



RE050: Solar Energy: Integration of Photovoltaic (PV) Systems and Microgrids

(Solar Energy, Prosumer, Energy Efficiency and Performance Analysis)

Training Description:

The transition to renewable energy is a vital process in the modern world. With events around the world contributing to high energy prices and organizations wishing to be more energy conscious and environmentally friendly, understanding Renewable energy systems is now of the utmost importance.

This intensive training course has been developed to assist the average technician, engineer or manager to understand the planning, design, installation, maintenance, analysis, integration and condition monitoring of Solar PV systems.

The training course will highpoint:

- Standards and best practices used for Solar PV technologies
- Solar PV systems
- EESS (battery storage) design and integration
- Solar PV and EESS performance estimates
- Design, installation, inspection and maintenance of solar PV systems

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Produce detailed designs of Solar PV and EESS (Battery Storage) systems
- ✓ Describe and produce in detail performance estimates of Solar PV and EESS
- ✓ Analyze system performance and potential system issues
- ✓ Discuss in detail the installation and maintenance requirements of Solar PV systems
- ✓ Be able to apply Best practice techniques and regulatory requirements to Solar PV systems

Personal Benefits:

- ✓ Gain new skills and knowledge on Solar PV systems
- ✓ Refresh their knowledge on DC and AC transmission systems
- ✓ Ask questions and focus on particular issues which they have encountered with their own Renewable Technology systems
- ✓ Advance onto further advanced training with regards to Renewable technology such as ASHP, GSHP and CHP
- ✓ Have detailed knowledge of current technological advancements in Solar PV systems
- ✓ Use techniques to demonstrate energy efficiency measures and also demonstrate cost savings with the techniques learnt

Organisational Benefits:

- ✓ Participants conversant with Solar PV technology and EESS (Battery Storage) technology
- ✓ Participants with developed skills to identify the different components which make up a Solar PV system
- ✓ Participants that are able to analyse Solar PV and Battery Storage performance estimates
- ✓ Participants that are able to understand how to integrate Renewable technology into their own HVDC power grids
- ✓ Participants that have detailed knowledge of regulatory requirements and industry standards

Training Designed for:

This course is intended for Electrical engineers, Electrical Technicians, Business unit managers with an electrical or renewables focus, Engineers of a discipline wishing to improve Solar PV knowledge and Renewable technology engineers.

Training Requirement:

“Hand’s on practical sessions, equipment and software will be applied during the course if required and as per the client’s request.”

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client’s learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

DAY ONE:

- ❖ Overview of Solar PV Systems, Components and Architectures
 - Solar PV modules
 - The IC curves
 - Pitch and orientation
 - DC system electrical design
 - Overcurrent protection
 - System integration

DAY TWO:

- ❖ Inverters, AC Systems, Network Connections and DNO approval
 - Protection against lightning and over voltage
 - Inverters
 - AC system requirements
 - Earthing and bonding
 - RCD protection
 - Network connection and DNO approval

DAY THREE:

- ❖ High Voltage, Civil Design, Installation and Health & Safety
 - High voltage systems
 - Mechanical and civil design
 - System monitoring and performance
 - Installation process
 - Health & safety for solar PV systems
 - Solar PV system commissioning

DAY FOUR:

- ❖ Commissioning, Labelling, Handover, Maintenance and Battery Systems
 - System labelling and identification
 - Handover and documentation

- Operation and maintenance
- Regulations, standards and Best practice
- Introduction to battery systems
- EESS components and architecture
- Types of storage device

DAY FIVE:

- ❖ **Battery Systems, Safety, Specifications, Design and Documentation**
 - Battery storage components
 - EESS operating states
 - Optimization and self-consumption
 - Design of EESS
 - Installation and handover
- ❖ Course Conclusion
- ❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:

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