



ClearVue^{PV}

CLEARVUE TECHNOLOGIES LIMITED

AGM PRESENTATION

November 2020

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I. CAPITAL STRUCTURE & GOVERNANCE



Corporate Summary

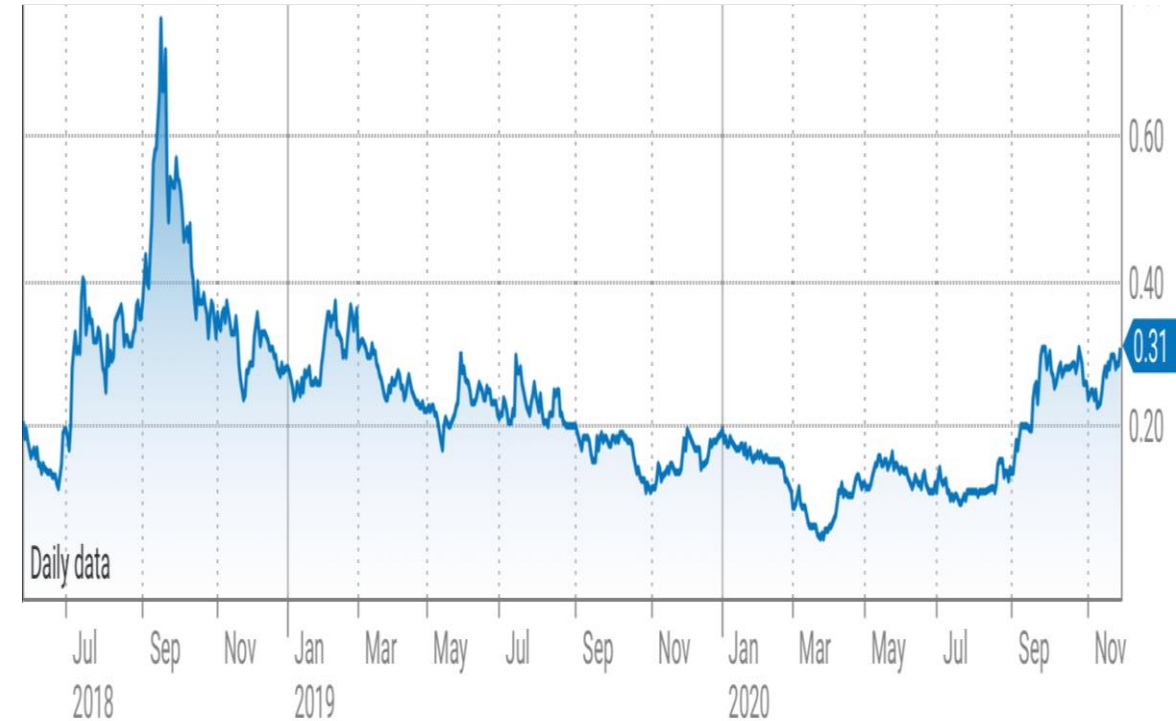


Capital Structure

Ordinary Shares on Issue	143,531,056
Options on Issue	82,068,188
Performance Shares	13,000,000
Market Cap @ \$0.31 as at 27 Nov 20	~\$44 million
Cash Balance as at 30 Sept 2020*	\$2.788m
Debt	Nil

*Based on the Company's Appendix 4C for the quarter ended 30 September 2020.

Share Price Performance (May 2018 – Nov 2020)



New Board

Directors	Role	Experience	Brief Bio
Victor Rosenberg	Chairman	25 years glass industry	Serial Entrepreneur. Globally recognised for his contributions to glass industry. Extensive business experience in senior management and sales.
Stuart Carmichael	Non-Exec Director	17 years sales/finance industry	Member of the Institute of Chartered Accountants with over 20 years accounting and corporate finance experience. Currently Non-Executive Director of Swick Mining Services (ASX:SWK), Chairman of Schrole Limited (ASX:SCL) and Serpentine Limited (ASX:S3R) and Non-executive Director of De.mem Limited (ASX:DEM) and Osteopore Limited (ASX: OSX)
Roger Steinepreis	Non-Exec Director	30 years corporate law	Corporate and resources lawyer with 30+ years' experience. Legal adviser to a number of public companies on a wide range of corporate related matters. Currently serves as Non-Executive Director on various Boards including Petronor E&P Limited (Oslo Access: PNOR), Latitude Consolidated Limited (ASX: LCD), and is Non-Executive Chairman of Apollo Consolidated Limited (ASX: AOP).
Deborah Ho / Brett Tucker	Joint Co Secretaries	Combined over 12 years corporate and compliance	Company Secretaries to a number of ASX listed and private companies and has been involved in numerous public corporate transactions and acquisitions. Mr Tucker is a Chartered Accountant and Ms Ho is an Associate of the Governance Institute of Australia.

