

### **COMPANY OVERVIEW**

## **ASX: BLG**

Headquartered in Sydney,
Australia with US based
operations in New Hampshire

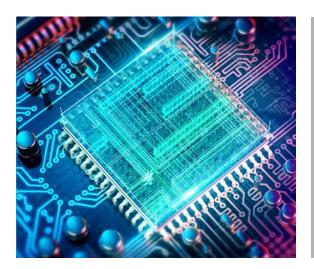
# 78 PATENTS

IP portfolio comprises 78
International Patents, awarded
in key semiconductor
manufacturing jurisdictions

## BOARD

Highly experienced Board further strengthened with the recent appointment of laser diode leader, Jean-Michel Pelaprat





# MULTIPLE PRODUCTS

In development with initial products to include 405nm, 420nm and 450nm Laser Diodes, with strong customer interest for each

## 9 PhDs

BluGlass has a highly talented and expert team combining deep research, industry and commercial expertise

## **DEBT-FREE**

BLG has no debt and no debt associated structures



#### **BOARD OF DIRECTORS**



James Walker
B-Comm, FCA, GAICD
EXECUTIVE CHAIR

James is an experienced leader in commercialising technology in new markets, with roles as a Non-Executive Chair, Director and Chief Executive of ASX-listed companies. He also has deep experience as a Chief Financial Officer for a UK, AIM listed technology company as well as executive roles in other growth companies.



Vivek Rao

NON-EXECUTIVE DIRECTOR

Vivek Rao is the President & Chief Operations Officer of SPT Microtechnologies (a Division of SPP Technologies). Vivek is a seasoned semiconductor professional with more than 25 years in the semiconductor capital equipment industry in various managerial and technical leadership roles.



Stephe Wilks

BSc, LL.M

NON-EXECUTIVE DIRECTOR

Stephe Wilks is a professional company Director, with a long record leading successful global technology companies in high growth and disruptive industries. He has headed several Australian and international technology companies, including BT Asia Pacific, XYZed Pty Ltd, Nextgen Networks and Personal Broadband Australia



Jean-Michel Pelaprat

BSPhy

#### **NON-EXECUTIVE DIRECTOR**

Mr Pelaprat brings deep photonics industry expertise, with over 30 years' experience establishing, commercialising and scaling laser and semiconductor businesses. As co-founder and Director of Nuburu - a US-based company recognised as a pioneer in blue GaN lasers for industrial, medical, display and 3D applications

#### **MANAGEMENT TEAM**



Dr Ian Mann
PhD, MBA, Msc, Bsc-ENG, FAICD
CHIEF OPERATIONS &
TECHNOLOGY OFFICER
Ian brings a wealth of
knowledge to the BluGlass
technology and commercial
teams with his experience in
managing and developing
technology companies and
commercialisation activities
to bring high technology
projects to commercial
outcomes.



Brad Siskavich

BSME (Mech-Engineering), MBA

EXECUTIVE VP of BUS

DEVELOPMENT

Brad Siskavich has more than 20 years' experience in developing, marketing and commercialising new technologies in start-up and high-growth environments in the compound semiconductor, laser, and photonics industries.



Dr Arkadi Goulakov
PhD (Physics)
SENIOR LASER SCIENTIST

Dr Goulakov is a laser expert with more than 30 years' experience in developing and commercialising cutting edge opto-electronics. He has a strong track-record in managing dynamic laser innovation projects and brings a wealth of laser fabrication, integration and reliability expertise.



Dr Josh Brown
PhD (Physics)
HEAD OF EPITAXY

Josh leads both the laser diode epitaxy development and custom foundry services arm of BluGlass, providing custom R&D and engineering solutions to customers around the world using both MOCVD and RPCVD platforms.



Stefanie Winwood INVESTOR RELATIONS & MARKETING MANAGER

Stefanie is an experienced, creative and strategic marketing and communications professional with more than 17 years' experience building brands and businesses for both Fortune 500 companies to technology start-ups.



