues from calendar 2020, initially from custom foundry-style work with a focus on paid-for prototype builds for customers, with mainstream production and revenues coming on stream from CY2021.

Here’s how we see the laser diodes business timetable and roll-out. BluGlass will be running the supply chain ourselves from epitaxy to device delivery, and as I noted earlier we now have the epitaxy capacity in-house to deliver the required volumes: we do not need to buy more equipment to be able to ramp paid-for R&D output and production output.

We are already working with a number of down-stream processing partners to create the laser diode devices from our wafers and we intend to do the final test and quality control on these production wafers in a new facility in the US.

This business is driven by a pull-force from the market, from companies seeking high-efficiency laser diode devices, and it’s the tunnel junction fundamentals that allow us to redesign the laser diode to deliver better performance, reduce optical losses, and do both at a cooler manufacturing temperature using ‘active-as-grown’ p-GaN technology-based tunnel junctions.

To conclude: we continue our commercial focus on tunnel junctions and cascade LEDs, high-brightness LEDs, laser diodes, and equipment retrofit. Our patent portfolio continues to protect our IP and creates the foundations for our research and commercial negotiations, in both our licence model and our new direct-to-market model.

Our technology is proven and shows clear differentiation and quantifiable benefits, and we are positioned to deliver commercial outcomes in the coming year.

I will now hand over to our CTO / COO Ian Mann to discuss the progress and outlook for our RPCVD technology.

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CTO & COO's Remarks, Ian Mann

Good morning, my name is Ian Mann and I am the Chief Operations and Technology Officer at BluGlass. Today I will be presenting: 1) an overview of how our technical efforts support the company's activities, 2) an update of our technical tunnel junction demonstrators for both LED and laser diode efforts, 3) an update of our customer and foundry efforts in microLEDs and concluding with 4) an update on our equipment scaling project and collaboration with AIXTRON.

First of all, I'd like to look at the key applications of RPCVD, and our technology focus.

While there are a high number of projects, they rely on a small number of fundamental RPCVD building blocks that are common to many of these projects. As an example, our recent announcement in developing a laser diode business is new but the technology enablers and RPCVD differentiators that go into a laser diode are not.

Key GaN areas of focus for BluGlass are:

- RPCVD-based laser diodes require both a tunnel junction and n-AlGaN to differentiate from MOCVD suppliers of laser diodes
- Tunnel junctions require p-GaN, n-GaN, and potentially green InGaN quantum wells
- MicroLED demos need low temperature p-GaN and improved green and red InGaN quantum wells
- Several low temperature GaN applications for electronics require n-GaN, AlGaN and p-GaN

All implementations require RPCVD scaling and uniformity but the scale varies by application.

Our commercialisation intent is to exploit these key GaN areas where we have already demonstrated advantages to maximise our leverage on the technology efforts.

Now, I would like to provide an overview of the key technical highlights from the year, some of which were announced at the Photonics West conference in the US in February of this year, and I will also include progress updates made since then. Following the overview, I will go into further detail in several application areas and elaborate on the technical aspects, updates and next steps.

Bridgelux collaboration

RPCVD tunnel junction trials have commenced with LED manufacturer Bridgelux for general lighting applications. Various iterations using BluGlass' current process will be fabricated into devices in parallel with experimental effort to improve the performance of the tunnel junctions for subsequent iterations. Bridgelux and BluGlass have each committed to quick turnaround times to progress the project swiftly and efficiently.

Cascade demo

We have very recently achieved our first demonstration of a measurable cascade LED processed device with an RPCVD tunnel junction. This is an important step to create a baseline for the RPCVD tunnel junction process, and it will allow us to build on these results and to share the important findings with commercial LED partners looking to incorporate the RPCVD technology in their development.

TJ improvement

Good progress has been made in the development of RPCVD tunnel junction-based LEDs showing improvements in each of the critical performance factors: LED light output, tunnel junction device performance uniformity across the wafer and improved overall device voltage. The LED efficiency is a function of light output and voltage, while uniformity is critical for manufacturing yield and cost. Further development is under way to achieve commercial specifications.

