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OIL AND GAS | OG-015

Renewable Energy Integration

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Course content

Why Attend

Why Attend The rapid growth of renewable energy is transforming power systems worldwide. Successfully integrating wind, solar, and other renewable sources requires advanced planning, grid flexibility, energy storage solutions, and smart network technologies. This course provides participants with practical knowledge on how to connect large-scale renewable generation to existing power systems while maintaining reliability, efficiency, and power quality.

Course Methodology This course uses an interactive and practical approach through presentations, technical case studies, group discussions, system analysis exercises, operational examples, and real industry applications.

Course Objectives

- Understand current trends in renewable energy generation
- Identify key challenges in renewable energy integration
- Apply technical solutions for grid stability and flexibility
- Evaluate energy storage technologies and applications
- Assess impacts on transmission and distribution systems
- Improve forecasting and demand response practices
- Understand smart grids and microgrid operations
- Support sustainable energy transition strategies

Target Audience

- Electrical Engineers
- Power System Engineers
- Energy Managers
- Utility Professionals

Course content

Target Audience

- Renewable Energy Specialists
- Operations and Maintenance Engineers
- Anyone involved in power generation and grid integration

Target Competencies

- Renewable Energy Systems
- Grid Integration
- Power System Analysis
- Energy Storage Technologies
- Smart Grid Operations
- Technical Problem Solving
- Sustainable Energy Planning
- Risk Assessment

Course outline

Day 1: Renewable Energy Generation - The Present, The Future and The Integration Challenges

- Drivers of renewable energy development
- State of the art integrating large capacities renewable energy
- Transmission and operation technologies and practices
- Wind power generation
- Photo voltaic power generation
- Concentrated solar power generation

Course content

Course outline

Day 2: Technical Solutions for Integrating Large Capacity Renewable Energy

- Wind turbines
- Grid friendly renewable energy generation
- Improved flexibility in conventional generation
- Transmission expansion developments
- Promising large capacity electrical energy storage technologies
- Roles of electrical energy storage in renewable energy integration
- Standards for large capacity electrical energy storage renewable energy integration

Day 3: Grid Flexibility - The Key to Renewable Energy Integration

- Effects of wind and solar power on energy demand
- Power plant flexibility
- Forecasting and demand response
- Wind and solar power variabilities
- Challenges variable renewable energy poses to the grid
- Impact of fossil fueled generators

Day 4: Integrating Renewable Energy into the Transmission and Distribution Systems

- Approach to analysis of integrating renewable energy
- Integration of distributed and renewable energy generation
- Power quality impacts
- Electrical transmission and distribution systems
- Photo voltaic optimization and sensitivity analysis
- Wind optimization and sensitivity analysis

Course content

Course outline

Day 5: Renewable Energy Integration in Smart Grids and Micro Grids

- Smart grid attributes
- Merits of smart grids
- Operation of micro grids
- Merits of micro grids
- Future of smart micro grids
- Wrap up session and Q&A session

Seminar dates

Available seminar dates

Live dates and pricing for Renewable Energy Integration generated from the course details page.

Date	Location	Format	Fee
1 - 5 June 2026	Amsterdam - Netherlands	Classroom	**€4,250.-**
8 - 12 June 2026	London - U.K	Classroom	**€3,850.-**
15 - 19 June 2026	Barcelona - Spain	Classroom	**€4,250.-**
6 - 10 July 2026	London - U.K	Classroom	**€3,850.-**
20 - 24 July 2026	Barcelona - Spain	Classroom	**€4,250.-**
3 - 7 August 2026	Istanbul - Turkey	Classroom	**€3,850.-**
10 - 14 August 2026	Amsterdam - Netherlands	Classroom	**€4,200.-**
7 - 11 September 2026	Istanbul - Turkey	Classroom	**€3,200.-**
14 - 18 September 2026	Paris - France	Classroom	**€4,400.-**
5 - 9 October 2026	Barcelona - Spain	Classroom	**€4,200.-**
12 - 16 October 2026	Munich - Germany	Classroom	**€4,250.-**
9 - 13 November 2026	Kuala lumpur - Malaysia	Classroom	**€2,250.-**
16 - 20 November 2026	Amsterdam - Netherlands	Classroom	**€4,200.-**
7 - 11 December 2026	London - U.K	Classroom	**€4,250.-**
14 - 18 December 2026	Paris - France	Classroom	**€4,400.-**
21 - 25 December 2026	Istanbul - Turkey	Classroom	**€4,200.-**