

BRIGHTER FUTURE LOWER TEMPERATURE

070809 101 112

BLUGLASS 2012 AGM PRESENTATION

GILES BOURNE, CEO, BLUGLASS LIMITED
MONDAY 26 NOVEMBER 2012

**BLUGLASS**

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BLUGLASS GROWS HIGH QUALITY
GaN FILMS USING LOW
TEMPERATURE RPCVD

HITS PROOF OF CONCEPT:
PRODUCING n-GaN FILMS THAT
MEET INDUSTRY BENCHMARKS

CRITICAL IMPURITIES BROUGHT
TO WITHIN INDUSTRY STANDARDS

KEY US PATENT GRANTED BY THE
US PATENT & TRADEMARKS
OFFICE

EPIBLU JOINT VENTURE FILES
TWO PROVISIONAL PATENTS

BLUGLASS PURCHASES SPTS
SHARE OF THE EPIBLU JOINT
VENTURE

THE YEAR IN REVIEW

The Company is now well positioned to take its recent results and data to leading participants in the LED industry to begin the process of commercialising the technology

IN THE MEDIA: SNAPSHOT

BLUGLASS HITS NEW HEIGHTS WITH LED TECHNOLOGY

NOVEMBER 22, 2012



BLUGLASS DRIVES DOWN DEFECTS IN GaN FILMS GROWN BY RPCVD

OCTOBER 29, 2012



BLUGLASS TECHNOLOGY A POTENTIAL GAME CHANGER

OCTOBER 26, 2012



BLUGLASS TARGETS LED MARKETS

Compound Semiconductor Magazine asks BluGlass "Will the Australia-based firm's low temperature deposition technology take the strain away from LED manufacturing?"

NOVEMBER 09, 2012



BLUGLASS RPCVD GROWN GAN LAYERS DEMONSTRATE REDUCED LEVELS OF KEY IMPURITIES

OCTOBER 29, 2012



BLUGLASS SHARES SURGE AFTER TECHNICAL BREAKTHROUGH

OCTOBER 25, 2012



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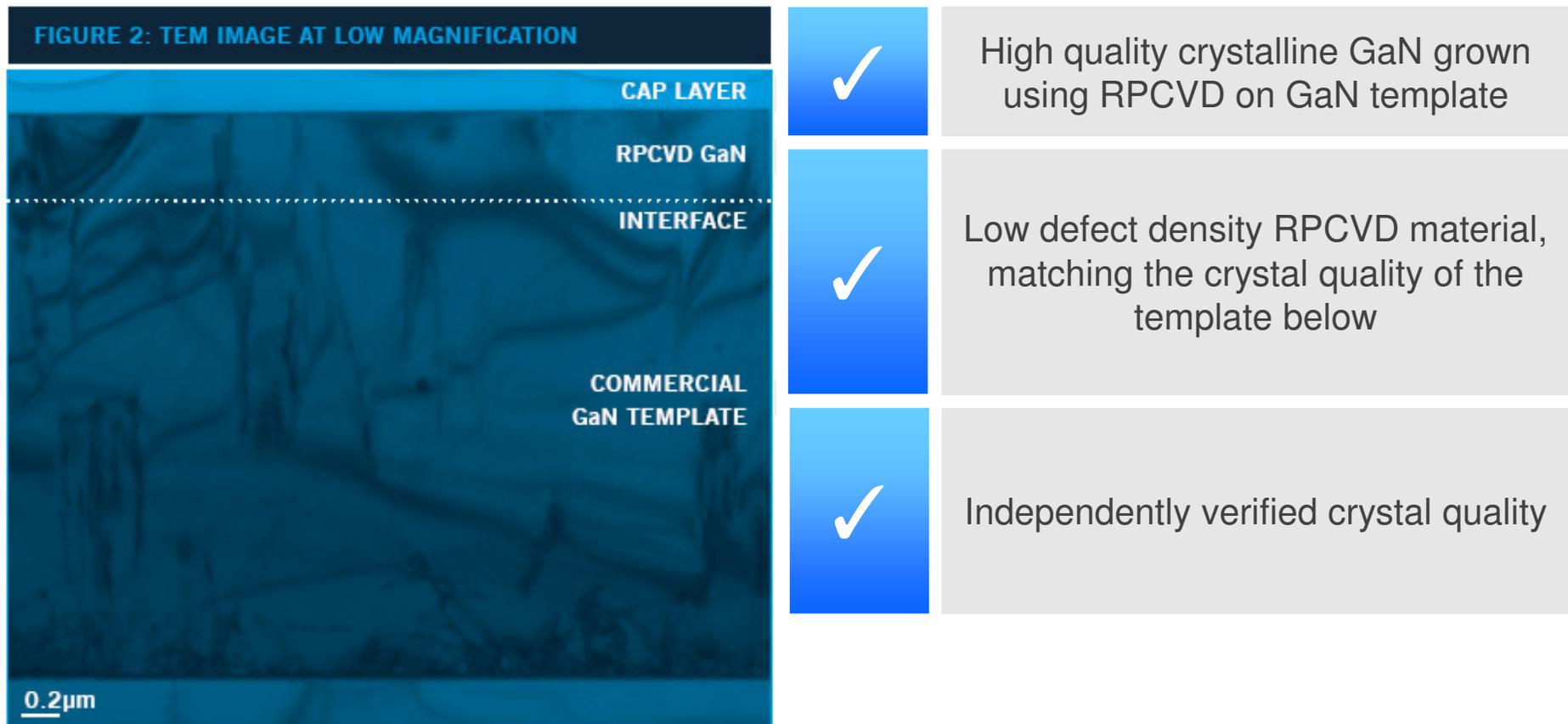
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MAJOR TECHNICAL BREAKTHROUGH:

