



ClearVue<sup>PV</sup>

CLEARVUE TECHNOLOGIES LIMITED

# Commercialisation & Technology Update Investor Briefing

14 February 2024

ENERGY EFFICIENT | ENERGY GENERATING | CLEAR GLASS

# Legal Disclaimer



This presentation has been prepared and issued by ClearVue Technologies Limited (the "Company") to assist it in informing interested parties about the Company and its progress which is current as at the date of this presentation. This presentation is for information purposes only it should not be considered as an offer or invitation to subscribe for or purchase any securities in the Company or as an inducement to make an offer or invitation with respect to those securities. This presentation does not purport to contain all the information that a prospective investor may require in connection with any potential investment in the Company. You should not treat the contents of this presentation, or any information provided in connection with it, as financial advice, financial product advice or advice relating to legal, taxation or investment matters. No representation or warranty (whether express or implied) is made by the Company or any of its officers, advisers, agents or employees as to the accuracy, completeness or reasonableness of the information, statements, opinions or matters (express or implied) arising out of, contained in or derived from this presentation or provided in connection with it, or any omission from this presentation, nor as to the attainability of any estimates, forecasts or projections set out in this presentation. Neither the Company or its advisers have verified the accuracy or completeness of the information, statements or opinions contained in this presentation. This presentation is provided expressly on the basis that you will carry out your own independent inquiries into the matters contained in the presentation and make your own independent decisions about the affairs, financial position or prospects of the Company. The Company reserves the right to update, amend or supplement the information at any time in its absolute discretion (without incurring any obligation to do so). Neither the Company, nor its related bodies corporate, officers, their advisers, agents and employees accept any responsibility or liability to you or to any other person or entity arising out of this presentation including pursuant to the general law (whether for negligence, under statute or otherwise), or under the Australian Securities and Investments Commission Act 2001, Corporations Act 2001, Competition and Consumer Act 2010 or any corresponding provision of any Australian state or territory legislation (or the law of any similar legislation in any other jurisdiction), or similar provision under any applicable law. Any such responsibility or liability is, to the maximum extent permitted by law, expressly disclaimed and excluded. Nothing in this material should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities. It does not include all available information and should not be used in isolation as a basis to invest in the Company.

Future Matters | This presentation may contain reference to certain intentions, expectations, future plans, strategy, revenue forecasts and prospects of the Company. Those intentions, expectations, future plans, strategy, revenue forecasts and prospects may or may not be achieved and may be "forward-looking statements". They are based on certain assumptions, which may not be met or on which views may differ and may be affected by known and unknown risks. The performance and operations of the Company may be influenced by a number of factors, many of which are outside the control of the Company. No representation or warranty, express or implied, is made by the Company, or any of its directors, officers, employees, advisers or agents that any intentions, expectations or plans will be achieved either totally or partially or that any particular rate of return will be achieved. Given the risks and uncertainties that may cause the Company's actual future results, performance or achievements to be materially different from those expected, planned or intended, recipients should not place undue reliance on these intentions, expectations, future plans, strategy, revenue forecasts and prospects. The Company does not warrant or represent that the actual results, performance or achievements will be as expected, planned or intended.

US Disclosure | This document does not constitute any part of any offer to sell, or the solicitation of an offer to buy, any securities in the United States or to, or for the account or benefit of any "US person" as defined in Regulation S under the US Securities Act of 1993 ("Securities Act"). The Company's shares have not been, and will not be, registered under the Securities Act or the securities laws of any state or other jurisdiction of the United States, and may not be offered or sold in the United States or to any US person without being so registered or pursuant to an exemption from registration including an exemption for qualified institutional buyers.



*At ClearVue, we generate electricity from clear glass*

*Photo: Building and Construction Authority (BCA) Skylab test facility in Singapore. See ASX announcement dated 3<sup>rd</sup> Oct 2023*



# ClearVue Technologies – What do we do?



## We generate power from clear glass.

ClearVue Technologies has developed a nano- and -microparticle doped interlayer to activate ultraviolet and infrared light as it passes through glass. This reaction deflects the radiation to the edge of a window, allowing the energy to be harvested by solar cells within the frame of an Insulated Glass Unit ("IGU"). Our unique technology can be applied within a window, skylight, curtain wall and other glass structures such as agrisolar greenhouses.

The capacity to generate autonomous power leads means we can identify the operating carbon savings within a building, a critical element to achieving net zero carbon buildings.

### ClearVue Technologies – Business Model

Our business model is to license core IP and know-how to existing glass fabricators around the world. We will derive revenue from:

1. license fees
2. royalty fees on square meters of glass sold
3. margin on the nanoparticle interlayer, photovoltaic strips, connecting components and spandrel and façade components supplied to the licensee.

The license model enables us to scale quickly without significant infrastructure investment requirements, headcount, and operational costs.

### Intellectual Property - Patents

- Circa 150+

### History

The initial Research and Development was a collaboration with the Electron Science Research Institute at Edith Cowan University in Perth, Western Australia. The Company was listed on the ASX in May 2018 after an extensive, ten plus year R&D program and the success of the first minimum viable product. The Company has expansive global patent protection of all Intellectual Property.



### Geographic Footprint

- Australia – Head Office
- Europe
- United Kingdom
- United States

### Target Market

- Global façade market
- Global greenhouse market
- Global billboard advertising market
- Global skylight market

### ClearVue Technologies – Key Takeaways

- ClearVue operates in a “quasi” mandated change environment via accommodative global environmental policy and taxation concessions.
- Autonomous energy and quantifiable carbon benefits provide the building industry a path to net zero carbon buildings.
- Lower commercialisation risk via license business model. ClearVue is scalable and leverages existing logistics and industry capacity.
- Revenue model provides leverage to growth.
- Continued innovation, supported by IP protection, will open the door to new and emerging markets over time.

# Quasi mandated change environment supports outlook



Global policy change to decarbonise the economy

149

Countries adopted a Net Zero Economic Target

up from 124 in Dec 2020 <sup>1</sup>

The built environment requires a paradigm shift

42%

of Global CO2 emissions

attributable to the built environment. <sup>2</sup>

Construction demand shows no sign of slowing

6.13

Billion square meters p.a.

of new building floor area added globally. <sup>3</sup>

ClearVue presents a path for the built environment to comply with a country's net zero policy and compliance standards through energy-producing glass.

