

Photovoltaics on buildings

- Specifying and evaluating project proposals

7th Run

***PDUs to be awarded by Professional Engineers Board, Singapore
Get 60% Cash Payout From PIC Scheme***

Date : 27 – 28 July 2016

Time : 9:00am – 5:00pm

Venue : SEAS Training Centre
9 Penang Road, #08-02 Park Mall
Singapore 238459

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 grown exponentially in the last decade.

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. BCA is also encouraging developers to include PV in their projects as part of their Green Mark Award scheme.

Until a few years ago, most PV projects required some additional incentive to make them commercially viable. But costs have declined to the point that projects now achieve payback periods below 10 years, yielding attractive internal rates of return (IRR) of 8–12%. This applies for systems that perform properly for 20–25 years, in line with PV module power warranties.

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Many aspiring PV systems owners find themselves poorly prepared when requesting system proposals and evaluating offers, as they have little or no prior experience of PV systems and how to distinguish a good system from a mediocre one. Hence, we have invited an experienced PV industry professional to clear your doubts.

Objective

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

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

Programme Outline

The 2 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
- Specifying and evaluating projects
- Maintenance requirements and programmes
- Worked examples and discussions of results (group work)
- Final Q & A, and conclusions

Sustainable Energy Association of Singapore (SEAS)

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About SEAS

The Sustainable Energy Association of Singapore (SEAS), an industry association launched in 2006, today has 160 members in the area of Energy Efficiency, Solar, Wind, Biomass, Carbon and Clean Energy Financing. SEAS aims to be the voice of sustainable energy industry and promote the business of its member companies.

SEAS also specialises in training, courses and conferences focussed on sustainable energy. SEAS aims to be the one-stop information and training provider in the area of sustainable energy. Our trainers and lecturers 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. The majority of Key Qualified Personnel (KQP) and Accredited Energy Services Companies are members of SEAS. They have, as a group successfully executed a multitude of energy projects with varying complexities both locally and regionally.

About the Trainer

Mr. Christophe Inglin has over 18 years of experience in the field of photovoltaics. He is currently the Managing Director of Energetix Pte Ltd, which he co-founded in August 2015 as a specialist solar advisory and project development company. He also chairs the Clean Energy Committee under SEAS.



From Oct 2006 to July 2015, Christophe was Managing Director of Phoenix Solar Pte Ltd, one of Singapore's best respected solar systems integrators. Prior to that, he 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 by the BCA Academy.

Christophe has a BSc in Electronic and Electrical Engineering from the University of Surrey in England, and an MBA from INSEAD in France.

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 27 June 2016)	Normal Fee	Group Fee	No. of Delegates	Fee Payable
<input type="checkbox"/> SEAS Member	S\$524.30	S\$588.50	-		
<input type="checkbox"/> Non Member	S\$588.50	S\$791.80	S\$524.30		

- * Fees are inclusive of GST.
- * 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

- Name (*Dr/Mr/Mrs/Ms): _____ NRIC: _____
Designation: _____ HP No: _____ Email: _____
- Name (*Dr/Mr/Mrs/Ms): _____ NRIC: _____
Designation: _____ HP No: _____ Email: _____
- Name (*Dr/Mr/Mrs/Ms): _____ NRIC: _____
Designation: _____ HP No: _____ Email: _____
- Name (*Dr/Mr/Mrs/Ms): _____ NRIC: _____
Designation: _____ HP No: _____ Email: _____

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**
9 Penang Road
#08-02 Park Mall
Singapore 238459

Crossed cheque should be made payable to
"Sustainable Energy
Association of Singapore"

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. Agnes Seah at:
Tel: 63379886
Email: training@seas.org.sg
Fax your registration form to 63376658