BRIGHTER FUTURE LOWER TEMPERATURE

BLUGLASS INVESTOR PRESENTATION

GILES BOURNE, CEO

MARCH 2014

BLUGLASS

DISCLAIMER

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LEDs & THE ENVIRONMENT

IN THE US ALONE, LED LIGHTING WILL REDUCE ENERGY CONSUMPTION IN LIGHTING BY **62%;** AND VOID THE NEED TO BUILD **133 NEW POWER PLANTS**

Veeco 2012

TECHNOLOGY OVERVIEW

BENEFITS OF RPCVD +

LOWER TEMPERATURE MANUFACTURING PROCESS

LOWER COST INPUT $

INCREASED DEVICE PERFORMANCE

ENVIRONMENTALLY SUSTAINABLE&SENSITIVE

BluGlass is developing equipment and processes to manufacture semiconductor devices such as LEDs, solar cells and power electronics based on GaN and related materials.

This process, called **remote plasma chemical vapour deposition (RPCVD)** has the potential to offer significant advantages over current manufacturing techniques.

BUSINESS OVERVIEW

EST. 2006

ASX CODE: BLG

MARKET CAPITALISATION
(As at 13 March 2014)

$46.7M

BOARD OF DIRECTORS

- George Venardos
  Chairman
- Dr. William Johnson
  (CEO, SPTS Technologies)
- Chandra Kantamneni
- Greg Cornelsen

INTELLECTUAL PROPERTY

1	Provisional patent application
16	Pending patent applications
20	Internationally granted patents
6	Patent families

MANAGEMENT TEAM

CEO	Giles Bourne
CTO/COO	Dr. Ian Mann
CFO	Stuart Uhlhorn

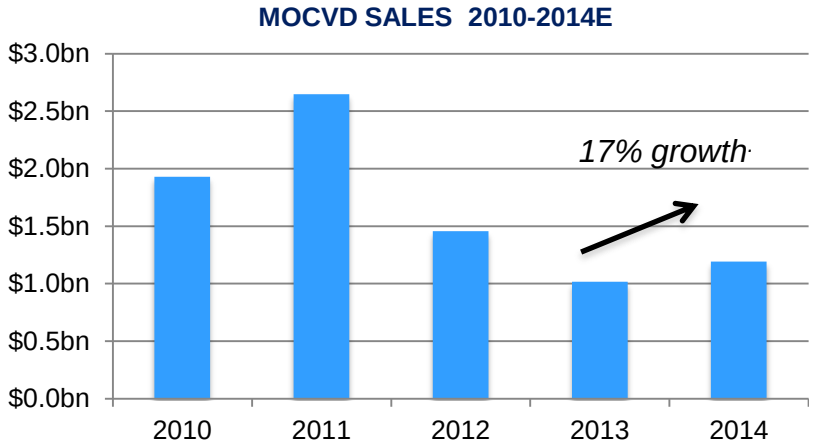
AWARDS

2013 Australian Cleantech Competition winner
Recipient of $13M+ in multiple Government grants

AUSTRALIAN CLEAN TECH COMPETITION
Australian Winner 2013

OVERVIEW OF LED MARKET

MOCVD EQUIPMENT MARKET OVERVIEW



SOURCE: Semiconductor Today, August 2013

Major MOCVD Market Competitors

Aixtron (Germany) NASDAQ: **AIXG**

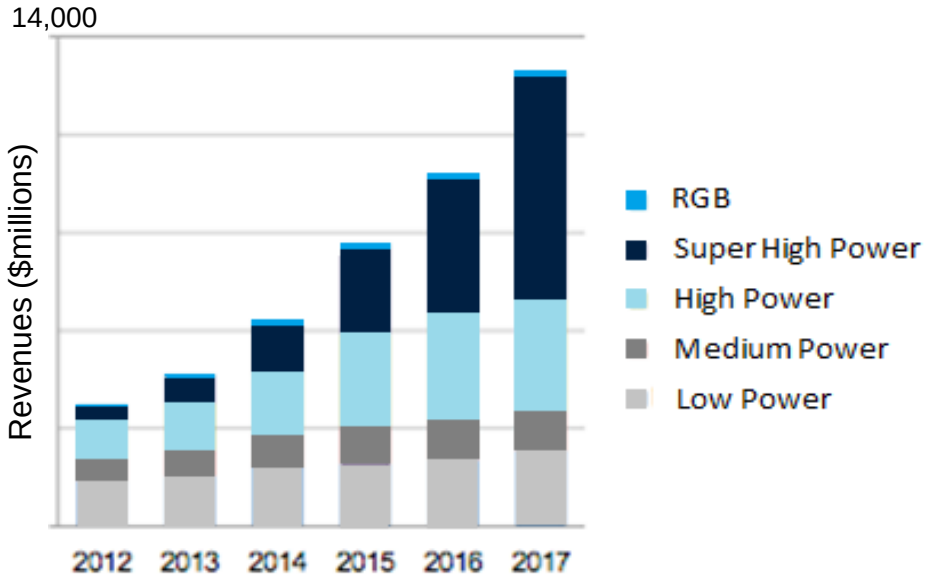
Veeco (USA) NASDAQ: **VECO**

Average MOCVD System Price US $1-3M

Market Drivers

Rapidly growing LED market driven by uptake in general lighting

LED LIGHTING MARKET GROWTH



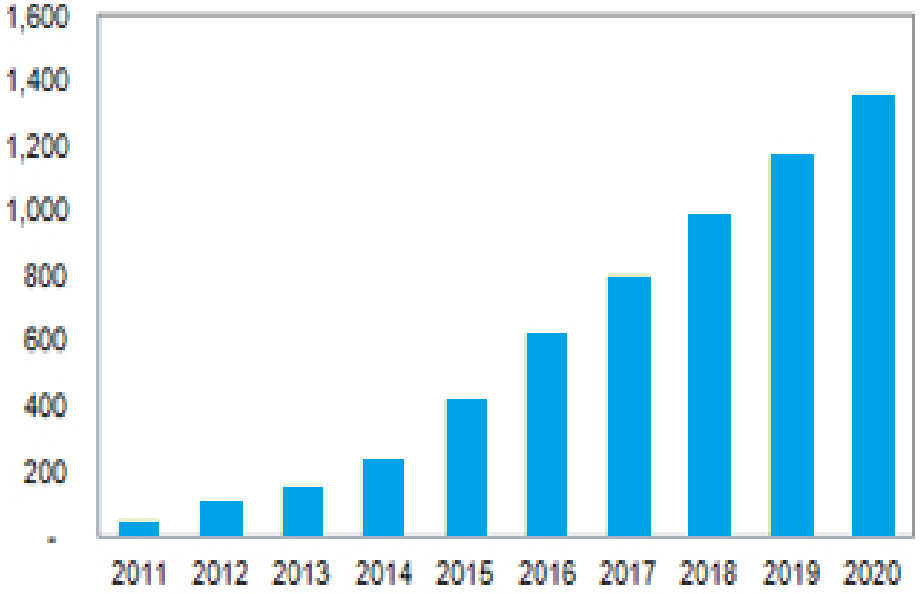
LED Manufacturers (MOCVD System Customers) Phillips Lumileds (USA); Nichia (Japan), Osram (Germany); Epistar (Taiwan/China), Cree (USA)