Source:

<sup>1</sup> Net Zero Tracker (New Climate Institute, Oxford Net Zero, Energy and Climate Intelligence Unit and DataDriven EnviroLab). Page 4, [https://ca1-nzt.edcdn.com/Reports/Net\\_Zero\\_Stocktake\\_2023.pdf?v=1689326892](https://ca1-nzt.edcdn.com/Reports/Net_Zero_Stocktake_2023.pdf?v=1689326892)

<sup>2</sup> Why the Built Environment? <https://www.architecture2030.org/why-the-built-environment/>

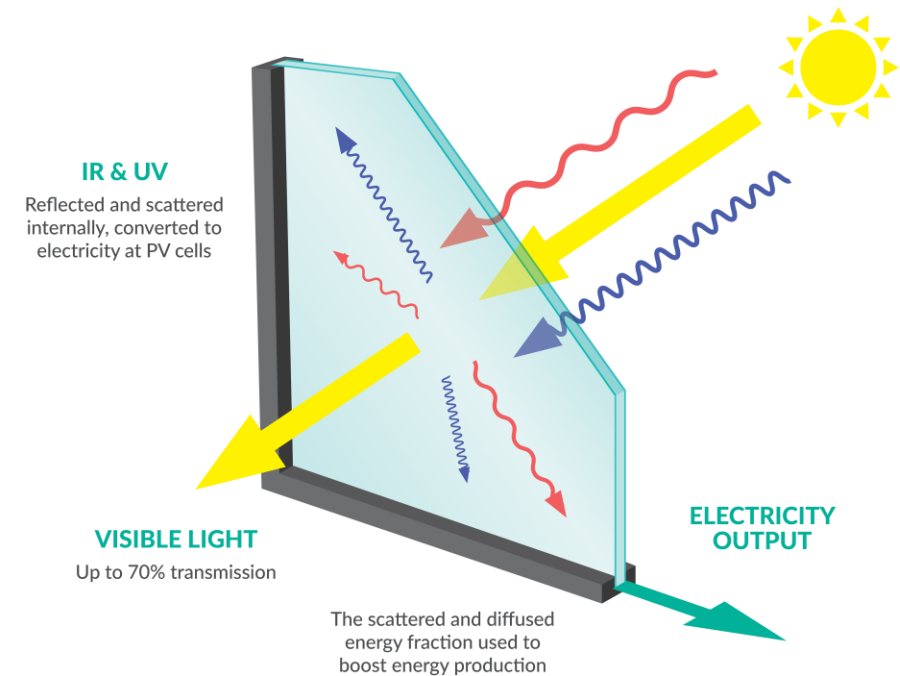
<sup>3</sup> <https://www.statista.com/statistics/731858/projected-global-building-floor-area-growth-by-region/>, average for 2015-2030

# ClearVue<sup>PV</sup> core IP: we generate power from clear glass



## TECHNOLOGY OVERVIEW:

- Technology is embedded in a double-glazed Insulated Glass Unit (IGU).
- Micro & nanoparticles interact with ultraviolet and infrared radiation, which is redirected to the edges of the glass for power generation by Photovoltaic (PV) cells.
- Visible light (T<sub>vis</sub>) passes through the glass “up to 70% VLT”.
- The electricity collected is either directed to a battery solution or used directly on-site as the energy is generated.
- The unit achieves power generation up to 30 W<sub>p</sub>/m<sup>2</sup> with high thermal envelope performance.
- Operates at a 90-degree angle, making it ideal for facades, greenhouses, and curtain walls.



## INTRODUCING CLEARVUEPV – GENERATION II

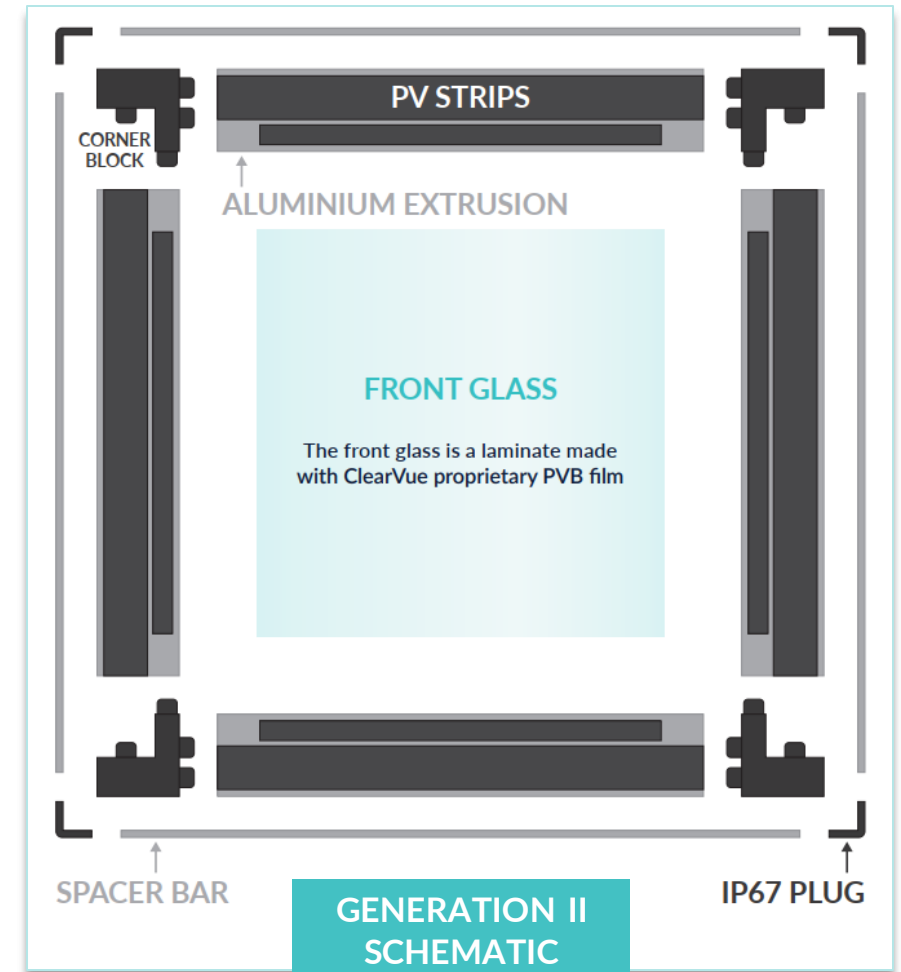
- A “plug and play” design features simplifies the manufacturing process.
- Scalable product - proven integration into existing fabricator production line with minimum process and time interruption.<sup>1</sup>
- Standardisation of components improves internal logistics and cost for global rollout.
- Compatible with most global industry framing and glazing standards providing flexibility in application.
- Energy generation, Solar Heat Gain Coefficient (SHGC) and Visible Light Transmission (VLT) are maintained.

Source:

<sup>1</sup> See ASX announcement dated 4<sup>th</sup> September 2023

SHGC is the fraction of solar radiation admitted through a window. The lower the SHGC, the less solar heat it transmits.

[www.clearvuepv.com](http://www.clearvuepv.com)



# Net Zero energy buildings are now within reach



## CLEARVUEPV DELIVERS A BUILDING ENVELOPE TO GENERATE ELECTRICITY.

The integration of ClearVue<sup>PV</sup> vision glass with solar spandrel and cladding solutions presents a whole-of-building approach to deliver on net zero building target obligations.

### Benefits of the building envelope solution:

- Significant uplift in energy output – up to 189 Wp/m<sup>2</sup>\*
- Drives accelerated financial and carbon payback.
- Turnkey solution for developers.
- Broadens the addressable market.
- Cross-sell and upsell opportunities.
- Expansion of ClearVue IP stack.

\*Utilizing the building model of Archetype II with full building envelope including solar cladding, vision glass, roof area, and solar spandrel being employed in electricity generation.