Laser diode demo

Preliminary experiments show promising results for devices that utilise RPCVD tunnel junctions when tested at high currents. A key difference between LEDs and laser diodes is the amount of electrical power that is confined to a very small area when the device is operated. For LEDs, this power per area is much lower than for laser diodes, and as a result the requirements of the tunnel junction to perform well in laser diode applications is much more stringent than in LED applications. This demonstration that RPCVD tunnel junctions can perform at high currents is a critical step for the development of the RPCVD tunnel junction laser diode. Initial BluGlass laser diodes made using MOCVD exhibit good lasing properties. While it is still early in the development of LDs with RPCVD tunnel junctions, we have been able to exploit the significant effort made to date in tunnel junction LEDs providing BluGlass with all the building blocks to swiftly bring the tunnel junction laser diode to market.

MicroLED customers using RPCVD p-GaN in their development

We have been working with and supplying material to an important microLED industry player, X-Celeprint, which is developing a mass-manufacturing approach to quickly transferring the millions of LEDs needed for a microLED display. Recent demonstrations of X-Celeprint's high-quality video displays include BluGlass RPCVD p-GaN technology. We continue to work with and attract other microLED customers interested in incorporating both RPCVD p-GaN and RPCVD-grown longer wavelength multi quantum well (MQW) microLEDs into their product development. The development of GaN-based red LEDs in particular poses some extreme challenges to the microLED display industry. BluGlass' inherent low temperature growth presents an attractive approach to addressing some of these challenges, which when combined with our demonstrated low temperature p-GaN is why microLED developers are looking towards the RPCVD technology for their product development.

Electronics application for RPCVD

While our major focus has been on optoelectronic applications such as LED and Laser Diodes, there is also interest in the application of RPCVD for electronics, such as devices for power electronics and integration of low-temperature RPCVD GaN with silicon-based semiconductors. We devote effort to these projects where we can leverage pre-existing development RPCVD processes. The years of effort developing RPCVD p-GaN, for example, can be directly applied to electronics applications without change to the process. We continue to explore these opportunities on a customer by customer basis so as not to detract from our core efforts in LEDs and LDs. The advantage here is that, because of the large technology overlap amongst these different applications, improvements for one application can be expected to transfer improvements to other relevant applications.

RPCVD scaling and AIXTRON collaboration

Steady progress has been made on RPCVD equipment scaling and in the partnership with AIXTRON for the evaluation of RPCVD and co-developing the G4 – our largest RPCVD system to date. The new RPCVD scaled system is expected to be commissioned in Sydney in the early part of 2020 and is capable of handling up to 6x6" wafers.

Our recently granted US patent for a method of producing what we call a buried p-GaN layer is enabled by RPCVD due to the unique process conditions that allow our growth technology to maintain or alter the underlying p-GaN state to what is known as 'activated' – meaning it will allow the semiconductor device to function. In MOCVD, the act of growing GaN material on top of p-GaN renders it 'passivated'. In addition to an ability to achieve the activated buried p-GaN, the growth temperature of RPCVD yields sharper atomic doping profiles compared to MOCVD. The sharper profiles are a direct result of the lower RPCVD growth temperatures and enable abrupt transitions in composition between two layers. A critical feature of a tunnel junction is an interface between two highly doped layers with different doping constituents. The sharp transition between these two layers in the RPCVD tunnel junction combined with the Active-As-Grown p-GaN provides the critical differentiator to MOCVD and is vital for creating the most efficient tunnel junction.

We are pleased to share our first measurable blue cascade LED just recently fabricated and tested. The experiment involves BluGlass using a commercial MOCVD blue LED, then depositing the RPCVD tunnel junction using the BLG-300, followed by depositing the top LED using BluGlass MOCVD and having the wafer fabricated into final devices and tested. The device emits blue light and has a measurable device voltage. We will be working to improve the specification, but this is clear evidence of the functioning tunnel junction in the advanced device structure of a cascade configuration. This result represents an indirect measure of the quality of the tunnel junction as the second MOCVD LED growth - that exposes the tunnel junction to high temperatures – did not cause a loss of functionality of the device. This represents an excellent starting point for working with industry and collaborations such as Bridgelux.