Management

Key Management	Role	Experience	Brief Bio
Ken Jagger	CEO	17 years sales/finance industry	Sales & Finance Executive with 17 years' experience; Established, grew and ran national reseller networks for General Electric, Halifax Bank of Scotland Australia, Commonwealth Bank. Former partner of a boutique investment bank.
Jamie Lyford	COO & GC	25+ years IP law / technology commercialisation	IP and licensing lawyer with over 20 years experience. Previously worked in BHP, IT company ATOS and ran Western Australian Government Innovation Centre.
Geoff Edwards	CFO	30 years experience in CFO, senior financial and commercial roles	Geoff is qualified CPA with over 30 years experience in CFO (including ASX listed companies), senior financial and commercial roles across a variety of service organisations. During that time, Geoff has acquired a wealth of knowledge with start ups, mergers and acquisitions, high growth businesses, equity and debt capital raisings, turn arounds, building financial systems and procedures and strategic planning and implementation.

Technical Team

Key Management	Role	Experience	Brief Bio
Steve Coonen	VP Development – Products, Technology & Sales (North America)	38 years experience in photovoltaics; 26 year focus on BIPV	<p>Steve Coonen is a photovoltaic consulting engineer, specializing in building integrated photovoltaics (BIPV) based in California. Mr Coonen is a pioneer in the BIPV field and whilst working on the ClearVue technology development pipeline assists with North American sales opportunities.</p> <p>Mr Coonen currently has over 3,000 BIPV systems fielded to his credit, including the California Academy of Science in San Francisco, the Whitehall Ferry Terminal in Manhattan and 1,500 new houses for Pulte Homes.</p>
Dr Mikhail Vasiliev	Lead Scientist	20+ years physics	<p>Mikhail has extensive science and technology background, from developing fibre-optic sensors and laser interferometers in the 1990's, to the design of solid-state lasers in the 2000's, followed by 15 years of experience as Senior Research Fellow at Edith Cowan University, where he concentrated on nanotechnology and materials science projects and still supervises PhD students. He has contributed to the design and development of Clearvue core components and technologies, including advanced low-e coatings, glazing systems, luminescent/diffractive interlayers, and solar window systems. He is a multi-skilled expert in the fields of optical physics, optical engineering, photonics, nano-engineered functional materials and also in scientific software development. Mikhail has a PhD (Physics), Victoria University (Melbourne, Australia) and has co-authored multiple (> 50) high-impact research articles published in international peer-reviewed journals.</p>
Tao Zhang	Structural Engineer	16+ years engineering	<p>Tao is a chartered professional engineer in both Australia and Chinas with 16+ years experience. Tao works as Project Manager & Senior Technical Officer in ClearVue and leads our technical team on ClearVue product certification programs and is involved in all aspects of ClearVue's R&D efforts. Tao also supports our sales efforts and manages our global OEM manufacturer and supplier relationships.</p>
Chris Cole	Mechatronic Engineer	Graduate mechatronic engineering	<p>A recent graduate of Sydney University with a degree in Mechatronic Engineering (first class honours), Chris has a background installing sensing equipment on solar and wind farms. He is involved in the design, development, construction, programming and testing of our Smart Façade prototypes, and brings a knowledge of integrated software, hardware and AI systems to the team.</p>

II. COMPANY UPDATE

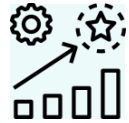
ClearVue's Technology – A Clear Solar Window



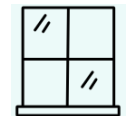
ClearVue Technologies Limited (ASX: CPV) operates in the **Building Integrated Photovoltaics** (BIPV) sector - glass windows and building surfaces to **produce renewable energy**.



Clearvue PV is a **transparent** building material capable of paying back its **embodied carbon multiple times** during its operational and installed lifetime.