[www.clearvuepv.com](http://www.clearvuepv.com)

### Solar Cladding

Incorporating solar cells into cladding improves energy output and thermal performance without compromising appearance.

+

### Vision Glass

Core ClearVue IP is the catalyst for building change. Generate electricity whilst maintaining SHGC transparency of window.

+

### Solar Spandrel

Incorporating solar cells into the spandrel (floor section of the building) improves energy output and thermal performance without compromising appearance.

=

### Building envelope





# ClearVue<sup>PV</sup> building envelope: bringing it all together



## BUILDING ENVELOPE – ARCHETYPE MODEL II

ClearVue has engaged Footprint, an independent, industry recognised sustainability consultant in Canada. Footprint performed the building archetype of ClearVue<sup>PV</sup> Generation I. See [ASX Announcement of 12 January 2022](#).

## ARCHETYPE MODEL – ASSUMPTIONS

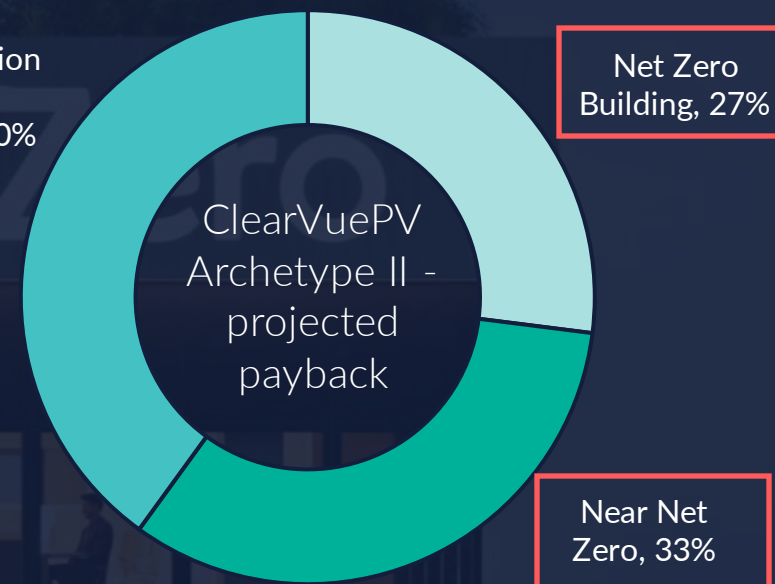
- 15 cities, including all Australian major capital cities.
- The building was six storeys high and had a complete building envelope solution, including rooftop solar.
- Energy use calculations took into typical energy usage for heating and cooling a six-storey building.
- Different climate conditions of each location were considered.

NetZero Buildings: ClearVue building envelope meets 100% or more of the building energy requirements  
Near NetZero Buildings: ClearVue building envelope meets over 90% of the building energy requirements  
Material reduction in energy consumption: ClearVue building envelope supplies over 70% of the building's energy requirements

[www.clearvuepv.com](http://www.clearvuepv.com)

## ARCHETYPE II MODEL – PROJECTED OUTCOME

Material Reduction  
in energy  
consumption, 40%



**60% of cities** expected to achieve NetZero or Near NetZero outcomes by using the ClearVue building envelope solution

## BUILDING ENVELOPE – ARCHETYPE MODEL II

Archetype II allows ClearVue to project the whole of building energy generation. This projection can be used to:

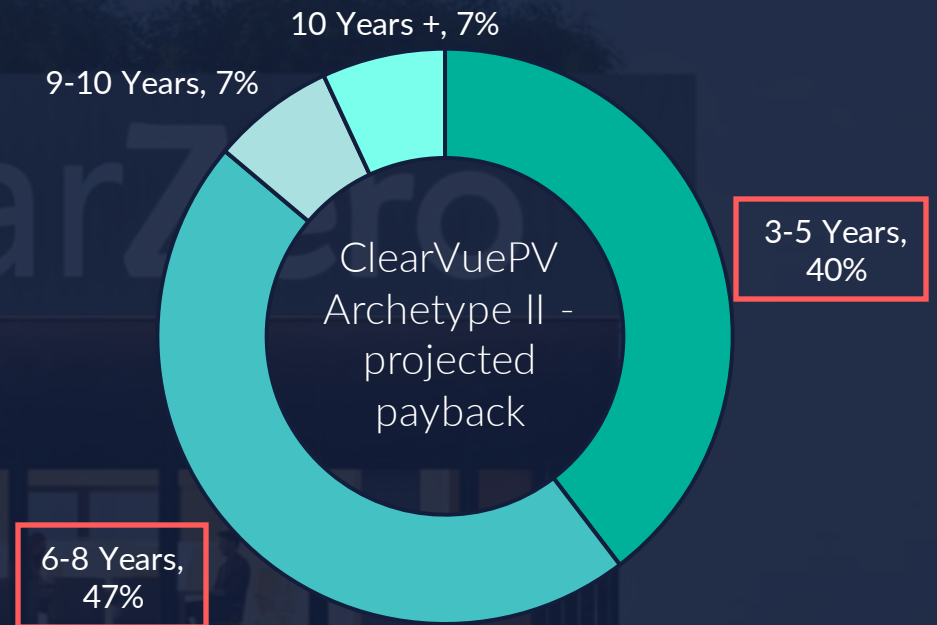
1. Calculate the financial savings of the building by referencing the localised cost of electricity, and
2. Calculate the carbon savings of the building by referencing the localised carbon emission intensity per kWh.

The financial payback is the delta between a standard IGU and the cost of deploying a ClearVuePV solution.

### The Archetype considered:

- Average energy price of the city.
- Weather (solar radiation) specific to geographic location.
- Calculations are taken at a 90-degree angle, i.e., vertical façade.
- Does not consider government incentives.