HIGH QUALITY CRYSTAL GaN

This is a critical step in proving to industry the potential of our breakthrough technology



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HITS PROOF OF CONCEPT MILESTONE:

DEMONSTRATION OF INDUSTRY QUALITY n-GaN AND REDUCTION OF IMPURITIES

This is a significant step forward that BluGlass believes will help enable the demonstration of enhanced LEDs grown using RPCVD.

✓	WORLD FIRST	Reduction of impurities and demonstration of n-GaN grown on GaN template
✓	EXPERTLY VERIFIED	Independently verified by Evans Analytical Group, IQE and The Australian National University
✓	KEY IMPURITIES ON PAR WITH INDUSTRY	Carbon, oxygen and hydrogen impurity levels less than 1×10^{17} atoms per cm^3
✓	ELECTRICAL PROPERTIES ON PAR WITH INDUSTRY	n-GaN mobility of $300 \text{ cm}^2/\text{Vs}$ for a carrier concentration of $2.1 \times 10^{18} / \text{cm}^3$
✓	CRITICAL ENABLER OF TECHNICAL AND COMMERCIAL MILESTONES	

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SIGNIFICANT NEW INTELLECTUAL PROPERTY

The extent of our intellectual property portfolio is visible testament that BluGlass is successfully breaking new ground towards RPCVD becoming a commercial reality

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Provisional Patents

- Technical advancements have resulted in two provisional patents being filed by the JV company EpiBlu
- PV provisional patents filed to protect solar research advancements

