ClearVuePV®

GREENHOUSING BENEFITS

ADVANCED SOLAR WINDOW GREENHOUSES

Advanced greenhousing practices are a fast growing area of agriculture, in both R & D and industry settings, and is being considered the most practical way of preventing food crises. The uses of renewable energy in greenhouses are becoming more widespread, with the integration of energy generators into building structures being the next generation technology.

BENEFITS INCLUDE:

- High thermal insulation - approx. 4 times higher R-value of thermal insulation compared to single pane clear glass walls & roof, due to a triple-glazed structure, solar-control low-e film & high visible transparency of ~70%.
- Greenhouses were originally designed for use in colder climates (such as Northern Europe) and require high uptake of incoming solar light and heat, together with high thermal insulation to keep the trapped heat inside, strongly reducing the heating costs in winter. Cooling in summer, even in Australia, isn't a major issue & is addressed by ventilation and water sprinklers.
- Reduced water consumption - due to better control over the internal environment, compared to most conventional greenhouse types.

- Solar energy generation (tens of kWh/day for approx. 200 m^2 of floor area), offsetting electricity costs and reducing the internal wiring complexity, if self-powered blinds-integrated windows are used to actively control the solar heat gain and (to an extent), thermal insulation.
- The power generated can be used to run water pumps, desalination equipment, heat water, run networks of weather and environment sensors, power electronics that regulatesenvironmental control energy savings, optimising therunning costs.
- More efficient running costs because the high LED lighting costs are reduced due to strong natural daylighting – due to high transparency.
- Suitable for vertical cropping, has potential to improve the core performance parameter which is the plant growth rates and biomass productivity.
- Generation of clean energy on-site.
- Integrates with systems that capture carbon emitted from gas-burning heater operations, purifies CO_2 to food-grade, then uses that to feed plants, improving growth rates.

Email hello@clearvuepv.com
Telephone +61 (8) 9220 9020
Fax +61 (8) 9220 9029
Address Suite 7, 567 Newcastle Street West Perth, WA 6005, Australia

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