Training Course on Grid Codes Compliance for Renewable Energy Projects

Professional Development Training Course Outline

Category	Engineering	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Introduction

With the accelerating integration of renewable energy projects into modern power grids, compliance with grid codes is critical to ensure system stability, reliability, and safety. Training Course on Grid Codes Compliance for Renewable Energy Projects provides a deep dive into the technical, regulatory, and operational aspects of grid code compliance for solar, wind, hydro, and hybrid renewable energy systems. Participants will gain practical insights into voltage and frequency control, fault ride-through capabilities, protection coordination, and reactive power management in line with both national and international grid codes.

Designed for engineers, developers, and regulatory professionals, the course combines technical theory with real-world applications, simulation tools, and case studies from leading renewable markets. It focuses on best practices, evolving standards, interconnection requirements, and grid integration strategies that align with the future of sustainable and decentralized energy systems. Master the critical elements of grid code compliance and ensure your renewable project meets regulatory expectations while contributing to grid resilience.

Programme Curriculum

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Course Objectives

1. Understand the role and importance of grid codes in renewable energy integration
2. Identify key technical requirements for grid code compliance
3. Evaluate voltage and frequency response obligations for renewables
4. Assess fault ride-through (FRT) and dynamic grid support functions
5. Analyze reactive power and harmonics requirements
6. Interpret grid interconnection procedures and timelines
7. Explore compliance testing and commissioning protocols
8. Understand regional and international grid code differences
9. Implement protection coordination and synchronization measures
10. Navigate regulatory frameworks and evolving standards
11. Apply grid compliance modeling tools and simulation software
12. Conduct risk analysis and mitigation for non-compliance
13. Learn from case studies and audits of grid code enforcement

Organizational Benefits

1. Ensure project approval by meeting regulatory grid standards
2. Avoid penalties and project delays due to non-compliance
3. Improve grid reliability through standardized interconnection
4. Optimize renewable system performance and control
5. Reduce integration costs through upfront compliance
6. Build in-house capability for renewable project development
7. Increase investor and stakeholder confidence
8. Enable faster permitting and commissioning timelines
9. Stay ahead with updates on global compliance trends
10. Improve coordination between developers, utilities, and regulators

Target Participants

- Renewable Energy Engineers
- Power System Planners

- Utility Interconnection Engineers
- Regulatory Officers
- Project Developers
- EPC Contractors
- Grid Compliance Auditors
- Electrical Consultants
- Protection & Control Engineers
- Government Energy Policy Advisors

Course Outline

Module 1: Introduction to Grid Codes

1. Definition and purpose of grid codes
2. Overview of global grid code frameworks
3. Key compliance drivers for renewables
4. Role of grid codes in system reliability
5. Case Study: Kenya and South Africa grid codes

Module 2: Renewable Energy Grid Integration Basics

1. Characteristics of variable renewable energy (VRE)
2. Grid integration challenges
3. Grid connection points and limits
4. Curtailment and ramp rate management
5. Case Study: Wind farm integration in Germany

Module 3: Voltage and Frequency Control

1. Active power response to frequency deviations
2. Voltage regulation strategies
3. Reactive power control
4. Ride-through settings and thresholds
5. Simulation: Frequency support from solar PV

Module 4: Fault Ride-Through Requirements

1. LVRT and HVRT compliance standards
2. Dynamic grid support functionality
3. Fault detection and response coordination
4. Grid event simulations
5. Case Study: Fault response in Indian solar plant

Module 5: Interconnection Process and Permitting

1. Grid connection agreements (GCA)
2. Application and review stages
3. System impact assessments (SIA)
4. Technical due diligence
5. Case Study: Interconnection permitting delays in the US

Module 6: Protection and Coordination Requirements

1. Anti-islanding protection
2. Fault current contribution requirements

3. Relay settings and coordination
4. Synchronization procedures
5. Simulation: Protection scheme for wind farm

Module 7: Reactive Power and Harmonics

1. Reactive power capability curves
2. Static and dynamic VAR support

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	04 Dec 2026	Online	$2,000
23 Nov 2026	04 Dec 2026	Physical	$3,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$6,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$9,000
23 Nov 2026	04 Dec 2026	Physical	$12,000
23 Nov 2026	04 Dec 2026	Physical	$12,000

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