



Waste Heat Recovery: Challenges & Opportunities for Energy Efficiency

2nd Run

7 PDUs to be awarded by Professional Engineers Board, Singapore

Date : 15 July 2010

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 and with very energy intensive industrial activity. A great potential of efficiency improvement lies in recovery of the wasted heat and thus replacing power, oil or natural gas used to fuel the processes.

As most industries use fossil fuels, heat recovery and improvement of energy efficiency will directly reduce the CO₂ emission. Consequently, heat recovery projects can generate credits within the CDM and carbon trade programs. These credits are generated due to avoidance of use of fossil fuels as well as financial return on heat recovery projects.

Heat recovery can generate important financial cash flows, but due to the complexity of the equipment and recovery processes it is not always easy to implement these projects. For all energy efficiency projects, increased complexity demands more engineering efforts as well as adequate expertise and understanding of the technical fundamentals governing the heat recovery processes. Typical problems in heat recovery are corrosion, clogging, emissions and fouling; it is essential to deal with those and solve them in a sustainable way.

Maintenance and qualitative operating of the equipment is essential to avoid deterioration of the efficiency or early breakdown of machines. These aspects have to be dealt with during the design stage and organized at the start of the projects otherwise the return on investment will not be achieved.

To find out more about how to save money with heat recovery, join us in this workshop, now!

Objectives

This workshop will bring understanding of the fundamentals of heat recovery in industrial processes.

During the workshop a simple but effective methodology will be explained to help managers and engineers to discover, calculate and demonstrate the heat recovery saving potentials within their processes.

Emphasis will be given to the major technical risks that are related to heat recovery. Realistic solutions will be emphasized to solve those problems.

Target Audience

Managers, engineers, designers, decision makers, etc. related to:

- Harbor operations
- Large scale agriculture and food processing
- Mechanical- and electrical contracting
- Machine building
- Petrochemical and chemical industry
- Power plants
- Project development
- Utilities (power, natural gas, water, waste water, waste, etc.)

Programme Outline

The one day workshop will comprise a mix of presentations, interactive discussion and hands on examples in industry.

- Introduction
- Heat exchangers
 - Theory of heat transfer
 - Types of heat exchangers
 - Fouling
 - Corrosion
 - Heat transfer media
- Heat recovery: calculation examples
 - Exhaust gases
 - Post combustion
 - Waste water
- Heat integration
 - Quality of energy
 - Pinch analysis
 - Tools to enhance heat integration
- Cogeneration
- Maintenance and operation
- Alternative utilization of waste heat

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 Trainer

Filip Vandeputte has over 30 years of experience in industry where he worked in engineering, maintenance, and operations. He worked in Chemicals (BASF, BAYER), Food processing, Non Ferrous metals (Corus Aluminum) to waste recycling industries.

Since 2002 he has been working as a senior energy efficiency consultant helping industrial companies to improve their energy efficiency and develop sustainable power generating installations in combination with emission reduction functions. He mainly worked for European companies in the chemical, food, pharmaceuticals, non ferrous metals, printing, minerals, wood, textiles, mechanics and building sectors.

Filip has consulted and done projected with companies such as Coca Cola, Kennametal and Adidas to assess the energy efficiency of the operations in China, Kazakhstan, North Africa and the United States helping those multinational companies to develop their Green roadmap.

He is involved in several academic development programs in the field of: pyrolysis of lingo-cellulose biomass, post combustion on dryers with power generation, small scale cogeneration in combination with mechanical steam compression, adaptive optimization of processes and others.

In 2009, Filip has started energy optimization work in Singapore together with local companies, providing solutions in the field of efficiency optimization in Singapore and the neighboring countries, thus moving his expertise from Europe to Asia.

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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 10)	Normal Fee (Closing date: 30 June 10)	Group Fee (Closing date: 30 June 10)	No. of Delegates	Fees Payable
<input type="checkbox"/> SEAS Member	S\$250	S\$350	-		
<input type="checkbox"/> Non Member	S\$350	S\$500	S\$300		
			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**
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 **30 June 2010**.

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