ClearVue's technology and product can **achieve sustainability goals** in new building projects and refurbishments - including assisting with **achieving "Net Zero" goals** in buildings – a key driver in modern building design and architecture.



The ClearVue product can achieve **significant energy cost savings**, **prevent unwanted solar radiation** (UV and Infrared) from entering a building, and then **convert unwanted radiation into electricity**.

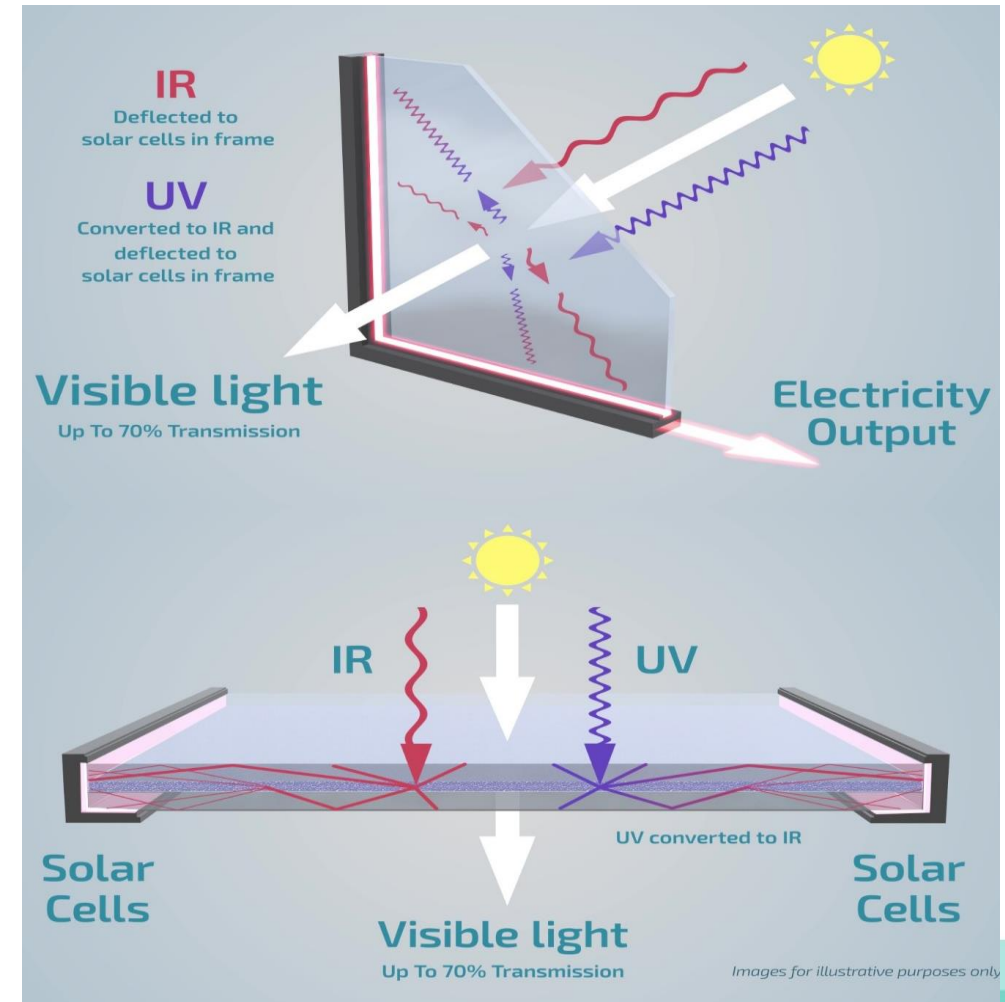


ClearVue been working since 2011 to develop the core IP that can convert a pane of glass into a **luminescent solar concentrator** (LSC).

