



RE038: Renewable Energy and Operation

Training Description:

Renewable energy technologies are clean sources of energy that have a much lower environmental impact than conventional energy technologies. Electricity generation is the leading cause of industrial air pollution in the world. Most of our electricity comes from coal, nuclear, and other non-renewable power plants. Producing energy from these resources takes a severe toll on our environment, polluting our air, land, and water.

This training course to be in coherence with world's concerns about climate changes and reduction of carbon footprint. The training course will explore the various new technologies, construction, merits and demerits of each type of renewable energy generation. This training course will also consider methods of integration between the renewable energy with the present grid system. State-of-the-art distributed energy systems and storage systems will be emphasised to meet the ever growing demands of electricity.

Participants attending this training course will develop the following competencies:

- Understand the difference between renewable and non-renewable energies
- Create awareness in understanding the types of renewable energy
- Will appreciate the benefits of harvesting renewable energy
- Understand the characteristics and operations of each type of renewable energy
- Become aware of the importance of renewable energy generation

Training Objectives:

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

- ✓ Understand the fundamentals of the conventional power generation, transmission and distribution systems
- ✓ Understand the importance and roles of renewable energy in this modern age
- ✓ How to maximise the natural resources and convert them into renewable energy
- ✓ Understand the components architecture between the solar and wind power generations
- ✓ Create awareness in understanding the types of renewable energy
- ✓ Appreciation the benefits of harvesting renewable energy
- ✓ Understand the characteristics and operations of each type of renewable energy
- ✓ Explore the suitability of introducing renewable energy generation to your premises

Training Designed for:

This course is intended for technicians and engineers to understand the future of generation of electricity using renewable energy. The course is suitable for Electrical Engineers, Maintenance Technicians, Management Professionals, Project Engineers, Transmission Engineers and Power Generation 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:

❖ Renewable Energy and the World Today

- Fundamentals of Electricity Generation and Transmission
- Conventional Methods of Power Generation
- Overhead and Underground Power Transmission
- The AC power Distribution System
- The Smart Grid
- The Micro Grid

DAY TWO:

❖ Types and Characteristics of Renewable Energy & Generation of the Solar Energy

- Overview of renewable energy available
- Merits of Solar Power Generation
- Characteristics of a Solar Panel Installation
- Types of Photo Voltaic Cell
- The Inverter and Smart Meter
- Operation of the Solar Parks

DAY THREE:

❖ The Wind Power, Construction and Operation of Wind Turbines

- Overview of Wind Power Generation of Electricity
- Construction of the Wind Turbines
- Operations and characteristics of the main components of the Wind Turbine
- Merits of Wind Power
- Rotor Blade Designs
- Onshore and Off shore Wind Farms

DAY FOUR:

❖ Bioenergy, Tidal and Hybrid Renewable Energy Systems

- Characteristics of Biomass Power Generation
- Operations and Components of a Biomass Renewable Energy
- Characteristics of a Tidal Wave Energy Generation
- Operations of the Tidal Wave Renewable Energy
- Operations of Hybrid Renewable Energy Systems
- Merits of Hybrid Renewable Energy Systems

DAY FIVE:

❖ The Distributed Energy Resources (DER) and Storage System

- Importance of distributed Energy Resources
- Integration of renewable energy to the grid
- Energy Storage Systems
- Larger Capacity Batteries
- Case Studies, Selection and Design

❖ 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:

Aisha Relativo - Training & Career Development Manager

aisha@cmc-me.com / training@cmc-me.com

Tel.: +971 2 665 3945 or +971 2 643 6653 | Mob.: +971 52 2954615