Market Size: The Solid State Lighting market is projected to exceed **US $13 B by 2017**

SOURCE Chart and Data: Strategies Unlimited, January 2014

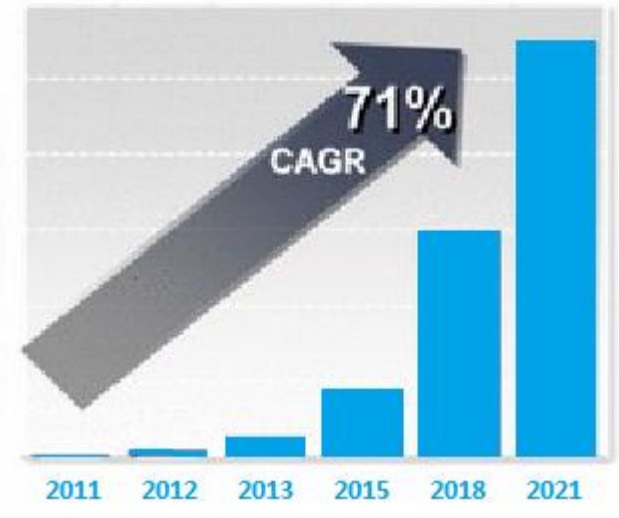
OTHER MARKETS FOR RPCVD

GLOBAL CPV FORECAST (MW)



The Concentrated Photovoltaic (CPV) market is expected to grow to **1.36GW by 2020.**

GaN POWER DEVICE FORECAST

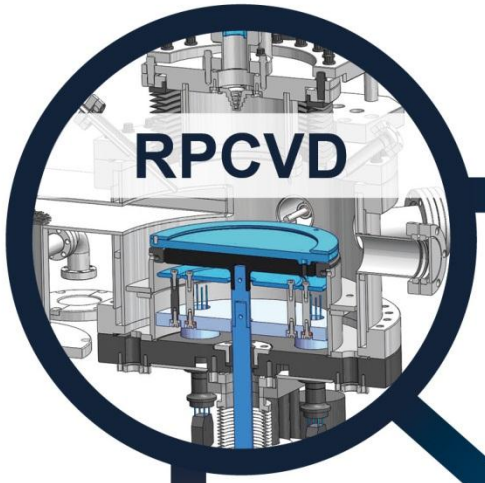


The power electronics market was worth US **$20B in 2012.** GaN use in power electronics was worth only $12.6m in 2012

The GaN power device market share is expected to grow at a **CAGR of ~71%** over 10 years to **$1.75B by 2022**

SOURCE: ABOVE: Chart and Data - IHS Inc. December 2013
RIGHT: Chart IMS Research 2012, **Data -** GaN Semiconductor Devices, Global Forecast and Analysis (2012-2022) by Markets and Markets

RPCVD – MULTIPLE END MARKETS



Power Electronics

Auto

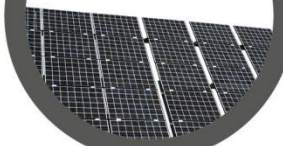
Consumer Electronics

Renewable Energy

Power Supplies

LED

PV (Solar)



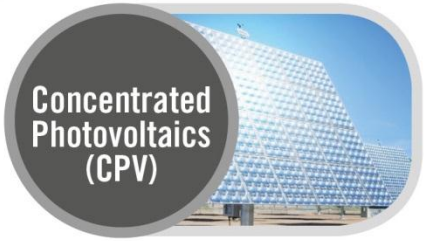
Lights

Laptops

Mobile Devices

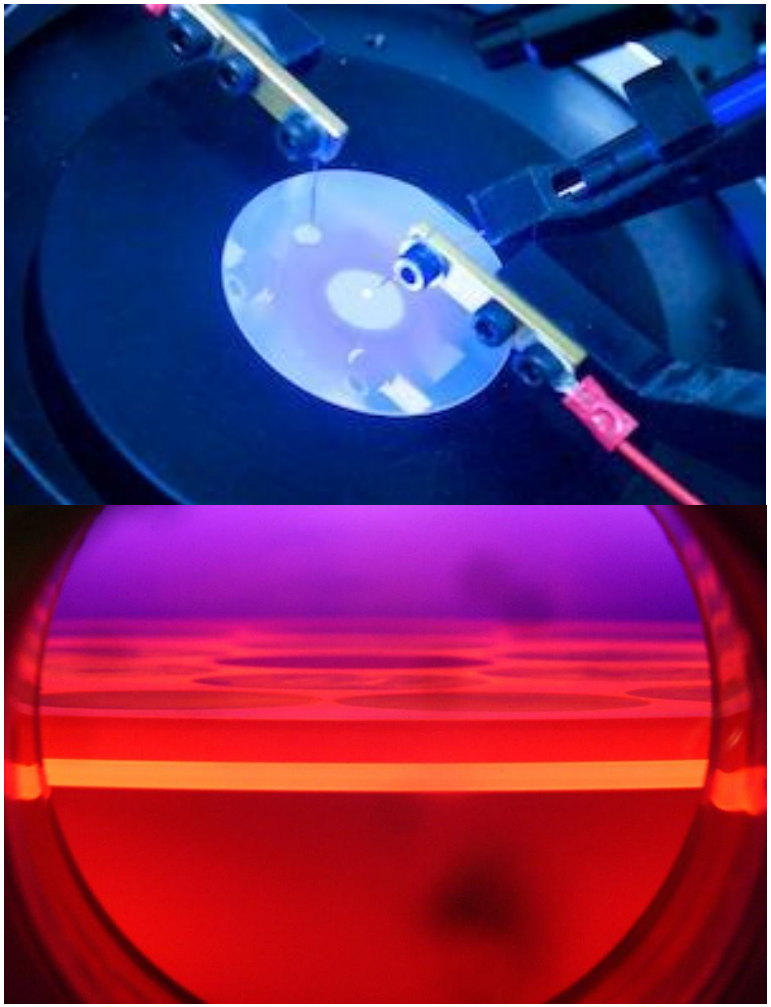
TV's

Concentrated Photovoltaics (CPV)



CRITICAL PATH TO MILESTONE

- The key advantage of RPCVD is GaN growth at significantly lower temperatures than the industry standard MOCVD
- BluGlass has grown RPCVD p-GaN films with electrical properties equivalent to industry standard MOCVD films
- The next step is to demonstrate better LED efficiency using RPCVD p-GaN proving that RPCVD can produce **Brighter LEDs**
- The **Brighter LEDs** milestone is key to the commercialisation of the technology
- A number of paths to market are under consideration by the Company



SIGNIFICANT PROGRESS

SEPTEMBER 2012

Awarded a key patent for depositing metal nitride films

OCTOBER 2012

Impurity levels equal to the industry standard process

NOVEMBER 2012

PROOF OF CONCEPT n-GaN films with electrical properties meeting industry benchmarks

DECEMBER 2012

$4.75m raised through Institutional Placement & Share Purchase Plan

DECEMBER 2012

Preliminary demonstration of p-GaN films using RPCVD

FEBRUARY 2013

Successfully produced p-GaN films using RPCVD meeting industry performance benchmarks

