

# BLUGLASS PRESENTATION

GILES BOURNE, CEO, BLUGLASS LIMITED

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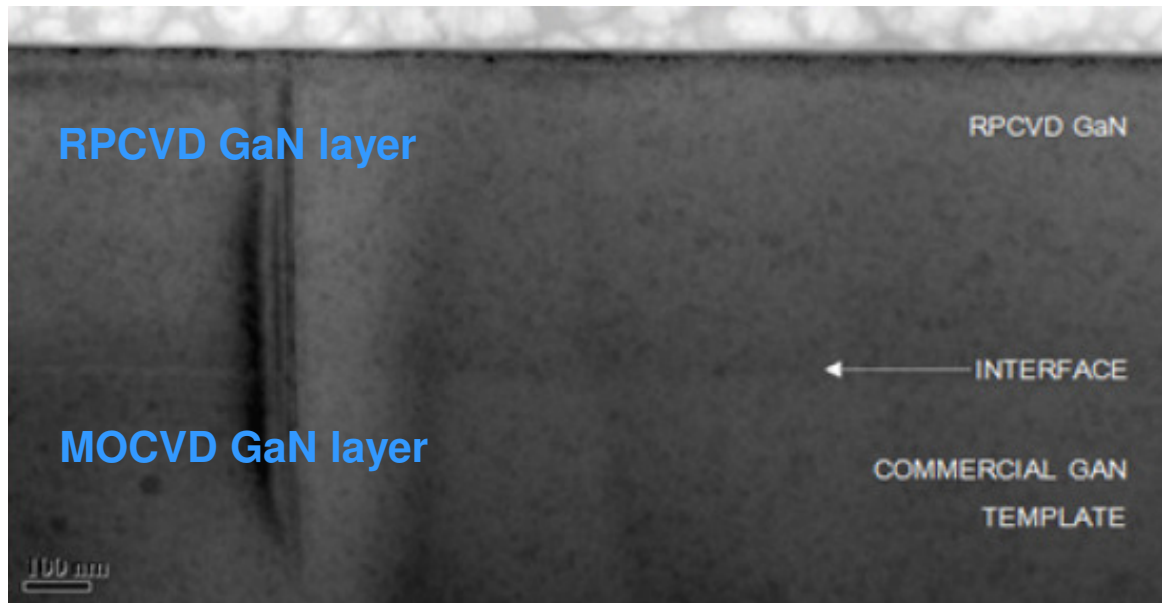
## EXECUTIVE SUMMARY

✓	Breakthrough Technology	<ul style="list-style-type: none"><li>▪ BluGlass has patented processes for exploiting Remote Plasma Chemical Vapour Deposition (RPCVD)</li><li>▪ Applicable to several large end markets</li></ul>
✓	Performance and Cost Advantages	<ul style="list-style-type: none"><li>▪ Superior performance potential for LED and PV devices enabled through BluGlass' unique lower temperature process</li><li>▪ Cost and scalability benefits</li></ul>
✓	Rapidly Growing End Markets	<ul style="list-style-type: none"><li>▪ LED market grew from \$11.3B in 2010 to \$12.5B in 2011. Demand for LEDs in lighting market grew 44% to \$1.8B in 2011 <sup>1</sup>.</li><li>▪ Concentrated Photovoltaic (CPV) solar cell market expanding to 1.5GW by 2015 <sup>2</sup>.</li></ul>
✓	Key Partnerships	<ul style="list-style-type: none"><li>▪ JV with SPTS Technologies (global semiconductor equipment provider)</li><li>▪ Significant Australian Government grants</li></ul>
✓	Progressing towards commercialisation	<ul style="list-style-type: none"><li>▪ RPCVD technology approaches commercialisation</li><li>▪ Next steps for the company:<ul style="list-style-type: none"><li>- Produce commercial quality material</li><li>- Produce market leading material</li><li>- Customer site for demonstration and testing</li></ul></li></ul>

