

Tutorial: Lessons Learned from Grid Integration of Variable Renewable Energies

During this high-quality tutorial on 27 September, the invited experts offer great insights into lessons learned from years of experience in grid integration of Variable Renewable Energies (VRE).

14:00 – 15:00

Lecture 1 (45 min.)

Lessons Learned from Grid Integration of VRE: Resource Adequacy and System Balancing

[Debra Lew](#) (ESIG, USA)

Variable renewable energy resources create challenges for utilities to meet resource adequacy requirements because VRE may not be coincident with system peak demand and VRE output during system peak periods varies inter-annually. We discuss how methods for determining resource adequacy may need to be modified to consider high penetrations of VRE. High penetrations of VRE can contribute significant variability and uncertainty to the system operators' responsibility of balancing the system. In this lecture, we cover many mitigation options for system balancing and considerations that each utility must undertake to determine what makes the most sense for their system.

Discussion (15 min)

15:00 – 16:00

Lecture 2 (45 min.)

Lessons Learned from Grid Integration of VRE: Frequency Control and System Stability

Nicholas Miller (HickoryLedge, USA)

The dynamic performance of interconnected power systems, especially the transient response to grid disturbances, is substantially changed by the substitution of inverter-based variable renewable resources (IBVRE) for traditional synchronous generation. Ability to maintain frequency control following loss of major generation units or interconnectors is strongly influenced by reduced synchronous inertia and rapidly responding IBVRE. Transient stability, particularly first swing stability between importing and exporting systems can be radically altered by IBVRE. This lecture will explore lessons learned in large-scale integration studies, including opportunities to improve utilization of transmission infrastructure beyond levels possible today with predominantly synchronous generation.

Discussion (15 min)

16:00 – 16:30

Coffee Break

16:30 – 17:30

Lecture 3 (45 min.)

TBC

Discussion (15 min)

17:30 – 18:30

Lecture 4 (45 min.)

Lessons learned from Grid Integration of VRE: Activities in 20 Countries

Thomas Ackermann (Energynautics, Germany)

Thomas Ackermann will share his experiences of 25 years of world-wide work in the area of grid integration of renewables and electric vehicles. The presentation will give an overview of challenges and lessons learned.

Discussion (15 min)

Beginn:

Montag, 27. September 2021, 14:00 Uhr

Ende:

Montag, 27. September 2021, 18:30 Uhr

Veranstaltungsort:

Berlin

Deutschland

Website & Anmeldung:

<https://windintegrationworkshop.org/vre-tutorial/>