€TRAINING

Impact of Renewable Energy Sources

2 - 6 December 2024
London (UK)
Landmark Office Space

Impact of Renewable Energy Sources

REF: L1355 DATE: 2 - 6 December 2024 Venue: London (UK) - Landmark Office Space Fee: 6375 Euro

Introduction:

The Impact of Renewable Energy Sources training program offers insight into the significance of integrating renewable energy into various sectors. Participants explore its environmental, economic, and social benefits, as well as associated challenges and opportunities. Through case studies and discussions, attendees gain insights into how renewable energy can transform energy systems and contribute to sustainable development goals.

Program Objectives:

At the end of this program the participants will be able to:

- Determine the most important aspects of renewable energy plants that need probabilistic modeling and evaluation assessment.
- Understand the main features of the computational methods that are available for the reliability and operational performance modeling of the relevant systems.
- Understand the main indices that need be calculated for the quantification of power system operational performance.
- Carry out practical assessment studies.
- Compare and justify alternative schemes for the reinforcement of power generation systems.

Targeted Audience:

- Professionals of electric power utilities, system operators Independent System Operators - ISOs, Regional Transmission Operators - RTOs, Transmission System Operators - TSOs.
- Professionals of regulation authorities.
- Professionals of companies involved in projects concerning renewable energy installations .
- Power system consultants.

Program Outlines:

Unit 1:

General Aspects:

- Basic principles of probabilistic modeling and reliability evaluation methods.

- Generation challenges and main issues for planning purposes of low emission power systems.
- Main characteristics of conventional power plants.
- Main features of renewable energy installations.
- Ancillary services and impact of storage installations.
- Simulation computational approaches for modeling power system operational performance.

Unit 2:

Conventional Power Plants:

- Modeling the generation characteristics of thermal power plants.
- Modeling the generation characteristics of cogeneration plants large, small.
- Modeling the generation characteristics of hydroelectric power plants large, small with and without pumping facilities.
- Spinning reserve requirements.
- Demand response programs.
- Reliability criteria for the operation of power generation systems.

Unit 3:

Integration of Wind Generation Installations:

- Main modeling aspects concerning the stochastic generation variability.
- Equivalent daily curves predicting wind generation.
- Correlation of wind generation with system load demand requirements.
- Reduction events of wind generation.
- Indices for wind capacity credit.
- Operational integration costs for wind generation.
- High penetration levels and wind parks in future power systems.

Unit 4:

Integration of Other Renewable Energy Installations:

- Main modeling aspects concerning the stochastic generation variability.
- Equivalent daily curves predicting the solar generation.
- Correlation of generation with system load demand requirements.
- Operational integration costs for solar generation.
- Reliability assessment of photovoltaic plants and their interconnection links.
- Biomass installations.
- Battery storage facilities.

Unit 5:

Operational Assessment of Power Generation Systems:

- Simulation of power system operation.
- Reliability criteria and characteristics of system generation.
- Calculation of performance indices.
- Spinning reserve criteria and demand response programs.
- Interconnected power systems.
- Isolated power systems.