The key rationale for a cascade LED implementation is to mitigate the issue known as droop. Shown on this slide in the image on the lower right is what happens to the LED efficiency when you apply more current – the LED will get brighter, but with diminishing returns. In other words, it will also loose efficiency (this is known as droop). Loss of efficiency manifests itself in excess heat that has to be dealt with. For several applications, it is possible to just use more individual LEDs arranged laterally, and not operate them at such high current, but this then increases cost as more LED chips are required. An alternative approach is to stack two (or more) LEDs on top of each other. As the total light from the stack will be generated from each of the individual, vertically-stacked LEDs, the amount of light each LED must produce for the application is reduced. This means the current that each LED is exposed to is lower, and each LED can operate closer to its peak efficiency, thereby reducing droop and also saving cost by only needing to process and package a single chip.

As a precursor to our blue-on-blue cascade LED efforts that target the high-brightness applications, considerable effort was placed in growing two different wavelength LEDs in the cascade configuration, and on evaluating the performance in-house at BluGlass using on-wafer LED quick LED test measurements (i.e. not requiring the fully processed device). It has proved helpful to use green and blue as we are able to discern the relative performance of the top versus bottom LED to improve overall performance. We will continue to use this technique in parallel with the target blue-on-blue. The green-on-blue demonstration is also indicative of the types of applications that could be realised with RPCVD down the track – including the potential for a full Red, Green, Blue (RGB) cascade LED stack for microLED applications.

In addition to cascade LEDs we have also made progress on the TJ performance itself. The data shown for our large chip size (desirable for the highest brightness LED applications) indicated a further improvement of light output compared to our previous results and a reduction in the overall device voltage. The voltage attributed to the tunnel junction is roughly the same as reported previously, but the overall LED voltage has shown a significant reduction – in part by using higher quality commercial LED wafers. A significant improvement was also made in the tunnel junction uniformity across the whole 2” wafer, and we are pleased to report the average device result across the wafer rather than an individual best point. More work is needed to lower the tunnel junction voltage and we have been active in developing a number of solutions.

One approach to lowering the tunnel junction voltage is through the incorporation of a thin InGaN layer. While BluGlass has been working on RPCVD InGaN layers for microLED applications, we are able to use the same approach for the tunnel junction. We have recently improved our RPCVD InGaN layers to a level we believe can now influence the forward voltage of the tunnel junction, and experiments are underway to use the new tunnel junction structure incorporating InGaN and fabricate and test in full LED devices. There are also a number of other approaches to reducing the voltage of the tunnel junction and we are actively pursuing those in parallel.

With BluGlass' recent announcement of commencing laser diode activities, I am keen to show some of the structural differences and importantly the similarities between laser diodes and LEDs and how we can capitalise on earlier BluGlass developments and apply this knowledge and expertise to the LD development activities. Our laser development will require the integration of both our advanced RPCVD technology development and our MOCVD capabilities for the combined deposition, with the aim of taking advantage of the areas that both technologies do best.

The image shown is of one of our first lasers made with the deposition performed completely at BluGlass using MOCVD with the processing of the wafer into the laser devices performed by a third-party partner. As is visually evident in the image, the light generated from this device is confined. The confinement of the light into a single axis requires additional layers not present in a standard LED structure. This light confinement, combined with a number of other criteria relating to material quality and device design, must all meet extremely strict specifications in order for the devices to exhibit laser behaviour. The application of the RPCVD tunnel junction enables replacement of the conventional p-type (Mg-doped) top layers with an n-type (silicon-doped) top layer and this is expected to significantly improve both the optical and electrical properties of the final device – leading to brighter and more efficient laser diodes.

While our base performance of the laser diode business will rely on our MOCVD and partner processing capabilities, the differentiation of the BluGlass products we envision will be due to the RPCVD tunnel junction and the enabling of the different top cladding material. The table shown outlines some of the key differentiators, many of which we have covered in our presentation of the RPCVD tunnel junction technology. It is important to note that our recent US granted patent also covers laser diodes.

