



## MODULE 2

### RENEWABLE ENERGY SYSTEM MODELLING AND SIMULATION USING PSS®E, ETAP AND PSCAD

#### Training Objectives:

The training objective is to introduce the modeling of a grid-scale Renewable plant (PV/BESS) with a 5-bus system using PSS®E, ETAP, and PSCAD. The focus shall be on building a power flow simulation of steady-state and verifying reactive power capability using different network components such as PV system, ISU transformer, Collector System Equivalent, Station transformer, Gen-Tie, and shunt devices.

#### Who Will Benefit?

- Employees of Central and State utilities
- Professionals working in the modeling, analysis, and system studies domain of the power & energy industry
- Graduate/Post-graduate students in Electrical/Electrical and Electronics Engineering willing to join the power system industry

#### Course Content:

- Introduction to steady-state modeling of Renewable Energy (PV/BESS) with 5 bus system
- Building a power flow solution using
  - Grid-scale plant level PV/BESS system in PSS®E
  - Grid-scale plant level PV/BESS system in PSCAD
  - Grid-scale plant level PV/BESS system in ETAP
- Analysis and interpretation of power flow results
- Verifying reactive power capability and estimating the requirement of shunt devices
- Hands-on exercises on each sub-module

#### Pre-Requisite:

- Basics of Power Systems
- Familiarity with PSS®E, PSCAD, and ETAP software environment
- Module 0 and Module 1 are desirable

**Software:** Siemens PTI PSS®E | PSCAD | ETAP

**Delivery Mode:** In-person-Physical classroom setting

**Certification:** Yes

**Course Duration:** 12 Hrs

**Course Fee:** INR 20,000 (For professionals)  
INR 10,000 (for students)



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