

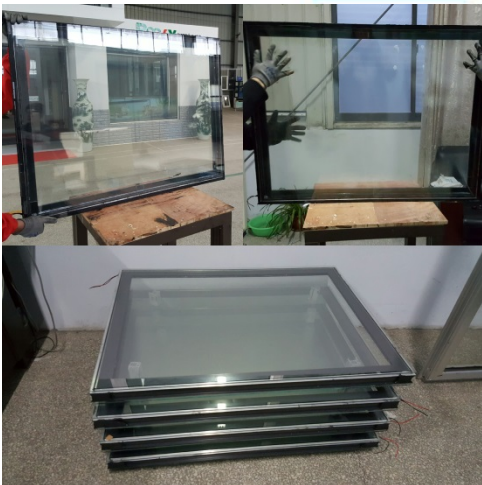
## energy efficient energy generating clear glass

GLASS will become a major new source of renewable energy in construction worldwide if ClearVue in Western Australia has its way.

ClearVue Technologies Ltd is at the global forefront of Advanced Glazing with a patented nano technology that generates electricity from a flat sheet of glass while maintaining transparency.

ClearVue Executive Chairman Victor Rosenberg said such technology was a game changer.

“Our technology presents a paradigm shift in the way glass will be used in building construction, automobiles, agriculture and speciality products. Glass will no longer be just a component of construction but also a renewable energy resource.”



ClearVue products being assembled



Bus Shelter employing ClearVue panels for powering LED light and Digital Display



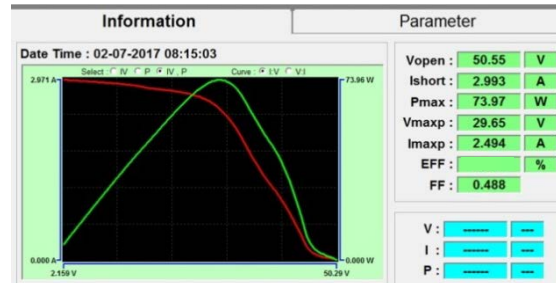
Rectangle: 1200mm x 600mm

# Technology Example: A wall of six ClearVue windows (1000mm x 750mm framed panels)

The ClearVue 1000mmx 750mm window shown in Fig. 1 is one of the panels installed into a bus shelter. The panel features superior thermal insulation, solar control as well as electricity generation capability.



Figure 1. ClearVue IGU-framed window and measured I-V characteristic of 6 windows installed into a bus shelter.



Electric power output = 74 Watts (V<sub>mpp</sub> = 29.65 V, I<sub>mpp</sub> = 2.49 A). The electric power was measured in Melbourne at non-peak sunlight conditions @ 9:30am.

## Optical and thermal properties

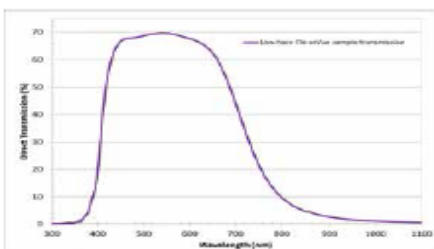
Parameters	Values
Visible Transmission	70% (T <sub>direct</sub> )
Solar Heat Gain Coefficient	< 0.4
Light-to-Solar Gain (LSG = T <sub>vis.%</sub> / SHGC)	> 1.75
Haze	< 4%
Thermal insulation U-value	< 2W/(m <sup>2</sup> *K)
Near-infrared shielding performance (by energy)	> 90%
Far-infrared (heat) shielding performance (by energy)	> 97%
UVA + UVB shielding performance (by energy)	> 95%

## ClearVue panels have several clear competitive advantages:

- 1) High glass transparency
- 2) High insulation and shatter-proof properties
- 3) Electricity production, and
- 4) Use inorganic materials with lifespan exceeding 20 years.

## The benefits of using ClearVue for the public include:

- Reduced electricity costs through improved glass insulation qualities and on-site electricity generation
- Using safe clean renewable energy with reduced reliance on fossil fuels
- Self-sustaining grid-independent greenhouses in horticulture / agriculture
- Grid-independent transparent bus shelters
- Reduced fuel consumption for the automotive industry – this is not only be cost saving for consumers but also reduce CO2 gas emissions in the environment
- Reduced electricity network infrastructure costs, especially in remote and rural areas
- Back-up for existing energy systems.



Electric output parameters for a single 1000mmx750mm window at near peak conditions: **V<sub>oc</sub> = 54 V** and **I<sub>sc</sub> = 800 mA**