ClearVue's Solar Window

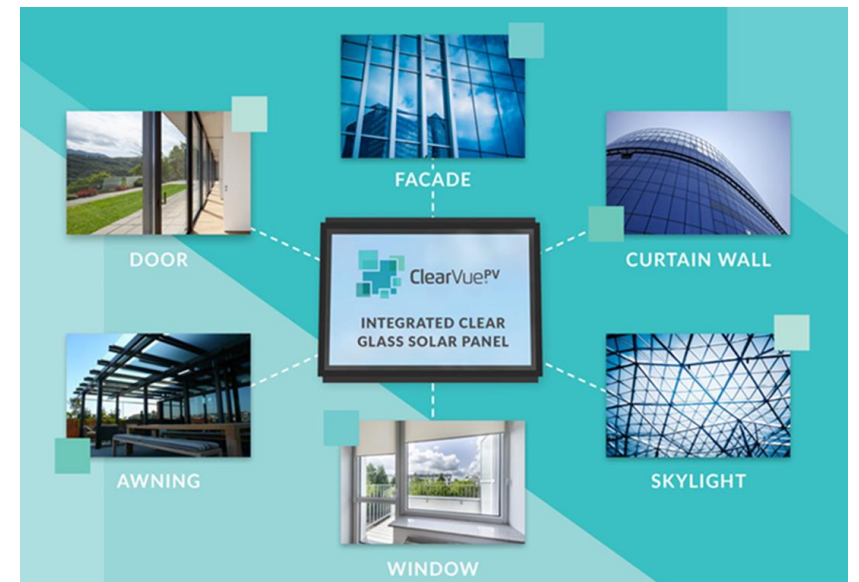


- ❑ An activated interlayer between two panes of glass
- ❑ Visible light (VLT) passes through the glass
- ❑ Micro & Nano particles interact with Ultraviolet (UV) radiation which is down-converted to longer wavelengths and scattered along with Infrared (IR) light to the edges of the glass
- ❑ IR is collected by Photovoltaic (PV) cells and produces electricity
- ❑ Reduces heat and blocks damaging UV and IR radiation
- ❑ Insulation properties reduce heating and cooling costs



The ClearVue Advantage

- ❑ **Clear and Functional** – fits multiple applications
- ❑ Efficient – 3 to 4% conversion of radiance to energy
- ❑ Scalable – up to ~3sqm windows
- ❑ Easy to Manufacture – integrates into existing window manufacturing production supply chain
- ❑ Certified - USA – UL; Europe - MEA & IEC; Australia under AGWA & Intertek
- ❑ Cost Effective - Competitively priced, short payback periods
- ❑ Ready to Deploy - Commercialisation commenced



Commercialising ClearVue - deploying the technology



Clearvue's aim is to deploy the existing technology for commercial return

☐ Deployments

- Commercial High Rise Buildings
- Protected Cropping – Greenhouses
- Showcase Deployments

☐ Key Factors

- Utility Prices
- Government Incentives
- Climate and Geography
- Glazing regulations
- Market Size

☐ Key Locations

- Australia
- USA
- Northern Europe (Germany)
- China (JV)

☐ Manufacturing Supply Chain

- China & Taiwan
- US
- Europe Interlayer

☐ Market Entry

- Digital Campaigns & new website
- Licence arrangements (KPI's)
- Direct Marketing (feasibility study's)
- Showcase Deployments

☐ Partners / Promoters

- Architects
- Façade Engineers
- Project Developers
- Property Fund Manager
- Resellers
- Greenhouse developers
- Farmers



Business and Revenue Model

ClearVue aims to derive revenues from:

- ❑ **Direct sales:** The Company intends to initially sell and supply fully assembled IGU/window products direct to distributors and licensed channel partners in Australia and worldwide. Then, **as manufacturing licensees are appointed in different territories the revenue streams that are expected to follow will apply:**
- ❑ **Component sales (US\$245 m²):** The company intends to sell technology/product components to its manufacturing licensees including its proprietary nano and micro particle doped activated interlayer *and* its proprietary mini solar photovoltaic strips for use inside of each integrated glazing unit*;
- ❑ Illustrative minimum sales requirements of a distribution only licensee or a manufacturing/distribution licensee is: 5,000 sqm for year 1, 10,000sqm for year 2, 20,000 sqm for year 3, 30,000 sqm for year 4 & 40,000 sqm for year 5.~

Notes:

*Complete ClearVue IGU's initially to be sold in Australia by ClearVue to gain market acceptance. Approx. per sqm rate may change based on order quantities and scaling, country and project specific requirements.

~this is not a forecast and is provided as an illustration only.

