BIOMASS GASIFICATION

21–22 JULY 2014, BANGKOK, THAILAND

TOPIC COVERED

- Thermal Conversion of Biomass
- Fundamentals of Biomass Gasification Systems
- Working of Biomass Gasification Plants
- Biomass Gasification –based Cogeneration Plants
- Feedstock for Biomass Gasification Projects
- Biofuels from Synthesis Gas
- Guidelines for Establishing Biomass Gasification Projects
- Case Studies of Small, Medium and Large Gasification Projects

Expert Course Faculty
SALMAN ZAFAR
CEO, BioEnergy Consult
BIOMASS GASIFICATION
21-22 JULY 2014, BANGKOK, THAILAND

Course Overview
The two-day course will provide detailed description of biomass gasification systems, types of biomass gasifiers, working of biomass gasification plants, biomass resource base, CHP systems, industry trends and regional prospects. Strong emphasis will be placed on understanding key technical aspects involved in the conceptualization, design and operation of biomass gasification projects. Case studies of small- to large-scale biomass gasification plants from different parts of the world will be an important element of the course.

Who Should Attend & Course Prerequisites
The training program is designed for policy-makers, regulators, industry professionals, project developers, entrepreneurs and investors. Participants should have basic knowledge of biomass energy and waste-to-energy systems.
The target group for the program is comprised of:
- Policy-makers
- Industry regulators
- Project developers
- Industry professionals
- Agro-industrial firms
- Entrepreneurs
- Academia
- Investors

Your Expert Faculty Leader
Salman Zafar is a renowned expert in biomass energy, waste-to-energy, solid waste management and sustainable development. He has rich experience in all aspects of the biomass energy sector and has successfully accomplished a wide range of biomass projects especially in the areas of biomass gasification, biomass pelletization, anaerobic digestion, cogeneration and agro-industrial waste management. He is widely acknowledged as an authority on biomass energy situation in Southeast Asian countries.
Salman is the CEO of BioEnergy Consult, a reputed biomass consulting, advisory, training and awareness-raising firm active worldwide. In addition, he is the Founder of EcoMENA, a Doha-based popular voluntary initiative to promote sustainable development and create mass environmental awareness in the Middle East and North Africa (MENA) region.
Salman holds Masters as well as Bachelor degrees in Chemical Engineering from Aligarh Muslim University (Aligarh, India). He is proactively engaged in creating mass environmental awareness through his popular informational portals and blogs.
Salman has participated in numerous conferences and workshops as chair, keynote speaker, trainer and panelist. He is a prolific writer and has authored numerous popular articles in reputed journals, magazines and newsletters on biomass energy, waste to energy, renewable energy and environmental issues.

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Course Outline

DAY 1

Overview of Thermal Conversion of Biomass
- Combustion
- Gasification
- Pyrolysis
- Plasma Gasification

Types of Biomass Gasification Systems
- Gasification in entrained flow
- Gasification in fluidized-bed
- Gasification in fixed-bed reactors

Fixed-Bed Gasifiers
- Updraft gasifiers
- Downdraft gasifiers
- Double-fire gasifiers
- Staged gasification systems

Resource Base for Biomass Gasification Plants
- Rice husk
- Bagasse
- Straw
- Cane trash
- Empty fruit bunches
- Energy crops

Fundamental Description of Process Steps
- Fuel storage
- Fuel transport
- Fuel Feeding
- Gasification reactor
- Gas cleaning
- Gas utilization

By-products of Biomass Gasification and Their Uses
- Synthesis gas
- Char
- Ash

Gas Cleaning – Tar Treatment Systems
- Fixed bed absorber
- Thermal tar treatment
- Catalytic tar treatment
- Wet Scrubber
- Wet Electrostatic Precipitator

DAY 2

Gas Cleaning – Dust Treatment Systems
- Dust Electrostatic Precipitator
- Filtration de-duster

CHP Systems
- Steam turbine
- Gas turbine
- Microturbine
- Stirling Engine
- Fuel Cells

Biomass Gasification Power Systems
- Moving-bed and ICE
- Fluidized-bed and gas turbine
- Combined cycle
- Biomass Fuel Cell Power Plant

Biofuels from Syngas
- Fischer-Tropsch fuels
- Methanol
- Dimethyl ether

Guidelines for Biomass Gasification Projects
- Feedstock preparation
- Site selection
- Technology selection
- Plant operation
- Troubleshooting
- Plant Maintenance

