

Credit Information

Cogeneration System Principles and Practices

This webinar offers 6.5 PDHs to professional engineers and 6.5 HSW continuing education hours to architects licensed in all states.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida (Provider No. 0004647), Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700) and North Carolina (S-0130). HalfMoon Education is deemed an approved continuing education sponsor for New York engineers and architects via its registration with the American Institute of Architects Continuing Education System (Regulations of the Commissioner §68.14(i)(2) and §69.6(i)(2)). Other states do not preapprove continuing education providers or courses.

The American Institute of Architects Continuing Education System has approved this course for 6.5 LU | HSW (Sponsor No. J885). Only full participation is reportable to the AIA/CES.

The International Code Council has approved this event for .65 CEUs in the specialty area of Energy (Preferred Provider No. 1232).

HalfMoon Education is an approved CM Provider with the American Planning Association. This course is registered for CM | 6.5 for Certified Planners.

Completion certificates will be awarded to participants who complete this event, respond to prompts and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

National Electrical Code 2020: Grounding and Bonding

This webinar offers 7.0 PDHs to professional engineers and 7.0 HSW continuing education hours to architects licensed in all states.

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The American Institute of Architects Continuing Education System has approved this course for 7.0 LU | HSW (Sponsor No. J885). Only full participation is reportable to the AIA/CES.

The International Code Council has approved this event for .7 CEUs in the specialty area of Electrical (Preferred Provider No. 1232).

Completion certificates will be awarded to participants who complete this event, respond to prompts and earn a passing score (80%) on the quiz that follows the presentation (multiple attempts allowed).

Can't Attend? Order the Webinar as a Self-Study Package!

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Live, Interactive Webinars

- Cogeneration System Principles and Practices
- National Electrical Code 2020: Grounding and Bonding

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Live, Interactive Webinars

Cogeneration System Principles and Practices

- Monday, January 31, 2022 | 8:30 am - 4:30 pm CST

National Electrical Code 2020: Grounding and Bonding

- Tuesday, February 1, 2022 | 8:30 am - 5:00 pm CST

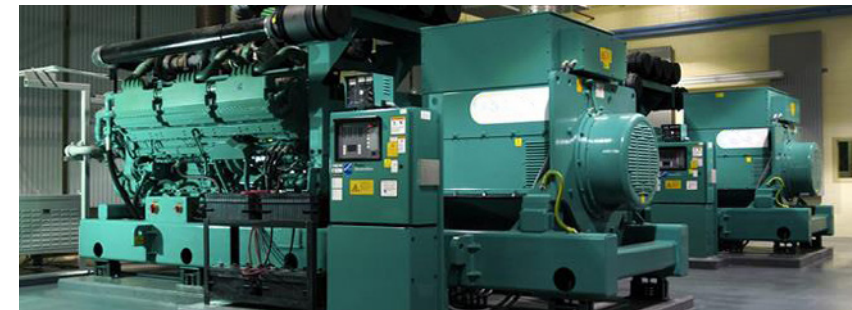
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HalfMoon Education Live Webinars



Cogeneration System Principles and Practices

Monday, January 31, 2022 | 8:30 am - 4:30 pm CST

Credits: Professional Engineers: 6.5 PDHs Architects: 6.5 HSW CE Hours
AIA: 6.5 LU | HSW Certified Planners: CM | 6.5
International Code Council: .65 CEUs (Energy)



National Electrical Code 2020: Grounding and Bonding

Tuesday, February 1, 2022 | 8:30 am - 5:00 pm CST

Credits: Professional Engineers: 7.0 PDHs Architects: 7.0 HSW CE Hours
AIA: 7.0 LU | HSW International Code Council: .70 CEUs (Electrical)

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Cogeneration System Principles and Practices

Monday, January 31, 2022 | 8:30 am - 4:30 pm CST (incl. a 60-min break)

Tuition: \$289 per registrant, \$239 per registrant for three or more

Credits: Professional Engineers: 6.5 PDHs Architects: 6.5 HSW CE Hours
AIA: 6.5 LU|HSW Certified Planners: CM|6.5
International Code Council: .65 CEUs (Energy)

Agenda

Understanding the Environmental and Economic Benefits of Cogeneration

- Separate heat and power vs. cogeneration
- History of cogeneration in Europe and the United States
- Environmental benefits of cogeneration
- Economics of cogeneration
- Science of cogeneration and its fit with renewable energy

Laws, Regulations and Building Codes Impacting Cogeneration

- Federal, state and local environmental regulations
- Utility regulations Permitting process
- Building code considerations
- Impact on LEED and other sustainable certifications

Considering Cogeneration Technologies

- Gas turbines Steam turbines
- Microturbines Reciprocating engines
- Fuel cells Biomass and other applications

Resolving Impediments to Cogeneration

- Utility treatment of cogeneration
- Interconnection considerations
- Limitations of available technologies
- Contribution of carbon emissions
- Capital costs and financing

Making the Move to Cogeneration: Analysis, Modeling and Case Studies

- Understanding existing pre-cogeneration conditions
- Performing load analysis
- Selecting a prime mover
- Modeling performance
- Financial modeling
 - Capital costs
 - Operation and maintenance expense
- Return on investment, lifecycle analysis
- Financial incentives
- Analyzing public and private case studies

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National Electrical Code 2020: Grounding and Bonding

Tuesday, February 1, 2022 | 8:30 am - 5:00 pm CST (incl. a 60-min break)