21

Patent Applications in PCT phase

17

International Granted Patents in 05 Patent Families

- Granted in key semiconductor markets including Europe, China, Japan and the US

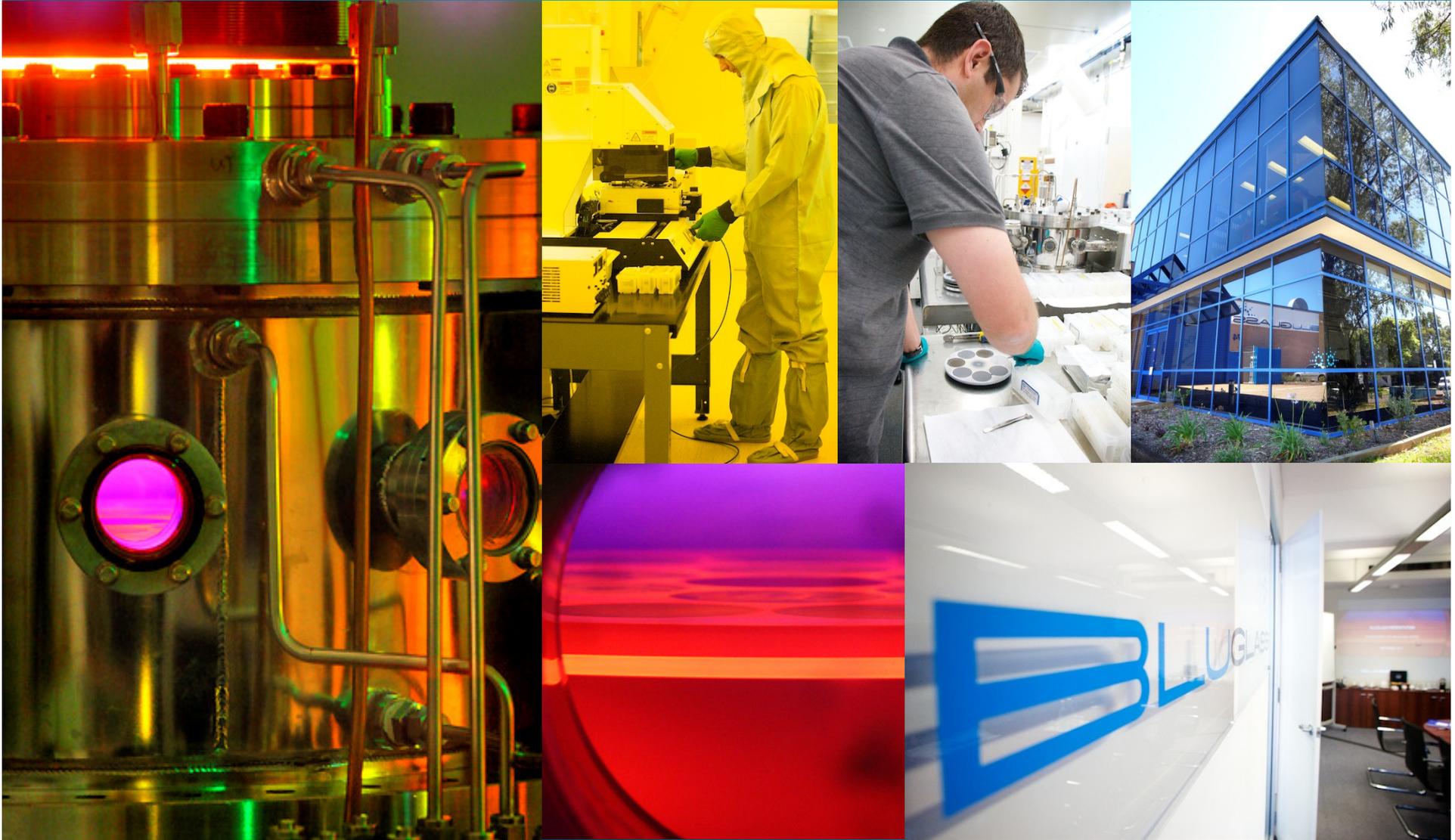
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100% OWNERSHIP OF EPIBLU

- BluGlass negotiated the acquisition of SPTS' 49% stake in the EpiBlu Joint Venture

✓	VALUE	<ul style="list-style-type: none">▪ BluGlass will receive 100% of the benefit of future cash flows from its core IP▪ BluGlass will also retain a license to the SPTS background IP
✓	CONTINUED SUPPORT	<ul style="list-style-type: none">▪ Fully aligns the interests of SPTS with shareholders▪ SPTS will provide marketing assistance to promote commercialisation
✓	COMMERCIALISATION	<ul style="list-style-type: none">▪ Enables BluGlass to determine the optimal route for commercialisation▪ Could now involve one of the major LED equipment manufacturers
✓	STRUCTURE	<ul style="list-style-type: none">▪ Simpler corporate structure, no minority interest▪ Easier access to grants and R & D tax rebates

