BLUGLASS PRESENTS LATEST RPCVD DATA AND TUNNEL JUNCTION BREAKTHROUGH AT PHOTONICS WEST CONFERENCE

Sydney, 7 February 2019: Australian technology innovator, BluGlass Limited (ASX:BLG) has today presented its latest remote plasma chemical vapour deposition (RPCVD) technical data, at the Photonics West Conference in San Francisco, the leading global event for the photonics and laser industries. The presentation includes data on the Company's recent breakthrough development of RPCVD grown tunnel junctions for LED applications.

BluGlass Chief Technology Officer Dr. Ian Mann is an invited speaker at the conference, and presented a paper titled 'RPCVD of Group III Nitride Tunnel Junctions for LED Applications'. Dr. Mann outlined the technical detail and competitive advantages of the company's patented RPCVD technology for the manufacture of GaN-based tunnel junctions in cascade LEDs. RPCVD-enabled cascade LEDs are a promising solution that could address the significant industry challenge of LED efficiency droop.

In December 2018, BluGlass announced that it had successfully demonstrated functioning tunnel junctions, capitalising on the unique low temperature advantages of RPCVD. Tunnel junctions are a key building block for cascade LEDs.

A cascade LED is where two or more LEDs are grown in a continuous vertical stack using a tunnel junction to interconnect multiple LEDs in a single chip. This is highly desirable as it could prevent the fundamental challenge of 'efficiency droop' in high performance LEDs, by decreasing the required electric current while increasing the light-output. Cascade LEDs are expected to enable smaller, cheaper and higher performing LEDs – the three key interest areas of the LED industry. To date, functioning tunnel junctions, and therefore cascade LEDs have been prohibitively difficult to produce.

BluGlass Managing Director Giles Bourne said, "We are very pleased to be presenting this breakthrough development of our technology with the industry today. These exciting results help validate the strong commercial potential of our RPCVD technology to solve a number of the manufacturing challenges associated with the industry's incumbent processes.

"Importantly this allows us to further discussions with a range of potential high-value partners in the LED and other semiconductor market segments, as we seek to capitalise on the broader commercial applications for our technology."

There is significant interest in the potential of cascade LEDs and tunnel junctions, as efficiency droop is a well-known problem associated with high performance GaN-based LEDs. It is a fundamental property of LEDs where the efficiency of the light-output drops as the driving current increases, which means that the majority of today's high-powered LEDs are being operated outside of their peak efficiency.

RPCVD grown tunnel junctions could be commercially compelling for all high-performance nitride devices, including for high value applications such as LEDs for automotive lighting, UV LEDs for water purification, high power laser diodes for industrial machining applications and high efficiency multi-junction concentrated solar cells.

The global LED market is predicted to reach US$96B by 2024, with the high-brightness automotive segment (a potential first adopter of cascade LEDs due to strict performance and size requirements) expected to represent $22B by 2024, capturing approximately 23% of the total market.

The RPCVD process can produce these critical enabling tunnel junctions in the LED device by capitalising on its inherent competitive advantages. RPCVD operates at hundreds of degrees cooler than the incumbent technology and replaces expensive and toxic ammonia with an inert nitrogen plasma. It is also able to achieve the required activation needed for a working tunnel junction during growth. The industry incumbent process, metal organic chemical vapour deposition (MOCVD) relies on complicated and time-consuming ex-situ processing to achieve the required activation. This unique 'as-grown and activated p-GaN' (or AAG) technology is a fundamental advantage of RPCVD.

Since notifying the market in December of our tunnel junction capabilities, BluGlass has received strong industry interest and looks forward to progressing those discussions with the technical details provided today.

A copy of Dr. Mann's technical presentation is available to download from our website www.bluglass.com.au.

BluGlass is exhibiting at Photonics West at booth 4377.

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 light emitting diodes (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. BluGlass was spun off from Macquarie University in 2005 and listed in 2006.

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