

Energy transition: opportunities and challenges of renewables integration



OBJECTIVE

Understand the technical and economic challenges of integrating variable renewable energies in today's grid around the world.



AUDIENCE

Professionals in the energy sector with an engineering background or/and who have working experience in the context of power systems, eager to learn about renewables grid integration.



CONTENT

Introduction

- History and problems of renewable energies
- Main renewable technologies: Overview of current energy trends: photovoltaics, solar thermal and wave energy.
- Stiffness of the grids and technical concepts

Technical challenges and solutions in Transmission lines

- Grid codes
- Uncertainty and variability of wind and solar
- Technical solutions for fulfilling grid codes

Distribution network: Technical challenges and solutions

- Distributed generation: Current status and trends
- Electrification of energy demand: Current status and trends

- Main challenges of the high penetration of renewables in Distribution systems:
- Main challenges and solutions:

Electrical studies

- Studies to determine the compliance with the grid codes, e.g. load flows, short circuits, harmonic emission.
- Power plants measurements and studies needed to meet the specifications of each country and the international standards

Introduction

- Technological development and degree of maturity of existing renewable technologies
- Historical evolution of the penetration of renewable energies
- Fight against climate change

Energy policy and regulation

- Main energy policies implemented at national, European and international level to promote the integration of renewable energies
- Regulatory framework for renewable energies in Spain and Europe:

The role of renewable energies in the Spanish electricity market

- Electricity price determination and evolution: influence of renewable energies penetration
- Introduction to the operation of the electricity market
- Impact of renewable energies on the electricity market
- Opportunities for renewable energies derived from the wholesale electricity market and the operation of the power system

Visit to the world's first Renewable Integration Centre (CECRE) in Madrid

LIVE ONLINE TRAINING

Duration: 12 hours

More information and registration here:

<https://bit.ly/HitachiGridAcademy>