



**ENERGY MANAGEMENT  
ASSOCIATION**



**ENERGY MANAGEMENT  
PROFESSIONAL**



# **Energy Management Professional (EMP) Candidate Handbook**

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# Introduction

## Mission Statement

Established in 2013, the Energy Management Association (EMA) is a non-profit association dedicated to the advancement of the energy management industry. EMA strives to promote a better understanding of the energy management process through education, training and certification.

EMA's Energy Management Professional (EMP) certification program recognizes competence and promotes continual professional development among energy management professionals. This program is operated under the authority of the EMA Certification Council (the Council).

## Objective

The Energy Management Professional (EMP) certification program serves the industry by recognizing energy managers who demonstrate the technical, management, and communication skills required for competent performance. The Council's objective is to operate the EMP certification program in conformance with ISO/IEC 17024: 2012(E), *Conformity assessment – General requirements for bodies operating certification of persons*. EMA is committed to operating the EMP certification program based on qualifications guidelines for Building Energy Managers, as recognized by the U.S. Department of Energy.

## Energy Management Professional (EMP) Scope

EMPs work closely with clients and other project team members to develop and implement strategies that achieve energy-related goals, improve energy efficiency, and optimize building performance. The scope of the EMP's expertise extends far beyond a single energy audit or energy efficiency exercise. In addition to understanding building systems, EMPs are familiar with commissioning processes and the testing, adjusting and balancing (TAB) services that provide much of the site-based data that support detailed analysis and project planning. EMPs also understand the financial and energy analyses that are essential to evaluate and support investments in energy conservation measures, including related calculations.

EMP certification is available to industry professionals who are responsible for managing energy performance in commercial buildings. EMP certificants:

- Plan effective energy management
- Manage energy information
- Implement energy management programs
- Manage budgets and finances
- Implement energy efficient projects
- Manage energy communications

The scope of the EMP program is consistent with the Energy Management Professional consensus qualifications guidelines sponsored by the U.S. Department of Energy, and shall be re-evaluated every few years and revised if warranted due to industry changes.

## Statement of Impartiality

EMA understands the importance of impartiality in carrying out its EMP certification activities, manages conflicts of interest, and acts to ensure the objectivity of its EMP certification activities.

EMA is committed to acting impartially in relation to its applicants, candidates and certificants. EMP certification decisions are made in accordance with policies and procedures established under the authority of the Council. Policies and procedures affecting applicants, candidates and EMP certificants are made public and fairly and accurately convey information about the EMP certification program.

EMA understands threats to impartiality that include, but are not limited to, self-interest, activities from related bodies, relationships of personnel, financial interests, favoritism, conflict of interest, familiarity, and intimidation. EMA periodically conducts a threat analysis to determine the potential, both real and perceived, of an individual or an organization to influence certification.

The eligibility requirements have been established to recognize individuals who have demonstrated the experience, knowledge, and skills necessary to provide energy management services. Applicants must demonstrate proficiency in energy management by passing the EMP examination, as specified and administered by the Council. Eligibility requirements for the EMP Certification Program are listed in this EMP Candidate Handbook. To earn EMP certification, applicants must meet all eligibility requirements and pass the EMP certification examination.

EMA serves the industry by providing education and training designed to help industry professionals understand the job of energy managers. However, completion of EMA's education or training is not a prerequisite or component of the EMP certification program. Candidates are free to select any training they wish, and completion of EMA's training will not provide any advantage over completion of any other quality training program.

## Better Buildings Workforce Guidelines (BBWG) Certification Scheme

The EMP certification program is based on the BBWG certification scheme developed by the National Institute of Building Sciences (NIBS) Commercial Workforce Credentialing Council (CWCC). The CWCC provides a forum and governing structure for the commercial buildings industry to develop guidelines for high quality workforce credentialing programs in a neutral, collaborative environment. The purpose of the BBWG Certification Scheme is to assist in development of a consistent and comparable workforce in the field of energy management.

The BBWG effort was initiated and supported by the U.S. Department of Energy (DOE), but was industry-led by the National Institute of Buildings Sciences (the Institute), a Congressionally authorized 501(c)(3) non-profit organization whose mission is to support advances in building science and technology. The Institute established the CWCC to govern the effort.

## EMA Terminology for Certification

Following is a list of terms to facilitate a better understanding of this document.

*Applicant:* A person who has applied for certification, but has not yet been approved by to participate in the program or attempt the examination.

*Candidate:* A person who has been approved to take the EMP examination, but has not yet been certified.

*Certificant:* A person who has met all requirements and is currently certified.

*Certificate:* A document used by an organization that grants certification to indicate that the named person has met the requirements for certification.

*Certification:* The process by which an organization grants a time-limited recognition and use of a credential to an individual after verifying that he or she has met pre-determined and standardized criteria.

*Certification Scheme:* The combination of requirements, processes and activities used by an organization to determine that an individual is worthy of certification. (Certification scope, eligibility criteria, an examination, a code of ethics, application, and recertification are some of the elements of the EMP Certification Scheme.)

*Competence:* The ability to perform a job safely and effectively.

*Job Task Analysis (JTA) Study:* A method used to identify the tasks associated with an occupation, as well as the knowledge, skills and abilities required to perform those tasks.

# Section 1: Applying for Certification

## Eligibility Criteria

Applicants for EMP certification must submit the [EMP Application Form](#) with documentation that the following eligibility requirements have been met before being approved to attempt the EMP examination:

1. Energy Management Education and Experience
2. Management Experience
3. A Completed Application (including all agreements and attestations)

### 1. Education and Experience Requirements

Minimum education and experience requirements, as outlined in the table below, must be met by all applicants:

Track	Education	Experience
0	Currently hold a certification in energy-focused science or technology that is accredited under ISO/IEC 17024	N/A
1	Licensed Architect or Professional Engineer	2 years' energy-related project experience*
2	Four year degree in engineering, architecture or facility management	3 years' energy management experience*
3	Four year degree in environmental science, physics or earth science management	4 years' energy management experience*
4	Four year degree in business or related field such as accounting or finance	5 years' energy management experience*
5	Two year energy management Associate's Degree	4 years' energy management experience*
6	Two year technical degree in building systems or valid mechanical/electrical contracting license; or equivalent military training/experience	5 years' energy management experience*
7	High school diploma or GED	10 years' energy management experience*

\* Energy management experience is defined as participating in an energy-related project. An energy-related project is a project implemented to optimize energy use or cost.