1. Source: Strategies Unlimited March 2012    2. Source: 2010-2015 CPV Consortium 2010 Report

## RECENT ANNOUNCEMENTS

### TEM IMAGE AT INTERMEDIATE MAGNIFICATION



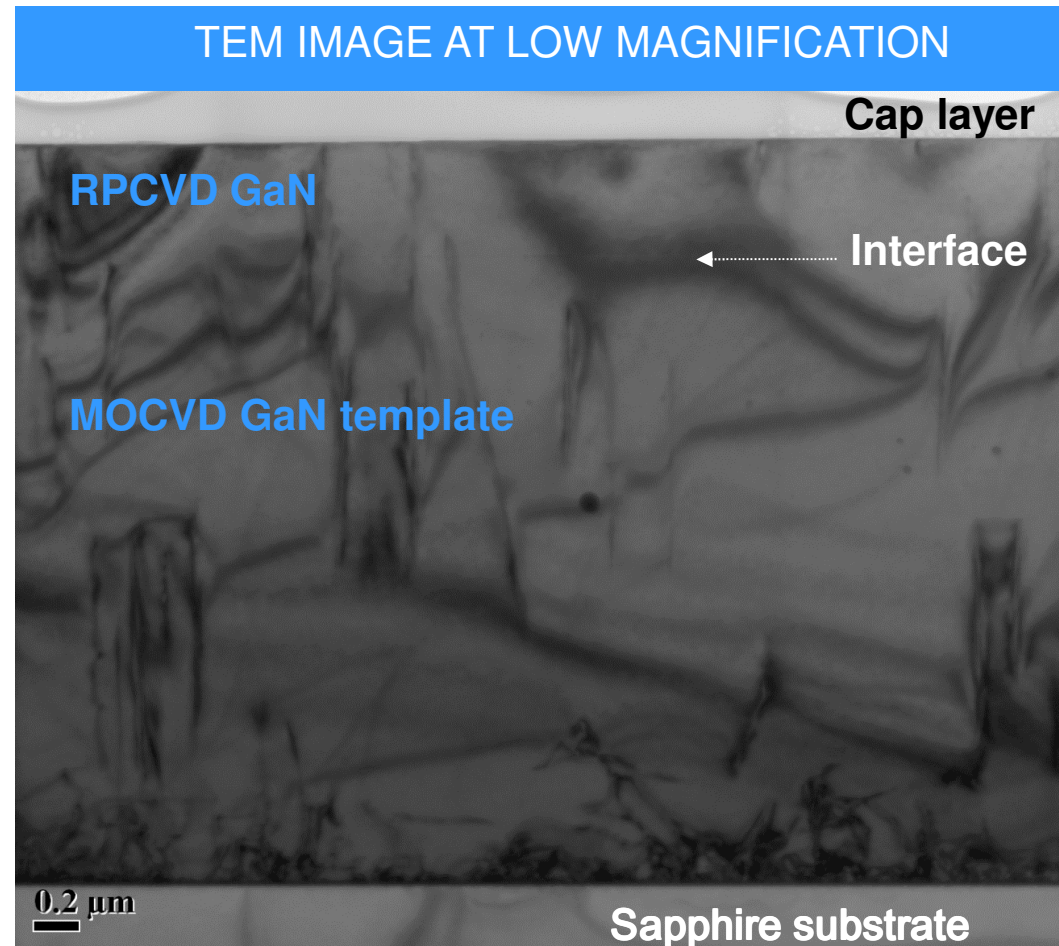
*As shown in the transmission electron microscopy (TEM) image, both the MOCVD and low temperature RPCVD GaN layers (dark grey layers) are of equal quality, i.e. both have a low defect density and good crystalline quality*

- BluGlass produces high quality crystalline GaN films using low temperature RPCVD
  - ✓ Independent Expert verification of film quality
- The achievement of high quality crystalline GaN films grown at low temperature on commercial MOCVD GaN templates is the result of a significant reduction of the 'defect density' in RPCVD GaN material