Size of the Market

“By 2060, the world is projected to add 230 billion m² (2.5 trillion sq ft) of buildings, or an area equal to the entire current global building stock. This is the equivalent of adding an entire New York City to the planet every 34 days for the next 40 years.” (Zero Code: <https://zero-code.org/>)

- Global market for building-integrated photovoltaic (BIPV) technologies was USD \$2.4 billion in 2016. Market to grow to USD \$4.3 billion by 2021 (with a compound annual growth rate (CAGR) of 12.2% for the period 2016 to 2021).¹
- ClearVue’s target market represents in excess of 2.1 billion sqm² of glass per annum (total market size 5.5 billion+ sqm of glass per annum)² (**Target Market**).
- It is expected that a small 10 floor 25,000 sqm building could deploy approx. 3,150 sqm minimum of ClearVue product (assuming 3 building sides of 50m long and part floors of 2.1m high only)#.
- A single large building, for example the One World Trade Center (Freedom Tower) New York City has over 93,000 sqm of glass.

Sources:

1. <https://www.bccresearch.com/market-research/energy-and-resources/building-integrated-photovoltaics-markets-report-egy072C.html>
2. https://www.nsg.com/~media/NSG/Site%20Content/Temporary%20Downloads/Japanese/NSGFGI_2011%20EN2.ashx
3. ClearVue does not represent that it will be able to obtain such market share or that such revenue can be achieved. See Disclaimer Slide Page 2.
See ASX Announcement - Technical Update 28/03/2019 - <https://www.asx.com.au/asxpdf/20190328/pdf/443v6jr2zhbvm7.pdf>

Continued Product Development

CLOSED CAVITY BLIND



This smart façade uses an **automated blind** to regulate building **temperature and lighting** comfort.

The blind operates within a **closed cavity** and is powered by a small motor that activates in response to outdoor solar conditions and the requirements of the building occupants.

Our ClearVue PV panel makes the system fully **self-powered**, removing the need for cabling to the façade.



BLIND OPEN BLIND CLOSED

IMAGES FOR ILLUSTRATION PURPOSES ONLY.




AUTO SWITCHING GLAZING


These smart façades utilise **electrochromic technology**. This enables our glass to automatically tint and therefore adjust building **temperature and lighting** comfort.

The panels can be **retrofit** into existing buildings with **no need for cables**, as they are completely self-powering.


Light sensors and learning algorithms give these windows intelligence to **optimise occupant health and wellbeing**.



WINDOWS AUTOMATICALLY TINT TO ADAPT TO LIGHTING CONDITIONS




IMAGES FOR ILLUSTRATION PURPOSES ONLY.




MULTI-FUNCTION FACADE

This self-powered, multi-functional smart façade incorporates a **closed cavity blind** and a **smart ventilation system** to enable optimised control of lighting, temperature and air quality.


The environmental multi-sensor monitors **light, temperature and CO₂**. The Wi-Fi enabled processor uses deep learning algorithms to learn the optimal conditions and can control both the blind motor and the ventilation system within the façade.



AUTOMATIC BLIND AND VENTILATION



IMAGES FOR ILLUSTRATION PURPOSES ONLY.



Commercialising ClearVue- deploying the technology



2018

- MOUs signed for first licensed distributors
- MOUs signed with various collaborators including Mirreco to build showcase mini-home

2019

- First demonstration site, Warwick Grove Shopping Centre atrium
- ECU research agreement for micropattern solar cells
- Supplier agreement signed with BeyondPV of Taiwan to secure supply of solar strips
- UL and IEC certification for ClearVue's solar PV IGU product allowing sales in North America and Europe

2020

- Agreement with eLstar Dynamics BV to develop project combining ClearVue window capable of lighting control (demonstrated)
- Distribution Agreement with Insulsteel Building Sciences US and
- LOI with Jinmao Green Building Technology Co (subsidiary of Fortune 500 Sinochem)
- MOU signed with Virtuality Venues – “City of Lights” – 568 acre project with 12 hotels
- Distribution Agreement with AMB Brasil with first order from South America for 500sqm
- Order from Japan for sustainable greenhouse at Fujisan Winery near Mt Fuji

