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PSEC 535

Power System Studies for Transmission Scale Renewable Generation and Energy Storage

Siemens Power Academy TD - NA • usa.siemens.com/pti-education

At a glance

Understanding the role of renewable energy in the power supply portfolio is critical when developing a reliable and feasible power system that also meets Renewable Portfolio Standards and reduces the utility's carbon footprint. Power system engineers need an appreciation of the planning and operational impacts of integrating renewable generation into the transmission system and an understanding of renewable energy policies that are created to sustain and grow this largely unharnessed energy source. With the increase of renewable generations come the challenges of intermittency and in-flexibility. Energy storage is a growing technology that is often seen as a potential solution to some of the renewable integration challenges.

The primary objective of this course is to provide an overview of the technical challenges and benefits of integrating large amounts of renewable generation (wind and solar) and energy storage into the transmission system, along with the power system studies that need to be conducted.

PSEC 535 course participants will:

- Understand the technical considerations for integrating large amounts of renewable generation into the transmission system
- Learn about renewable generation and energy storage technologies and their technical capabilities
- Understand interconnection requirements
- Learn about ride through capabilities and reactive power control
- Study ramp rate limitations of renewable generation and the benefits of combining with energy storage to provide dispatchable power
- Learn how modern controllers can provide load following and ancillary services for frequency and voltage control
- Review simulations and modeling of steady state, dynamic studies, including disturbance selection
- Study stability results and discuss remedies
- Understand market and operational impacts of renewable generation and energy storage integration

Upon completion of this course, participants will have a deep understanding of the latest renewable generation and energy storage technologies, their capabilities and limitations and methods to assess their impacts on the transmission system.

Prerequisites

The course requires no specialized background in power system engineering, but does presume a general understanding of the power and transmission systems.

Course structure

This is a four and one-half day course. Material is presented in both morning and afternoon sessions for a total of six hours of daily instruction. Standard course hours are 9:00 am to 4:00 pm each day.

To view the PSEC 535 Course Schedule on the web:

https://siemens.coursewebs.com/cart/pageCourseInfo.aspx?Course_ID=PSEC_535

Instructors

All courses offered through Siemens Power Academy are developed and taught by leading industry engineers. In addition to their proven instructional ability, our engineers have advanced degrees complemented by first-hand knowledge and experience solving power system problems throughout the world.

Continuing Education Units (CEUs), Professional Development Hours (PDHs):

Licensed engineers, on a voluntary or mandated basis, attend continuing professional education for licensure renewal to ensure competency. All courses offered through Siemens

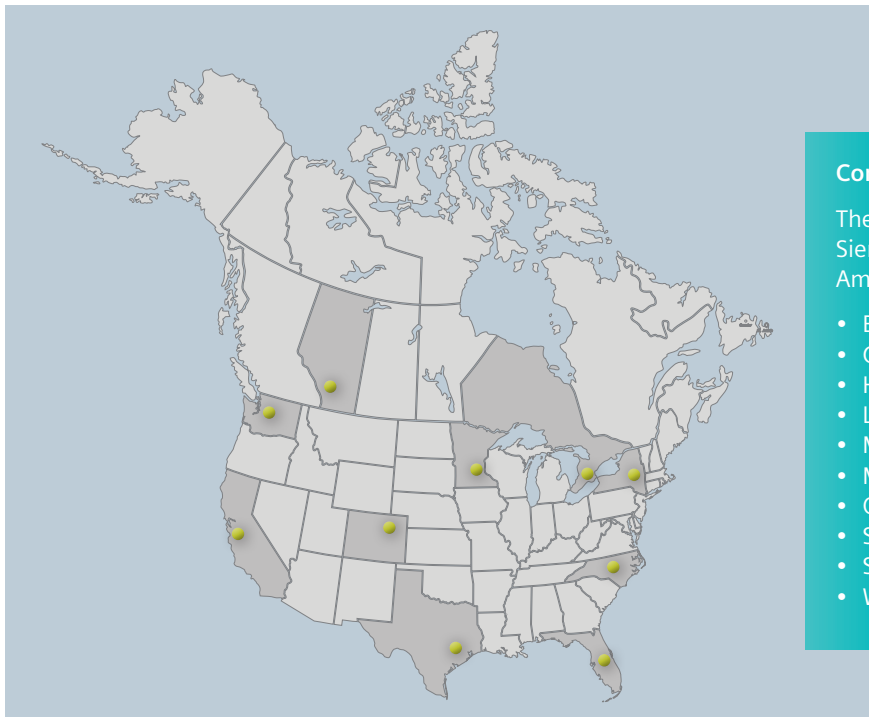
Power Academy meet the requirements for CEUs and PDHs.

- Continuing Education Units (CEUs) are the nationally recognized units for recording participation in professional development and noncredit educational programs. Participants completing this course will be awarded CEUs based on the instructional hours of the course: one CEU is awarded for 10 classroom hours of instruction.
- Professional Development Hours (PDHs) – Continuing education training for the Professional Engineer (PE) – that needs to earn annual Professional Development Hours

(PDHs). Through our instructor-led training, participants earn one PDH for each one hour of instruction. The participant is responsible for maintaining records of courses taken in support of licensure.

Client site and custom training

All courses are available for presentation at any client's location by special arrangement. At client sites, it is recommended that sufficient computer terminals be available to enable a fully interactive and productive class, if applicable. Client site courses can also be tailored to address specific topics of local importance.



Convenient training locations

The course is scheduled on a regular basis at Siemens offices located throughout North America, including:

- Burlington, Ontario, Canada
- Calgary, Alberta, Canada
- Houston, Texas, USA
- Littleton, Colorado, USA
- Minnetonka, Minnesota, USA
- Mountain View, California, USA
- Orlando, Florida, USA
- Schenectady, New York, USA
- Seattle, Washington, USA
- Wendell, North Carolina, USA

Contact us

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