## LOW DEFECT DENSITY RPCVD GAN

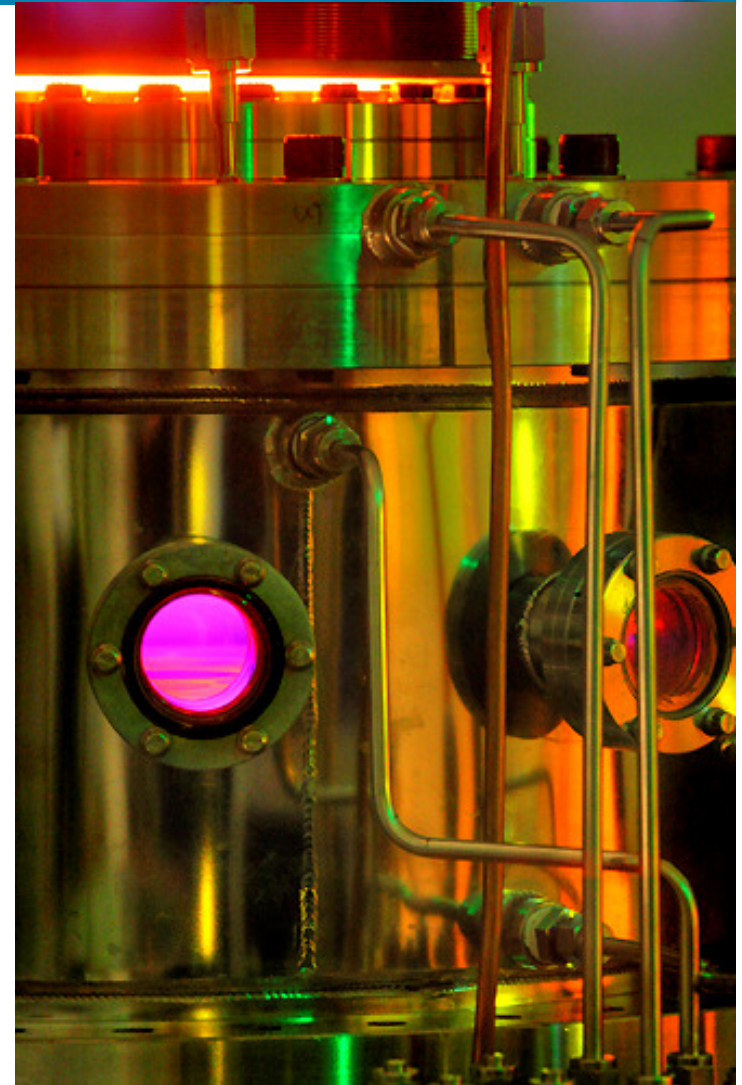
*BluGlass has made inroads towards proving the commercial potential of RPCVD*

- Significant progress towards minimising impurities to within industry acceptable ranges
- The crystal quality is a dramatic improvement for RPCVD; and is largely due to the reduction of impurities incorporated into the GaN layer during growth



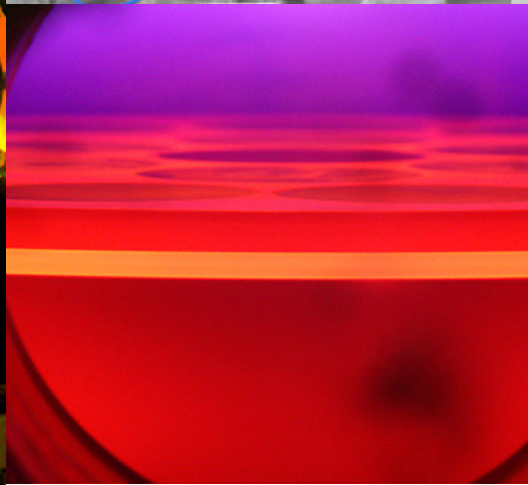


- **BLUGLASS OVERVIEW** **7**
  - Fast Facts
  - Virtual Tour
  - A Platform Technology
  
- **THE LED OPPORTUNITY** **10**
  - A Low Temperature Process
  - Target Market Features
  - Equipment Market
  
- **THE SOLAR OPPORTUNITY** **16**
  - What is CPV
  - Why InGaN CPV
  - Why RPCVD for InGaN CPV
  - Target Market Features
  
- **ROADMAP and HIGHLIGHTS** **21**
  - Roadmap to Market
  - Investment Highlights