Biomass Gasification Prospects in Southeast Asia
- Thailand
- Indonesia
- Philippines
- Malaysia

Case Study
- Small-scale biomass gasification plant
- Medium-scale biomass gasification plant
- Large-scale biomass gasification plant

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Courses Available

4 Pillars of Transformer Condition
Advanced Project Finance for Power
Advanced Technical Report Writing & Presentation Skills
Advanced Turnaround Shutdown & Outage Management
Ancillary Services in Competitive Electricity
Asset Management for the Power Industry
Best Practice Renewable Energy Capital & Project Management
Biomass Power Generation
CFB Combustion for Boiler Operations
Clean Development Mechanism and Carbon Markets
Coal Contracts
Combined Cycle Power Plants Operation
Combined Heat & Power (CHP) and Co-Generation Plant Operations
Competency Management System for the Power Industry
Design & Operations of Circulating Fluidized Bed Boiler
Developing & Structuring Public-Private Partnership (PPP) for Infrastructure
Effective Tender Process Management for Power & Utilities
Electrical Hazop (eHazop) Studies for the Power Industry
Electricity Demand-Side Management
Electricity Industry Design
Electricity Network Planning
Electricity Retail Contracts
Electricity Theft
Electricity Trading Essentials
Energy Efficiency
EPC Contract Management for Power & Utilities
Essentials of Coal Markets and Trading
Essentials of Power Trading
Excitation Systems
Feed-In Tariffs for PV Systems
Finance for Non-Finance Professionals in Power & Utilities
Financial Modelling for Project Finance in Power & Utilities
Fitness-For-Service AP 1 579 & High Energy Piping Life Management
Fundamentals of Geothermal Energy
Fundamentals of Power Generation
Gas & LNG Contract Negotiation
Gas Turbine Generator Selection, Operation & Maintenance
Gas Turbine Hot Gas Paths, Rotors & Failure Analysis
Gas Turbine Major Inspection & Overhaul
GE Gas Turbine Operations Simulation Based
HRSG Design, Operations & Understanding, Controlling of HRSG Damage
Mechanisms
HV Substation Design & Construction
IEC for Utilities
Integration of Distributed Generation
Introduction to Carbon Capture & Storage
Introduction to Clean Coal Technology
Introduction to Power Systems
Keeping Electrical Switchgear Safe
Leadership & Team Dynamics for Power & Utilities
LNG Fundamentals
LNG Markets & SPOT Trading
Maintenance Planning & Scheduling
Making IPP & Renewable Energy Projects Contract
Frameworks Bankable
Managing Complex Projects for Power and Utilities Professionals
Medium Voltage & High Voltage Switchgear
Metallurgy for Engineers
Mechanical Engineering for Non-Mechanical Engineers
Mini Hydro Project Analysis
MKV Speedtronic Control System
MK VI Speedtronic Control System
Nuclear Energy Project Planning & Economics
Nuclear Power
Offshore Platforms Electrical Systems Design & Illustrations
Operations of Coal Fired Power Plants
Power Generation Commissioning, Operations & Maintenance
Power Generation Operation, Protection & Excitation Control
Power Plant Chemistry for Chemist & Chemical Engineers
Power Purchase Agreements
Process Control Methods
Programmatic CDM
Relay Protection in Power Systems
Reliability Centered Maintenance Masterclass
Reliability Engineering
Renewable Energy Development & Investment
Renewable Energy Integration
Risk Based Inspection
Risk Management in Power Markets
Root Cause Analysis
SCADA & Power Systems
Smart Grid
Solar Energy & Photovoltaic Power
Spare Parts Optimisation
Supercritical and Ultra-Supercritical Coal-Fired Power Plant
Technical Report Writing & Presentation Skills for Power & Utilities Professionals
Ultra Low NOx Gas Turbine Combustion
Uninterruptible Power Supply
Vibration Analysis & Condition Monitoring
Waste to Energy Plant Operations
Water Treatment and Corrosion Control for Steam Generation and Power Production
Writing Effective Standard Operating Procedures (SOP) for Power & Utilities Professionals & Engineers
Frequently Asked Questions (FAQs)

1. Does PowerEdge have other programmes than those listed?
   We have more than 200 programmes that we are capable of running. All we need is for you to contact us and request for the preferred programme and we will be able to develop it.

2. Where is PowerEdge based?
   PowerEDGE is headquartered in Singapore but we run our training programmes in different venues around Asia.