\*\* Degrees must be accredited by an organization recognized by the US Department of Education, the Council on Higher Education Accreditation (CHEA), Accrediting Commission of Career Schools and Colleges (ACCSC), or specialized accreditation bodies in engineering such as Accreditation Board in Engineering Technology (ABET) or architecture such as the National Architectural Accrediting Board (NAAB).

## 2. Management Experience Requirements

Applicants must also meet one of the following management experience requirements:

Track	Management Experience
A	Three years management experience, defined as oversight/supervision of a team of personnel with responsibility for training, team outcomes, outcome communications.
B	Current certification from an ANAB accredited management certification.
C-1	Master's degree in management/business administration.
C-2	Bachelor's degree in management/business administration with 1 year mgt. experience.
C-3	Associate's degree in management/business administration with 2 years mgt. experience.

## 3. Completed Application

Submittal of a signed copy of the Energy Management Professional (EMP) application form, including all provisions, agreements and attestations, is required for participation in the EMP certification program. Individuals who fail to submit a complete application and agree to all provisions of the program will be ineligible to participate.

## Application Instructions, Initial Fees and Requirements

Applicants will receive a confirmation email once the application has been received by the EMA Certification Department. EMA reserves the right to verify any and all information submitted on the application and to request further information or documentation from the applicant as needed.

### Submitting the Application

The completed [EMP Application Form](#) and all supporting documentation must be submitted with payment in full. In addition to meeting and documenting the eligibility requirements outlined in [Section 1](#) of this handbook, applicants must also submit the following documents:

- Signed and dated EMP Code of Ethics and Confidentiality Agreement statement
- A copy of current certificates showing licenses and/or other certifications (if applicable)

The application may be submitted via email ([certification@energymgmt.org](mailto:certification@energymgmt.org)) or via paper copy to the EMA Certification Department, 1015 18<sup>th</sup> Street, NW, Suite 603, Washington, DC 20036.

Individuals who submit incomplete applications will be notified that their applications will not be processed until all required information has been received.

## Membership

EMP certification is open to all individuals who provide energy management services. Membership in EMA is NOT required for certification eligibility.

## Fees for Initial Certification

The application form must be submitted with the required fee, which is non-refundable.

Fee Schedule	
Individuals employed by an EMA member company, or by a company that has submitted a completed application	\$250
Individuals applying without company membership, employed by building owner, government or educational organization	\$250
Individual applying without company membership, employed by company providing energy management services. (This is certification only and not an EMA membership)	\$750

Fees for initial certification include application processing, one examination administration.

## Application Due Dates

Applications may be submitted at any time, but must be received by the EMA Certification Department at least 14 days in advance of the exam administration date. If requesting an accommodation ([see Accommodations for Candidates with Disabilities](#)) the application must be received by EMA at least 30 days in advance of testing.

## EMP Candidate Status

Applicants who have been approved to take the EMP examination are considered EMP Candidates. EMP certification candidates have 18 months from their initial application date to pass the EMP exam.

## Eligibility Appeals/Requests for Reconsideration

EMA is committed to a fair appeals process for any applicant, candidate, or certification holder with any adverse outcome of a decision. Applicants who have submitted a completed application and who are notified that they do not meet the eligibility requirements may appeal this decision in accordance with the process outlined in [Section 8: Other Policies & Procedures](#), under the policy for [Appeals/Requests for Reconsideration](#).

## EMP Examination

Once all eligibility requirements have been met and approved via the application process, an applicant becomes a candidate, eligible to sit for the EMP certification examination. Successful completion of the certification examination is a requirement for EMP certification.

The competency requirements assessed in the exam are outlined in **Section 2: Preparing for the Exam**.

## Exam Scheduling

### *Examination Dates and Locations*

The EMP examination is available on-demand at approximately 900 local testing centers worldwide through EMA's testing vendor. (Click the link below to review the currently available test centers at <http://www.kryteriononline.com/Locate-Test-Center>.) The EMP examination is also administered periodically at selected EMA events, such as in conjunction with the CxEnergy conference or an EMP training seminar. Visit the EMA website for more information on these dates ([www.energymgmt.org](http://www.energymgmt.org)).

### *Scheduling the Exam*

EMP Applicants are required to indicate on the application form whether they intend to take the EMP exam at a local computer-based testing center, or in conjunction with an EMA event.

#### Exams at Testing Centers or online proctors

Once authorized for testing, candidates who have indicated a preference to take the EMP examination at a local testing center or using an online proctor will receive a login and password that can be used to log in and self-schedule the exam through Webassessor, EMA's online registration system. Candidates will select the test center location, date, and time of exam administration appointment.

After scheduling the examination, the Candidate will receive an automated email confirming the appointment date, time and location of the test center. The message will include test center check-in and identification requirements as well as information regarding permissible exam materials. The confirmation includes a unique Test Taker Authorization Code. Test takers must bring a copy of the confirmation message to the test center on the day of the exam.

#### Exams in Conjunction with EMA Events

Candidates who plan to take the EMP examination during an EMA event will receive an email from EMA confirming the date, time, and location of the exam. This email will also include identification requirements the candidate must follow to confirm his/her identity when checking in to take the exam and the materials permitted in the testing room.

### *Cancellations*

There is a 72-hour cancellation policy. Cancellations may be made by following the instructions in the exam confirmation message. Cancellations for exams scheduled in conjunction with an EMA event may be made by contacting the EMA Certification Department, at (202) 737-1334.