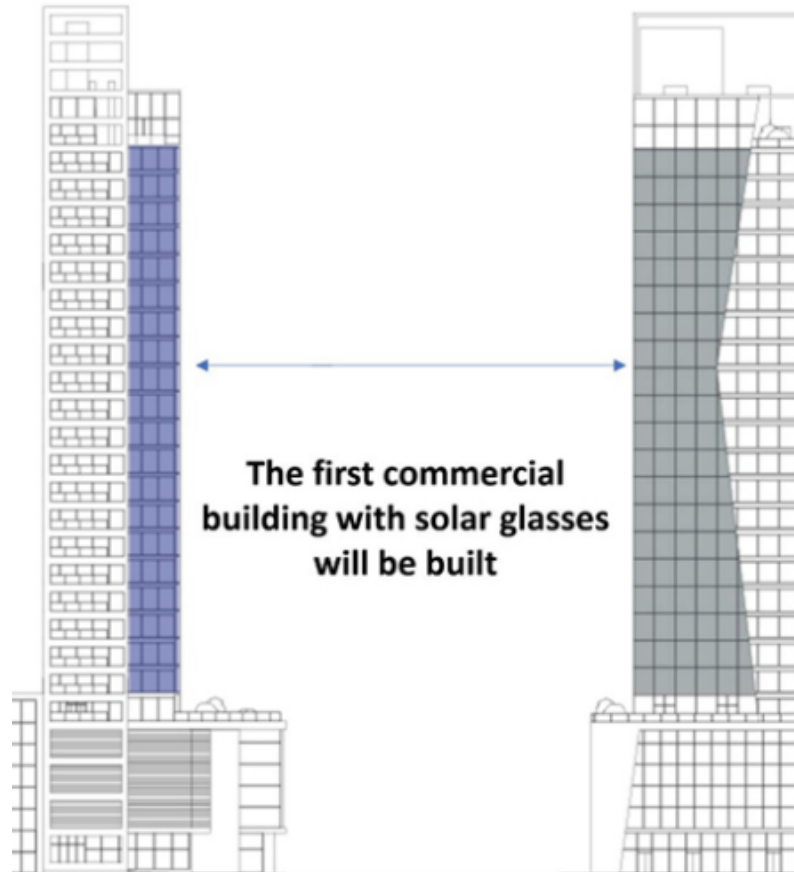
Commercialising ClearVue- deploying the technology



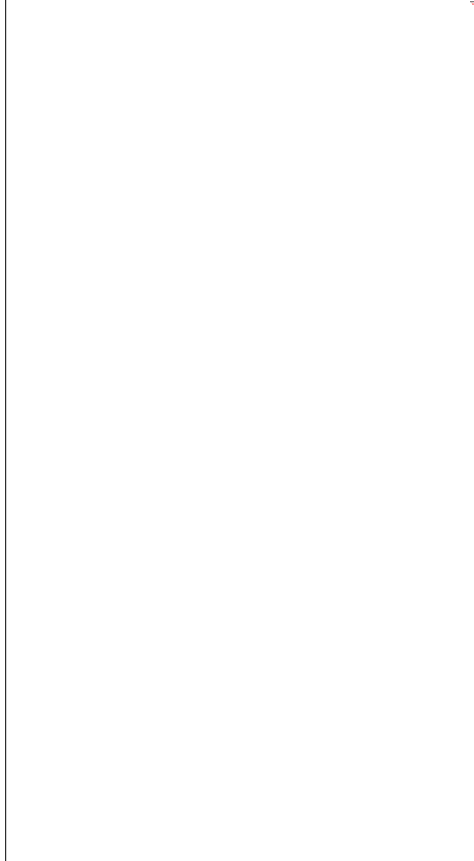
Upcoming Milestones (2020-2021+)

- Showcase project – Greenhouse Project Murdoch (in progress);
- Jinmao villa China (in progress);
- Fujisan Winery Sustainable Greenhouse (in progress);
- Showcase project – Mirreco mini-home;
- Distribution Agreement with Jinmao (in negotiation)
- Digital marketing campaign development (in progress)
- Securing additional licensees in target geographies (in progress)
- Conversion of showcase projects and marketing into purchase orders

AMB Brasil, Sao Paulo Brazil



Beijing Jinmao Green Building Technology Co. Ltd (Sinochem) in China – Villa Project Heibei Province



