

Agenda

Presented by Andrew Larkin

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 CHP
- 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
- 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

Cogeneration System Principles and Practice
Understanding Cogeneration Today and Its Fit in a Growing Renewable Energy World
Natick, MA - Friday, February 22, 2019

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Learning Objectives

You'll be able to:

Explain the fundamental principles and benefits of combined heat and power.

Identify the laws, regulations and building codes impacting cogeneration.

Understand the technologies behind cogeneration, including microturbines and reciprocating engines.

Evaluate operation and maintenance expenses associated with combined heat and power systems.

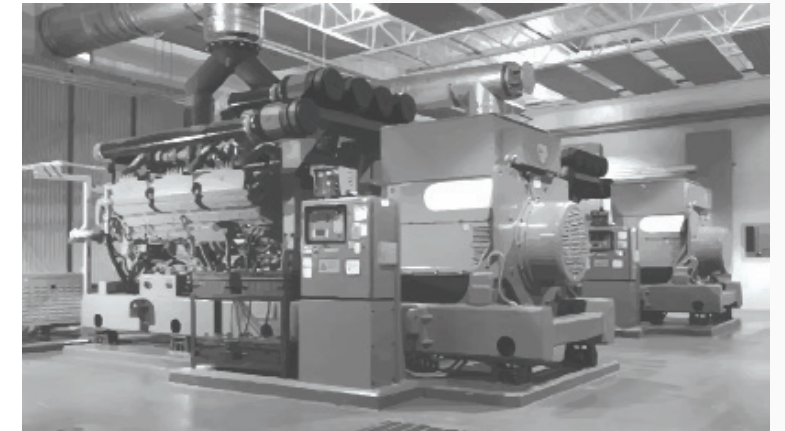
Analyze public and private cogeneration case studies.



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Understand the economic and environmental benefits of cogeneration

Review building code considerations and the permitting process

Discuss the impact of LEED and other sustainable certifications

Learn about gas turbines, fuel cells and other cogeneration technologies

Explore capital costs and financial incentives associated with cogeneration

Continuing Education Credits

Professional Engineers

6.5 PDHs

Architects

6.5 HSW Contact Hours

6.5 AIA HSW Learning Units

Contractors

Non-Credit Continuing Ed.



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Faculty

Andrew Larkin *VP, Development Engineering at DCO Energy, LLC*
Mr. Larkin is vice president of Development Engineering at DCO Energy 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 and his B.S.M.E. degree and M.S. degree in Engineering Management from Drexel University, and he 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.

Here’s what past attendees had to say about the program and presenter Andrew Larkin:

“Andy is obviously an expert in this field and has a good command of the topic.” – *Professional Engineer*

“Outstanding presentation.” – *Engineer*

“Very knowledgeable speaker. Shared a ton of information.” – *Architect*

Seminar Information

Courtyard by Marriott Natick

342 Speen Street
Natick, MA 01760
(508) 655-6100

Tuition

\$279 for individual registration
\$259 for three or more registrations.

Each registration includes a complimentary continental breakfast and printed seminar manual.

Receive a reduced tuition rate of \$101 by registering to be our on-site coordinator for the day. For availability and job description, please visit www.halfmoonseminars.org.

How to Register

- Visit us online at www.halfmoonseminars.org
- Mail-in or fax the attached form to 715-835-6066
- Call customer service at 715-835-5900

Cancellations: Cancel at least 48 hours before the start of the seminar, and receive a full tuition refund, minus a \$39 service charge for each registrant. Cancellations within 48 hours will receive a credit toward another seminar or the self-study package. You may also send another person to take your place.

Continuing Education Credit Information

This seminar is open to the public and offers 6.5 HSW contact hours to architects and 6.5 PDHs to engineers in all states. Educators and courses for Massachusetts architects are not subject to pre-approval.

This seminar is approved by the American Institute of Architects for 6.5 HSW Learning Units (Sponsor No. J885). Only full attendance can be reported to the AIA/CES.

