COMPREHENSIVE 5-DAY TRAINING PROGRAM FOR ENERGY MANAGERS

AN IN-DEPTH PREPARATORY COURSE FOR THE CEM EXAMINATION

Earns 3.6 CEU / 36 PDH

AEE Member Price: $1,395
Non-Member Price: $1,595

Note: Seating is limited. Please register early to insure access to a spot in the class.

Registering for the seminar does not automatically register you to take the CEM exam. To complete the certification application process and qualify to sit for the exam, or for more information on CEM certification, CLICK HERE.

A 5-DAY SEMINAR

LOCATIONS & DATES

October 28th – November 1st, 2013

Grundfos Pumps
17100 118th Terrace
Olathe, KS 66061

Hotel Information

To register for this seminar please visit www.aeekc.org or you can click the register button below.

Register
ABOUT THE SEMINAR

AEE’s most requested program, this seminar has been completed by thousands of professionals since its inception in 1994.

This 5-day seminar provides an in-depth, comprehensive learning and problem-solving forum for those who want a broader understanding of the latest energy cost reduction techniques and strategies. The program begins by examining the basic fundamentals within all key areas of energy management. From there, the instructors systematically move to a “working level” knowledge of the specific principles and techniques needed to really get the job done. This approach has been specially designed to fulfill the needs of professionals who seek a broader and more detailed learning experience than can be provided in AEE’s shorter courses. In only five days, you can gain the knowledge and confidence it takes to effectively apply state-of-the-art principles of energy management, and to achieve control over energy costs in your organization — whether you’re responsible for managing a single facility or developing an energy management program for multiple corporate facilities, government buildings, etc.

The CEM certification process requires meeting specified CEM eligibility requirements, along with the submitting of a separate CEM application which qualifies you to sit for the exam. The CEM examination will be administered at the seminar site beginning at 9:00 am on day 5 of instruction -- only to those candidates who have met the above requirements. To obtain/print your CEM application form or see further information on the CEM program, CLICK HERE.

Basic Skills Required for This Seminar
This course assumes basic problem-solving skills such as; quick and accurate use of a hand calculator, ability to use basic algebra, and ability to set up problem solution expressions and calculations from a written
problem statement. Those needing a refresher program in these skills may wish to participate in the Basics of Energy Management self-study seminar prior to taking this seminar. For more information, please visit www.aeecenter.org/training.

SEMINAR OUTLINE

THE NEED FOR ENERGY MANAGEMENT
Building energy cost control
Utility DSM programs and deregulation — energy efficiency and peak demand reduction
Commercial business energy cost control
Industrial plant operation improvement:
– Reducing energy costs
– Reducing environmental emissions
– Improving product quality
– Improving plant productivity

CONDUCTING AN ENERGY AUDIT
Purpose of the energy audit
Facility description and data needs
Major systems in the facility
Data forms for recording information
Collecting the actual data
Identification of preliminary energy management opportunities

ENERGY AUDIT INSTRUMENTATION
The need for instrumentation
Light level meters
Electric meters – Voltages, current, power, energy, power factor
Temperature-measuring instruments
Combustion efficiency measurement
Air flow and air leak measurement
Thermography
Data logging

ENERGY CODES AND STANDARDS
Building codes
ASHRAE standards (62, 15, 3, 90.1)
ASME, IEEE, and other standards
Federal legislation – NECPA, PURPA, NGPA, CAAA, NEPA of 1992
CFC replacements – Montreal Protocol, Global Climate Change
National Energy Policy Act of 2005
Proposed tax incentives 2002

BUILDING ENERGY USE AND PERFORMANCE
Fuel types and costs
Energy content of fuels
Energy conversion factors
Building envelope
Natural gas purchasing
Retail wheeling of electricity
Major building energy use systems

ENERGY ACCOUNTING IN BUILDINGS AND FACILITIES
Energy use index, energy cost index
Where energy is used in facilities
Lighting and HVAC energy use

ENERGY RATE STRUCTURES
Identifying types of energy used
Electric rates, gas rates
Oil, coal, and other rates
Steam and hot water rates
Factors in controlling fuel costs
Utility incentive programs
ELECTRIC RATE STRUCTURES
Short history of electric rates
The difference between power and energy
Electric meters
Components of electric rates
Example rate structures
Factors in controlling electric costs
Electric utility incentive programs
Special schedules (interruptible, TOU, real-time pricing)

ECONOMIC ANALYSIS OF ALTERNATIVE INVESTMENTS
Economic decision analysis
Simple economic measures
The time value of money
Present and future values
Cost and benefit analysis
After tax cash flows

ALTERNATIVE FINANCING
Role of performance contracting
Different sources (loans, stock sales, bonds, etc.)
FEMP and alternative financing
True lease, capital lease, bonds, etc.