## ARCHETYPE II MODEL – FINANCIAL PROJECTED OUTCOME



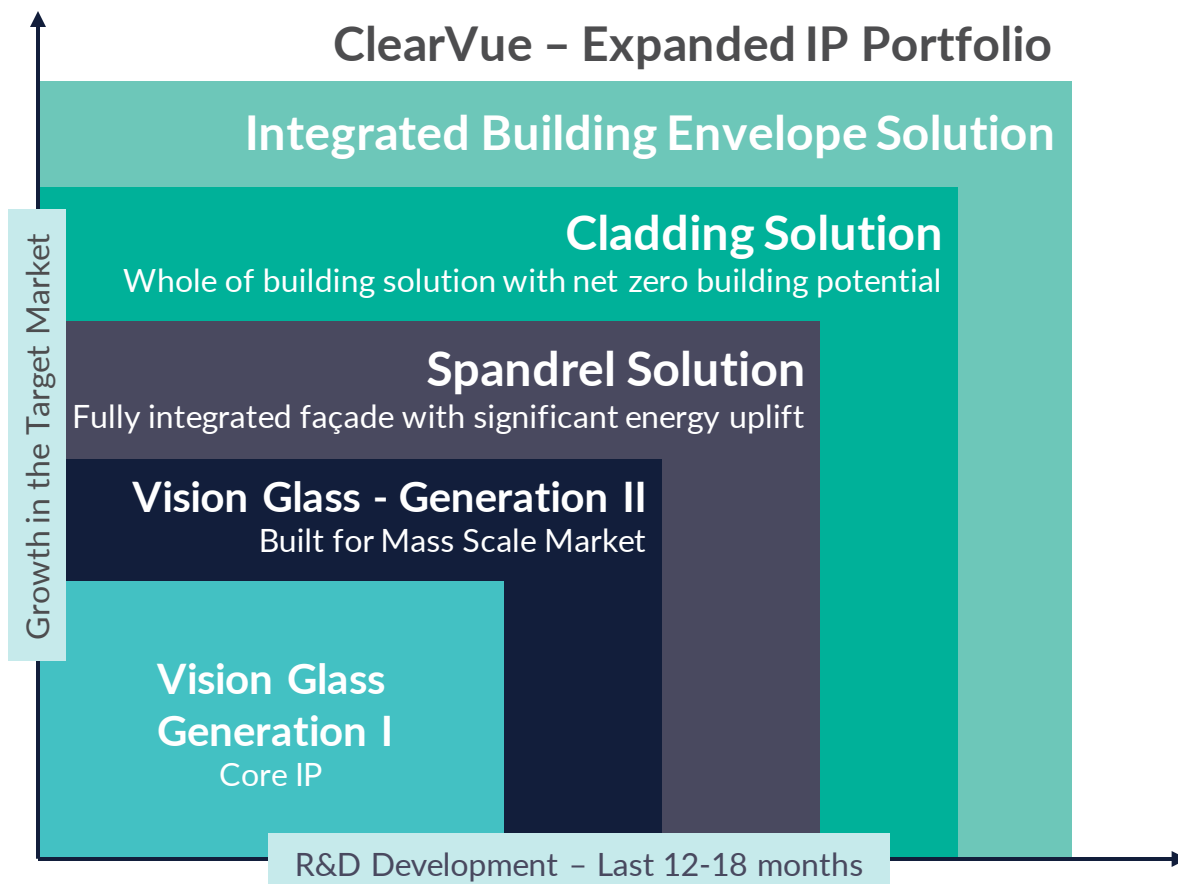
**87% of cities** expected to deliver a payback within 3 to 8 years.  
+ Carbon payback can be quantified

# Continual R&D: expanding our portfolio of BIPV solutions

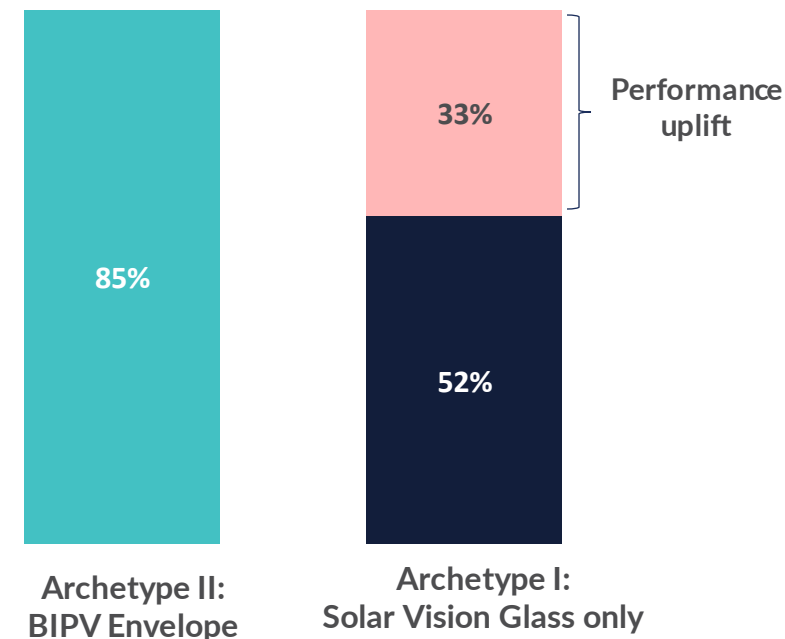


ClearVue has expanded its IP portfolio with significant investment into a whole of building envelope solutions.

The investment into R&D is reflected in the Archetype II performance uplift: an integrated solution delivers up to a 33% performance uplift and broadens ClearVue's target market.



## Average share of building's energy consumption covered by ClearVue<sup>PV</sup> products



The same building specifications were used for Archetypes I and II allowing comparison.

# Building the foundations for commercialisation



## TO SELL GLOBALLY, CLEARVUE<sup>PV</sup> NEEDS TO COMPLY GLOBALLY

### MASS PRODUCTION

Demonstration of mass-scale manufacturing capability: September 2023

### COMPLETED FIRE TESTING



Achieved A2-S1-D0 rating under EN 13501-1:2018 standard: February 2024  
[See: Press Release](#)

### PRODUCT CERTIFICATION

Continuing with the building products certification process – a prerequisite to facilitate sales

### IP PROTECTION EXPANDED

Continued IP protection ClearVue<sup>PV</sup> Generation II and spandrel solution

### INFLATION REDUCTION ACT (IRA)

Independent validation that the ClearVue<sup>PV</sup> solution qualifies for IRA incentives in the US

### BRANDING

Investment into the ClearVue brand has resulted in higher levels of industry engagement and recognition

