THIRD RUN IN ASIA!

UTILITY & COMMUNITY SCALE ENERGY STORAGE (U&CES) SYSTEMS

Reviewing a Nascent Industry

3 for 2 Bundle offer. SGD 2386 each for Team of 3!

26 – 28 NOVEMBER 2018, PUTRAJAYA, MALAYSIA

LEARN FROM THE BEST
IREC Certified Clean Energy Instructor/Master Trainer of the Year 2016

Expert Course Faculty Leader

IREC Interstate Renewable Energy Council
CERTIFIED MASTER TRAINER™

Our expert course leader has been an instructor with the Midwest Renewable Energy Institute since 1993 Teaching advanced Photovoltaic (PV) design and installation and is an IREC Certified Master Trainer (TM) in Photovoltaic Technologies.

Testimonials from Past Participants

"Well thought out courses that enables the participants to know what to look for in the design & implement process of the U & CES and the right questions to ask to vendors" – Executive & Load Forecasting, Tenaga Nasional Berhad

"PowerEdge never disappoint when it comes to providing training in Power & Energy Industry. TQ!" – Executive Engineer, Single Buyer

"The trainer is very experienced and knowledgeable in the nascent technology of energy storage systems. The course was excellently presented and very timely eye-opener for my utility company to consider a phased approach in identifying the detail needs of services by the system operator and for specifying requirements of criteria's for project implementation." – Single Buyer, Tenaga Nasional Berhad

"Interesting speaker for an interesting topic. Enjoyed the whole 3-days course, and gained better understanding on the subject matter." – Tenaga Nasional Berhad

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About This Training Course

This course will provide a detailed analysis of Utility and Community Scale Energy Storage (U&CES) Systems. Beginning with an overview of the current available technologies the course will present the elements of U&CES with a focus on the benefits to Utilities as well as the advantages of energy storage for Commercial and Industrial energy users.

Issues to be covered include: Storage system design, battery applications, component specification and installation, integration of storage with Renewable Energy (RE) systems, multiple presentations of specific manufacturers of storage systems, O&M issues, available industry resources for ongoing education and the development of individual projects.

Key Learnings

This course will allow participants to gain practical and theoretical knowledge about U&CES systems with a focus on real-world applications and current working examples of the various technologies.
Participants in this course will upon completion of this course, be able to:

- Define & explain how Utility and Community Scale Energy Storage (U&CES) operates and the benefits of these systems.
- Describe and identify components and specifications of a U&CES system
- Identify the best application and limitations of each system type
- Calculate U&CES system costs
- Describe financial benefits of U&CES systems
- Correctly size a U&CES system
- Recommend a U&CES system type to meet a Utility administrator's or business owner's goals
- Identify and describe different U&CES system types, their storage capabilities and the systems
- Explain data analysis, connection scheme, control algorithm and power system study for U&CES
- Explain and safety issues with U&CES system
- Define commissioning, operation and maintenance procedures for U&CES systems
- Demonstrate proper safety procedures when installing a U&CES systems
- Explain various policy, methodologies and utility-sided business model for implementation of U&CES systems

Who Will Benefit

- Project developers and administrators
- Investors
- EPCs
- Project managers
- Installers
- Designers
- Government policy makers

This training course has a limited attendance for up to 20 participants only.

Sessions commence at 9am on all days, with short intervals at 10.30am and 3.30pm respectively.
Refreshments will be provided in the short intervals.
Lunch will be provided at 12:30pm for 1 hour. Sessions will end at 5pm on all days.

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Course Outline

DAY 1

Introductions

Background and History of Utility and Community Scale Energy Storage

Section I

- Define & explain how Utility and Community Scale Energy Storage (U&CES) operates and the benefits of these systems.