VIRTUAL TOUR



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AUSINDUSTRY VISIT



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FINANCIAL RESULTS

	2011	2012
Revenue \$'000	2,085	2,478
Net Loss \$'000	(4,171)	(3,237)
Consolidated Cash	\$7.97M	\$3,73M
Patents Lodged	1	3
Patents Granted	2	1

- Revenue increased 16.1% to \$2.4M due to the following factors:
 - Receipts from the Commonwealth Climate Ready Grant increased by \$300K reflecting the company's expenditure on the photovoltaic project
 - Interest income increased by \$43K up 19% following the injection of equity funds from SPTS
- BluGlass expects to receive an R&D rebate and its current cash reserves allow the company to meet its immediate goals

THE YEAR AHEAD

BluGlass' technology, RPCVD, has the potential to offer LED manufacturers significant performance and cost advantages, by growing group III-nitrides at lower temperatures

REALISATION

Over 15 years of research at Macquarie University led to the establishment of BLG (ASX, BLG)

ESTABLISHMENT

Establishes world class facility in Silverwater
Commissions 4th generation RPCVD machine

DEVELOPMENT

Commissions 5th generation RPCVD machine

STRATEGIC PARTNER

JV agreement with SPTS Technologies, SPTS invests \$5.2m in BluGlass

BREAKTHROUGH

Produce high quality crystal GaN at low temperature

COMPLETED STEPS Bluglass has significantly de-risked the technology, especially in the last 18 months →

ROADMAP TO MARKET

WE ARE HERE

WE ARE HERE

PROOF OF CONCEPT

MILESTONE Films with properties similar to MOCVD grown films with industry electrical properties and low impurity levels

COMMERCIAL OPPORTUNITIES

Review commercial opportunities to drive maximum shareholder return

CURRENT STEPS →

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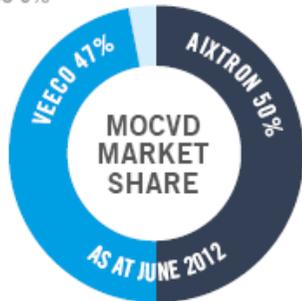
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MARKET OPPORTUNITIES



- Revenues for high-brightness LEDs grew 108% to \$11.2 billion in 2010
- Revenue is expected to peak in 2014 at \$16.2B and then fall to \$15.3 B in 2015. The dip in revenues will be temporary, as lighting will take over as the engine for growth after 2015. *Source: Strategies Unlimited, The Worldwide Market for LEDs, Market Review and Forecast 2012*

TAIYO NIPPON
SANSO 3%



- The LED equipment market (MOCVD) represents a US \$6.1B opportunity through to the end of the decade *Source: Yole Developpement III-V Epitaxy Equipment and Application Market Report 2012*
- In 2011 the \$1.5B market continued to be dominated by two global companies Aixtron and Veeco. Veeco estimates ~400-800 machines will be shipped for the LED market annually to 2016 *Source: Veeco Investor Presentation June 2012*

2011 60MW



- The rapidly expanding concentrated photovoltaic (solar) market is forecast to reach 1.5GW by 2015 by the CPV Consortium in their 2010-2015 CPV Consortium 2010 Report growing from a small base of 60MW in 2011

THE TECHNOLOGY UPDATE

“It is estimated it is possible to alleviate the need for 133 nuclear power stations in the US by the year 2025 if white solid state lighting is implemented”

PROFESSOR SHUJI NAKAMURA

POTENTIAL BENEFITS OF RPCVD FOR LED

*A low temperature growth system such as RPCVD may offer LED manufacturers compelling performance advantages at several stages of device growth. **Low temperature p-GaN is one area that BluGlass is presently focusing on***