### *Rescheduling*

Individuals who cancel at least 72 hours in advance may re-schedule by contacting the EMA Certification Department, at (202) 737-1334. Individuals who fail to cancel their exam at least 72 hours (three days) in advance shall forfeit the examination fee and will not be eligible to re-schedule the exam until new fees are paid.

## Section 2: Exam Preparation

### Exam Content Outline

The competency requirements assessed in the EMP exam are outlined below.

DUTIES & TASKS			WEIGHT
<b>A</b>		<b>Planning Effective Energy Management</b>	<b>29%</b>
	<b>1</b>	Identify the energy management scope	
	<b>2</b>	Develop energy management policies and objectives	
	<b>3</b>	Assess energy usage	
	<b>4</b>	Identify energy performance baselines	
	<b>5</b>	Planning Energy Audits	
	<b>6</b>	Identify energy opportunities	
	<b>7</b>	Prioritize energy opportunities	
	<b>8</b>	Consult on capital (non-energy) projects	
	<b>9</b>	Coordinate with other departments/divisions	
<b>B</b>		<b>Managing Energy Information</b>	<b>11%</b>
	<b>1</b>	Gather energy management data (utility, weather, etc.)	
	<b>2</b>	Analyze energy management data	
	<b>3</b>	Complete reports (internal and external)	
<b>C</b>		<b>Implementing the Energy Management Program</b>	<b>20%</b>
	<b>1</b>	Implement the energy program managerial activities	
	<b>2</b>	Coordinate team resources	
	<b>3</b>	Evaluate results of managerial initiatives	
	<b>4</b>	Manage ongoing commissioning	
<b>D</b>		<b>Managing Budgets and Finance</b>	<b>13%</b>
	<b>1</b>	Audit utility invoices	
	<b>2</b>	Forecast energy savings	
	<b>3</b>	Procure cost effective energy sources	
	<b>4</b>	Monitor project performance	
<b>E</b>		<b>Implementing Energy Efficient Projects</b>	<b>22%</b>
	<b>1</b>	Plan project implementation	
	<b>2</b>	Implement energy projects	
	<b>3</b>	Conduct project close-out activities	
	<b>4</b>	Monitor project performance	
<b>F</b>		<b>Managing Energy Communications</b>	<b>5%</b>
	<b>1</b>	Advocate for energy conservation	
	<b>2</b>	Communicate energy information to senior management	
	<b>3</b>	Coordinate energy program with external parties	
	<b>TOTAL</b>		<b>100%</b>

## EMP Exam Reference List

Following are suggested references that are available to EMP candidates who want to enhance their ability to apply concepts and analyze issues related to energy management. This is not intended as a comprehensive list of all materials available.

- *EMA Energy Management Guideline*
- *ACG Commissioning Guideline, 2<sup>nd</sup> Edition*
- ASHRAE Standard 90.1-2016 – *Energy Standard for Buildings Except Low-Rise Residential Buildings*
- ASHRAE Standard 100-2015 – *Energy Efficiency in Existing Buildings*
- ASHRAE Standard 55-2013 – *Thermal Environmental Conditions for Human Occupancy*
- ASHRAE Std. 105-2014 - *Methods of Determining, Expressing, and Comparing Building Energy Performance and Greenhouse Gas Emissions*
- *ASHRAE Energy Efficiency Guides for Existing Commercial Buildings – Technical Implementation Guidance and the Business Case for Building Owners and Managers*
- *ASHRAE Procedures for Commercial Building Energy Audits, Second Edition*

## EMA Education & Training

EMA offers a variety of education and training opportunities for individuals who are interested in professional development. Courses, workshops, webinars, and other such programs offered by EMA are not a requirement for EMA certification. Visit the EMA website for more information about EMA training opportunities ([www.energymgmt.org](http://www.energymgmt.org).)

## EMP Acronym List

EMP candidates are expected to be familiar with the following list of acronyms:

A & E – Architects and Engineers	CFR – Current Facility Requirements
ACG – AABC Commissioning Group	CMMA – Computerized Maintenance Management Software
AHU – Air Handling Unit	COP – Coefficient of Performance
AHJ – Authority Having Jurisdiction	CTs – Current Transformers
ASHRAE – American Society of Heating, Refrigerating and Air Conditioning Engineers	Cx – Commissioning
BAS – building automation system	CxA – Commissioning Authority
BHP – Brake Horse Power	DDC – Direct Digital Controls
BTUH – British Thermal Units per Hour	DOE – U.S. Department of Energy
CBECs – Commercial Building Energy Consumption Survey	EBCx – Existing Building Commissioning
CDD – Cooling Degree Days	ECM – Energy Conservation Measure
CFM – Cubic feet Minute	EEM – Energy Efficiency Measure
CFO – Chief Financial Officer	

EIA – Energy Information Administration	M&V – Measurement and Verification
EIS – Energy Information System	MAU – Make-up Air Unit
EMA – Energy Management Association	MBCx – Monitor-based Cx
EMCS – Energy Management Control System	MCF – Million Cubic Feet
EMP – Energy Management Professional	NREL – National Renewable Energy Laboratory
EnPI – Energy Performance Indicators	O&M – Operation and Maintenance
ERV – Energy Recovery Ventilator	OA – Outside Air
ESCO – Energy Services Company	OAT – Outside Air Temperature
EUI – Energy Utilization Index	OCx or OGCx – Ongoing Commissioning
FIM – Facility Improvement Measure	OPR – Owner’s Project Requirements
FPT – Functional Performance Tests	PC – Performance Contractor
GSF – Gross Square Feet	PEA – Preliminary Energy Analysis
HDD – Heating Degree Days	PPA – Power Purchasing Agreement
HP – Horse Power	PPE – Personal Protective Equipment
HVAC – Heating, Ventilating and Air Conditioning	PR – Public Relations
IAQ – Indoor Air Quality	PM – Preventative Maintenance
IEQ – Indoor Environmental Quality	PUC – Public Utilities Commission
IPMVP – International Performance Measurement and Verification Protocol	RAT – Return Air Temperature
ISO – International Organization for Standardization	RCx – Retro- Commissioning
kBtu 1,000 Btu	RFP – Request for Proposal
kVar – Kilovolt -Ampere Reactive	RH – Relative Humidity
Kw – Kilowatt	ROI – Return on Investment
KWh – Kilowatt hour	SD – Standard Deviation
LCC – Life Cycle Costs	SF – Square Foot
LEED – Leadership in Energy and Environmental Design	SE – Standard Error of the Mean
LEED EBOM – Existing Buildings: Operations & Maintenance	SVC – Systems Verification Check
LED – light-emitting diode	T&D – Transportation and Distribution
	TAB – Testing, Adjusting, and Balancing or Test and Balance
	USGBC – U.S. Green Building Council
	VAV – Variable Air Volume
	VFD – Variable Frequency Drive
	YR – Year