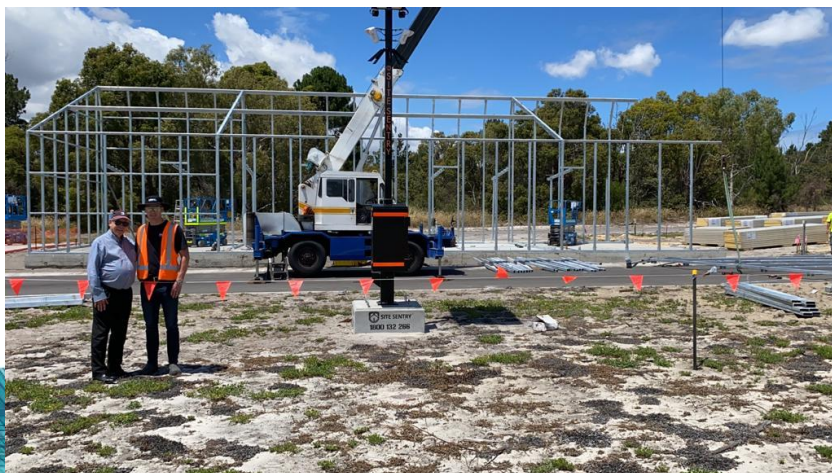


**Beijing Jinmao Green
Building Technology
Co. Ltd (Sinochem) in
China – Villa Project
Hebei Province**



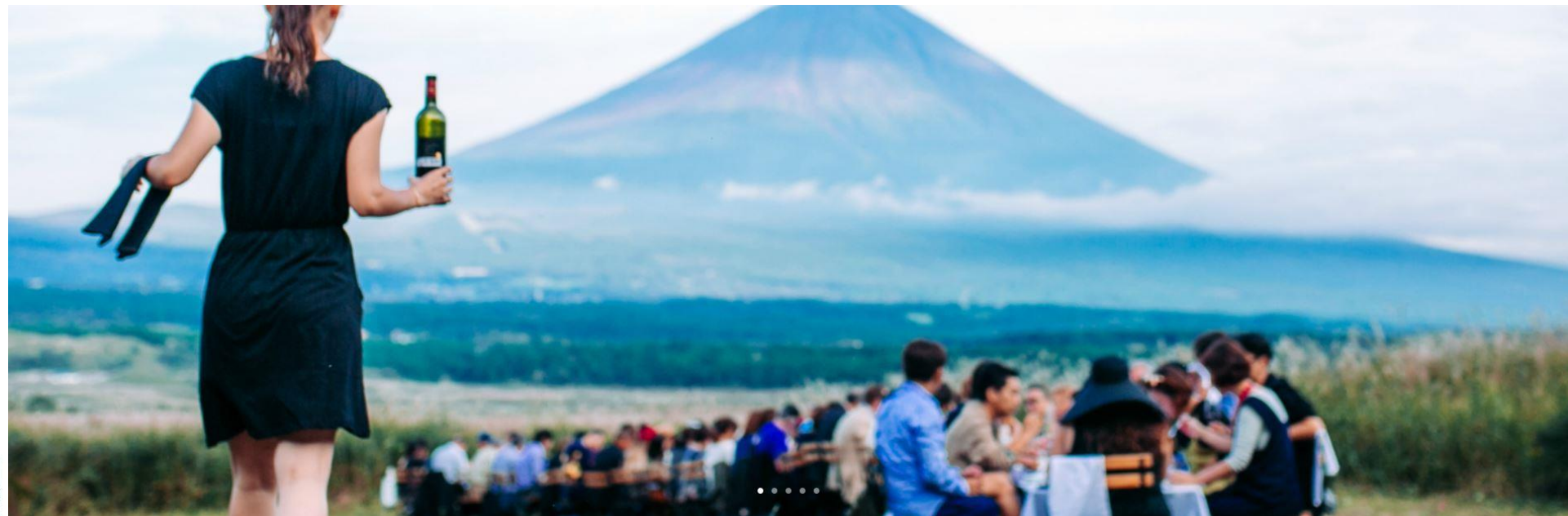


Murdoch Greenhouse Project





Architects rendering showing anticipated deployment of ClearVue PV IGUs into central section of sustainable greenhouse at Fujisan Winery near Mt Fuji in Japan.