# Level of license enquiry growing



## Licenses under negotiation / in discussion

- Total Number of licenses executed/active = 12



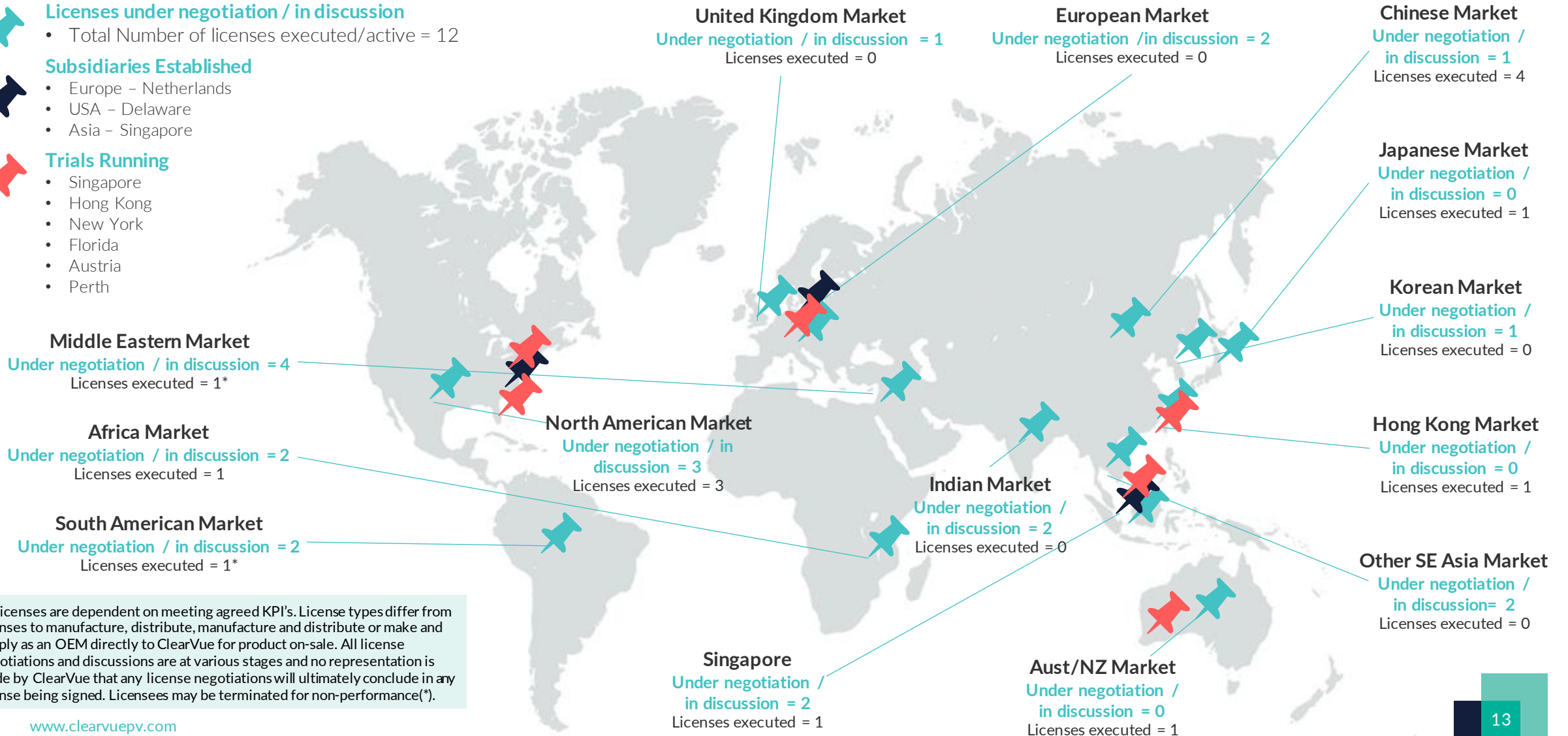
## Subsidiaries Established

- Europe – Netherlands
- USA – Delaware
- Asia – Singapore



## Trials Running

- Singapore
- Hong Kong
- New York
- Florida
- Austria
- Perth



All licenses are dependent on meeting agreed KPI's. License types differ from licenses to manufacture, distribute, manufacture and distribute or make and supply as an OEM directly to ClearVue for product on-sale. All license negotiations and discussions are at various stages and no representation is made by ClearVue that any license negotiations will ultimately conclude in any license being signed. Licensees may be terminated for non-performance(\*).

ClearVue's greenhouse test facility at Murdoch University, Perth, Western Australia, has delivered results exceeding expectations. Published results include:

- Substantial energy production
- Significant water saving, and
- Higher crop yields = Potential higher return on investment

ClearVue<sup>PV</sup>'s interlayer impacts certain food crops' yield performance, suggesting that a ClearVue<sup>PV</sup> greenhouse is more than just energy output. <sup>1</sup>

ClearVue<sup>PV</sup> greenhouse Return on Investment Equation:

- Energy output
- Energy savings
- Water savings
- Carbon savings
- HIGHER CROP YIELD

Note:

1) Higher yields were not observed across all food samples. Yield increases attributable to SnowPeas, Capsicum and Roma Tomato, No Yield loss to Bok Choy and Spinach, Yield loss to Basil and Lettuce.