## EMP Self-test (Answer Key: Appendix B)

Review the following sample test questions to assess your readiness for the EMP exam.

- 1) An EMP for a corporation is tasked with reviewing the results of an energy audit. Measures that improve product manufacturing and delivery processes are the first priority for management. All utility-related projects are subject to financial requirements that include a maximum four-year simple payback.

ECM/FIM	Savings	Implementation Costs
HVAC Control System Modifications in Warehouse	\$28,000	\$12,000
Lighting Retrofit in Office Areas	\$22,000	\$56,000
Compressed Air System Pressure Restoration in Packaging	\$9,000	\$24,000
Water Efficiency Improvements in Manufacturing	\$3,500	\$18,000

What ECM/FIM should the EMP recommend to be implemented first?

- A. HVAC Control System Modification in Warehouse
  - B. Lighting Retrofit in Office Areas
  - C. Compressed Air System Pressure Restoration in Packaging
  - D. Water Efficiency Improvements in Manufacturing
- 2) A client owns and manages a 130,000 SF apartment building and wants to know how it compares to similar buildings. The client provides the following information to the EMP.

Month	Electrical Consumption (kWh)	Natural Gas Consumption (MCF)
Jan	180,000	950
Feb	168,800	836
Mar	190,400	901
Apr	202,000	743
May	253,600	682
Jun	276,400	612
Jul	254,400	548
Aug	247,000	536
Sep	246,400	602

Oct	240,000	751
Nov	206,000	801
Dec	196,000	860
<b>Total</b>	<b>2,661,000</b>	<b>8,822</b>

What is the approximate EUI for the building?

- A. 21
  - B. 70
  - C. 88
  - D. 139
- 3) An EMP is preparing for an upcoming audit and retro-commissioning project on a corporate campus. As part of the preparation, the EMP is requesting that the client provide certain information. Which of the following items should be requested from the client by the EMP?
- A. Age of the facilities
  - B. Planned changes in schedules
  - C. Utility rate schedules
  - D. Maintenance staff capabilities
- 4) After reviewing 12 months of energy consumption following an equipment chiller replacement, the EMP notes that costs actually increased over the previous year.

Month	Baseline Energy Consumption Electricity (kWh)	Post-EEM Energy Consumption Electricity (kWh)
Jan	142,500	190,000
Feb	148,512	190,400
Mar	135,040	168,800
Apr	165,640	202,000
May	215,560	254,600
Jun	248,760	276,400
Jul	228,960	253,400
Aug	217,888	246,600
Sept	204,512	247,400
Oct	199,200	240,000
Nov	160,680	206,000
Dec	135,000	180,000
<b>Year</b>	<b>2,202,252</b>	<b>2,655,600</b>

What is MOST likely to be the cause of the increased energy use?

- A. boiler water set points not resetting
  - B. negative pressure in lobby
  - C. building operating schedule overridden ON
  - D. lights left on
- 5) The average temperature for four days is 60 °F. What is the Heating Degree Days (HDD) for the four-day period?
- A. 5 °F
  - B. 10 °F
  - C. 15 °F
  - D. 20 °F
- 6) An organization enters into a sell all/buy all agreement with a utility company by installing a photovoltaic system to offset part of their electric consumption. What is required to be metered in this type of agreement?
- A. Solar panels and inverters
  - B. Plug loads and lighting loads
  - C. HVAC and domestic hot water loads
  - D. Power generated and power purchased
- 7) Which of the following equipment would most likely be found in a refrigeration plant?
- A. DOAS unit (Dedicated Outdoor Air System)
  - B. Variable Refrigerant Flow (VRF) condensing unit
  - C. Reverse Osmosis (RO) unit
  - D. Absorption chiller
- 8) To reduce compressor energy use, the EMP should consider which of the following energy conservation strategies:
- A. Increase chilled water flow through the chiller
  - B. Reset leaving water temperature of the chiller
  - C. Increase condenser water flow through the chiller
  - D. Increase insulation around the evaporator shell of the chiller
- 9) An energy audit yields a number of favorable ECMs, exhibiting energy savings as well as projected reductions in maintenance costs and improved performance. However, the total cost for implementation of these measures will exceed the owner's budget. The EMP meets with the owner and offers several strategies to consider in developing a plan for implementation, including:

- a. Engage an ESCO to perform the work under a performance contract
- b. Investigate alternative funding sources such as utility company incentives, government grants and/or low cost loads
- c. Discuss priorities with the owner regarding postponing select ECMs for future implementation
- d. Investigate whether some ECMs can be implemented by in-house O & M staff

In which order should these strategies be considered; i.e. best to least favorable?

- A. a. – b. – d. – c.
- B. d. – b. – c. – a.
- C. b. – a. – d. – c.
- D. b. – d. – a. – c.

10) What is the best method for an EMP to compare energy performance between various buildings in the EMP's portfolio?

