



## Certified Business Energy Professional<sup>®</sup> Training Program

*To be effective at the highest levels of business, energy professionals need to understand and consider all possible factors when implementing energy improvement programs. By understanding not only the energy savings but also the potential financial and productivity impact on the bottom line, they can make more effective decisions, as well as present and justify energy management and energy efficiency-related programs.*

### About this Program

This training program is designed to provide attendees a deep-dive into the financial and human aspects of energy efficiency and energy management. You will learn the principles and practices of the highest relevance when looking at the business value of energy management projects.

### What You Will Learn

- Understand what business-oriented professionals need to know when supervising technical professionals in energy management.
- Learn the essential aspects of energy procurement and energy accounting and reporting.
- Learn the critical financial factors for performance contracting management, alternative financing, and project financing.
- Learn how to look at utility rates and make project decisions based on this knowledge.
- Learn how to communicate in non-technical terms the benefits of energy efficiency projects.

### At-a-Glance

- » This training program prepares attendees to take the Certified Business Energy Professional<sup>®</sup> (BEP<sup>®</sup>) exam.
- » This program is held over 5 days.
- » You earn 3.2 CEU | 32 PDH | 6.4 AEE Credits for completing this program.

### Key Takeaways

- » Work through practical examples to demonstrate the topics and procedures covered.
- » Review the various areas of the Body of Knowledge associated with AEE's certification exam.
- » Discuss how to apply what you have learned to your business and applications.
- » Leave with a course workbook that will become an invaluable desk reference.

### Registration

Candidates should contact their local AEE approved training provider for information about available training programs, the certification application process, exam registration, and associated fees. To find your local training provider visit

[aeecenter.org/training](http://aeecenter.org/training)

# Certified Business Energy Professional®

## Training Program

### Who Should Attend

This training program is of greatest value to non-technical business-oriented professionals that manage energy engineers or oversee energy efficiency projects or technically-oriented professionals that need a better understanding of justifying projects and the business side of energy management. Obtaining AEE's BEP® certification provides international credibility among energy management, sustainable and clean energy communities. Attendees of this program have included existing energy professionals, executives, financial executives, facilities managers, energy consultants, energy engineers, and energy managers.

### Course Outline

- Introduction to Energy Management (EM)
- Building Codes and Standards
- Energy Fundamentals for the BEP
- Electric and Gas Rate Structures
- Energy Procurement
- Energy Accounting
- Energy Auditing and Instrumentation
- Economic Analysis
- Alternative Financing
- Commissioning
- Measurement and Verification (M & V)
- Metering and Submetering
- Web Based Energy Information System (EIS)
- Lighting
- HVAC Systems and Chillers
- Control Systems
- LEED / Green Building (GB) Programs
- Industrial Processes and Utility Equipment
- Motor Systems Management
- Boilers and Steam Systems
- Compressed Air Systems
- Combined Heat and Power (CHP) and On-site Generation
- Energy Efficient Equipment

### Our Instructors

Over five days, one of our professional instructors will guide you, step-by-step through this program. Their teaching and industry experience allows them to deliver information that is of the most relevance and practical value to attendees.

### Certification Eligibility

The prerequisites to qualify for the certification process take into account the diverse education and experience applicants may have. Each candidate must meet the required criteria at

[aeecenter.org/bep](http://aeecenter.org/bep)

### Global Training Programs

For a complete list of AEE training programs delivered globally visit

[education.aeecenter.org/global](http://education.aeecenter.org/global)

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## Training Program

### Detailed Agenda

#### Introduction to BEP

- Overview & Terminology
- Common Formulas

#### Introduction to Energy Management (EM)

- EM Overview
- Legislation & Requirements
- EM Program Development

#### Building Codes and Standards

- National Energy Standards
- EPC Act of 2005/1992
- Federal Sector Building Codes
- Relevant ASHRAE Standards
- Performance Compliance
- State Code Adherence
- Ventilation Rate Procedure
- IAQ Procedure
- Helpful Resources

#### Energy Fundamentals for the BEP

- Energy Units & Conversions
- US Energy Production / Consumption

#### Electric & Gas Rate Structures

- Electric Rate Structures
- Electric Bill Components
- Power Factor Adjustment
- Recovery Clauses
- Facility Load Factor
- Green Power Rates
- Gas Rate Schedules
- Gas Bill Components
- DSM Impact
- Innovative Rate Schedules
- Electric Rate Terminology

#### Energy Procurement

- History of Natural Gas
- Natural Gas Procurement
- Natural Gas Futures Contracts
- History of the Electric Industry
- System Load Bidding
- Electric Power Procurement
- Proposals & Contracts
- Energy Brokerage
- Helpful Resources

#### Energy Accounting

- Fuel Selection
- Point of Use Cost
- Benchmarking Audits

#### Energy Auditing & Instrumentation

- Role & Types of Audits
- Audit Instrumentation Overview
- Audit Reporting
- Helpful Audit Resources

#### Economic Analysis

- Life Cycle Costing
- Terminology & Calculations
- Net Present Value
- Energy Efficiency vs. Renewable Energy
- Energy Budgeting

#### Alternative Financing

- Direct Purchase
- Leasing
- Performance Contracting
- Characteristics for Comparison

#### Commissioning

- Overview & Phases
- RFP Guidance
- Documentation

#### Measurement & Verification (M & V)

- M&V Planning / Project Development
- Concepts & Methodology
- International Performance M&V Protocol (IPMVP)
- IPMVP Resources

#### Metering & Submetering

- Utility and Energy Metering
- Electromechanical vs. Solid State Metering
- Installation
- ANSI Standards
- Load Profiling & Research

#### Web Based Energy Information System (EIS)

- EIS Process Overview
- Programs & Utility Reporting Systems

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## Training Program

### Detailed Agenda Continued

#### Lighting

- Basic Lighting Requirements
- Terminology & Application
- Lamp Properties & Types
- Effective Lighting Design
- Lighting Retrofits
- Relamping

#### HVAC Systems & Chillers

- HVAC Terminology
- System Performance Measures
- HVAC Equipment
- CEE Commercial HVAC Guidelines
- System Improvement Options

#### Control Systems

- Types of Controls & Control Systems
- Control Technologies
- DCC Control Functions

#### LEED / Green Building (GB) Programs

- Energy Star & LEED
- Commercial Buildings
- New Construction
- EPA Energy Star Portfolio Manager
- Energy Performance Score
- GB Cost / Benefit Analysis

#### Industrial Processes & Utility Equipment

- Heating, Cooling, Pumping, & Blowing
- Energy Efficiency Improvements
- Gas Utility Systems
- Electrical Utility Systems
- Utility Equipment Overview
- Reliability Indices
- Power Factor
- Smart Grid Technologies

#### Motor Systems Management

- Motor Basics Overview
- Fan Laws
- Selection & Replacement Guidance
- Pumps

#### Boilers & Steam Systems

- Boiler Function & Types
- Combustion
- Turbines
- Heat Exchangers
- Efficiency Improvement Methods

#### Compressed Air Systems

- Compressor Types & Components
- System Efficiency Improvements
- Air Leak Cost Analysis

#### Combined Heat & Power (CHP) and On-site Generation

- CHP (Cogeneration) Definition & Implementation
- Distributed Generation Systems
- Standby Generation Systems
- Utility Battery Storage

#### Energy Efficient Equipment

- New Technologies
- HVAC Systems
- Efficiency Standards & Initiatives
- Water & Energy Efficiency
- Carbon Reduction Strategies

#### BEP Exam Preparation Resources