JULY 2013

$2.99m awarded under the Clean Technology Innovation Program

OCTOBER 2013

Australian Cleantech Competition – Overall winner 2013

NOVEMBER 2013

Commissioning of Thomas Swan MOCVD system

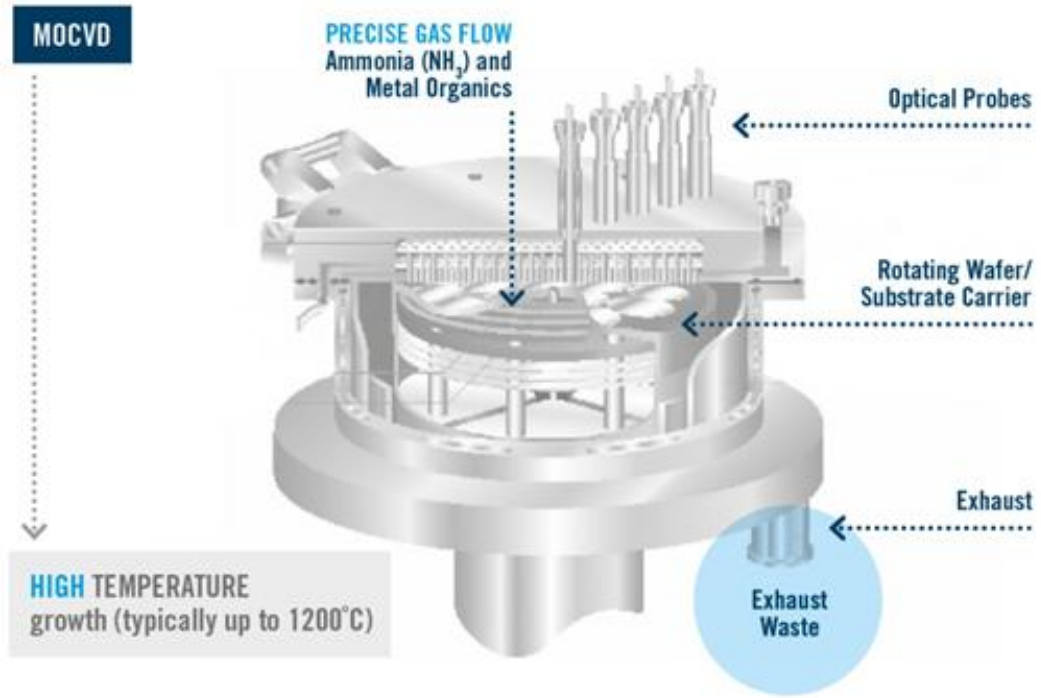
THE LED OPPORTUNITY

The Solid State Lighting (SSL) market is projected to exceed US $13 Billion by 2017 – Strategies Unlimited January 2014

THE LIMITATIONS OF ↑TEMP GROWTH

BLUGLASS

MOCVD



CHALLENGES

High temperature process limits MQW performance (active region of LED)

Uses ammonia as nitrogen source – produces toxic waste

High temperatures limit use of large silicon substrates

THE SOLUTION: ⬇ TEMP RPCVD

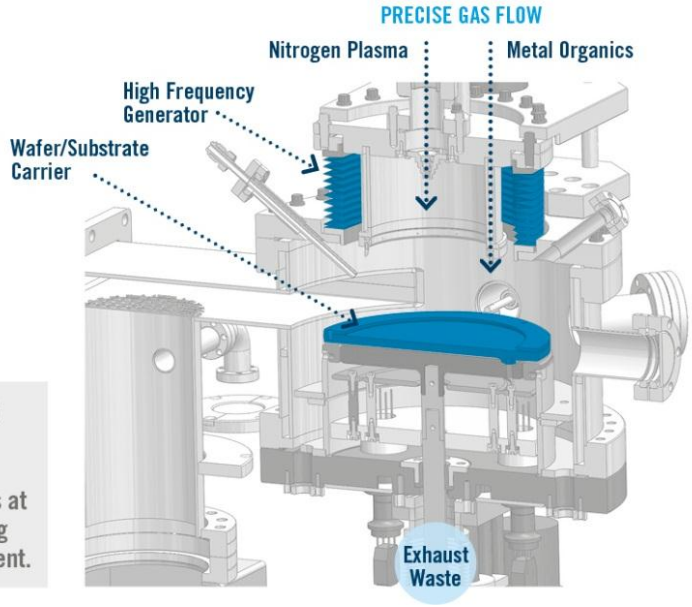
BLUGLASS

RPCVD

RPCVD

REDUCED GAS INPUTS
Lower Cost

LOW TEMPERATURE RPCVD has the potential to allow manufacturers to create higher performing devices at lower cost while also being friendlier to the environment.

