

3-Day Live Seminar

Credits

2.0 CEU

20 PDH

4.0 AEE

AEE Member

\$1,550

Non-member

\$1,650

**Also Available as
In-House Seminar**



A Preparatory Course for the Association of Energy Engineers Certification Exam:

Distributed Generation Certified Professional | DGCP®

This program provides a firm understanding of distributed generation and combined heat and power technologies, using theoretical concepts and real-world examples.

- Understand the technical, legal, and economic aspects of onsite generation and CHP systems, including renewable energy and distributed generation concepts.
- **Learn the knowledge and skills needed to analyze, and economically evaluate all types of onsite generation systems, including aspects of power cycle performance, life cycle cost analysis, regulatory and permitting issues and project management.**
- Then... apply what you have learned to your business and applications.

Accreditation

- AIA learning units eligible.
- BOMA approved training course.





Live Seminars

Face-to-face, instructor led, at a city near you. Held in a traditional classroom environment, attendees spend invaluable time problem solving and debating with cohorts. Each attendee takes away an in-depth course workbook that will become an invaluable desk reference back on the job. aeeprograms.com/live

Basics of Distributed Generation And Onsite CHP™

Example Hours

- Sign-in and Onsite Registration Day 1: 8:00 am
- Instruction Day 1: 9:00 am - 5:00 pm
- Instruction Day 2: 8:00 am - 4:30 pm
- Instruction Day 3: 8:00 am - 12 noon
- Exam on Day 3 Following Seminar: 1:00 pm

*Registering for the seminar does not automatically register you to take the associated AEE certification exam. To complete the certification application process, and qualify to sit for the exam, or for more information on AEE certifications, please visit: aeecenter.org/certifications.

**Please refer to your registration confirmation for actual seminar hours.

Agenda

Introduction to Distributed Generation (DG) and Combined Heat & Power (CHP)

Technologies

- Reciprocating engines
- Spark-ignited
- Self-ignited
- Combustion gas turbines
- Microturbines
- Steam turbines
- Fuel cells
- Solar photovoltaic cells
- Wind energy conversion systems
- Energy storage systems
- Electric generators

Energy & Thermal Basics

- Energy, heat, & work
- First & second laws of thermodynamics
- Power cycles
- Simple, topping, bottoming, combined, cogeneration
- Carnot cycle & Carnot efficiency
- Need for power & heat
- Prime movers & simple cycles
- Otto, Diesel, Rankine, and Brayton cycles
- Properties of steam
- Enthalpy & entropy
- Steam turbine expansion
- Mollier chart analysis

Economic & Life Cycle Cost Analysis

PURPA & FERC Rules of QFs & SPPs

Power Cycle Performance Measures

- Power cycle performance measures
- Thermal efficiency
- Higher heating value of fuel
- Lower heating value of fuel
- Heat rate & fuel rate
- Fuel credit & fuel credit value
- Net fuel rate
- Energy chargeable to power
- Fuel chargeable to power
- Cost chargeable to power
- Relationship of ECP, FCP, & CCP
- Total & life cycle CCP
- Examples

Regulatory & Permitting Systems Issues

- Utility interface issues
- Utility interconnections
- IEEE 929-2000 & UL 1741
- IEEE 1547
- Net metering
- Air emission permitting

Project Management

- Analyzing facility energy needs
- Selection of DG & CHP technologies
- Screening of technologies
- Addressing potential barriers
- Acquiring DG & CHP resources

Summary & Applications