INDUSTRIAL SOLAR ROOF
Singapore

Project data

System name:	Applied Materials Singapore Operations Centre
Developer:	Applied Materials South East Asia Pte Ltd
Architect:	ID Architects Pte Ltd
Main contractor:	Boustead Projects Pte Ltd
M&E consultant:	BESCON Consulting Engineers Pte Ltd
Location:	Changi (Singapore)
Commissioned:	April 2010
Completion time:	16 weeks

Technical data

Rated system power	0,4 MWp
Annual energy yield	approx. 500 MWh
Avoided CO_2 p.a.	approx. 250 tons*

Modules	SunFilm 460 & 470 ENN Solar EST 460, 470, 480 Schott ASI REC225AE
Inverter	SMA Various
Construction type	Steel support structure Glass BIPV skylight
Tilt angle	5° slope

* Based on typical 0.5 tons CO_2/MWh from gas fired power plants

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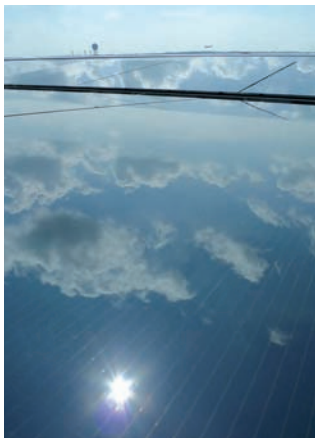

"Phoenix Solar installed the system in a matter of weeks and with the highest level of professionalism. We are very pleased with the results," said Russell Tham, President of South East Asia.

Applied technology

When Applied Materials constructed their new 32,000 m² operations centre, they naturally wanted to include solar PV modules manufactured using their own SunFab™ Technology.

Phoenix Solar designed a 380 kWp system comprising 564 thin film tandem junction modules. Measuring 2.2 m x 2.6 m each, these 5.7 m² modules are the largest and most powerful mass-produced solar PV modules in the world.

At 105 kg, yet only 8 mm thick, handling and installing these modules on a rooftop presented a number of challenges to the project team. Phoenix Solar solved them with innovative engineering solutions, from transporting the modules on the rooftop, to designing module mounting structures.

In addition to the 380 kWp system, Phoenix Solar designed a 14.4 kWp multi-crystalline reference system and added 4.8 kWp semi-transparent thin film BIPV skylights to allow natural light through the building's corridors and common areas.

A research grade weather station and a renewable energy management system was introduced to allow the client to coordinate, aggregate and compare data from multiple PV power plants installed worldwide.

The completed system is currently Singapore's largest thin film PV system, and the largest installation of tandem technology in 5.7 m² panel size worldwide. The building has been rated Green Mark Platinum by Singapore's Building & Construction Authority (BCA).

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