Business Energy Professional

An Industry Recognized Certification for Business and Marketing Professionals Working in the Fields of Energy Management & Energy Efficiency

CERTIFICATION SCHEME **1.0**

Version No: 1.2
Effective Date: 7/8/2025

Association of Energy Engineers

Scope

Certified Business Energy Professionals understand energy management and its relation to business and consider relevant factors when developing, comparing, getting approval for and implementing energy improvement programs or projects. A BEP understands both the internal and external factors that affect the success of these projects, from technical to operational, to market forces, regulations, and legislation. A BEP also understands how important energy decisions affect the organization's energy-consuming systems, how these systems affect productivity and how these decisions can affect the organization's financial profitability and bottom line. A BEP can present and justify these programs and projects for approval, and more importantly, understand how to compare projects that complete and make objective decisions on which projects should move forward with approval.

Certified Business Energy Professionals demonstrate competency in the following areas that are included in the BEP® Body of Knowledge to gain certification: codes and standards and green buildings; energy fundamentals; utility rate structures; electric and gas procurement; energy accounting, carbon accounting, metering and Energy Information Services (EIS); energy assessment and instrumentation, energy economics and alternative financing; commissioning and Measurement & Verification (M&V); building systems; Industrial process and utility equipment; and combined heat and power and on-site generation.

Eligibility Requirements for Competence

Individuals applying for the BEP® Certification Examination must attend an approved preparatory training course, meet the following education, experience requirements, and complete a certification application.

Education and Experience Requirements

Education		Work Experience
4-year related* degree OR Professional Engineer (PE) OR Registered Architect (RA)*	and	2+ years related** experience
4-year unrelated degree	and	3+ years related** experience
2-year associate degree	and	5+ years related** experience
NONE	and	8+ years related** experience
Current status of Certified Energy Manager (CEM®)		

*Related degree includes business, marketing, finance, engineering, or architecture
** Related experience includes business, marketing, sales in the energy field

Examination Requirements for Competence

To earn the BEP® Certification, candidates must pass the certification examination. The competency requirements assessed are the following:

Certified Business Energy Professional - Examination Blueprint

Body of Knowledge / Duties and Tasks (% Exam)	
1	**Codes and Standards and Green Buildings (3%-5%)**
	Codes and Standards
101	Basic energy codes
102	Methods for code compliance
103	The role of DOE with building codes
104	ASHRAE Standards 90.1, 90.2, & 62.1
105	Calculate minimum outdoor air requirements
106	Components needed for good indoor air quality
	Green Buildings
107	Definition of Green Buildings
108	Energy Star, LEED for commercial buildings
109	Programs to Benefit Green Buildings – LEED
110	Other LEED certifications
111	Green Building Certifications
112	Energy Star
113	Energy Star Portfolio Manager

2	Energy Fundamentals (5-7%)
201	Energy and power, differences
202	Energy conversions
203	Site and source energy

3	Utility Rate Structures (7-11%)
301	Knowledge of different types of costs recovered in rates (commodity, distribution, fixed vs. variable, power costs adjustments, etc.)
302	Primary vs Secondary Service
303	Power Factor Adjustments
304	Load Factor
305	Interruptible and Firm Power
306	Block Rates, Time of Use Rates, Real Time Pricing
307	Rate Analysis
308	Green Power
309	PPA and VPPA
310	Transportation vs. Bundled Service
311	Rate Development
312	DSM programs and their impacts to rates

4	Electric and Gas Procurement (7-11%)
401	History of electric and gas
402	Risk identification in procurement
403	Natural gas procurement
404	Electric procurements
405	Understanding price discovery of fuels
406	Detailed procurement process
407	Overall procurement strategies
408	Fuel choices (hydrogen)