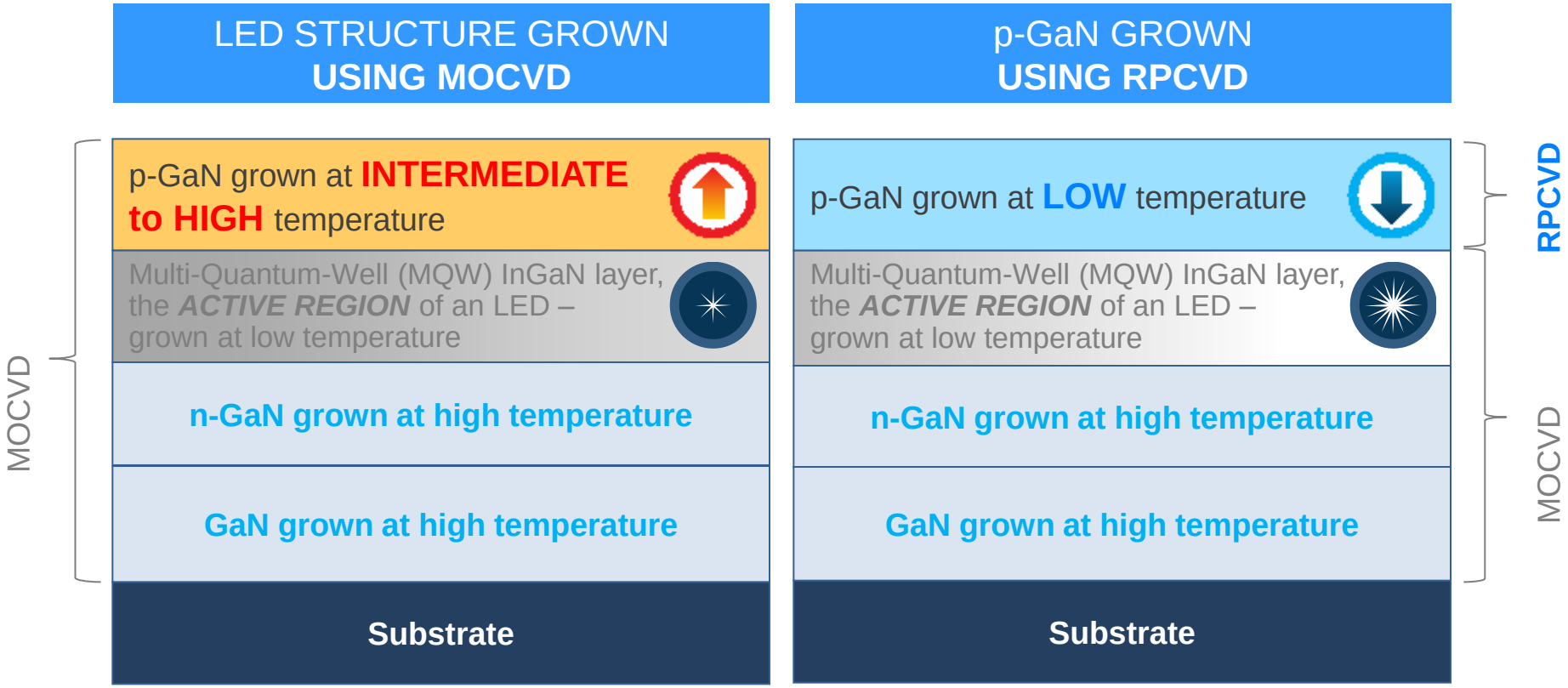


BENEFITS

- ✓ Low temperature process
- ✓ Potential performance advantages
- ✓ Lower cost inputs (nitrogen instead of ammonia)
- ✓ Substrate flexibility (sapphire, GaN and silicon)
- ✓ High potential for scalability

BRIGHTER LEDS MILESTONE

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

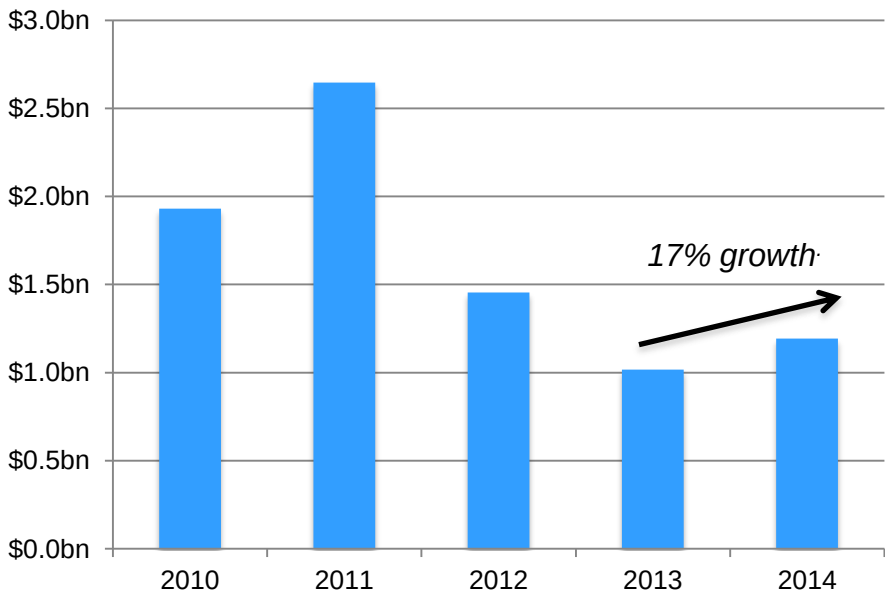


A HIGH GROWTH MARKET

JP Morgan expects the LED industry and its equipment suppliers to benefit from accelerating adoption of LEDs in general lighting from 2014.

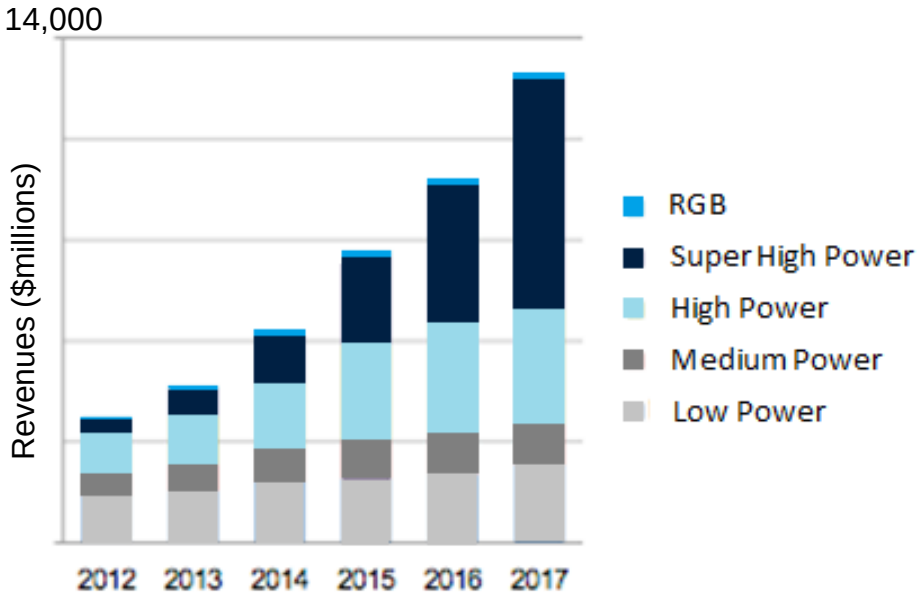
. . . driven by the rapid growth in demand for LED in the general lighting market