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# VIRTUAL TOUR





## FAST FACTS

<b>BluGlass Limited Corporate Profile</b>			
<b>ASX CODE</b>	BLG	<b>ESTABLISHED</b>	22 September 2006
<b>SHARES ON ISSUE</b>	240 Million	<b>MARKET CAPITALISATION</b>	\$18.9 Million (28.06.12)
<b>SIGNIFICANT HOLDERS</b>	SPTS Pty Ltd (Global Semiconductor Equipment Manufacturer) (19.9%) Access Macquarie and Macquarie University (9.7%) Wellington Management (Boston, USA) (5.8%)		
<b>KEY STAFF</b>	Giles Bourne (CEO) Stuart Uhlhorn (CFO)  Dr Ian Mann (CTO)		
<b>BOARD OF DIRECTORS</b>	George Venardos (Chairman) Chandra Kantamneni Greg Comelsen  Dr Bill Johnson (SPTS President) Dr Alan Li		
<b>JOINT VENTURE</b>	BluGlass has entered into a joint venture with global semiconductor equipment manufacturer, SPTS Pty Ltd to bring RPCVD to market on field proven production platforms		
<b>INTELLECTUAL PROPERTY</b>	BluGlass currently has fourteen patents accepted or granted in key semiconductor markets including the USA, Japan and China		



# A PLATFORM TECHNOLOGY

ONE SOLUTION, MULTIPLE MARKETS



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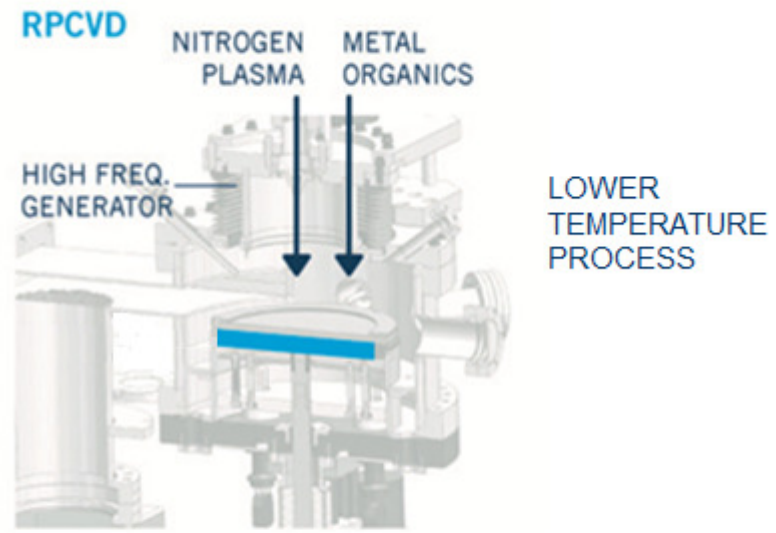
## LED OPPORTUNITY

*“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 VALUE PROPOSITION OF A LOW TEMPERATURE PROCESS

## BLUGLASS TECHNOLOGY



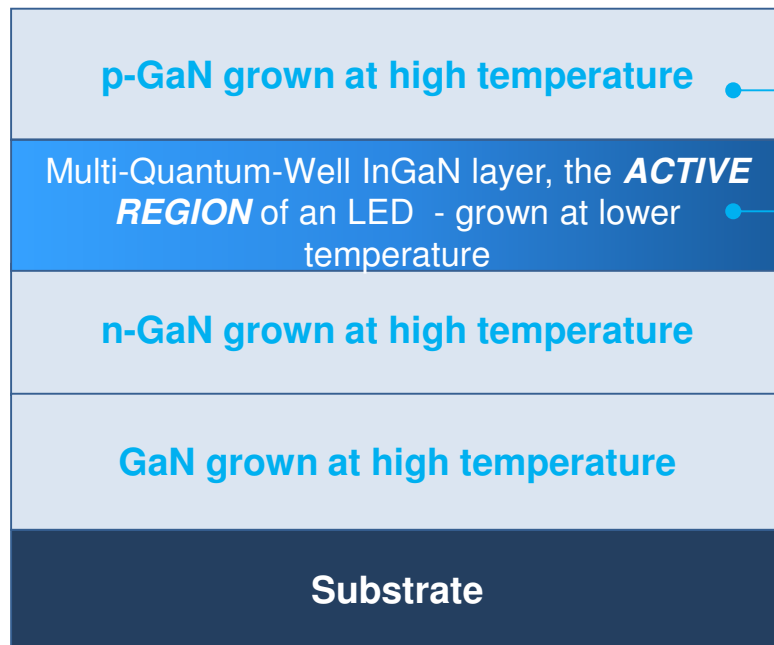
*A low temperature process offers manufacturers of LEDs significant advantages for both performance and cost*