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5	Energy Accounting, Carbon Accounting, Metering and Energy Information Services (EIS) (10-16%)
	Energy Accounting
501	Fuels / Selections
502	Point of Use
503	Break Point Price
504	Facility Energy Accounting
505	Collecting and organizing utility data
506	Sources of data
507	Limitations of data
508	Independent variable
509	Energy interval data
510	Intro to spreadsheet tools
511	Benchmarking
512	Calculating the Energy Use Index
513	Comparison of facilities
514	Heating and cooling degree days
515	End Use Analysis
516	Forecasting energy usage
517	Advanced benchmarking with “Big Data”
	Carbon Accounting
518	Carbon flows
519	Emission classifications
520	Emission tracking
521	Carbon trading
522	Steps to achieving carbon neutrality
523	Reduction
524	Sequestration
525	Electric Vehicles
526	Electrification
527	Future fuels
528	Life carbon cycle – [cradle to grave]

5	Energy Accounting, Carbon Accounting, Metering and Energy Information Services (EIS) (10-16%)
	Metering
529	Self-contained meters versus CT rated metering installations
530	Revenue Meters – gas & electric meters
531	Meter reading systems, Manual, MV90, Cellnet, MetraTek
532	Energy flows metering (electric, gas, oil, steam, Btu, water, sewer, etc.)
533	High level understanding of meter components – index, AMR module, electronic correctors, etc
534	Components metered (kWh, kW, kVARh; turnup vs. therms vs. CCF)
535	Pressure and temperature correction – (high pressure gas meters)
536	Read terminology (estimate, actual, pro-rate)
537	Issues that arise from incorrect installation
538	Interval Data Systems and Analysis
539	Sub-metering
540	Cost Center Metering, Reporting and Budgeting
	Energy Information Services (EIS)
541	EIS definition
542	EIS Backbone
543	Purpose of an EIS
544	Meter data flow
545	IT and Web based Systems
546	Meter Data Flow
547	Data collection and devices
548	Data processing and systems
549	Server and Client Side Programs

6	Energy Assessment and Instrumentation (7-11%)
601	Process of energy assessment
602	Types of energy assessments
603	Common energy assessment deficiencies
604	Analysis of operations and maintenance
605	Assessment equipment
606	Assessment report
607	Incorporating the goals

7	Energy Economics and Alternative Financing (9-13%)
	Energy Economics
701	Importance of knowing finance
702	Economic evaluations
703	Life Cycle Costing, Simple Payback, Net Present Value, Annual Worth, Savings to Investment Ratio, Internal Rate of Return
704	Energy efficiency versus renewable economic evaluations
705	Levelized cost of energy
	Alternative Financing
706	Methods of finance
707	Direct Purchase Methods
708	Leasing methods
709	Performance Contracting
710	Guidance for choosing method

8	Commissioning and Measurement & Verification (M&V) (6-10%)
	Commissioning
801	Commission definitions
802	Retro, Real-Time, Re and Seasonal Commissioning
803	Is commissioning necessary and cost effective?
804	Associated costs
805	Benefits of commissioning
806	Phases of commissioning
807	Guidance for the commissioning Request for Proposal (RFP)
808	Documentation
	Measurement and Verification (M&V)
809	Reasons for M&V
810	M&V targets
811	Minimizing risk
812	Determining independent variables
813	M&V Options
814	Adjusting Baselines
815	International Performance Measurement and Verification Protocol (IPMVP®)

9	Building Systems (10-14%)
	Lighting
901	Terminology
902	Types of lamps
903	Factors in lighting applications (lumens, foot candles, efficacy, CRI, Color Temp, LLD, LLF)
904	Effective and energy efficient lighting designs
905	Lighting – Local Code Requirements
906	Lighting Energy Metrics (e.g. LPD)
907	Relamping
	HVAC Systems
908	Purposes
909	Temperature, relative humidity and CO_2 controls
910	Filtration / Indoor air quality
911	Power, energy and air-conditioning
912	HVAC performance measures (EER, SEER, COP, IEER, IPLV)
913	Air based systems
914	Water based systems
915	Energy Recovery Ventilation (ERV)
916	System and technology improvements
	Controls
917	Purposes
918	Types of control systems
919	Close and open loop
920	PID controls
921	Newer control systems & strategies
922	Control technologies
923	Specific control operations/tasks