LED EQUIPMENT SPENDING



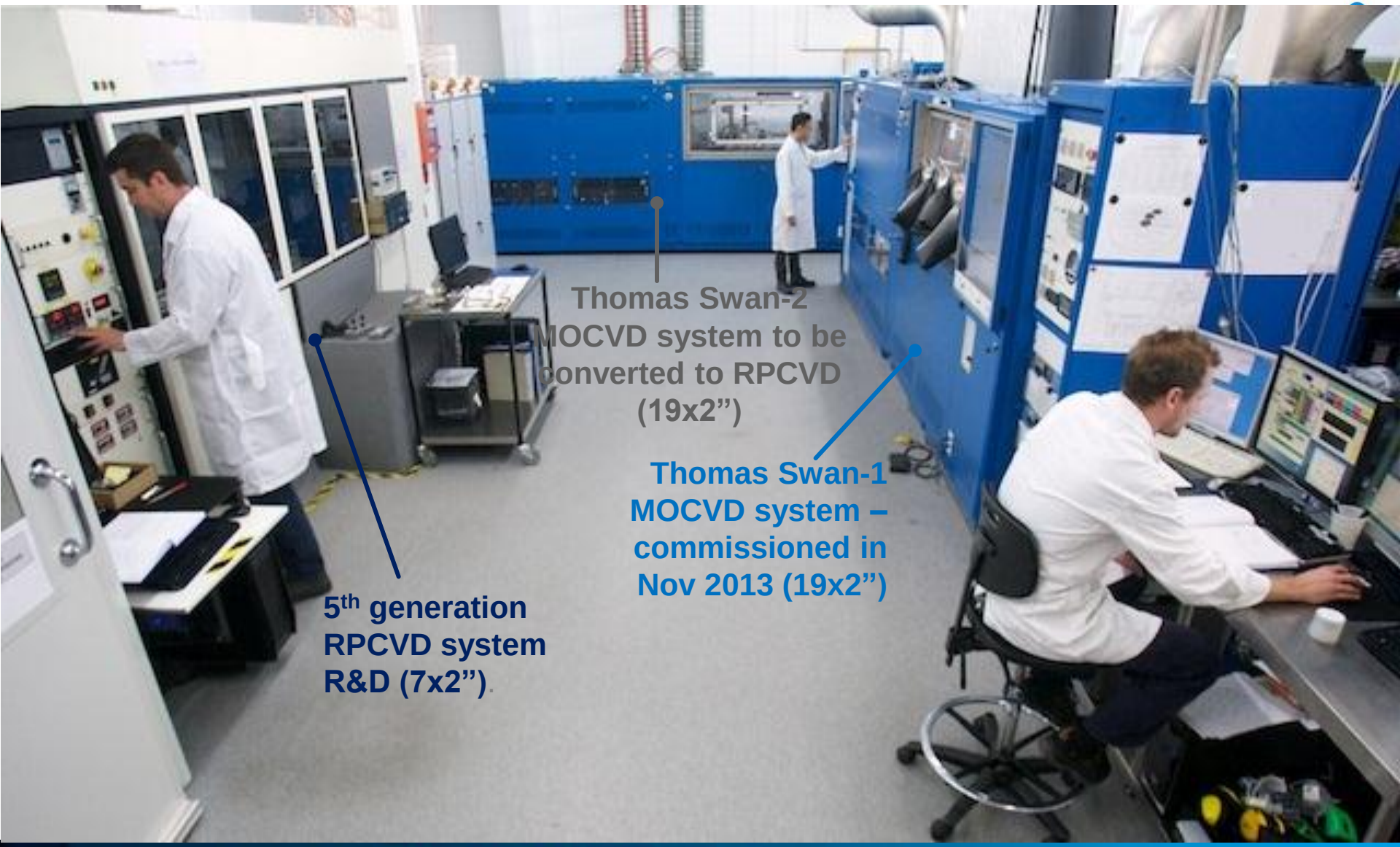
SOURCE: Semiconductor Today, August 2013

LED LIGHTING MARKET GROWTH



SOURCE: Strategies Unlimited, January 2014

SILVERWATER FACILITY



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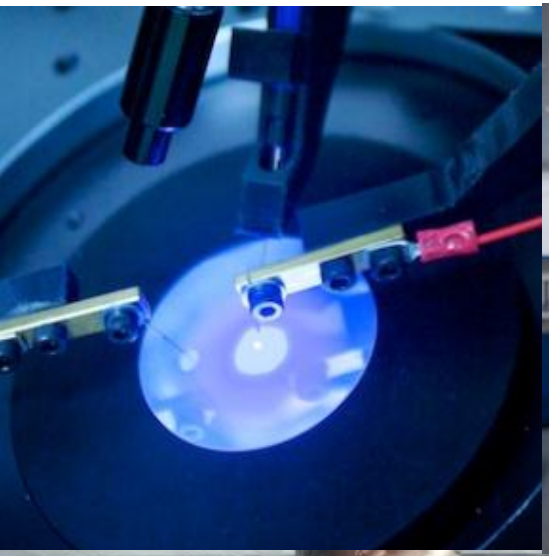






OTHER OPPORTUNITIES

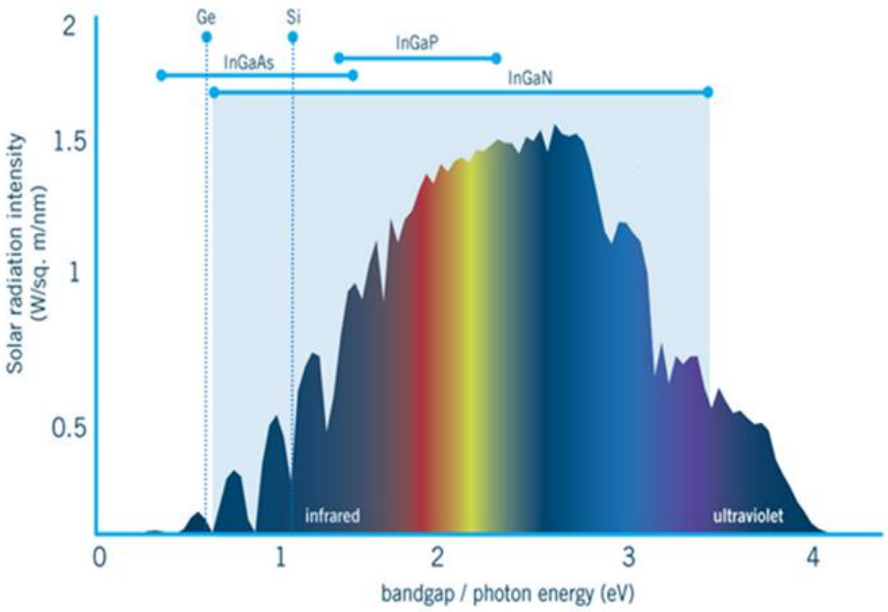
With the emergence of silicon as a viable alternative to traditional, expensive substrates for LEDs, CPV solar cells and power electronics; BluGlass is positioned to commercialise its ground breaking technology during a period of high market growth

RPCVD FOR CPV (SOLAR)

CONCENTRATED PHOTOVOLTAICS (CPV)

The RPCVD low temperature process has potential to grow higher indium content InGaN than MOCVD

BLUGLASS TECHNOLOGY



✓ RPCVD technology should be ideal for InGaN devices

⟶ Low temperature ⟶ High indium content InGaN ⟶ Scalable process

✓ Single material solution

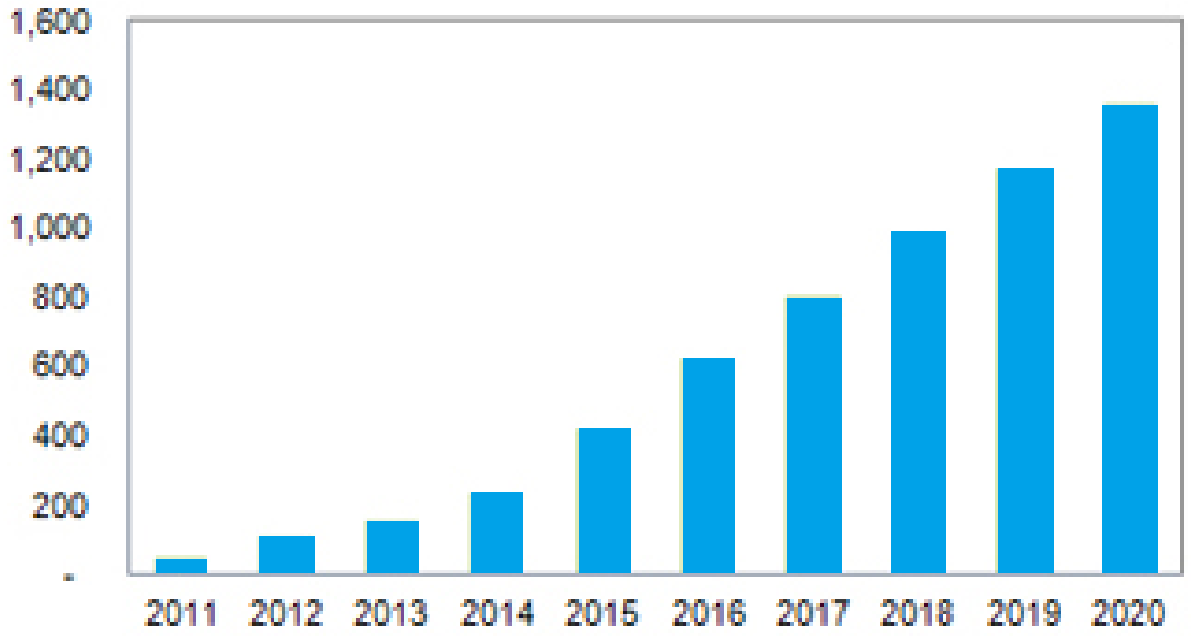
⟶ InGaN layers with varying indium content makes a simpler device compared to conventional multi-material solar cells