Izzat Shadid
BBus (Accounting), CPA
FINANCIAL CONTROLLER

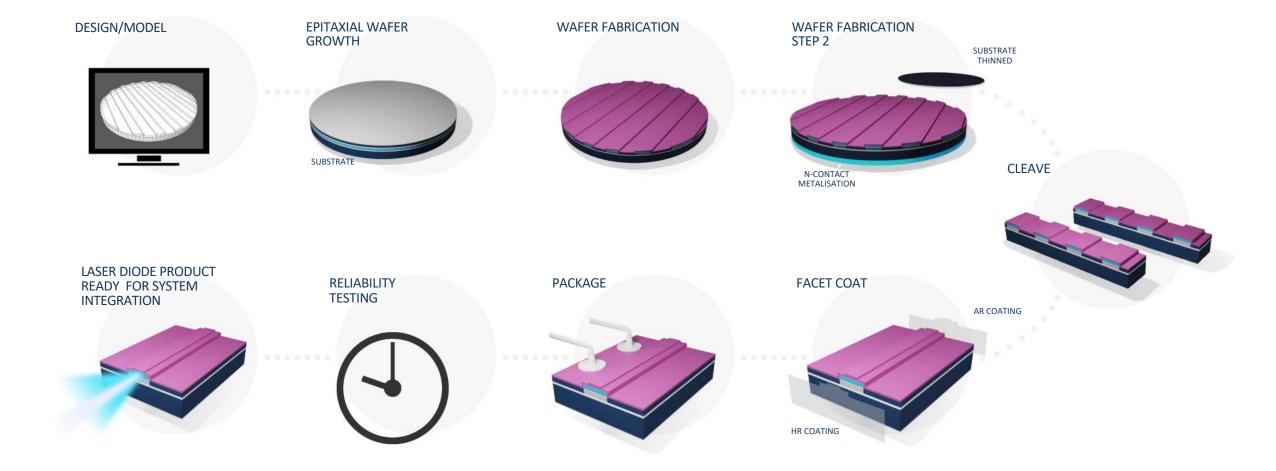
Izzat is a finance professional with over 15 years' experience in managerial accounting and finance roles. Izzat was previously a senior associate within a chartered accounting practice. He is responsible for the overall financial operations at BluGlass, HR and IT.

## LASER DIODE PRODUCT DEVELOPMENT UPDATE

Laser Diode Development Progress			
<b>⊗</b>	Successful packaging demonstrated with 420nm devices	$\otimes$	<b>Several iterations in development</b> to solve facet damage - with multiple partners dedicated to resolving as speedily as possible
$\otimes$	420nm product prototypes <b>demonstrating commercial specifications</b> in light-output, voltage and wavelength in initial continuous wave tests	<b>⊗</b>	BluGlass will work with <b>expert fabrication specialists</b> with established production capabilities to expedite solutions
$\otimes$	These results confirm BluGlass' laser diode design and epitaxy is commercial quality and working as designed	$\otimes$	This solution, once found, will be applicable to multiple products, already progressing through the pipeline
$\otimes$	405nm and 450nm products also progressing through the supply chain, demonstrating good performance	$\otimes$	These challenges are well understood by the industry and we are very confident they are solvable
8	Customer demand for our products continues to grow, with <b>BluGlass poised to meet demand</b> in underserved and growing markets	<b>⊗</b>	BluGlass has the installed manufacturing capacity on-site at its BluGlass facilities in Australia and the US to meet customer demand and meet its target economic scenarios and is working with its supply chain partners to prepare to scale to volume manufacturing
	Reliability testing for high power use has shown a flaw in the optical facet of the Laser Diode, resulting in gradual loss of power. Additional post epitaxy production efforts needed before release of commercial products		



## BLUGLASS LASER DIODE MANUFACTURING STEPS



**BLUGLASS INVESTOR PRESENTATION** 

### PORTFOLIO OF PRODUCTS

## Industrial Markets



(405nm, 450nm, 525nm)

#### **Applications:**

- Welding cutting
- Machine vision
- Machine sensing
- 3D printing

## Display Markets



(450nm, 525nm)