HalfMoon Education is an approved continuing education sponsor for engineers in Florida, Indiana (License No. CE21700059), Maryland, New Jersey (Approval No. 24GP00000700), New York (NYSED Sponsor No. 35), North Carolina, and North Dakota. HalfMoon Education is deemed an approved continuing education sponsor for New York architects.

This seminar offers a non-credit continuing education opportunity to construction contractors. It has not been approved by any state with a construction contractor continuing education requirement.

Attendance will be monitored and attendance certificates will be available after the seminar for most individuals who complete the entire event. Attendance certificates not available at the seminar will be mailed to participants within fifteen business days.

Additional Learning

Webinar Series

Commercial Solar Peaker Batteries

- **Commercial Solar Peaker Batteries, Part I**
Wed., Jan. 9, 2019, 11:00 AM - 3:15 PM CST
- **Commercial Solar Peaker Batteries, Part II**
Thurs., Jan. 10, 2019, 11:00 AM - 2:15 PM CST

Proposal Writing

Fri., Jan. 11, 2019, 11:00 AM - 3:30 PM CDT

Technical Writing

- **Technical Writing Basics**
Mon., Jan. 14, 2019, 11:00 AM - 1:00 PM CST
- **Planning Documents**
Mon., Jan. 14, 2019, 1:30 - 3:30 PM CST
- **Writing Documents**
Tues., Jan. 15, 2019, 11:00 AM - 1:00 PM CST
- **Revising and Editing Documents**
Tues., Jan. 15, 2019, 1:30 - 3:30 PM CST

Fiber-Reinforced Composites

- **Portland Cement and Masonry**
Thurs., Jan. 17, 2019, 11:00 AM - 1:00 PM CST
- **Fiber-Reinforced Composites**
Thurs., Jan. 17, 2019, 1:30 - 3:30 PM CST
- **Fiber-Reinforced Polymer (FRP) Composites Reinforcement**
Fri., Jan. 18, 2019, 11:00 AM - 1:00 PM CST
- **Overview of Sandwich Materials and Structures**
Fri., Jan. 18, 2019, 1:30 - 3:30 PM CST

Pumping and Piping Systems

- **Introduction to Pumps: Operation, Principles and Calculations**
Thurs., Jan. 24, 2019, 12:00 - 2:00 PM CST
- **Design Standards and Codes**
Thurs., Jan. 24, 2019, 2:30 - 3:30 PM CST
- **Piping System Components, Materials and Calculations**
Fri., Jan. 25, 2019, 12:00 - 2:00 PM CST
- **Handling Pump and Piping System Problems**
Fri., Jan. 25, 2019, 2:30 - 3:30 PM CST

For more information visit:
www.halfmoonseminars.org/webinars/

Can’t Attend? Order the Manual and the Audio from the Live Seminar as a Self-Study Package!

An audio recording of this seminar is available for \$289. Allow four weeks from the seminar date for delivery. Please refer to specific state licensing rules or certification requirements to determine if this learning method is eligible for continuing education credit.

Registration

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How to Register		Registrant Information
Online: www.halfmoonseminars.org		Name: _____
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Phone: 715-835-5900		Additional Registrants:
Fax: 715-835-6066	Code:	Name: _____
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Mail: HalfMoon Education Inc., PO Box 278, Altoona, WI 54720-0278		
Complete the entire form. Attach duplicates if necessary.		
		Email address is required for credit card receipt, program changes, and notification of upcoming seminars and products. Your email will not be sold or transferred.

()  I need special accommodations. Please contact me.

Tuition

- () **I will be attending the live seminar.** Single Registrant - **\$279.00**. Three or more registrants from the same company registering at the same time - **\$259.00** each.
- () **I am not attending.** Please send me the self-study package for **\$289.00**.
- ☐ Downloadable MP3 Audio/PDF Manual
- ☐ CD/Manual Package
- (Please allow four weeks from seminar date for delivery)

Checks: Make payable to HalfMoon Education Inc.

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