- A. Calculate the Energy Use Index (EUI) of each facility
- B. Compare the total costs of all metered utilities for each building
- C. Use submetering to identify and compare major energy-consuming loads
- D. Compare the energy consumption per occupant, based upon full time occupants

11) An EMP does not have data from field M & V instruments, but does have limited trend log data from the BAS; only reflecting operational status of the HVAC and lighting systems connected to the BAS. For which of the following ECMs can the EMP verify improvement without the field data?

- A. Installation of a new high efficiency chiller
- B. Replacement of lighting fixtures with higher efficiency fixtures
- C. Implementation of demand control ventilation for outdoor air
- D. Conversion of a constant volume air handling system to a VAV system

12) An owner requests an EMP review the terms and conditions of a performance contract proposed by an owner, prior to executing the contract. After performing an investment grade audit and determining the baseline energy use, the ESCO has provided a guarantee of energy savings associated with the implemented ECMs.

Which of the following would typically be included in an ESCO contract for adjustments to the baseline energy usage?

- A. Changes in occupancy; changes in operating schedules; projected escalation rates for utility costs; and changes due to abnormal weather conditions Heating Degree Days (HDD) and Cooling Degree Days (CDD)

- B. Changes in occupancy; changes in operating schedules; adjustments due to inadequate maintenance; and changes due to abnormal weather conditions Heating Degree Days (HDD) and Cooling Degree Days (CDD)
- C. Changes in operating schedules, projected escalation rates for utility costs, adjustments due to inadequate maintenance; and changes due to abnormal weather conditions Heating Degree Days (HDD) and Cooling Degree Days (CDD)
- D. Changes in occupancy, changes in operating schedules; projected escalation rates for utility costs; and adjustments due to inadequate maintenance

13) An owner is presented with four ECMs based on an ASHRAE Level 2 Audit by an EMP. Annual energy savings and project installation cost are outlined for each ECM below.

ECM	Annual Energy Savings (BTU)	Annual Energy Savings (\$)	Installed Cost (\$)
1	3,288,794,193	\$56,179	\$284,782
2	1,972,334,842	\$28,397	\$116,498
3	3,009,478,440	\$101,442	\$528,934
4	2,859,667,010	\$49,905	\$214,665
<b>Total</b>	<b>11,130,274,485</b>	<b>\$235,923</b>	<b>\$1,144,879</b>

What is the approximate simple payback to proceed with all four ECMs?

- A. 2 years
- B. 4 years
- C. 5 years
- D. 7 years

14) The owner of a 10-year old commercial office building has directed the EMP to invest up to \$100,000 in energy saving projects to reduce the facility’s carbon footprint and utility bills. The owner will only invest in individual projects with a minimum energy savings of 25,000 kWh/yr due to local utility costs and a simple payback of two years or less.

The ECM Matrix below was provided last week, as a result of an energy analysis.

Item	Description	Annual Electric Savings (kWh/yr)	Annual Electric Cost Savings (\$/yr)	Annual Nat Gas Savings (therms/yr)	Annual Nat Gas Cost Savings (\$/yr)	Installation Cost (\$)	Simple Payback (years)
1	Turn Off AHU Serving Theater during Unoccupied Hours	36,420	\$2,667	0	\$0	\$2,280	0.85
2	Operate AS-21 Only When Laundry is Being Used	7,159	\$524	5,122	\$4,393	\$8,650	1.76
3	Coordinate Operation Schedules of Kitchen Exhaust Fan and MAU with Kitchen Use	51,068	\$3,740	26,300	\$22,556	\$6,890	0.26
4	Repair Electric Radiant Floor Heating Controls	62,458	\$4,574	0	\$0	\$6,600	1.44
5	Manage Water Flow thru Coils to Achieve Design Heat Transfer	253,477	\$20,545	0	\$0	\$44,730	2.18

Which projects should the EMP execute?

- A. ECM 1, 2, 3, 4 and 5
- B. ECM 1, 2, 3 and 4
- C. ECM 1, 3, 4 and 5
- D. ECM 1, 3 and 4

15) During a preliminary assessment, the EMP will conduct a building walk through to observe system conditions and begin to identify operational issues and potential FIMs and ECMs. Which of the following is a common example of a low-cost ECM?

- A. Replace 2-way with 3-way valves
- B. Implementing a Trending/Data Logging Plan
- C. Replace damaged dampers and actuators
- D. Thermostat calibration

16) An EMP has been engaged to conduct an energy study for a large school with several air handling units. After collecting operational information and analyzing AHU trend data, the EMP identifies that the AHU's Morning Warm Up cycle often had little or no impact on the RAT during startup hours, meaning that the building's temperature conditions on most days were about the same, whether or not Warm-Up was initiated.

Which of the following is the EMP's recommended ECM?

- A. Reprogram Morning Warm Up based upon an appropriate OAT
- B. Reprogram to eliminate Morning Warm Up and Cool Down modes
- C. Reprogram to increase the Outside Air flow rate
- D. Have the manufacturer decrease the coil leaving air temperature

17) An EMP is preparing for an upcoming audit and retro-commissioning project on a state university campus. The state university facilities operations staff has provided the combined previous 12 months of electric and natural gas data for the buildings that will be included in the project. The EMP has also obtained the utility rate structure that is applicable.