#### **Applications:**

- Pico projector
- Business/Cinema projector
- Heads-up display
- Augmented reality/Virtual Reality

### Biotech/Life Science Markets

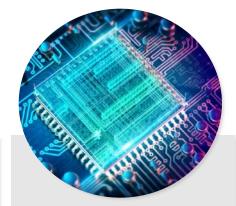


(405nm, 420nm, 450nm, 490, 525nm)

#### **Applications:**

- Flow cytometry
- Medical diagnostics
- DNA sequencing
- Endoscopy
- Bio-fluorescence

## Scientific Markets



(405nm, 420nm, 450nm, 490, 525nm)

#### **Applications:**

- Raman spectroscopy
- Quantum computing
- Confocal fluorescence microscopy
- Optical clocks
- Forensics

## **Lighting Markets**



(450nm)

#### **Applications:**

- Automotive
- General lighting
- Spotlight/Torch



### PRODUCT DEVELOPMENT PROGRESS

405nm

#### **Industrial & Biotech Applications**



Commercial performance specifications demonstrated (pulsed data)



Underserved wavelength with strong customer demand for product



420nm

#### **Biotech & Scientific Markets**



Successful packaging of 420nm devices demonstrated



Demonstrating commercial specifications in light-output, voltage and wavelength in initial continuous wave tests





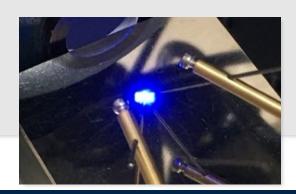
#### **All Markets**



High brightness lasing demonstrated, progressing through supply chain for launch



Multiple customers awaiting sample products





### **R&D Institutions**

(Universities, Military, Commercial)

- This customer requires highly flexible,
   bespoke design and development services
- Developing novel devices and applications
  - Typically require differentiated designs (e.g. RPCVD and tunnel junction technology advantages)
  - First example is our contract with Yale
     University for DARPA program

**Engagement Points:** Unprocessed epiwafers, partially processed epiwafers, full products

## **OEM/ System Integrator**

(e.g. Electronics Manufacturer)

 This customer requires high-powered laser diode, and not in the same form factor

Requires greater flexibility from a manufacturing partner in development of products and in developing novel designs

**Engagement Points:** Partially processed laser products, full products

### Distributor

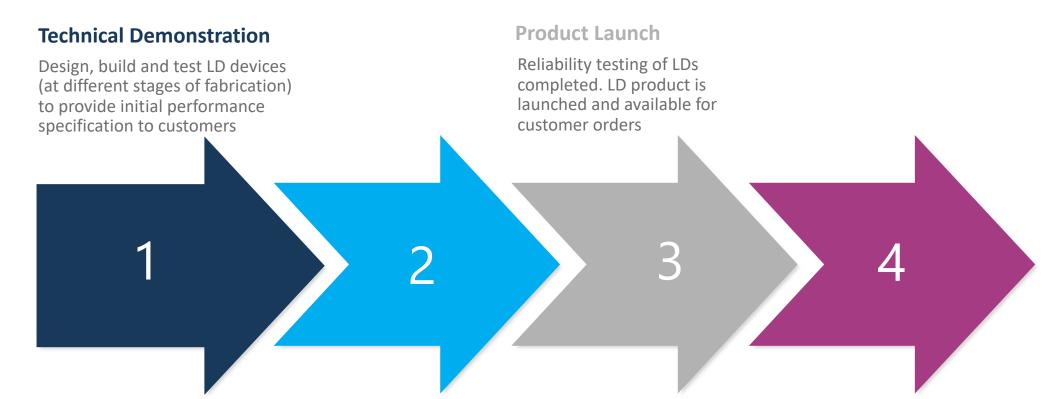
(e.g. Biotech product providers)

- This customer requires high-powered laser diodes, in standard form factors
  - Supply a huge variety of products and require broad range of wavelengths and power levels
  - Requires greater flexibility from a manufacturing partner in development of diverse products and in developing novel designs (e.g. biotech applications, machine vision and sensing)