✓ InGaN CPV offers high efficiency

⟶ Efficiencies over 50% possible

CPV MARKET OPPORTUNITY

GLOBAL CPV INSTALLATION FORECAST (MW)



SOURCE: Chart - IHS Inc. December 2013

The CPV market is expected to grow to **1.36GW by 2020** (IHS Inc).

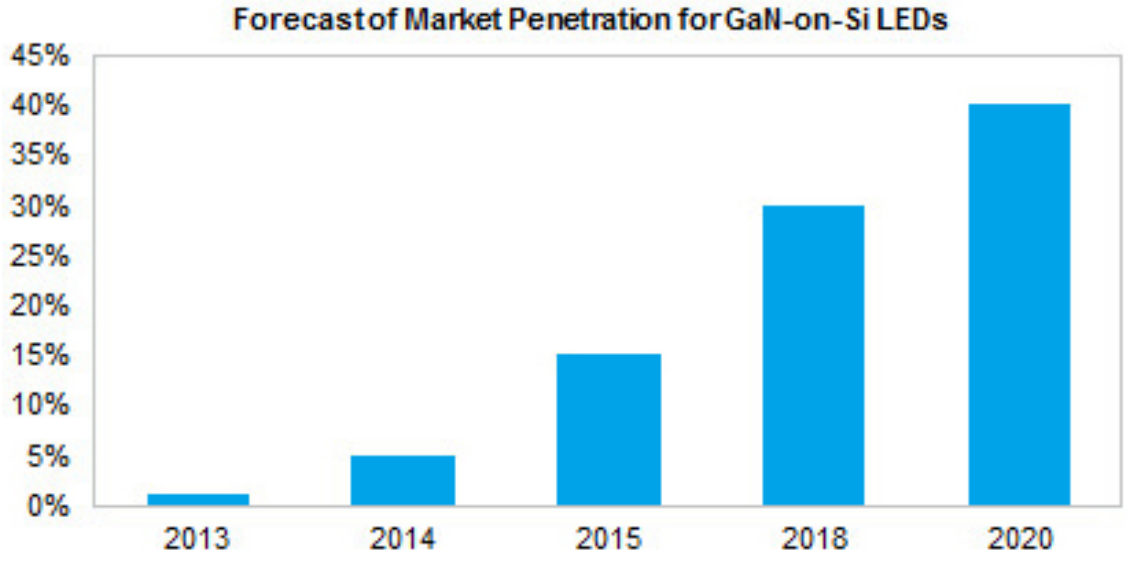
CPV continues to emerge as the most effective method to deliver large scale, cost effective renewable energy from the sun (Global Data).

RPCVD FOR GaN ON SILICON

LED and power device manufacturers continue to look for ways to reduce cost

GaN growth on large silicon (Si) wafers present opportunities of scale and use of existing silicon processing lines

But thermal mismatch with MOCVD grown GaN on Si presents problems

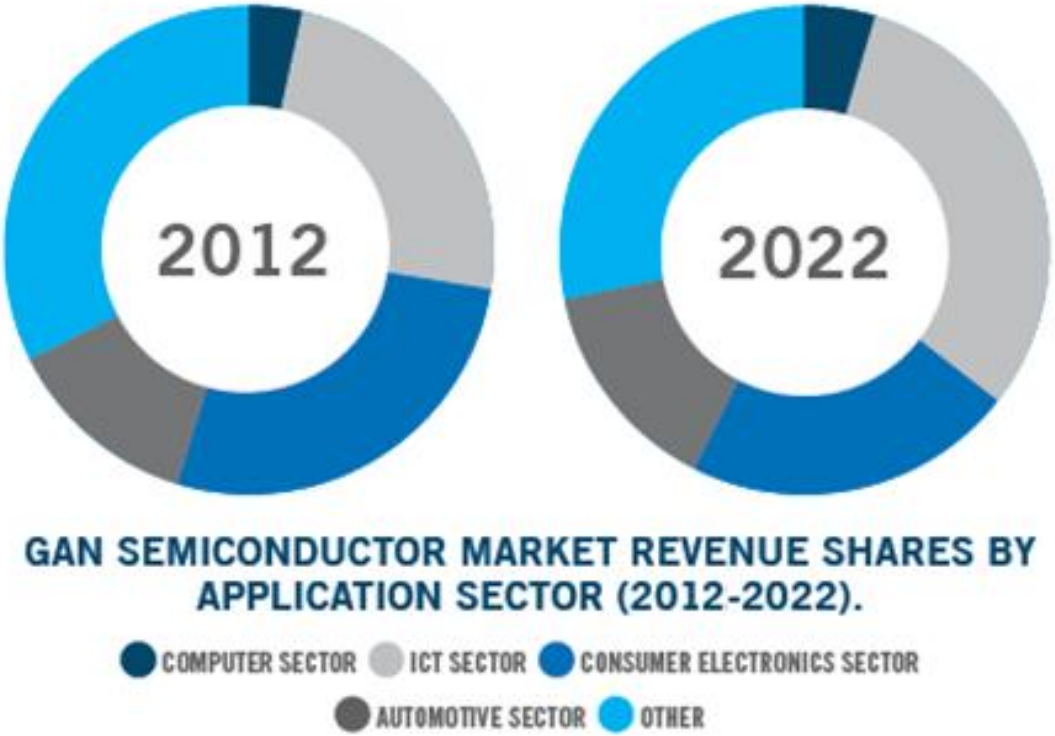


SOURCE: Chart - IHS Inc. December 2013

THE RPCVD SOLUTION

- Low temperature RPCVD has the potential to reduce wafer bowing and prevent GaN film cracking, issues with MOCVD grown GaN on Si
- BluGlass is converting a 19 x 2" Thomas Swan MOCVD system into an RPCVD system which will be used in the development of RPCVD GaN on Si technology
- BluGlass plans to demonstrate RPCVD GaN deposition on up to 8 inch Si wafers

POWER ELECTRONICS MARKET

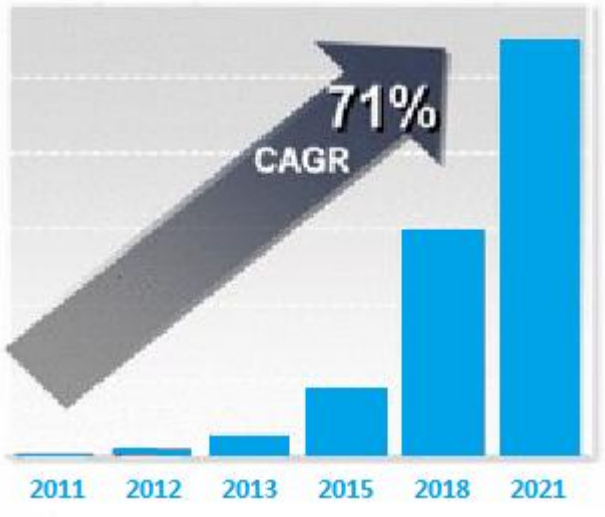


The power electronics market was US **$20B in 2012.**

GaN use in power electronics is still in its infancy and had only $12.6m market share in 2012.

