

Photovoltaics on buildings

– Specifying and Evaluating Project Proposals

2nd Run

16 PDUs to be awarded by Professional Engineers Board, Singapore
4 CPDs to be awarded by Singapore Institute of Architects

Date : 9 & 10 July 2009

Time : 9.00 am to 5.00 pm

Venue : SPRING Singapore
2 Bukit Merah Central
Singapore 159835

Singapore is a small city-state without natural resources such as oil and natural gas. Fortunately, we are blessed with plenty of sunshine throughout the year. When designing a building to harness this renewable solar energy, Solar Photovoltaics (PV) helps to reduce the use of fossil fuels and improves the building's environmental performance.

PV systems convert sunlight directly to electricity. Not only can PV enable a building to save electricity costs from SP PowerGrid, it can also make a building stand out from the crowd, by enhancing its environmental appeal and high-tech image. Due to the growing demand for clean sources of energy, the production of solar photovoltaic cells and modules has expanded dramatically in recent years.

Accordingly, the Building and Construction Authority (BCA) launched its Green Mark Scheme in January 2005 to raise environmental awareness among developers, designers and builders, and to promote sustainability in the built environment at the project conceptualisation and design phases, as well as during construction. They are also encouraging developers to include PV in their projects as part of their Green Mark Award scheme.

The Singapore government has launched a SG\$20 million fund for private sector developers to encourage the adoption of solar technologies within buildings in Singapore. Companies involved in new building projects that have achieved the BCA Green Mark Gold standard can apply for the Solar Capability Scheme (SCS).

Many aspiring PV systems owners find themselves poorly prepared when requesting system proposals and evaluating offers, as they might have little or no prior experience of PV systems and what levels of payback and incentive schemes apply. Hence, two experienced PV industry professionals are invited to clear your doubts.

Objectives

At the end of the programme, participants will:

- Understand the possibilities and limitations of solar PV on buildings
- Understand the economics and payback of PV systems
- Be familiar with the incentive schemes for PV systems
- Understand how to specify and evaluate PV project proposals

Target Audience

- Architects
- Building owners
- Developers
- Main contractors
- Professional engineers
- Quantity surveyors

Programme Outline

The two-day workshop will comprise a mix of presentations, interactive discussion, hands-on comparison of module technologies and site visits.

Day one

- Introduction and overview of PV + Building Integrated PV (BIPV)
- Effects of shading on crystalline silicon (c-Si) modules
- Comparison of c-Si and thin film modules
- Worked examples and discussion of results (group work)
- Site visits to PV and BIPV installations

Day two

- Economics and payback
- BCA and EDB schemes
- Specifying and evaluating projects
- Maintenance requirements and programmes
- Worked examples and discussion of results (group work)
- Final Q & A, and conclusions

Organised by:



Supported by:



About SEAS

Since 2001 the predecessor of SEAS, Industry Committee for Energy Efficiency (ICEE) a part of Singapore Association for Environmental, Occupational Health and Safety Companies (SAFEco) has been conducting seminars, workshops and conferences in the area of energy efficiency and management. ICEE/SAFEco was the first organization to launch the Specialist Diploma in Energy Efficiency in conjunction with Singapore Polytechnic.

Today, SEAS is specializing in running trainings, courses and conferences only in the area of sustainable energy i.e. energy efficiency and management, renewable energy, carbon trading as well as funding and financing of clean energy projects. SEAS aims to be the one stop, information and training provider, in the area of sustainable energy. Our trainers and lectures are not only highly qualified academic professionals but also industry specialists and professionals that are successful and sought after practitioners in the area of Sustainable Energy. Majority of Key Qualified Personnels and Accredited Energy Services Companies are members of SEAS. They have, as a group successfully executed a multitude of energy projects with varying complexities which demands both locally and regionally.

About the Trainers

Christophe Inglin has over 12 years of experience in the field of photovoltaics. He is currently the Managing Director of Phoenix Solar Pte Ltd, which specialises in PV system design and turnkey installation. He also chairs the Clean Energy Committee under SEAS.

Prior to co-founding Phoenix Solar Pte Ltd in Dec 2006, Christophe spent 10 years with Shell Solar Pte Ltd (formerly Siemens Showa Solar), a leading manufacturer of PV cells and modules. He is an invited trainer for the Green Mark Manager programme held monthly by BCA, and for regular courses on PV Fundamentals at NEA's Singapore Environment Institute.

Eddie Lee is the Managing Director of Renewpowers Technologies Pte Ltd which provides design, engineering, supply, installation and maintenance of solar power, solar thermal (hot water), wind turbines and other renewable energy systems in Asia Pacific. He has over 7 years of experience in the solar industry. His previous work experience includes 7 years in Building Management Systems and Intelligent Building Systems with Siemens.

An active member of SEAS, Eddie also contributes his time as solar trainer by assisting NEA & SEI in developing and delivering quality environment training programmes.

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Registration Form

- Yes! I would like to register for this programme.
 I am unable to attend but please put me on your mailing list.

	Early Bird (Registration with payment made on/before 11 June 09)	Normal Fee (Closing date: 2 July 09)	Group Fee (Closing date: 2 July 09)	No. of Delegates	Fees Payable
<input type="checkbox"/> SEAS Member	S\$490	S\$550	-		
<input type="checkbox"/> Non Member	S\$550	S\$740	S\$490		
			Total		

- * Fees include refreshments, lunch and programme collateral.
- * **Enjoy group discount for 4** or more delegates registered at the same time from the same organization and same billing source.
- * Only one type of discount scheme is applicable at any one time.
- * Please print and complete additional sheets where necessary.
- * **Important:** Walk-in delegates will only be admitted on the basis of space availability and with full payment made on site.

Participant's Details

- 1 Name (*Dr/Mr/Mrs/Ms): Designation:
 HP No: Email: PEB
- 2 Name (*Dr/Mr/Mrs/Ms): Designation:
 HP No: Email: PEB
- 3 Name (*Dr/Mr/Mrs/Ms): Designation:
 HP No: Email: PEB

*Please delete accordingly

Organization's Details

Company Name:

Company Address:
 Postal:

Contact Person's Name : (*Dr/Mr/Mrs/Ms)

Tel: Fax:

Email:

Administrative Information

Registration and Payment

Please complete the enclosed registration form and forward it together with your cheque at least 7 days before the commencement of the programme to

**Sustainable Energy
 Association of Singapore (SEAS)
 2 Bukit Merah Central
 #18-02, Spring Building Singapore
 Singapore 159835**

Crossed cheque should be made payable to
**"Sustainable Energy
 Association of Singapore"**
 Applications will close on **2 July 2009**.

Cancellation

SEAS reserves the right to change programme venue, cancel or reschedule the programme if necessary or warranted by circumstances beyond our control.

There will be no refund of fees for withdrawal. However, if the registration participant is unable to attend, a representative may be allowed to attend at no extra cost. Please inform us of the changes by fax or via email 3 days before the commencement of the programme.

Confirmation of Registration

Confirmation of registration will be given 5 working days before the commencement date via email. Registration is confirmed only upon receipt of payment.

If you do not hear from us
**Please contact Ms Joann Ng at: 63388578
 Email: training@seas.org.sg
 Fax your registration form to 62764257**