Engagement Points: Full products, completed reliability testing



### LASER DIODE UPDATE – FROM R&D TO PRODUCT



#### **Product Samples**

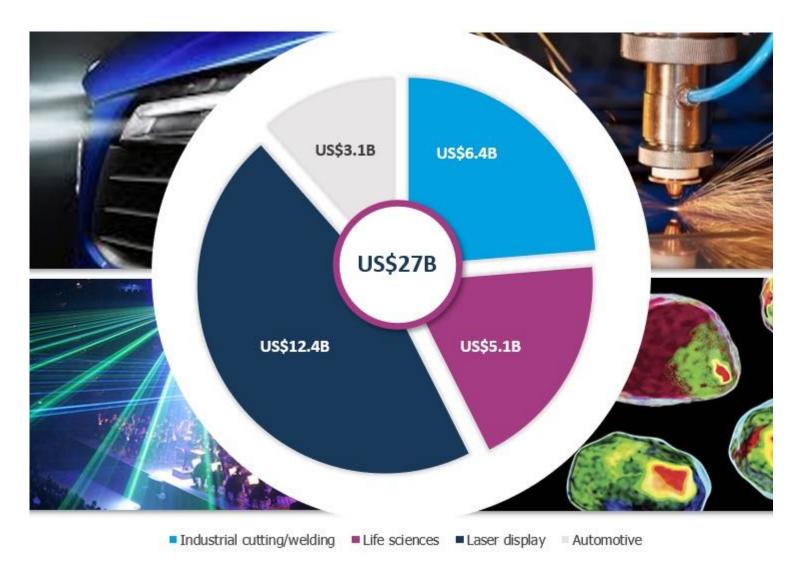
Small volume of fully fabricated LDs available to customers for evaluation

#### **Enhanced Products**

Enhanced performance via new LD designs, including RPCVD Tunnel Junction laser diodes/ custom devices for specific customer applications



## GLOBAL LASER END-MARKET OPPORTUNITY (FORECAST 2025)



US \$658m ADDRESSABLE GAN LD MARKET

The Global GaN laser diode market is emerging as a disruptor in the huge US\$27B global laser end-market.

BluGlass' near-term addressable market for GaN Laser Diodes is predicted to be US \$658m by 2025, garnered from a cross section of global laser industry demand

Source: Internal BluGlass modelling based on industry sources

### **ECONOMIC SCENARIOS - BLUGLASS TARGET MARKET REVENUES**

**Target revenue** is based on the timely achievement of technical milestones.

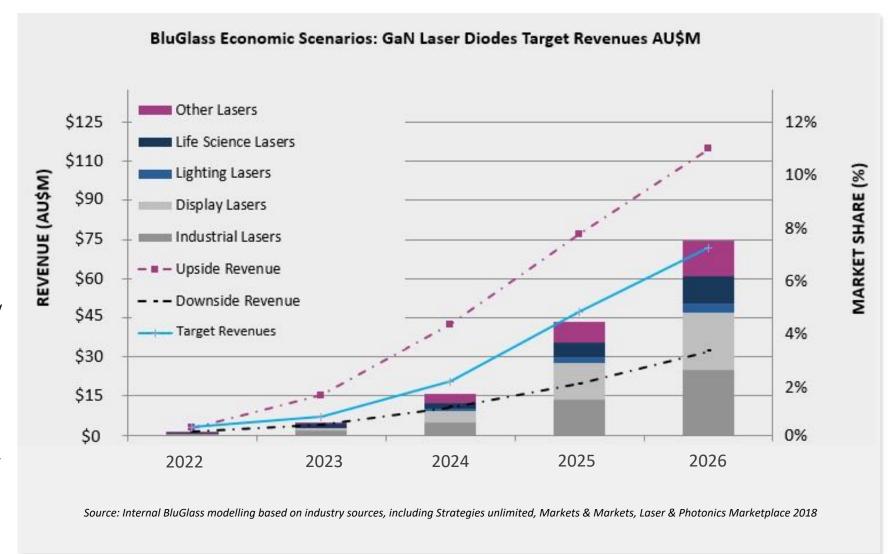
**Upside revenue** is based on the timely achievement of BluGlass' technical milestones and accelerated customer demand and market growth.