Month	Electrical Consumption (kWh)	Electric Demand (kW)	Natural Gas (MCF)
Jan	180,000	1,480	950
Feb	168,800	1,526	836
Mar	190,400	1,782	901
Apr	202,000	1,966	743
May	253,600	2,214	682

Jun	276,400	2,348	612
Jul	254,400	2,456	548
Aug	247,000	2,648	536
Sep	246,400	2,342	602
Oct	240,000	2,134	751
Nov	206,000	1,896	801
Dec	196,000	1,688	860
<b>Total</b>	<b>2,661,000</b>	<b>24,480</b>	<b>8,822</b>

The utility tariff that applies for the campus has the following components:

- Winter Energy Charge - \$0.043/kWh
- Summer Energy Charge - \$0.068/kWh
- T & D Charges - \$0.076/kWh
- Demand - \$10.00/kW
- Local Usage Tax – 4.0%
- Winter Natural Gas tariff - \$8.34/MCF
- Summer Natural Gas tariff - \$6.86/MCF
- Summer – May to September, inclusive

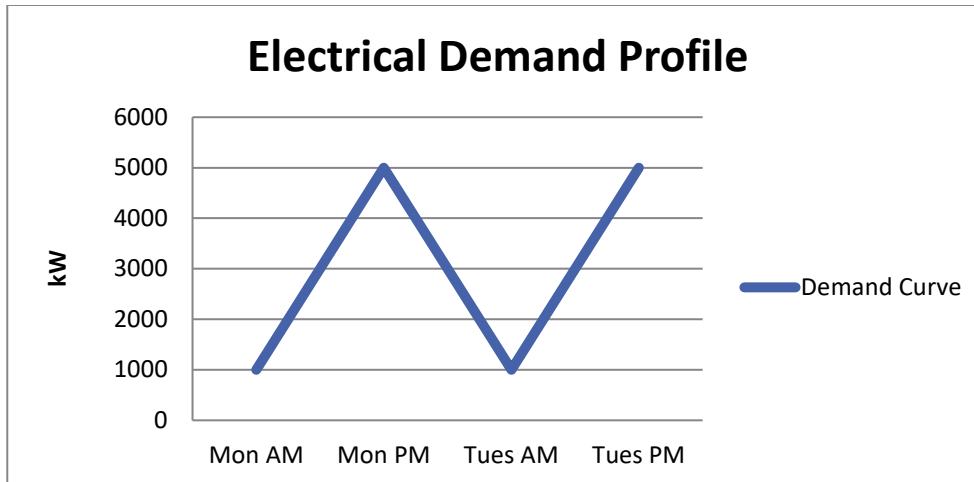
What is the blended electric rate that should be used for preliminary assessment of ECMs?

- A. \$0.131/kWh
- B. \$0.147/kWh
- C. \$0.223/kWh
- D. \$0.232/kWh

18) What insight can be gained by analyzing historical monthly energy consumption versus degree days for a given location and time period?

- A. Energy consumption versus general seasonal changes
- B. Correlation of energy consumption to levels of daylight
- C. Energy consumption correlation to weather based loads
- D. Energy consumption correlation to seasonal occupancy

19) During an energy audit an electrical demand profile graph takes the form of a saw tooth pattern with consistent equal steep “teeth.”



Which of the following ECMs does this graph suggest might be in play?

- A. Optimal start
- B. Outdoor air temperature reset
- C. Discharge air temperature reset
- D. Demand start

20) An EMP invests in sub meters to monitor energy consumed by each department of a company. One department has improved energy performance by reducing energy usage. The EMP wants to use that success to motivate other departments. Which of the options below offers the best approach to motivate other departments based on one department's success?

- A. Congratulate the successful department and thank them for their effort
- B. Publish monthly departmental progress in the company newsletter
- C. Make reducing energy usage a competition between departments with modest incentive prizes for the winning department
- D. Write an email to the other departments notifying them that their energy efficiency methods are not acceptable

21) In a jurisdiction that has adopted the 2012 International Energy Conservation Code (IECC), what commissioning provisions would the EMP anticipate as project requirements?

- A. Lighting controls, HVAC and HVAC controls commissioning are required
- B. Lighting controls, HVAC, HVAC controls and electrical commissioning are required
- C. HVAC, HVAC controls, domestic hot water and renewable energy systems commissioning are required
- D. Mechanical, plumbing, electrical and renewable energy systems commissioning are required

## Section 3: Taking the EMP Exam

### What to Expect on Exam Day

The EMP certification exam consists of 100 multiple choice questions. A total of four hours is allowed for the exam; five hours may be granted to individuals for whom English is a second language if this issue is identified on the EMP Application Form. (Candidates are allowed short breaks but will not be allowed to leave the building or access personal items during breaks.) The exam is closed book. No notes or study materials are permitted, although an Equations and Unit Conversions Sheet is provided. Remember, candidates are required to bring a copy of the exam confirmation message to the test location on the day the exam is administered.

#### *Bring a Calculator – Phones NOT Allowed*

The EMP examination includes a substantial number of financial and energy-related calculations. It is highly recommended that candidates bring their own scientific, non-programmable calculator for use during the exam. Mobile phones will **NOT** be allowed in the testing area.

### Taking the Exam

#### *Identification*

Candidates are required to present 2 valid forms of identification, one must be a government issued, photo identification to gain admission to the examination site. Acceptable identification is an unexpired government-issued photo ID with a signature (examples include driver's license, passport, citizenship card, age of majority card, and military ID card). The name on the ID must match the applicant name and the photo on the ID must validate the applicant's identity. Candidates without acceptable ID will not be admitted.

#### *Examination Rules*

The following rules will be enforced on exam day:

- Candidates must arrive at least 15 minutes prior to the scheduled start of the exam. Late arrivals may not be accommodated. Fees are not refunded for missed exam appointments.
- Candidates must present acceptable identification. Please see the "Identification" section above.
- No study materials, documents, books, or notes of any sort are to be taken into the examination area. No materials may be removed from the examination area.
- Candidates will be observed at all times during testing and should be aware that security procedures are in place and will be enforced.