SOURCE: Chart and Data - GaN Semiconductor Devices, Global Forecast and Analysis (2012-2022) by Markets and Markets

GaN POWER DEVICE FORECAST

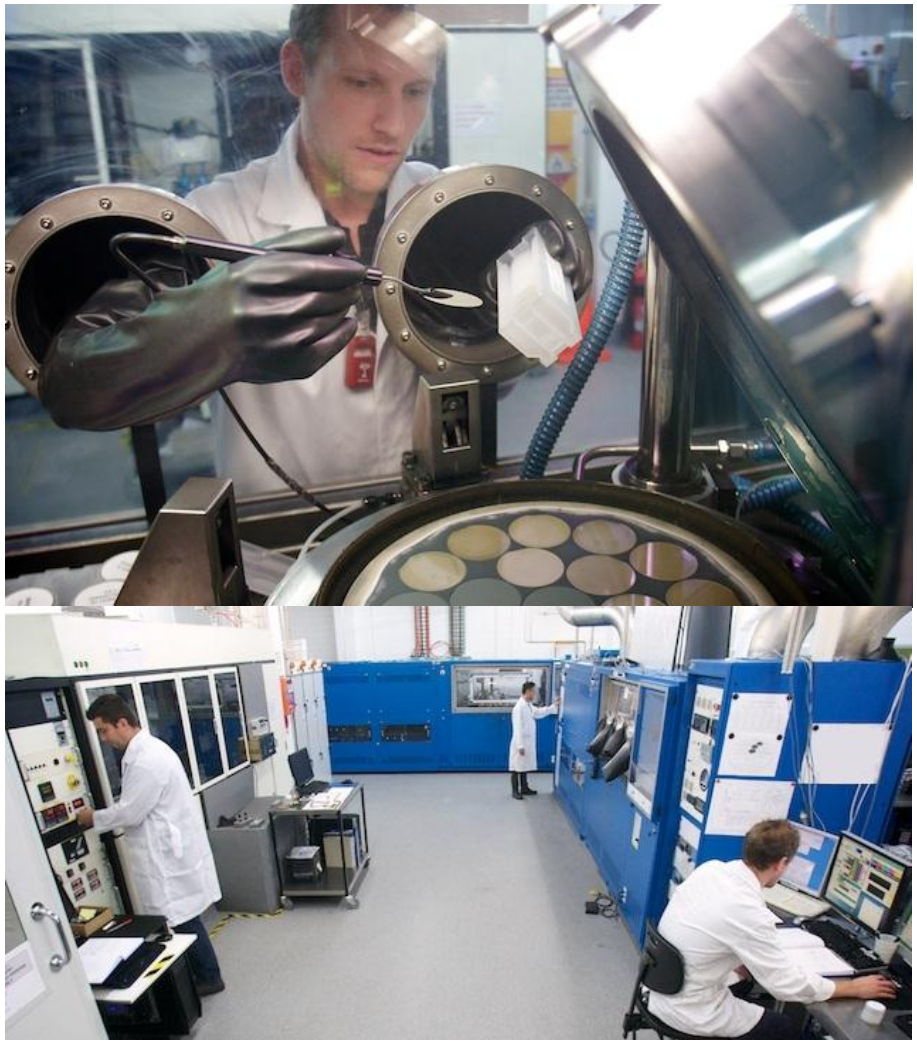


The GaN power electronics market is expected to grow at a **CAGR of 63.78%** over 10 years to **$1.75B by 2022**

SOURCE: Chart IMS Research 2012
Data- GaN Semiconductor Devices, Global Forecast and Analysis (2012-2022) by Markets and Markets

FOUNDRY SERVICE MARKET

- Foundries grow specialty films for companies and/or R&D organisations
- BluGlass remains committed to commercialising RPCVD with its world class research lab and team
- BluGlass has multiple tools for producing niche products with MOCVD and soon RPCVD
- BluGlass will offer limited foundry work to begin building customer relationships and gain exposure to the greater GaN market space
- Incidental revenue will assist in core development programs, but main goal is market exposure



FORWARD STRATEGY AND ROADMAPS

2013 was the most significant year to date for the Company and bodes well for an exciting 2014 as BluGlass evolves from a pure research and development company to one pursuing commercial and market goals. The next milestone to produce Brighter LEDs using our unique RPCVD approach is a significant achievement for BluGlass, that may well have implications for the LED industry.