## Images from Murdoch University's study on the ClearVue<sup>PV</sup> greenhouse performance

### TOMATO ROMA

Yield increase of + 170%



### SNOW PEAS

Yield increase of + 110%

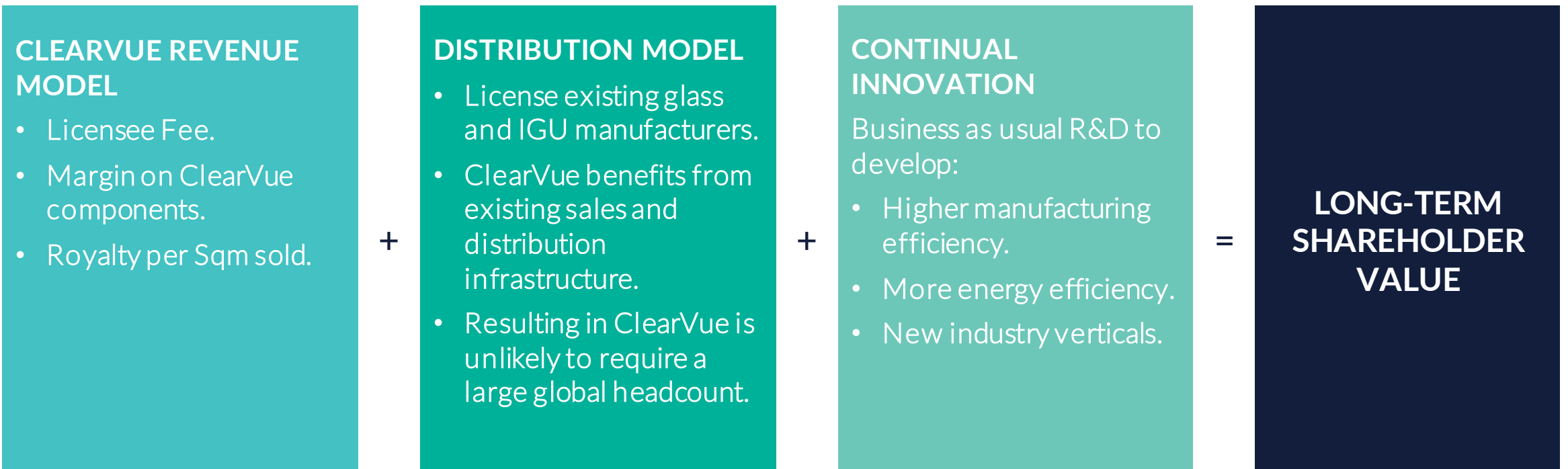


### CAPSICUM

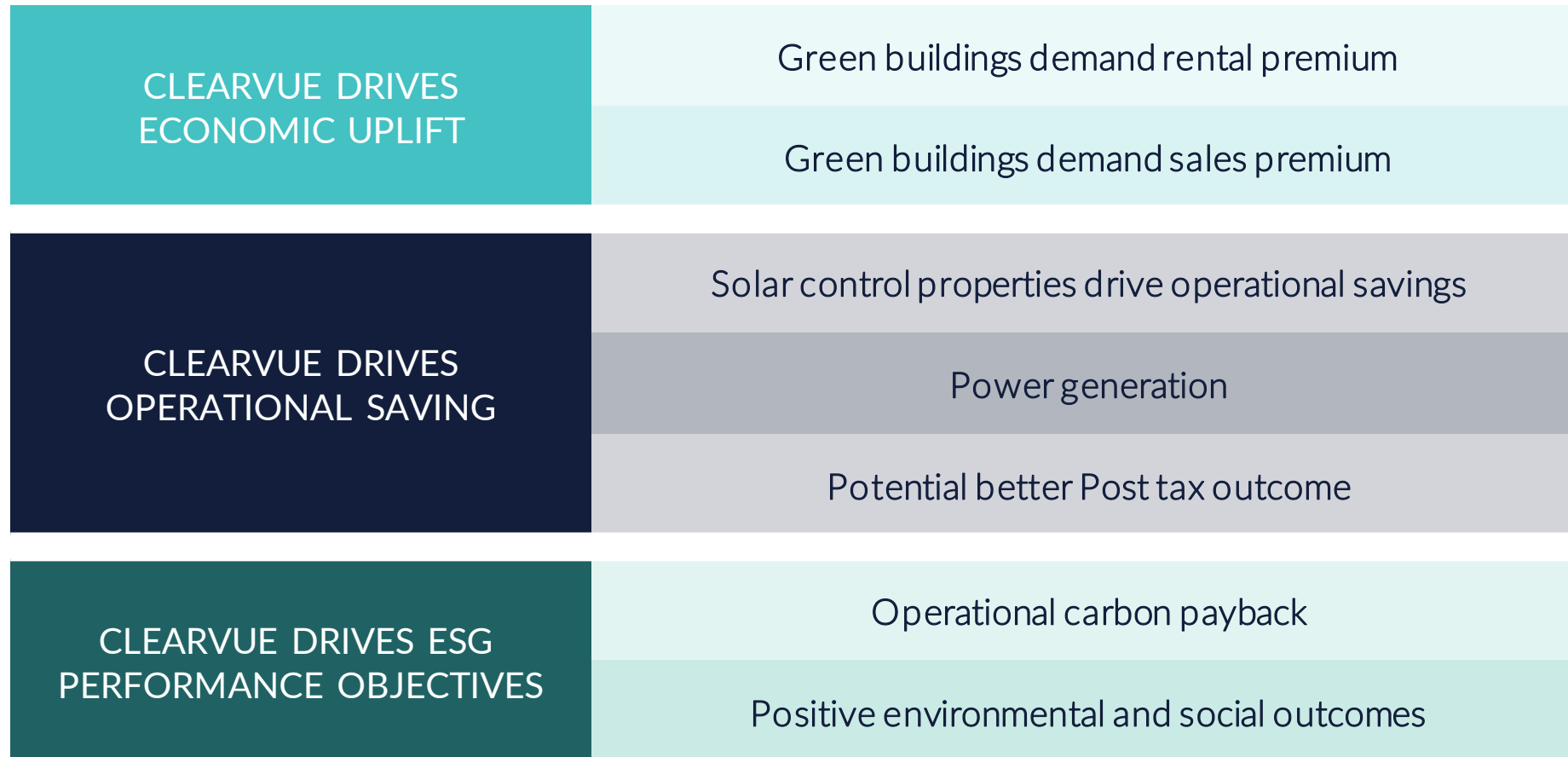
Yield increase of + 52%



A key to the commercialisation strategy is speed and leverage to the global market without the need for significant capital investment.



# ClearVue value stack matches market needs





# Industry sectors we are focusing on



ClearVue operates in high growth target markets

<p><b>Skylight market</b> \$5.5 billion by 2030 CAGR 15.3%</p> <p>Markets of interest: US, UK and Europe</p>	<p><b>Commercial BIPV</b> \$88.4 billion by 2030 CAGR 20.5%</p> <p>Markets of interest: Global</p>	<p><b>Greenhouse</b> \$50.6 billion by 2025 CAGR 11.3%</p> <p>Markets of interest: Global</p>	<p>CROSS SELL / UP SELL</p>	<p><b>Cladding Systems market</b> \$347.7 billion by 2028 CAGR 5.2%</p> <p>Markets of interest: Global</p>
<p><b>Community Infrastructure</b> \$81.7 billion by 2030 CAGR 2.46%</p> <p>Markets of interest: Global</p>	<p><b>US Prefabricated Homes</b> \$10.8 billion by 2030 CAGR 2.6%</p> <p>Markets of interest: US &amp; Europe</p>	<p><b>Home Improvement</b> \$514.9 billion by 2028 CAGR 6.4%</p> <p>Markets of interest: Global</p>		<p><b>Building Spandrel Glass</b> \$3.04 billion by 2029 CAGR 4.0%</p> <p>Markets of interest: Global</p>

New: Building envelope expands target market

Sources:  
 Skylight Market: <https://www.alliedmarketresearch.com/building-integrated-photovoltaic-skylights-market>  
 Commercial BIPV: <https://www.grandviewresearch.com/industry-analysis/building-integrated-photovoltaics-bipv-market>  
 Greenhouse: <https://www.marketsandmarkets.com/Market-Reports/commercial-greenhouse-market-221045451.html#:~:text=%5B213%20Pages%20Report%5D%20According%20to,11.3%25%20in%20terms%20of%20value.>  
 Community Infrastructure: <https://www.businesswire.com/news/home/20210219005182/en/Global-Community-Housing-Services-Market-Outlook-2020-30-COVID-19-Growth-and-Change---ResearchAndMarkets.com>  
 Prefabricated Home: <https://www.freedoniagroup.com/Prefabricated-Housing-Market-In-The-US.html>  
 Home Improvement: <https://www.globenewswire.com/en/news-release/2022/05/02/2433733/0/en/Home-Improvement-Market-to-be-Worth-over-USD-500-Billion-by-2028-with-a-CAGR-of-6-40-BlueWeave-Consulting.html>  
 Cladding Systems: [Cladding Systems Market Global Forecast to 2026 | MarketsandMarkets](https://www.marketsandmarkets.com/Market-Reports/cladding-systems-market-221045451.html#:~:text=%5B213%20Pages%20Report%5D%20According%20to,11.3%25%20in%20terms%20of%20value.)  
 Spandrel Glass: [Cladding Systems Market Global Forecast to 2026 | MarketsandMarkets](https://www.marketsandmarkets.com/Market-Reports/cladding-systems-market-221045451.html#:~:text=%5B213%20Pages%20Report%5D%20According%20to,11.3%25%20in%20terms%20of%20value.)

## COMPETITION

ClearVue acknowledges that it has well funded competition around the world. The competition is at varying stages of commercialisation, with, in many instances, public information being difficult to obtain. Competition in the Window Integrated Photovoltaic solutions includes:



