



# 2020 EUROPEAN PSCAD™ USER GROUP MEETING OCTOBER 22-23, 2020 · MEEU - MADRID, SPAIN

## PSCAD WORKSHOP ON RENEWABLE INTEGRATION

**DATE: OCTOBER 20 - 21, 2020**

**VENUE: BARCELÓ IMAGINE HOTEL**

**ADDRESS: AGUSTÍN DE FOXÁ, 32. 28036 MADRID, SPAIN**

### Schedule:

9:00am - Workshop begins  
10:15am - 10:30am - Break  
12:30pm - 1:30pm - Lunch  
3:00pm - 3:15pm - Break  
5:00pm - Workshop ends

### Course Content:

#### Tuesday October 20, 2020

- Electromagnetic Transients – Introduction
- EMT simulations for renewable integration - Introduction
- Introduction to PSCAD
  - Master Library, developing cases
- Getting Started – Simple tutorials
- Wind Integration Study – Model development
  - Development of the transmission system model around the POI
    - Validation
    - Inclusion of transmission network details
    - Inclusion of generators and dynamic devices
    - Inclusion of SVC, STATCOM, Energy storage
    - Inclusion of Synchronous Condensers
  - Review of wind turbine model provided by vendors
    - Wind Integration Study – Dynamic studies including fault ride through

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### Tuesday October 20, 2020 (continued)

- Build a PSCAD case
- VSC concepts/basics
- Include Generators/Induction machines
- PSSE/PSCAD Benchmark studies

### Wednesday October 21, 2020

- Build PSCAD case using data import tool (import from load flow software)
- Add wind and PV plants to the study cases
- Add synchronous generators/condensers
- Add FACTS devices (SVCs/STATCOMs)
- Add HVDC systems
- Break large PSCAD cases
- Run Full Impact Assessment (FIA) case
- Include runback system
- Add battery energy storage systems (BESS)
- Run simulations/Parameter tuning
- Introduction to SSR issues
- Control interaction – Class Discussion
- Harmonic studies
- Sub Synchronous resonance

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