3. What does PowerEdge do?
   We are a Power & Utilities Training Specialist.

4. Can this course be done in our city?
   It absolutely can. Get in touch with us to request for a training programme to be carried out in your city.

5. Can you reduce the price of our preferred course?
   While our price has been reduced before it is ever launched, we are always happy to help you with further discounts.

6. Can you change the dates of the course?
   If you have a special requested date, let us know and we will arrange another session for you.

7. Who are the companies that will be participating?
   This varies from a diversity of Power Operators, Regulators, Financiers, to Vendors in the Power & Utilities industry.

8. Where is the venue for the course?
   We usually engage a 4 to 5 star hotel meeting room to ensure the comfort of our participants.

9. How many delegates should we expect for each course?
   This varies from 15 to 20 participants. Class sizes are kept small to allow trainers to focus better on each participant.

10. What are the different payment modes?
    We accept Visa/MasterCard, cheques, bank transfers and cash on site.

11. Is accommodation included when I sign up for a course?
    Accommodation is not included in the course fee but we are always happy to advise on available accommodations.

12. Can I get a cheaper accommodation through PowerEdge?
    We will be pleased to help you negotiate a better rate with hotels.

13. Is lunch provided during the course?
    We provide lunch and 2 tea breaks every day during our training programmes.

14. Are the training materials included once I have signed up for a course?
    Yes, training and course materials are included in the course fee.

15. Will there be a certificate for the course?
    Yes, there will be a certificate of participation upon completion of a course.

16. Who are PowerEdge trainers?
    They are expert consultants and practitioners with many years of experience in the subject matter that they deliver on.

17. Are PowerEdge trainers competent?
    We have received numerous favourable feedbacks on our trainers from past participants.

18. Can PowerEdge assist with Visa travel applications?
    We can assist in advising you on the relevant procedure(s) and embassies/consulates that provide Visa for travel purposes.

19. Can we purchase training materials without attending a course?
    Unfortunately this option is not available as training materials are specially developed for courses.

20. Can course content be tweaked to cater to our needs?
    Of course! Just let us know your request and we will get the trainer to assist in carrying it out.
### REGISTRATION FORM

<table>
<thead>
<tr>
<th>Programme</th>
<th>NORMAL PRICE</th>
<th>EARLY BIRD (By 30 May 2014)</th>
<th>GROUP OF 3 or More</th>
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<td>2 Day Programme</td>
<td>SGD 2,200</td>
<td>SGD 2,000</td>
<td>SGD 1,870</td>
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</tbody>
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### ATTENDEE DETAILS

- Name .......................................................... Job title ............................................................................
- Tel ........................................... Department ......................................................... Email ..........................................................

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- Tel ........................................... Department ......................................................... Email ..........................................................

### COMPANY DETAILS

- Organisation name .......................................................... Industry ..........................................................
- Address ........................................................................................................................................
- Postcode ...................................................................................... Country ..........................................................
- Tel .................................................................................................. Fax ........................................................................

### PAYMENT POLICY

Payment is due in full at the time of registration. Full payment is mandatory for event attendance. I agree to PowerEdge Pte Ltd. payment terms

### CANCELLATIONS & SUBSTITUTIONS

You may substitute delegates at any time. POWEREDGE PTE LTD does not provide refunds for cancellations. For cancellations received in writing more than seven (7) days prior to the training course you will receive a 100% credit to be used at another POWEREDGE PTE LTD training course for up to one year from the date of issuance. For cancellations received seven (7) days or less prior to an event (including day 7), no credits will be issued. In the event that POWEREDGE PTE LTD cancels an event, delegate payments at the date of cancellation will be credited to a future POWEREDGE PTE LTD event. This credit will be available for up to one year from the date of issuance. In the event that the delegate is unable to attend the rescheduled event, the delegate will receive a 100% credit to be used at another POWEREDGE PTE LTD training course for up to one year from the date of issuance.

### RELATED COURSES

- Making Independent Renewable Power Projects Contractually Bankable
- LNG Markets & Trading
- Electricity Trading Essentials

### 4 ways to Register

- Online Web Registration
  - info@poweredgeasia.com
  - (65) 6741 9927
  - (65) 67478737

### On Site Training

Can’t make it for the Course? We’ll make the course come to you!!

Simply let us know your preferred time and dates and we will meet you at your schedule and venue.

With a host of highly trained experts, we will be happy to customize your programme with your needs 100% fulfilled.

Contact us today at
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  - (65) 67478737

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- Email:
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