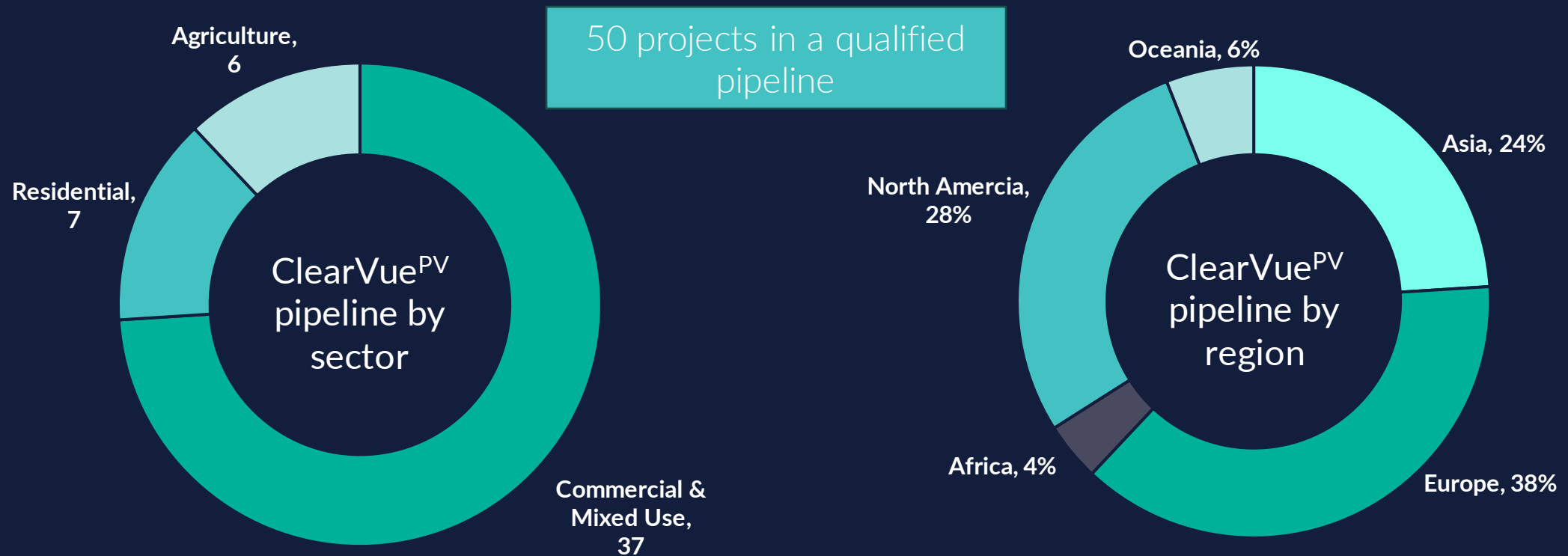
Logos shown above are the trademarks of the respective companies or their licensors.

## CLEARVUE<sup>PV</sup> COMPETITIVE ADVANTAGE SUMMARY

- 1 ClearVue has scaled the technology to commercial size
- 2 ClearVue can be mass produced without compromising an existing fabrication line
- 3 High energy production per square metre
- 4 Carbon payback
- 5 High SHGC whilst maintaining visible light transmission
- 6 Certification and fire safety rating
- 7 Level of patent protection
- 8 Scalable business and revenue model that is not capital intensive

# ClearVue new business pipeline

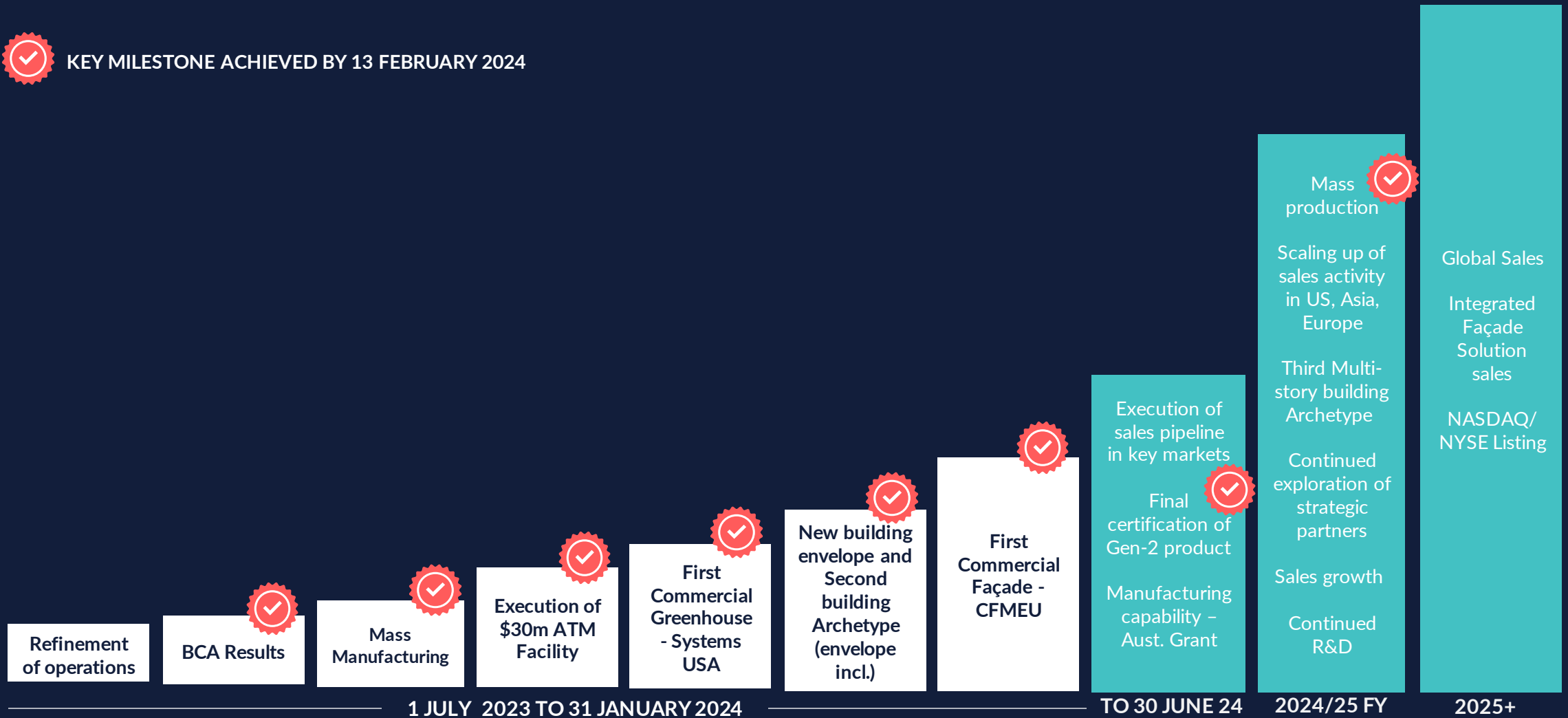
ClearVue is working on a range of projects at various levels of engagement, employing one or more ClearVue products. They are geographically spread across our major markets, and the majority represent Commercial construction projects.



# Milestones reached and future



KEY MILESTONE ACHIEVED BY 13 FEBRUARY 2024



# Outlook for the next 12 months

Build a solid foundation in key markets with fully certified products

Managed sales growth to allow sales and logistics capabilities to mature

Process is “everything” in delivering customer and shareholder value

Maintain focus on R&D

## PRODUCTS CERTIFICATIONS

- A2 s1/d0 obtained (standard EN 13501-1:2018) for CPV Gen-2;
- A range of additional certifications are being finalized to facilitate product sales in key jurisdictions.

## ACTIVE MARKETING

- The AIA 2024 in Philadelphia: 15,000 architectural industry professionals,
- Greenbuild 2024 in Washington DC: 20,000 projected attendance
- + Educational webinars for architects and product launch events.

## SYSTEMS AND PROCESSES

- ERP systems evaluation process;
- Licensed partners continue their internal testing;
- Product warranties to be formalised.