STRATEGY FOR THE COMING YEAR

TECHNOLOGY

Meet milestones, beginning with “Brighter LEDs” performance milestone

Accelerate R&D for GaN on silicon opportunity

Increase activity on CPV technology and milestones

MARKETS

Continue to focus on LED market as primary entry point

Evaluate other applications, such as GaN on Si for power devices

COMMERCIALISATION

Continue dialogue with LED market leaders and learn from limited foundry work

Prove the value proposition of RPCVD with ***Brighter LEDs*** milestone

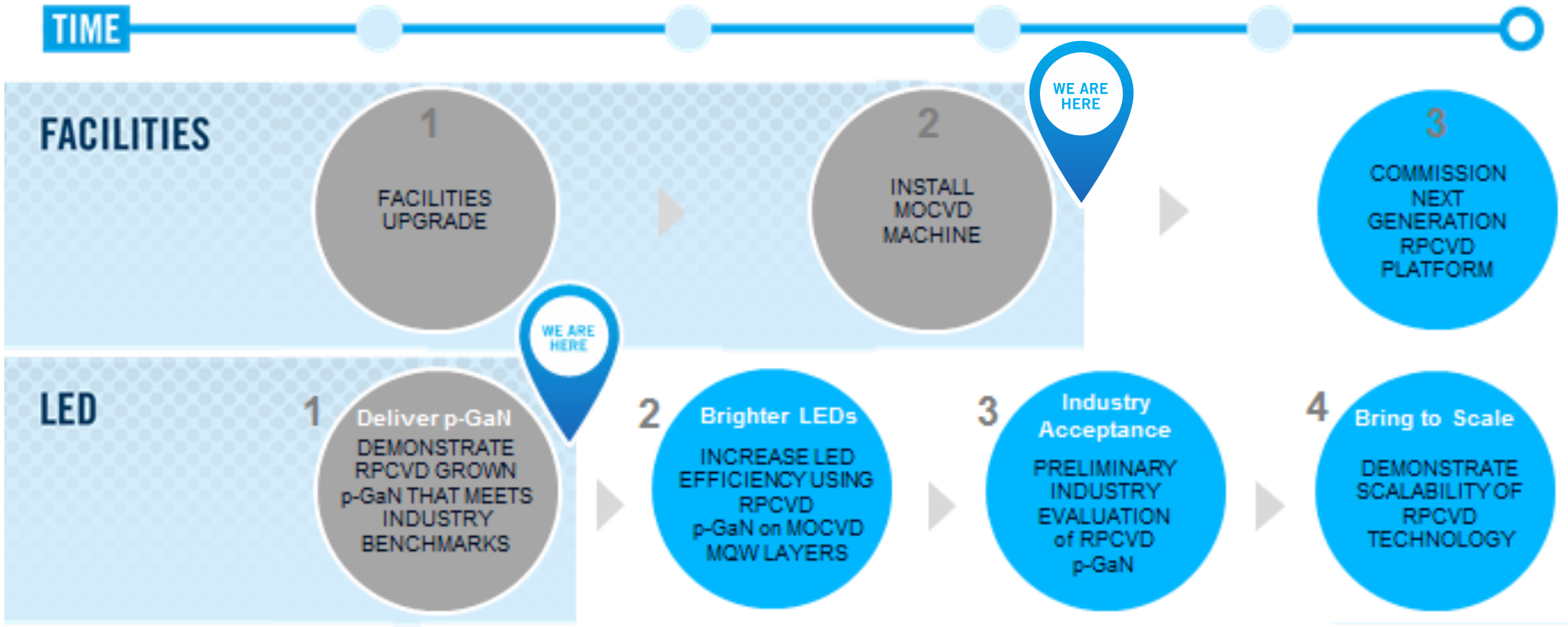
Enter into commercialisation phase as and when appropriate

INCREASING CAPACITY

TIME

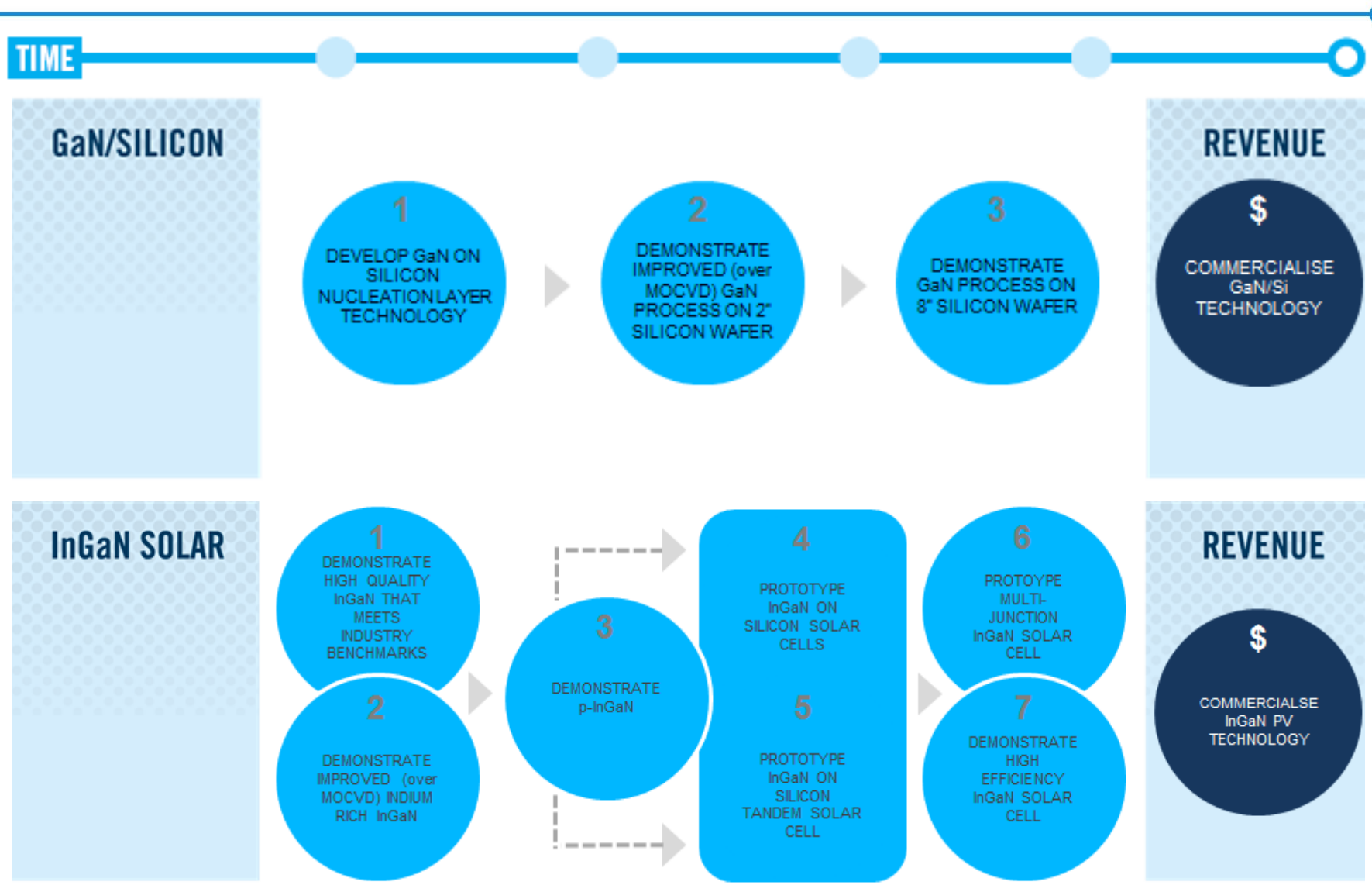
	FY 2012	FY 2013	FY 2014 FORECAST
TECHNOLOGY	Progressing towards reducing impurities levels in GaN films	Proof of Concept Milestone Low temperature n-GaN and p-GaN films that meet industry benchmarks	Brighter LEDs using low temperature RPCVD Developing GaN on silicon at low temperature
CAPACITY	One system: 5th Generation RPCVD system	One system: 5th Generation RPCVD system	Three systems: 5th Generation RPCVD system Thomas Swan MOCVD system Thomas Swan retrofitted RPCVD system
COMMERCIAL-ISATION	On track to deliver technology milestones	Commenced LED industry engagement	Early template revenue stream (MOCVD/RPCVD) Partnering/licensing agreement with company/ies in the LED value chain

DEVELOPMENT ROADMAP



This indicative Roadmap is a forward looking statement based on the current expectations, estimates, projections and assumptions of BluGlass Management. Because it is a work in progress, subject to known and unknown risks and uncertainties, actual future milestones, results and timelines may differ materially from what is forecast at this time.

DEVELOPMENT ROADMAP



BLUGLASS

THANK - YOU

74 Asquith Street, Silverwater, NSW, 2128
Australia
P: +61 (0) 2 9334 2300
W: www.bluglass.com.au