Defining Storage types:

- Flywheel
- Compressed Air
- Batteries:
  - Lead-Acid, Lithium-Ion
  - Flow batteries
    - Vanadium Redox Vs: Zink Bromide
  - Sodium-sulfur batteries
  - Ni-Cd
- Capacitors
- Superconducting Magnetic Energy Storage (SMES)

Section II

- Describe and identify components and specifications of a Battery based U&CES system:
  - Batteries by type
  - Inverters
  - Transformers/Phase converters
  - Points of interconnection
    - Client
    - Utility

Section III

- Identify the best application and limitations of each system type

U&CES range of applications:

- Energy time shift
- Load following
- Frequency regulation
- Renewable capacity continuity
- Transmission congestions relief
- Energy tariff cost management

- Application services and blending

Section IV

- Calculate U&CES system costs
  - Beginning analysis of determining cost in general
  - Equipment Cost parameters
  - Site preparation cost
  - Logistic costs

Section IV

- Describe financial benefits of U&CES systems – introduction

System services – defining and stacking for optimal benefits

DAY 2

Review of Sections I – IV w/ Q&A

Continue financial benefits of U&CES systems

Optimizing and Stacking system services

Section V

- Correctly size a U&CES system
  - Defining client goals
  - Analyzing loads
  - Choosing capacity
  - Inverter capacity
  - Battery Capacity

Section VI

- Recommend a U&CES system type to meet a Utility administrator's or business owner's goals

Section VII

- Identify and describe different U&CES system types and Manufacturers, their storage capabilities and the systems

Section VII continued –

How to review Manufacturer's Presentations

Manufacturers' battery presentations

Section VIII

- Data collection and analysis, connection scheme, control algorithm and power system study for U&CES
  - Data monitoring systems
  - Connection issues
  - Supervisory control and data acquisition (SCADA) interfacing
  - Controlling, managing and maintaining U&CES systems
  - Security

Section IX

- Safety issues with U&CES systems
  - Installation safety issues
  - O&M safety issues
  - Security of operations and interfaces

DAY 3

Review of Sections V-VIII w/ Q&A

Continue Section IX

• Safety issues with U&CES systems

Complete the discussion of Section IX with Q&A

Section X

• Define commissioning, operation and maintenance procedures for U&CES systems

- Commissioning protocols
- O&M options and Planning

Section XI

• Define and Demonstrate proper safety procedures when installing U&CES systems

Safety issues –

- Site Preparation
- Equipment deployment
- Integrating and Wiring
- Commissioning
- O&M safety issues

Section XII

• Explain various policy, methodologies and utility-sided business model for implementation of U&CES systems

- Governmental Policy issues
- Utility policy issues
- For utility owned systems
- For privately owned systems
- Modeling implementation

Final Review, Q&A and Open discussion

About Our Expert Course Trainer

Our trainer is the CEO of Great Northern Solar and is a NABCEP certified Photovoltaic Installation Professional. He has been an instructor with the Midwest Renewable Energy Institute since 1993 Teaching advanced Photovoltaic (PV) design and installation and is an IREC Certified Master Trainer (TM) in Photovoltaic Technologies. He was the primary curriculum developer for the MREI Photovoltaic courses at the Institutes inception.

A strong advocate for clean energy production, he volunteers with the Midwest Renewable Energy Association, the North American Board of Certified Energy Practitioners (board of directors member 2004-2014, Chair of the Nominations Committee-current) and with the Northern Futures Foundation.

The trainer has been designing, specifying, installing and operating Battery based Solar Electric systems (PV) for over 30 years. He has lived “off-Grid” for over 26 years where he runs his business Great Northern Solar.

He has been training contractors, administrators and officials in the operation of PV systems including those employing storage for over 26 years. In the last 5 years he has been investigating and developing trainings for the application of energy storage in commercial and other large applications.

With the development of Lithium Ion and other advanced battery technologies he has begun to consult and present trainings in battery design and deployment for the commercial market.

In 2016, he developed a hands-on seminar for retrofitting a LiOn storage and energy arbitrage system for a commercial building in Duluth Minnesota. The Hartley Solar Storage Retrofit Seminar walked participants through the design and implementation of the advanced storage system to provide for building resiliency and peak demand load shaving as well and potential other ancillary services for the Hartley Nature Center and Minnesota Power – the site Utility.

This small prototype is beta-testing Energy Arbitrage software that allows the client to choose several operational modes for cost reduction and resiliency.

Most recently, he presented “Energy Storage into Renewable Energy Systems” for the North Central Electrical League in the Minneapolis/Saint Paul area of Minnesota.

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	PER PARTICIPANT	2 PARTICIPANTS OR MORE	IN-HOUSE TRAINING
3 Day Programme	SGD 3,579 Per Participant	SGD 3,379 Per Participant	Guaranteed Minimum 40% Off Normal Price

4 ways to Register

Online Web Registration
info@poweredgeasia.com
(65) 6741 9927
(65) 6579 1288

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