We continue to work closely with a number of microLED players and X-Celeprint, as shown here, is one of our key public demos of RPCVD p-GaN technology. This demonstration has also led to new enquiries and requests from microLED players to evaluate the RPCVD to support their own technology developments. We continue to review these on a customer by customer basis.

In addition to low temperature p-GaN for microLEDs we are also pursuing the elusive longer wavelengths such as red LEDs. To date there are no known commercial products using red LEDs based on nitrides. This fact alone highlights the challenges associated with long wavelength InGaN-based LED development and also the limitations in what can be achieved using even the most advanced MOCVD techniques. The application of RPCVD for red LEDs would represent a disruptive breakthrough for microLED applications. To date our efforts in this area have been limited by resource allocation but we continue to pursue for example the green RPCVD LEDs as this supports our efforts in tunnel junctions, and we see the development of brighter green LEDs as a stepping stone towards longer wavelengths such as yellow, amber and ultimately red.

Earlier this year BluGlass completed the construction of two new cleanrooms at our Silverwater facility in Sydney housing two new RPCVD systems. One of these systems, is the AIXTRON planetary type – known as a G4; the other is a Thomas Swan 19x2" (identical to the one that is already used by BluGlass in our current BLG-300 Mk 1). This second BLG-300 (Mk 2) has also recently been commissioned and is contributing to all our core RPCVD activities.

It is a testament to the reliability and robustness of the design and retrofit approach that this tool was able to be commissioned using standard processes transferred from the BLG-300 Mk 1. This is a critical demonstration of the repeatability and stability of the RPCVD implementation – confirming BluGlass' ability to reliably and repeatedly retrofit existing MOCVD platforms.

To achieve even greater uniformity on large scale, BluGlass is designing its latest RPCVD on an AIXTRON MOCVD planetary style deposition system. The planetary system simply means that the wafers are rotated on two different axes – the analogy is that planets revolve around the sun but the individual planets also rotate – in this case the planets represent an individual wafer carrier that can hold either a single 6" wafer or a multiple of wafers (7x2"). This style of deposition tends to average out the thin film properties across the revolving and rotating wafers leading to greater wafer-to-wafer and within-wafer uniformity.

Considerable time has been devoted on the chamber design and implementation of the G4 retrofit – working closely with AIXTRON. Reviewing the design of the G4 identified a number of key changes for incorporation into new hardware and software assemblies. These assemblies are nearing manufacturing completion at a mix of international and Australian specialist vendors. International factors such a Brexit has impacted on some suppliers while other suppliers have had issues with resource allocation for required customisation of standard systems. As a result, some key sub-assemblies are due for completion in late December 2019 or January 2020. A number of critical assemblies and components from AIXTRON and other suppliers are presently being integrated into the system and training from AIXTRON is due to commence in the upcoming weeks.

The latest update is that the RPCVD version is expected to be commissioned in early 2020. We look forward to demonstrating the commercial potential of this large RPCVD system.

In summary, we have made substantial progress in advancing RPCVD tunnel junction technology for LEDs and laser diode applications and will continue to be a key area of focus in the next 12 months. The main result has been the demonstration of measurable cascade LEDs and improvement in tunnel junction specifications that we are currently building on with various commercial partners and internally through our laser diode business. To support these technical developments, we continue to prepare RPCVD equipment for applications at scale with our latest RPCVD retrofit chamber designs.

I would also like to thank all our shareholders, stakeholders and customers for their support and to also thank all of the BluGlass technology team and the support staff for their dedicated efforts over the past year.

ENDS

About BluGlass

BluGlass Limited (ASX:BLG) is a global leader commercializing a breakthrough technology using Remote Plasma Chemical Vapour Depositions (RPCVD) for the manufacture of high-performance LEDs, laser diodes, and other devices. BluGlass has invented a new process using RPCVD to grow advanced material such as gallium nitride (GaN) and indium gallium nitride (InGaN). These materials are crucial to the production of high-efficient devices such as power electronics and high-brightness LEDs, use in next-generation 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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