- It is highly recommended that candidates bring a non-programmable calculator for use on the exam. Candidates may NOT bring any other electronic devices, or any devices capable of recording, into the examination area. Phones, backpacks, purses, and other personal items are NOT permitted. Candidates are encouraged to leave these items at home when possible. Items brought to the test site will be placed in a secure area that is not accessible to the candidate during the examination session.
- No questions concerning the content of the examination may be asked in the examination area before, during, or after the exam. Proctors are not permitted to answer any questions about the content of the examination. Proctors may answer questions about processes (e.g. time limit), but cannot interpret or explain any information on the exam.
- All candidates are expected to answer the exam questions independently. There is to be no sharing of information, teamwork, or any other collaborative relationship with another candidate during the exam. Any violation of this policy is considered to be cheating. Any candidate engaged in this behavior may be subject to score cancellation and may not be allowed to sit for future administrations of the exam. See the disciplinary policy for additional information.
- No exam questions are to be discussed during or after the exam administration. Any infraction of these terms is considered to be a violation of your ethical responsibilities and subject to the disciplinary policy. It is also a violation of copyright law and exam security.
- Candidates should dress comfortably. While all test sites strive to ensure the exam is given in a room that is neither too hot nor too cold, candidates should be prepared with appropriate layered attire.
- No food or beverage is permitted in the examination area.
- Candidates may not communicate with anyone except the proctor during the exam.
- Candidates are not permitted to bring guests, including children, to the testing site.
- Candidates should complete their exams quietly, without disturbing others.

Any attempts to reproduce all or part of the EMP exam are prohibited. Such attempts may include, but are not limited to: removing materials from the testing room; aiding others by any means in reconstructing any portion of the exam; posting content on any discussion forum or website; and selling, distributing, receiving, or having unauthorized possession of any portion of the exam. Alleged copyright violations will be investigated and, if warranted, prosecuted to the fullest extent of the law. It should be noted that examination scores might become invalid in the event of this type of suspected breach. Permanent revocation of certification may occur if allegations are substantiated. See the Disciplinary Policy for further information.

## Accommodations for Candidates with Disabilities

EMA will provide reasonable and appropriate accommodations in accordance with the Americans with Disabilities Act (ADA) for individuals with documented disabilities who request accommodation at least 30 days in advance of testing and demonstrate the need for accommodation.

ADA regulations define a person with a disability as someone with a physical or mental impairment that substantially limits one or more major life activities. Documentation is required to validate the type and severity of a disability to enable accommodations to be specifically matched with the identified functional limitation, in order to provide equal access to exam functions for all examinees.

## Accommodation Requests

Candidates requesting an accommodation must submit a completed [Request for Accommodations](#) form and required supporting documentation with their exam application.

Accommodations requests must include documentation of need provided by an appropriate, licensed medical doctor, healthcare practitioner or other relevant professional on the professional's letterhead. The documentation must include the candidate's name and address as well as the diagnosis of the disability, history of previous accommodations, and specific request(s) for accommodations.

Once the request for an accommodation is received and reviewed, the applicant may be contacted to obtain additional information. EMA will determine the feasibility of any accommodation, including the specific accommodation requested by the applicant/participant, taking into account all relevant circumstances including, but not limited to: the nature of the documented disability; the nature of the accommodation; and the accommodation's impact on the certification examination. The applicant will receive correspondence via email regarding the accommodation decision.

Reasonable examination accommodations will be made at no extra charge to individuals with documented disabilities.

## *Accommodations Appeals*

EMA is committed to a fair appeals process for any applicant, candidate, or certification holder with any adverse outcome of a decision. Applicants who have submitted a completed Request for Accommodation and who are notified that this request was denied may appeal this decision in accordance with the process outlined in [Section 8: Other Policies & Procedures](#), under the policy for [Appeals/Requests for Reconsideration](#).

## Section 4: After the Exam

### Exam Results

Exam results will be displayed at the conclusion of the exam session for Candidates who take the exam at a local test center. The score report will also be sent to the Candidate and to EMA via email. Candidates who take paper-based EMA exams at an EMA event will receive exam results via email approximately three weeks after the exam session. Candidates will also receive a score breakdown by content domain via email (see [Section 2: Preparing for the Exam](#)).

#### *Understanding Your Exam Result*

A criterion-referenced standard setting process is used to establish the passing point for the exam (see the “How the Exam was Developed” section of this Handbook).

You do not have to pass a certain number of content domain areas in order to pass the exam. Pass/fail status is determined by the total number of questions answered correctly. Candidates are provided feedback on their performance in each content area. For candidates who do not pass the exam, this information may be helpful in identifying areas for improvement before choosing to retake the exam.

#### *Retaking the Exam*

Candidates who do not pass the EMP examination may contact EMA staff to schedule another exam attempt within 18 months of the original application submission date. The fee for each exam re-take is \$100 in conjunction with an EMA event, and \$250 for exams taken at a local test center. There is a mandatory 30-day waiting period between exam attempts. Further, unsuccessful candidates are not allowed to take the examination more than three (3) times in a 12-month period.

### Exam Appeals

EMA is committed to a fair appeals process for any applicant, candidate, or certificant with any adverse outcome of a decision. Candidates who fail the exam and believe irregular testing conditions were a contributing factor may file an appeal (see [Section 8: Other Policies & Procedures, “Appeals/Requests for Reconsideration”](#)).

### Certificates

Candidates who pass the EMP exam and are granted certification will receive a certificate including the certificant’s name and the expiration date of the certification, along with other information.

## Section 5: Maintaining Your Certification

EMA has instituted a recertification program to promote continued competence as the industry and the EMP's employment change over time. The following elements of this program have been established to define the standards of an EMP certificant in good standing:

1. Base Recertification Requirements
2. Scope Expansion Measures (if applicable), for individuals certified before April 2017
3. Annual Certification Fee

### Base Recertification Requirements

As part of maintaining certification, EMPs are responsible for meeting the established requirements to recertify every three years.

#### *Purpose and Rationale*

EMA's goals for recertification are to ensure that EMP certificants remain current with best practices, broaden their understanding of the industry, and continue to be recognized as the leading providers of quality energy management for new and existing buildings. EMA has adopted a three-year recertification cycle based on the rate of change for the energy management industry, including the standards and guidelines upon which it relies.