LED STRUCTURE GROWN USING MOCVD

p-GaN grown at intermediate to high temperature

Multi-Quantum-Well (MQW) InGaN layer, the **ACTIVE REGION** of an LED - grown at low temperature

n-GaN grown at high temperature

GaN grown at high temperature

Substrate

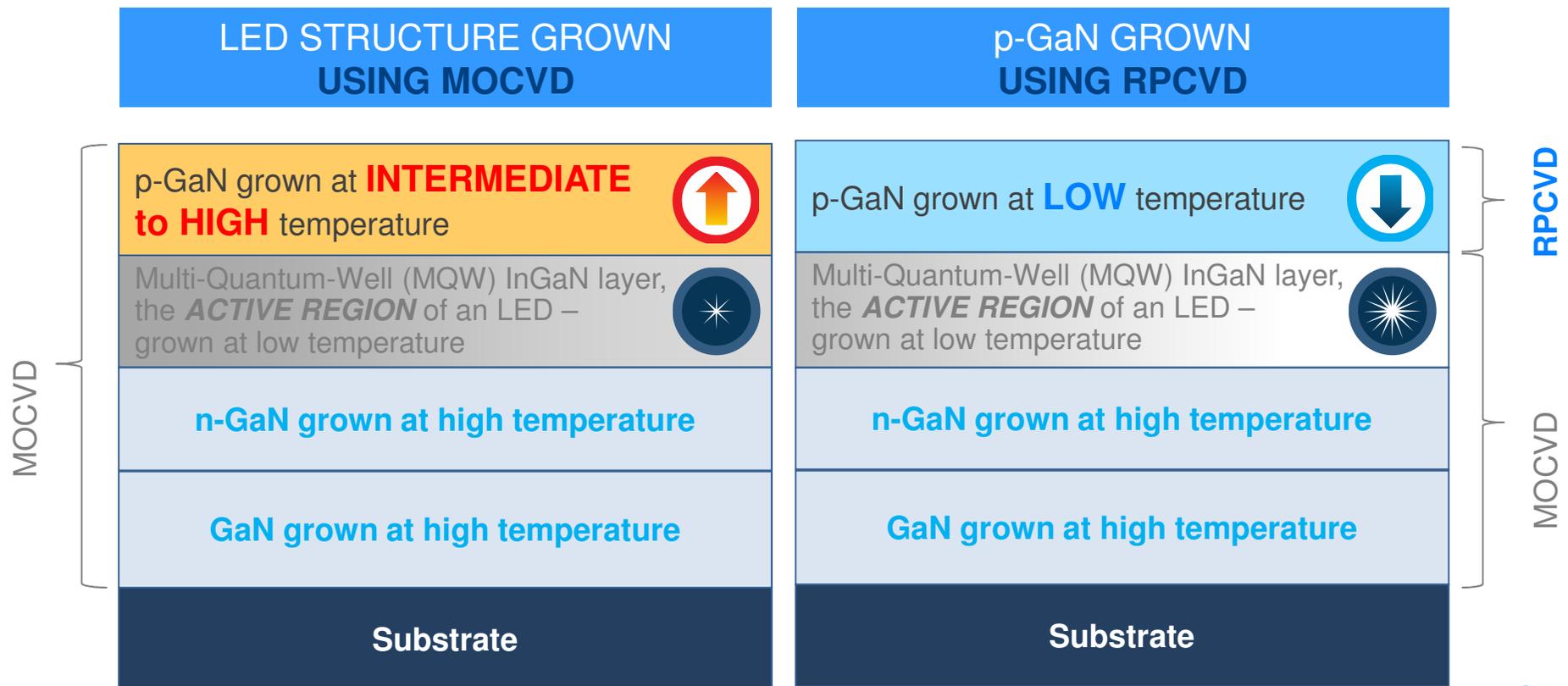
BENEFITS OF RPCVD GROWTH

The higher temperature growth of the p-GaN top layer compared to the MQW layer can cause some of Indium to diffuse out of the active MQW layer and reduce the LEDs light output. MOCVD cannot effectively grow high performance p-GaN at lower temperatures.

RPCVD has great potential to improve device performance by growing a low temperature p-GaN layer which in turn improves the stability of the InGaN layer during growth.