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10	Industrial Process and Utility Equipment (7-11%)
	Industrial and Utility Processes
1001	Heating (heat pumps water heaters, condensing water heater/boilers, heat recovery)
1002	Cooling (heat pipes, energy recovery ventilators)
1003	Pumping
1004	Blowing
1005	Gas utility system
1006	Gas processing plant
1007	Transmission
1008	Local Distribution Company
1009	Gas main distribution
1010	Electric utility system
1011	Generation
1012	Transmission
1013	Distribution
1014	Power Quality & Reliability
	Motor Systems Management
1015	Motor basics
1016	Motor types
1017	Importance of Motor Management
1018	Energy savings
1019	Selecting / replace motors
1020	Variable Frequency Drives (Fans & Pumps)
	Steam and Hot Water Systems
1021	Boiler types
1022	Condensing boiler operation
1023	Boiler metrics
1024	Turbines & expander
1025	Heat exchangers
	Compressed Air Systems
1026	Components of air systems
1027	Metrics
1028	System efficiency improvements

11	Combined Heat and Power and On-site Generation (7-11%)
1101	Combined heat and power efficiency
1102	Facilities attractive to combined heat and power
1103	Smart grid
1104	Rate offerings (green, premium)
1105	Distributed Generation characteristics
	Distributed Generation; and On-Site Combined Heat and Power Systems
1106	Diesel, natural gas, hydrogen
1107	Steam turbines
1108	Combustion turbines
1109	Microturbines
1110	Fuel Cells
1111	Solar concentrating
1112	Solar photovoltaic
1113	Wind turbines
1114	Geothermal, Organic Rankine Cycle
1115	Ocean and Tidal
	Energy Storage
1116	Batteries
1117	Ratings
1118	Pros and cons
1119	Types for use in facilities
1120	Costs
1121	Discharge duration (power and energy)
1122	Flywheel, Capacitors, Compressed Air, Water/Hydraulic
1123	Ratings
1124	Pros and cons
1125	Types for use in facilities
1126	Barriers to CHP and DG

Examination Specifications

The examination will be 4-hours, open book / open notes and follow the specifications outlined in the examination blueprint and will include 130 multiple-choice graded questions in accordance with the percent range for each task.

Code of Ethics

Codes of Practice are found in the Code of Ethics for Certified Professionals V1.1 dated November 21, 2019, available at www.aeecenter.org/CodeOfEthics.

Recertification Requirements

A BEP® must accumulate ten professional credits every three years and submit a completed Renewal Form to AEE to remain certified. Professional credits for recertification can be accumulated at any time within the three-year period. Detailed explanation of activities applicable as credits for certification renewal available at www.aeecenter.org/certification/renewal.

Activities for BEP® Renewal Credits

Continued employment in energy auditing activities:
– 1 credit per year

Membership in a professional engineering society
– 1 credit per year

Offices held in a professional engineering society
– 1 credit per year

Continuing education (CEU's) / professional activities (seminars or conferences) including but not limited to business energy
– 2 credits per CEU, college credit hour or 10 contract hours for training

Awards presented and/or papers published involving business energy:
– 1 credit per: one energy-related presentation
– 2 credits per: one energy-related paper
– 2 credits per: one energy-related individual award

Certified Professionals who do not acquire sufficient BEP maintenance points to be recertified on the recertification date will no longer have an active certification and be notified in writing of suspension from using the BEP designation. They will also no longer be listed as a BEP in any AEE publication. A lapsed BEP must resubmit to the certification process and successfully meet the criteria for certification by personal data information and examination. Another option for certified professionals is to acquire make-up points at a cumulative total equal to 3.5 per year for every year since date of expiration. This option is available one-time only. Certifications that have lapsed more than three renewal cycles must retake the BEP exam.

A BEP, upon retiring and/or and reaching the age of sixty-five, can be designated as "BEP® – Retired," will no longer be required to pay renewal fees, and will no longer be listed in our directory of actively practicing BEPs. No further reporting is necessary except to notify AEE of meeting the age requirement by sending a copy of the retired BEP's Driver's License and completing the Retired Certification Request Form online.

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