## NEW PRODUCTS

- A range of new products has been added including enhanced-performance solar spandrel solution and solar cladding;
- 'Zero Window' and new Greenhouse products are in the R&D pipeline;
- Developing solutions to address the challenges of BIPV integration.

Capital investments are supporting key activities as listed above: R&D, certification process, marketing and sales pipeline, developing systems and processes.

# ClearVue board & CEO



**Victor Rosenberg**  
Dip Pharm, MPS (SA)

Non-Executive Chairman & Founder

25 yrs glass industry

Mr Rosenberg is a serial entrepreneur, recognized globally for his contributions to the glass industry.

Extensive business experience in senior management and sales over ~50 years.



**Martin Deil**  
BSc (Honours), BMgt

Chief Executive Officer

30 yrs in the global façade industry

Mr Deil brings a deep knowledge of the international façade and architectural envelopes business to ClearVue, having spent the past 30 years in various senior management roles of increasing responsibility, including as CEO, Deputy CEO and COO within the Permasteelisa Group in different locations globally.

Mr Deil has a Bachelor of Science (Honours) in Management and Systems from City University London.



**Jamie Lyford**  
BCom, LLB, LLM(IP), PGradDip IT

Executive Director

28 yrs commercial & IP law, commercialisation

Mr Lyford is an IP, technology, commercial and licensing lawyer with 28 years of experience at local, national and international law firms, BHP and global IT company ATOS.

Commercialisation specialist and operated Western Australian Government Innovation Centre.



**Gerd Hoenicke**  
BEng Fac

Non-Exec Director

35+ yrs in the global façade industry

Mr Hoenicke has worked as a CEO, a technical director, and a consultant for various internationally recognised façade companies (including Schneider, Seele and Schuco) and has an extensive portfolio of recognised façade projects. He currently runs his own consultancy business and works with architects and engineers on major US and European projects.



**Chuck Mowrey**  
BSc Bus, MBA

Non-Exec Director

40+ yrs commercial glass and glazing

Mr Mowrey is the CEO of 8G Solutions, a leading U.S. contract glazier. He has more than 40 years of experience in the commercial glass and glazing industry gained over 5 decades. Mr Mowrey has led several companies to significant growth and onto an innovation path including Harmon Inc., Guardian Glass and others.



**Harry Miller**  
BCom, MPA

Company Secretary

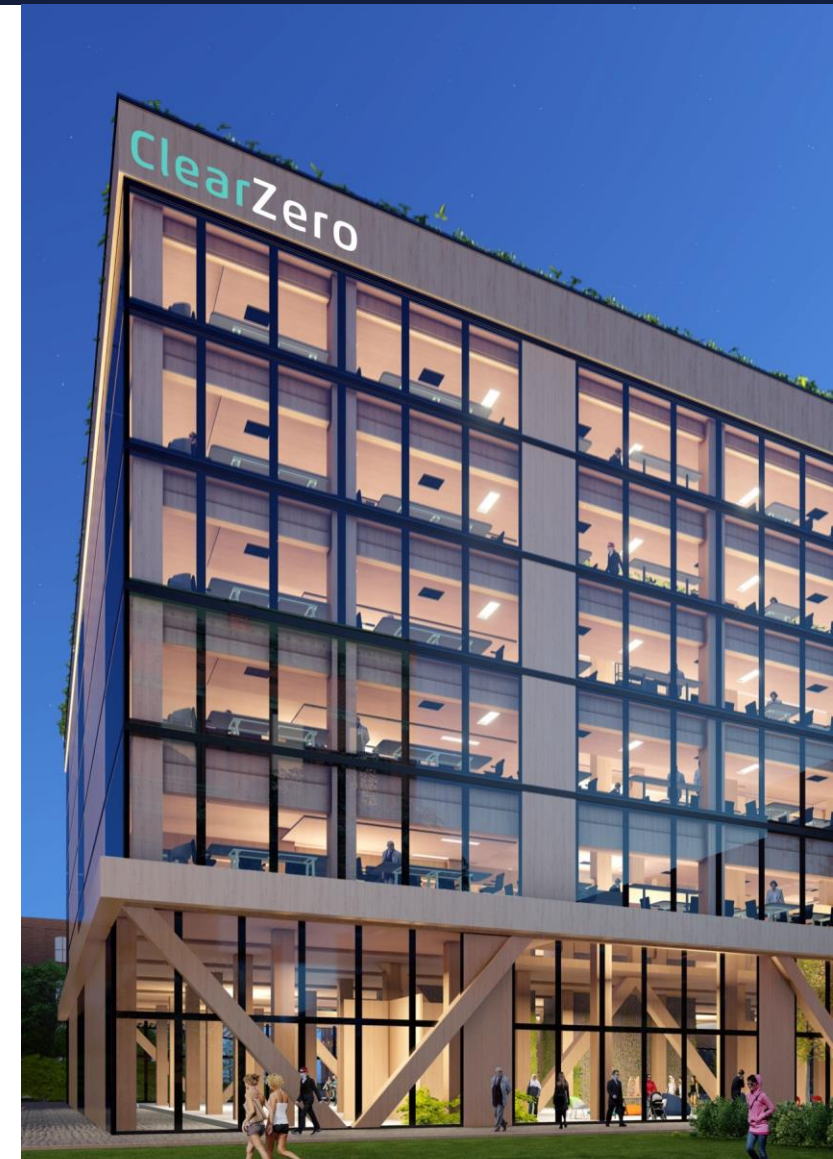
8+ years of corporate, compliance and accounting experience.

Company Secretary to a number of ASX-listed and private organisations. Involved in various corporate transactions. Has previously worked with a leading global accounting firm based in Western Australia.

# Investment case – key messages



- ✓ World-leading technology and competitive advantage with ability to scale and generate the highest energy output on clear glass
- ✓ Substantial unmet demand driven by regulation and changing consumer sentiment and buyer behaviour
- ✓ Third-party validation of technology, accreditation of fire safety, and mass production capability
- ✓ High margin business model driving significant operating leverage
- ✓ First revenues attained with strong pipeline bolstered by global strategic manufacturing and distribution partnerships
- ✓ New management team and board focused on execution of strategy and generating returns.





# ClearVue<sup>PV</sup>

## CLEARVUE TECHNOLOGIES LTD


Anna Abrossimova  
Head of Marketing  
[anna@clearvuepv.com](mailto:anna@clearvuepv.com)  
+61 (0) 401 398 088

## INVESTORS

Adrian Mulcahy  
[adrian.mulcahy@atomicgroup.com.au](mailto:adrian.mulcahy@atomicgroup.com.au)  
+61 (0) 438 630 422

## MEDIA

Tristan Everett  
[tristan.everett@atomicgroup.com.au](mailto:tristan.everett@atomicgroup.com.au)  
+61 (0) 403 789 09

 Suite 9 / 567 Newcastle St,  
West Perth,  
Western Australia 6005

 +61 8 9220 9020

 [hello@clearvuepv.com](mailto:hello@clearvuepv.com)

 [www.clearvuepv.com](http://www.clearvuepv.com)

