

# PSEC 700

## How to Leverage Operations into Planning for Renewable Generation

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### At a glance

Operations hold the key to assisting planning in defining study scenarios and calibrating models to capture true renewable generation limitations and capabilities. Important lessons have been learned over the past 10 years to improve the flow of operations insights into the planning process, and improving planning and operations collaboration.

**How to Leverage Operations into Planning for Renewable Generation** course will use the topic of renewable generation advancements to equip attendees with resources available through operations. Course participants will gain insight and understanding of operations resources and apply them to study plans. The course will review recently-identified reliability issues, renewable generation trends and the reliability study issues presented.

The objective is to create more effective studies, with optimal schedule and budget expectations. The course will be based on acquiring data for power flow, short circuit, harmonics, and other unique data requirements. Although this course explores primarily process improvements based on meeting theoretical study needs, practical techniques and approaches will also be discussed.

Topics covered in **PSEC 700** include:

- Compare and contrast the demands of planning studies versus the demands of operational requirements, as documented in NERC standards TOP, TPL and CIP-014
- Differences in system models, forecasts and simulation software tools for operations and planning as well as improvements in renewable modeling will be discussed
- How to utilize operational experience to define key system scenarios for studies, and expand the number of scenarios evaluated in planning studies
- Enabling operations to gain future operational insights through planning studies, including the transition from one generation profile to another i.e. retiring coal plants and impacts on voltage stability
- How to capture operational experience with operating renewable generation as a feedback loop back into planning, utilizing lessons learnt
- Allowing operations capabilities to define which operating procedures are viable, and which capital additions are appropriate
- Utilizing advanced renewable technologies to support system reliability in both planning and

operational horizons such as voltage support (reactive power control) and frequency support (active power control)

- Several case studies will be examined to demonstrate some of the key topics listed above

Upon completion of this course, participants will have an understanding of how to perform renewable studies, and how to utilize retain the required unique perspectives of operations and planning, while capturing greater insights available from the other.

### Prerequisites

Participants should have a degree in electrical engineering and be familiar with power flow and dynamics topics.

### Course structure

This is a two day course. Material is presented in both morning and afternoon sessions for a total of six hours of daily instruction. Both days run from 9:00 a.m. to 4:00 p.m.

### To view the PSEC 700 Course Schedule on the web:

[https://siemens.coursewebs.com/cart/pageCourseInfo.aspx?Course\\_ID=PSEC\\_700](https://siemens.coursewebs.com/cart/pageCourseInfo.aspx?Course_ID=PSEC_700)

## 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

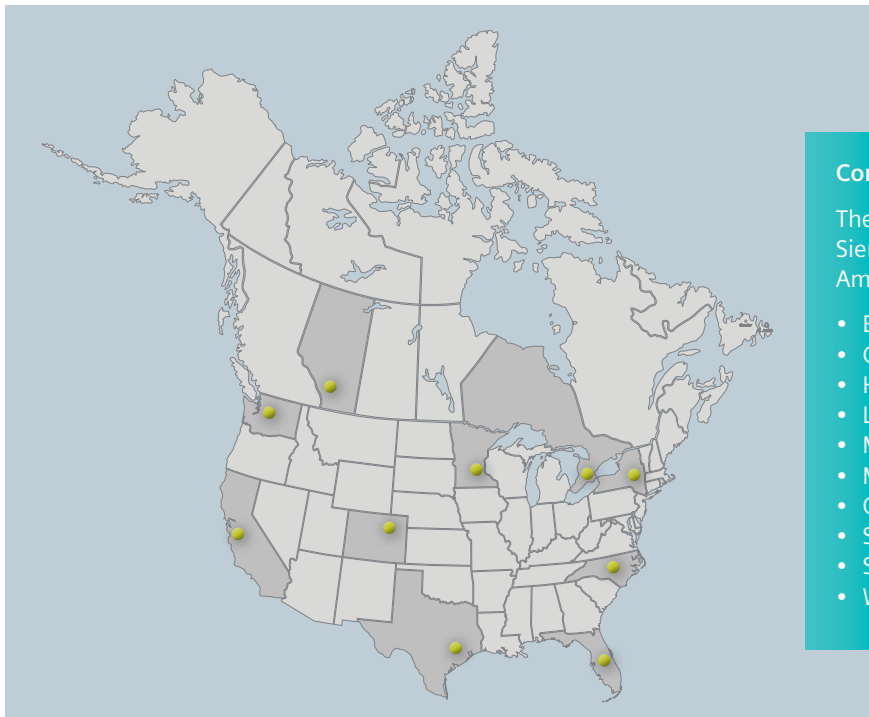
Power Academy meet the requirements for CEUs and PDHs.

- 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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