- ✓ Low temperature process
- ✓ Potential performance advantages
- ✓ Low cost inputs
- ✓ Substrate flexibility
- ✓ High potential for scalability

# PERFORMANCE ADVANTAGES FOR LED

*A low temperature growth system such as RPCVD offers LED manufacturers compelling performance advantages at several stages of device growth*

## LED STRUCTURE GROWN USING MOCVD



## BENEFITS OF RPCVD GROWTH

The higher temperature growth of the p-GaN top layer can cause some of Indium to diffuse out of the active MQW layer and reduce the LEDs light performance. MOCVD cannot effectively grow quality p-GaN at lower temperatures *RPCVD has great potential to improve device performance simply by growing a low temperature p-GaN layer which in turn improves the stability of the InGaN layer during fabrication*

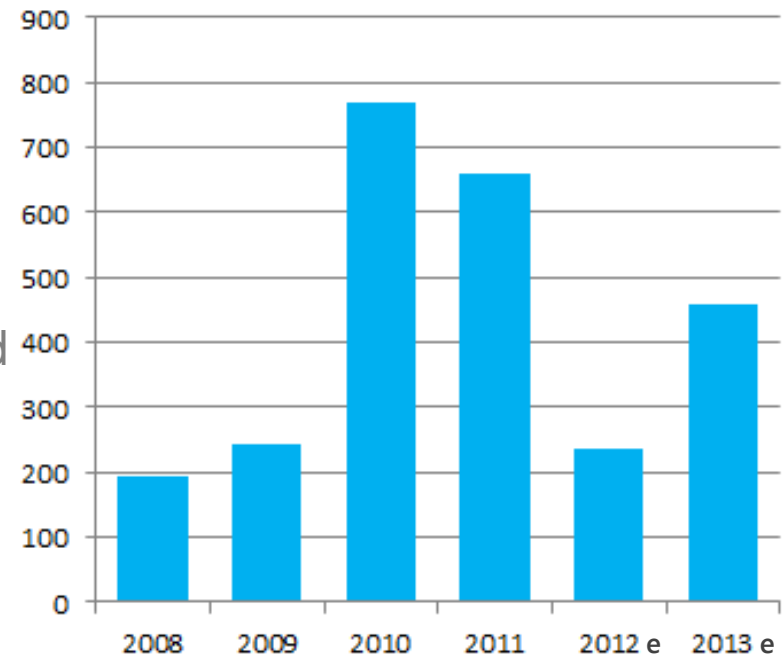
A second potential for RPCVD is the growth of high quality InGaN MQW layers at lower temperatures than MOCVD *The RPCVD process could enable Indium rich MQW layers necessary for green LEDs and also for PV devices*



## TARGET MARKET FEATURES

- BluGlass is targeting the high value / high margin LED equipment market
  - *US\$6.1 Billion opportunity through to the end of the decade<sup>1</sup>*
- Veeco estimates ~400-800 machines shipped annually for LEDs to 2016<sup>2</sup>
- Two global (NASDAQ) MOCVD companies hold +95% of the market
  - Veeco (US) (market cap US\$1.32B<sup>3</sup>)
  - Aixtron (Germany) (market cap US\$1.48B<sup>3</sup>)
- High gross margins with tools selling ~US\$2M system purchase price
- This market is driven by the rapidly expanding LED lighting market