DEMONSTRATION PLANNED FOR LOW TEMPERATURE p-GaN

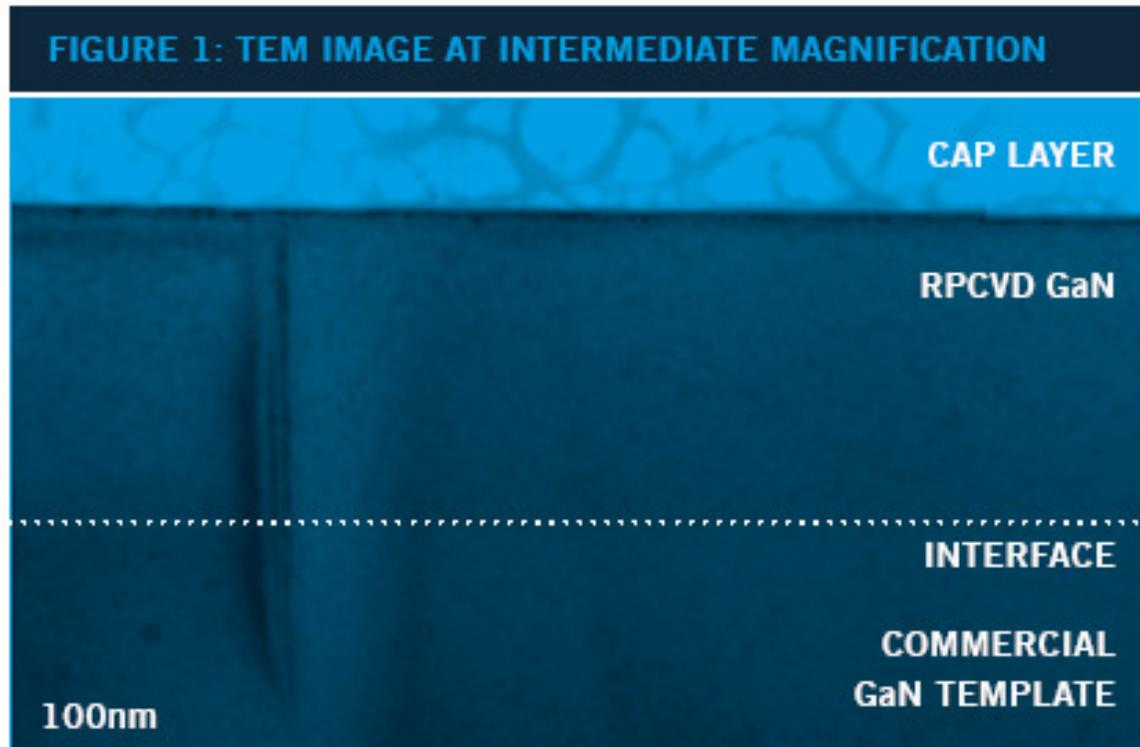
BluGlass is targeting low temperature p-GaN as the first commercial opportunity



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PROGRESS TOWARDS THE p-GaN COMMERCIAL OPPORTUNITY

REDUCES IMPURITIES



- Earlier this year, an RPCVD grown GaN film with good crystal quality was demonstrated when grown on a GaN template (refer to Figure 1)
- Recently, an RPCVD GaN film grown on a GaN template was shown to have low impurities with carbon, hydrogen and oxygen levels all less than 1×10^{17} atoms/cm³