Sustainable Winery Greenhouse, Mt Fuji Japan

Investment Highlights

- ❑ **Attractive industry thematic**
 - Investment opportunity in global growth sectors of BIPV, smart cities and food security
 - Unique with high consumer buy in
 - Regulatory support across multiple jurisdictions – EU and US focus – change in Govt in US anticipated to impact growth
 - Large Addressable Market

- ❑ **Proprietary Technology**
 - First in class product
 - Strong IP portfolio
 - Regulatory requirements met for sales in key regions
 - Price competitive with payback period
 - Strong product and tech development pipeline

- ❑ **Near term catalysts**
 - Showcase deployments – under way
 - Continued deal flow
 - High quality counterparty engagement

- ❑ **Refocussed Business**
 - Investor entry at near to historical lows
 - New CEO
 - Restructured Board



III. US CASE STUDY



Example Evaluation of Deployment of ClearVue Solar Technology

ClearVue PV

SolarScore Overview

SYSTEM INVESTMENT
\$1.32M USD
 Marginal Cost

Projected Levered Rate of Return
498.23%

- < 1 Year**
 Projected payback period for the project
- 150,634 kWh**
 Annual energy produced by solar installation
- 244.8 kW**
 Size of system
- \$2.82M USD**
 Total increase in the value of the asset
- 1,073 Metric Tons**
 Total project carbon emission reductions



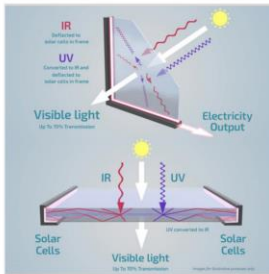

ClearVue PV SolarScore Report Powered by SOLAR SKYRISE

ClearVue PV

Technical Analysis

The solar panel materials used in calculating the technical capacity of this building include **ClearVue PV 1.2m X 1.2m standard solar windows**.

- 150,634 kWh**
 Annual energy produced by solar installation
- 8,827.4 m²**
 Usable surface area
- 4.90%**
 Portion of building energy offset by solar



Estimated Energy Generation kWh

Month	Estimated Energy Generation (kWh)
JAN	11,939
FEB	14,308
MAR	15,567
APR	15,209
MAY	13,710
JUN	13,619
JUL	13,580
AUG	14,267
SEP	14,629
OCT	15,509
NOV	9,554
DEC	9,948

ClearVue PV SolarScore Report Powered by SOLAR SKYRISE

Example Evaluation of Deployment of ClearVue Solar Technology



Economic Analysis

The annual average project cash flows for this building from **three** available sources is estimated to be **\$141,220** annually on average over the life of the project. This is estimated to **increase the building value by \$2,824,391 based on a \$1,322,188 initial investment.**



\$2.82M USD

Projected asset value increase



\$57,384 USD

Annual energy value produced by solar installation



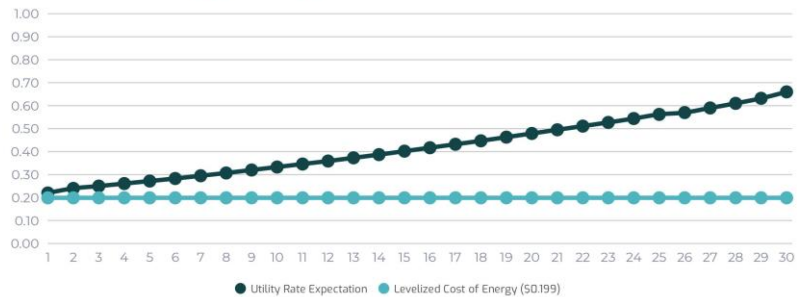
498.23 %

Projected Levered Rate of Return

Estimated Asset Value Increase



Estimated Energy Savings



Green Analysis and Additional Benefits

The **1073** metric ton total carbon offset for the project is equivalent to the energy required to power **3.8 homes** or **7.2 cars** each year for the life of the project.



Increase Asset Resilience

Reduced reliance on grid power, protection from rising tariffs, and increased resilience during network disruptions.



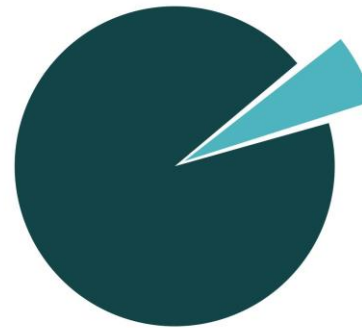
Corporate Responsibility

Showcase commitment to reaching renewable energy portfolio standards and climate change mitigation.



Differentiate Assets

Attract ethically/environmentally-minded tenants and gain exposure through environmental, real estate, and energy innovation.



Total Project Reduction in Greenhouse Gas Emissions

Metric Tons

Remaining Emissions	19,532
Total Reduction	1,073



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