WASTE HEAT RECOVERY
Objectives: design criteria
Types and maintenance of heat exchangers
Recuperators; economizers

LIFE CYCLE COSTING
Concept of life cycle costing
Purchase costs vs. operating costs
Example analyses
Government standards — FEMP

FUEL SUPPLY AND FUEL SWITCHING
Alternative fuel choices
Technology choices – HVAC systems, boilers, heaters, industrial processes
Benefits of deregulation – electric, gas, and oil

ELECTRICAL ENERGY MANAGEMENT
Peak load reduction
Power factor improvement
Energy management control systems
Load management
Harmonics and other power quality issues

LIGHTING
Basics of lighting and current lighting technologies
New lighting technologies
Economic evaluation of example lighting improvements
Lighting standards
EPA Green Lights program
T12, T8, T5 lamps
Compact fluorescents
HID, sulfur lamps

MOTORS AND ADJUSTABLE SPEED DRIVES
How motors work
High-efficiency motors
Examples of cost-effective motor changes
Use of adjustable speed drives
Example of cost-effective ASD use
Improved motor belts and drives
Compressed air management
Adjustable speed drive alternatives:
– eddy current clutches
– permanent magnet clutches
– variable frequency drives
– inlet and outlet vane control, etc.

HVAC SYSTEM
Types of HVAC systems and new technologies
The vapor-compression cycle
Air conditioning loads
Chiller improvement example
Control, thermal storage, absorption systems

CONTROLS AND ENERGY MANAGEMENT
Night set back
Optimum start/stop
Enthalpy economizers
Temperature resets
PID controls, pneumatic controls
Control characteristics
DDC

INSULATION
Types of insulation
Heat flow calculations
Economic levels of insulation
Passive thermal energy
Process insulation

GREEN BUILDINGS, LEED® & ENERGY STAR®
Green buildings and sustainable design
U.S. Green Buildings Council and LEED
LEED certification: LEED -- NC, EB, CI, CS
ASHRAE 90.1 energy cost budget method
Energy and atmosphere, indoor environmental quality, water efficiency
EPA and the ENERGY STAR® program
ENERGY STAR® building label
Energy performance ratings and profile manager

BOILERS AND STEAM GENERATION
Basics of combustion systems – excess air control
Boiler efficiency improvement – blowdown management, condensate return, turbulators

Combustion controls
Waste heat recovery
Steam traps – purpose and testing
Process insulation
Example of boiler improvement

COGENERATION (CHP)
What is cogeneration
Types of cogeneration cycles
Examples of cost-effective use of cogen
QF’s and deregulation
Use of waste for fuel
Fuel cells, microturbines, etc.

MAINTENANCE
Maintenance management systems
Monitoring for maintenance
Infrared photography for maintenance
Cost of – Air, steam, gas leaks; uninsulated surfaces

ALTERNATIVE FINANCING
Different financing methods
Attributes of each method
After-tax cash flow analysis
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FEES: Registration fee DOES INCLUDE the CEM testing fee, however registering for the seminar does not automatically register you to take the CEM exam.

Regular Fee: $1,595  
AEE Member Fee: $1,395

Team Discount (five or more): Contact Terry Blattel at 816-935-2244

SEMINAR HOURS
Sign-in and Onsite Registration Day 1: 8:00 am  
Seminar Hours Day 1: 8:30 am - 5:00 pm  
Seminar Hours Days 2 through 4: 8:00 am - 4:30 pm  
Exam on Day 5: 9:00 am - 1:00 pm  
(separate pre-application required to sit for exam)

To register for this seminar please visit www.aeekc.org or you can click the register button.

REGISTRATION ASSISTANCE
For assistance or questions pertaining to your seminar registration, please contact any of the Kansas City chapter officers:

President – Terry Blattel, terry.blattel@cbre.com, 816-935-2244

VP – Tiffany Stovall, tstovall@mamtc.com, 913-575-0070

Secretary – Steve Pierson, spierson@grundfos.com, 913-328-2602

Treasurer - Ron Rodvelt, Ron.L.Rodvelt@saint-gobain.com, 913-748-4967