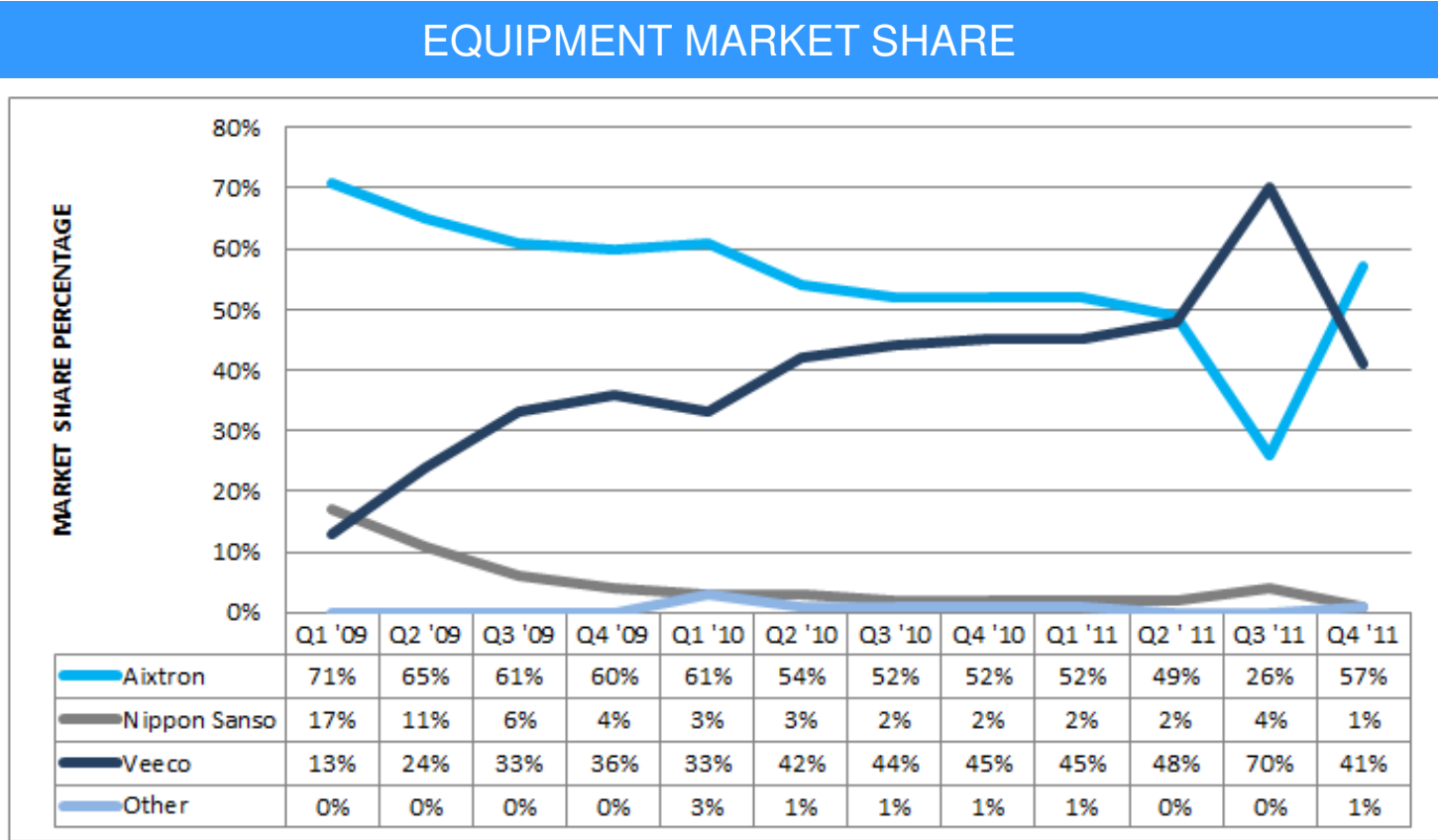
### MOCVD UNITS SHIPPED



Notes: 1). Yolé Développement III-V Epitaxy Equipment and Application Market Report 2012 2). Veeco Investor Presentation June 2012 3). As at 13 June 2012 ; Chart Source: B Riley and Co 2012

# EQUIPMENT MARKET SHARE

The MOCVD market is highly concentrated and is currently dominated by two key players: Aixtron of Germany and Veeco of the USA



Source: IMS Research Quarterly GaN LED Supply and Demand Report March 2012

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# MARKET DRIVER

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## LED Market 2011-16



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