**Downside revenue** is based on a delay in the attainment of certain technical milestones that reduces the number of laser diode products for sale or slower customer demand and market growth.

#### Assumptions used in creating these scenarios:

BluGlass' economic scenarios rely on key technology (including RPCVD & tunnel junction performance), financing, supply chain and market penetration assumptions.

Any failure to achieve the assumed outcomes will have a material affect on the economic scenarios outlined here. In particular, BluGlass has not yet manufactured its initial laser diode product, and any target market revenues outlined should be considered speculative until proven.



## PLACEMENT AND RIGHTS ISSUE

#### Placement completed – 9 June 2021

\$2.0 million from a leading Australian investment fund

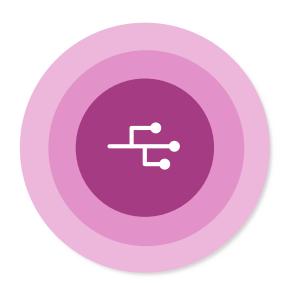
#### Offer announced – 9 June 2021

- Non-renounceable right issue to existing shareholders
- Shortfall opportunity for new investors
- Maximum raise up to \$6.0 million
- Rights Issue price \$0.030 (discount to closing price of \$0.056 on 4 June 2021)
- Entitlement: 1 for every 4 shares held
- All Non-executive directors are
  - taking up their full entitlements
  - Converting 50% of their fees for three months to equity, under the rights issue terms (subject to shareholder approval)

-	
Rights Issue Offer Event	Date
Announcement of the Entitlement Offer	Wednesday, 9 June 2021
Lodgement of Appendix 3B, Offer Booklet and Cleansing Notice	Wednesday, 9 June 2021
"Ex" date	Friday, 11 June 2021
Record date for Entitlement Offer (7.00pm (Sydney time))	Tuesday, 15 June 2021
Entitlement Offer opens	Wednesday, 16 June 2021
Offer Booklet and entitlement and acceptance form despatched	Wednesday, 16 June 2021
Closing date for acceptances under the Entitlement Offer (5.00pm (Sydney time))	Tuesday, 6 July 2021
Announcement of results of Entitlement Offer	Friday, 9 July 2021
Settlement of the Entitlement Offer	Monday, 12 July 2021
Allotment of New Shares issued under the Entitlement Offer	Tuesday, 13 July 2021
Normal trading on ASX for New Shares issued under the Entitlement Offer commences	Wednesday,14 July 2021
Despatch of holding statements for New Shares issued under the Entitlement Offer	Wednesday, 14 July 2021



### LASER DIODE BUSINESS TO DELIVER SIGNIFICANT PRODUCT REVENUES



## Several commercialisation paths

- Direct-to-market Laser Diode business
- Epitaxy wafer sales (EpiBlu foundry services)
- Licence fees & royalties (LED and other markets)
- Equipment sales with equipment partner(s)



## **Greater control of commercialisation timelines**

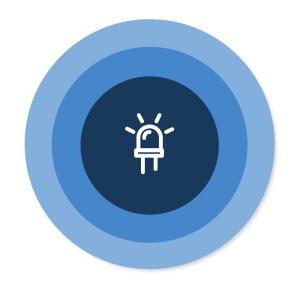
Direct-to-market laser diode business and the securing of the end-to-end manufacturing supply chain will drive significant product revenues and complements BluGlass' existing partnerships and commercial plans



## Strong patent portfolio

**78 patents** granted in key semiconductor markets (USA, Europe, Asia).

Key US Tunnel Junction Patent for multiple applications granted in 2019



## Large and growing markets

BluGlass' RPCVD technology has demonstrated performance advantages in a number of large and growing photonics market segments including laser diodes, LEDs, microLEDs, & power electronics



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