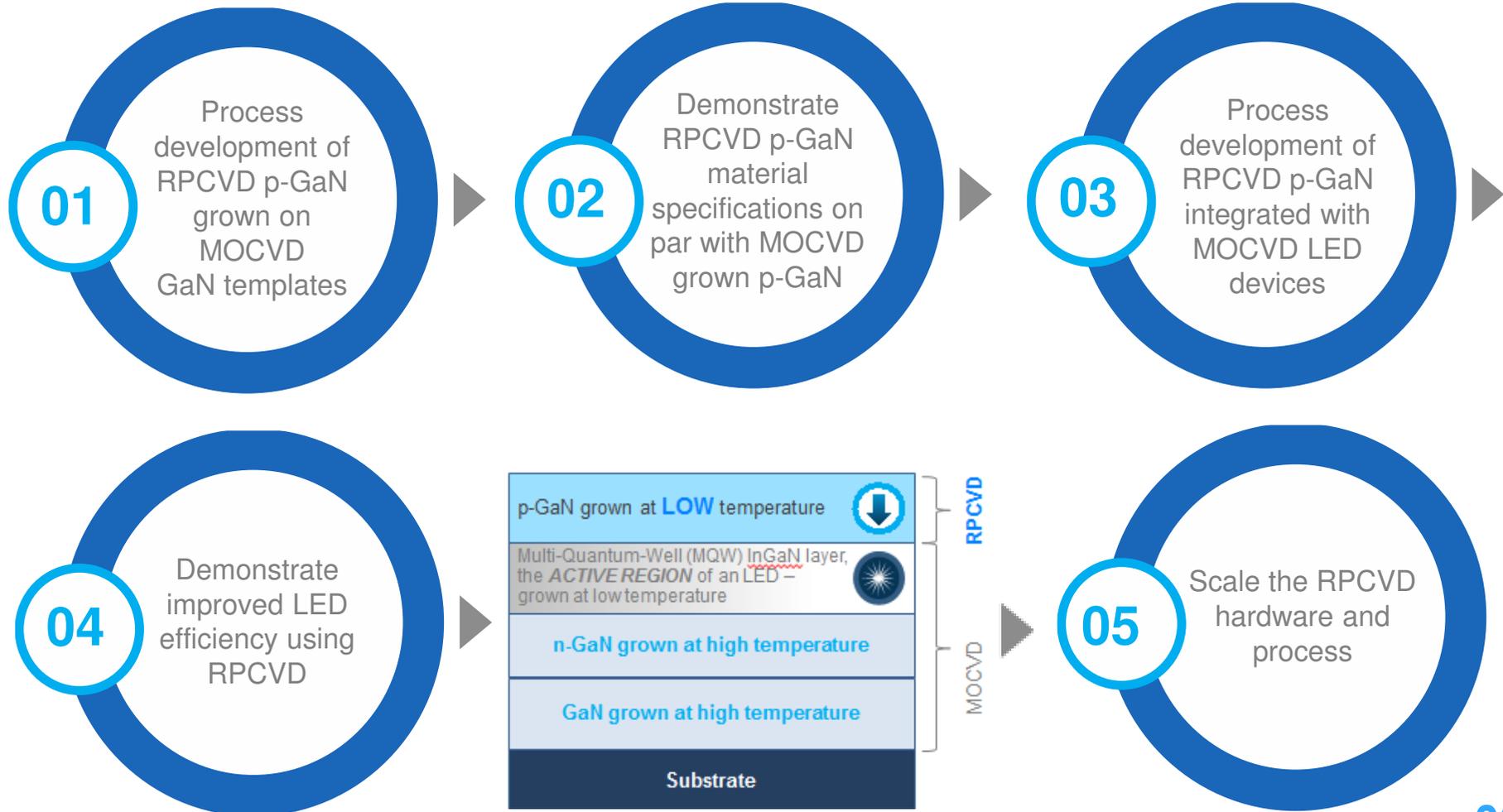
PROGRESS TOWARDS THE p-GaN COMMERCIAL OPPORTUNITY

ELECTRICAL PROPERTIES

ROOM TEMPERATURE HALL MEASUREMENT RESULTS OF AN RPCVD n-GaN FILM GROWN ON A UN-DOPED COMMERCIAL GaN TEMPLATE COMPARED TO A TYPICAL MOCVD GROWN n-GaN FILM

	TYPICAL MOCVD n-GaN SPECIFICATION	RECENT RPCVD n-GaN DATA	
		IQE Data	ANU Data
MOBILITY	$\geq 250 \text{ cm}^2/\text{V.s}$	297 $\text{cm}^2/\text{V.s}$	300 $\text{cm}^2/\text{V.s}$
FOR A CARRIER CONCENTRATION	$2.0 \times 10^{18} \text{ cm}^{-3}$	$2.0 \times 10^{18} \text{ cm}^{-3}$	$2.1 \times 10^{18} \text{ cm}^{-3}$

NEXT TECHNICAL STEPS



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THANK YOU


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