Tuition: \$289 per registrant, \$239 per registrant for three or more

Credits: Professional Engineers: 7.0 PDHs Architects: 7.0 HSW CE Hours
AIA: 7.0 LU|HSW International Code Council: .7 CEUs (Electrical)

Agenda

Introduction to Grounding and Bonding

- Definitions Effective ground fault paths
- 250.8 - Connections 250.20 - AC systems to be grounded
- 250.21 - AC systems not required to be grounded
- 250.22 - Circuits not to be grounded
- 250.24(A) - System grounding connections
- 250.24(B) - Main bonding jumpers
- 250.24(C) - Grounded conductors in service equipment
- 250.30 - Grounding separately derived AC systems
- 250.32 - Separate building feeders

Grounding Electrode System

- 250.52 - Grounding electrodes
- 250.53 - Grounding electrode system installation
- 250.54 - Auxiliary grounding electrodes

Grounding Electrode Conductors

- 250.62 - Grounding electrode conductor materials
- 250.64 - GEC installation
- 250.66 - GEC sizing
- 250.68 - GEC and bonding
- 250.70 - Methods of grounding and bonding

Equipment Grounding and Conductors

- 250.110 - Equipment fastened in place
- 250.114 - Equipment connected by cord and plug
- 250.119 - ID of equipment grounding conductors
- 250.120 - EGC installation 250.122 - EGC sizing
- 250.126 - ID of wiring device terminals

Bonding

- 250.90 - General requirements 250.92 - Bonding of services
- 250.96 - Bonding other enclosures 250.102 - Bonding conductors and jumpers
- 250.104 - Bonding pipe systems and structural metal
- 250.106 - Lightning protection systems

Methods of Equipment Grounding

- 250.130 - EGC connections 250.136 - Equipment considered grounded
- 250.142 - Grounded conductor and grounding equipment
- 250.148 - EGC continuity and attachment

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Faculty

Cogeneration System Principles and Practices

Andrew Larkin VP, Development Engineering at DCO Energy, LLC

Mr. Larkin is vice president of Development Engineering at DCO Energy based in New Jersey. He is responsible for technical solutions to energy project opportunities, including simple cycle and combined cycle cogeneration plants, central heating and cooling facilities, renewable energy projects, and others. He also has managed the engineering of several energy projects from development through start up, commissioning and performance testing. Mr. Larkin earned his B.A. degree in English from Franklin and Marshall College, B.S.M.E. degree and M.S. degree in Engineering Management from Drexel University, and has been involved in the energy business for over 30 years.

DCO Energy, LLC, is an independent energy company specializing in the development, engineering, procurement, construction, start up, commissioning, operation, maintenance and management, as well as, ownership of central energy centers (CEC); renewable energy projects; combined heat, chilling and power (CHCP) production facilities; and other types of powerplants. DCO was formed in 2000 with a core team of energy experts. Collectively, DCO team members have been independently developing projects or have developed and operated over 400 MW of electric, 400 MMBtu/hr of heat recovery, 1,500 MMBtu/hr of boiler capacity and 130,000 tons of chilled water capacity of energy producing facilities totaling over \$1 billion dollars of assets. DCO provides financing, engineering and design, construction management, startup and commissioning resources, and long-term operating and maintenance services for its own CEC, CHCP and renewable energy projects as well as for third party clients.

National Electrical Code 2020: Grounding and Bonding

Mark D. Cook *Electrical Education Specialist, Faith Technologies*

Mr. Cook is a master electrician in Wisconsin and Arizona. He holds an Administrator's and a Journeyman's license in Washington State. He has been in the electrical industry since 1978 and he owned and operated his own electrical commercial, residential and light industrial service company in Arizona from 1994 until the summer of 2015. Mr. Cook was an instructor for the Independent Electrical Contractors of Arizona (I.E.C), a four-year apprenticeship program facilitated at Gateway Community College in Phoenix. Mr. Cook was also an instructor for the Electric League of Arizona educational program, teaching classes on Grounding and Bonding and the National Electrical Code. He has presented the NEC for HalfMoon Education and the Arizona Department of Transportation as well. He authors "Code Corner" a monthly article appearing in *The Electric Times*, and has contributed articles to the IAEI magazine. Mr. Cook is a National Fire Protection Association member, an International Association of Electrical Inspectors member and a certified commercial electrical inspector for the State of Wisconsin. Recently appointed to CMP-2 for the National Electric Code, NFPA 70. He is a CEU provider for Iowa, Wisconsin and Minnesota.

Additional Learning

National Electrical Code 2020

- Tues, Dec 28, 2021 | 8:30 am - 5:00 pm CST

How to Design for Stormwater Management for Ground-Mounted Solar Arrays

- Wed, Dec 29, 2021 | 1:00 - 3:00 pm CST

Managing Construction Projects

- Wed, Dec 29, 2021 | 8:30 am - 4:30 pm CSTT

Residential and Small Commercial Solar Photovoltaic Energy Systems

- Thurs, Dec 30, 2021 | 8:30 am - 4:00 pm CST

Designing for Accessibility under ADA Standards and 2021 IBC

- Tues, Jan 11, 2022 | 8:30 am - 4:30 pm CST

Technical Writing Workshop for Design Professionals

- Wed, Jan 12, 2022 | 8:30 am - 5:00 pm CST

Handling Ethical Issues in Construction

- Tues, Jan 18, 2022 | 3:00 - 5:00 pm CST

For more information and other online learning opportunities visit: www.halfmoonseminars.org