#### *Recertification Schedule*

Beginning in 2017, EMP program participants will be required to recertify on a three-year recertification cycle. Individuals who were certified by June 30, 2017 (or earlier) must recertify by December 31, 2019 to remain certified in good standing.

During their initial certification cycle, newly certified EMPs follow a slightly different schedule. If certification is granted on or before June 30 of a given year, that year serves as the first year of the three year cycle, and the credential expires December 31<sup>st</sup> two years later. If the initial certification is earned on or after July 1 of a given year, then the certification expiration date is December 31<sup>st</sup> three years later.

Initial Certification Date	Recertification Due
Jan. – June of Year 1	Dec. 31 of Year 3 & every 3-years thereafter
July – Dec. of Year 1	Dec. 31 of Year 4 & every 3-years thereafter

**EXAMPLE:**

If an individual earns EMP certification in May 2017, recertification is due by December 31, 2019. If certification is earned in July 2017 (or later that year), the first recertification is due by December 31, 2020 to remain certified in good standing. After the initial three-year certification period, the certification will expire and require renewal following the normal three-year recertification cycle.

***Base Recertification Requirements***

To recertify, EMPs must meet all Recertification Requirements and submit a record of continuing education activities to demonstrate compliance with the requirements by the applicable due date.

To qualify for recertification, by the end of the three-year recertification cycle, an EMP must earn at least 50 total points – with at least 10 of those points coming from the Mandatory Continuing Education category. (See the **Recertification Point Matrix** for details) Recertification activities must be related to energy management or building sciences in general to qualify.

EMPs must also agree to the Terms and Conditions for the EMP program, including the Code of Ethics, as part of maintaining EMP certification. EMPs will be asked to update their agreement with these provisions as the Terms are revised from time to time, such as during recertification.

***Audits***

Recertification submittals will be randomly selected for audit. If selected for audit, the EMP must provide documentation of continuing education activities in order to recertify. NOTE: all recertification activities submitted after the due date are subject to audit.

**Scope Expansion**

The scope and content of the EMP certification program will change from time to time as industry standards and the role of energy managers are updated. An updated scope was adopted in 2017 and the certification exam has been updated to test new EMPs in accordance with the new scope.

Requirements for Individuals certified before April 2017 using original EMP Examination must meet the Base Recertification Requirements listed above, **and**:

1. Pass the new EMP examination by December 31, 2019;
2. OR, complete a special EMP Gap Session and the related quiz by December 31, 2019. This Session and Quiz may be completed either in person or online.

**Annual Certification Fee**

An invoice for the annual certification fee will be sent to the employer of record in the fall of each year, payable by December 31<sup>st</sup>. It is the EMP's responsibility to coordinate payment with their employer of record to ensure that the fee is paid by the due date. If the EMP has changed employers, EMA must be notified by the EMP so an invoice for the appropriate certification fee can be issued directly to the EMP. The annual certification fee is \$250 for individuals employed by an EMA member company, and \$1000 for all others.

## **Failure to Recertify and/or Pay Annual Certification Fee**

Failure to pay the annual certification fee by the December 31<sup>st</sup> due date may result in assessment of a \$100 late fee. If the fees remain unpaid as of April 30<sup>th</sup>, certification status will be WITHDRAWN.

In the years in which recertification is due, if the individual does not submit documentation and pay the applicable fees by the December 31<sup>st</sup> due date, a \$100 late fee may be assessed. There is a grace period for recertification, during which time the EMP's status will remain ACTIVE. However, if the recertification process is still incomplete as of April 30<sup>th</sup>, the individual's status is changed to WITHDRAWN and the certification is no longer valid.

Individuals who wish to restore their certification to ACTIVE status must meet all recertification requirements, provide all documentation, and pay all applicable fees. In addition:

- 1) If more than six (6) months have elapsed since certification was withdrawn, a new application for EMP certification must be submitted.
- 2) If more than two (2) years have elapsed since certification was withdrawn, a new application for EMP certification must be submitted, and the former certificant must retake and pass the EMP examination.

### ***Recertification Appeals***

EMA is committed to a fair appeals process for any applicant, candidate, or certificant with any adverse outcome of a decision. Individuals for whom recertification or reapplication are denied may file an appeal to the Council (see **Section 8: Other Policies & Procedures, "Appeals/Requests for Reconsideration"**).

## Recertification Point Matrix

This table provides details regarding the ways recertification points are earned

<b>PART 1 – CONTINUING EDUCATION</b>	<b>UNITS</b>	<b>POINTS</b>
Continuing Education (at least 10 points, up to 35 points):		
Webinar Attendee (1 point/hour)		
Educational Session Attendee (1 point/hour)		
Workshop Attendee (1 point/hour)		
College Credit - traditional or online (10 points/credit)		
On-the-job Training Received (1 point/hour, up to 6 points)		
<b>SUB-TOTAL: CONTINUING EDUCATION (MINIMUM 10, MAXIMUM 35 POINTS)</b>		

<b>PART 2 – QUALIFYING RECERTIFICATION OPTIONS</b>	<b>UNITS</b>	<b>POINTS</b>
Professional Energy Management (10 points/year, up to 30 points)		
Training Provider (up to 10 points) as follows:		
Training Delivery (1 point/hour, up to 8 points)		
Training Development (1 point/8 hours, up to 5 points)		
Certification Exam Development (5 points/project, up to 10 points):		
JTA Project (5 points)		
Item Writing Project (5 points)		
Item Review Project (5 points)		
Cut Score Study Project (5 points)		
Regulatory Work (1 point/8 hours of activity, up to 20 points)		
Monitoring Energy Code/Policy Compliance (1 point/hour, up to 10 pts.)		
Participation in Regulatory Work (1 point/hour, up to 10 points)		
Developing Design Standards/Specs (1 point/hour, up to 10 pts.)		
Retest (25 points)		
Publications/Articles (up to 20 points):		
Published Paper/Article (10 points; 5 points if not peer reviewed)		
Energy-related Blog, 300+ Words (1 point/article, up to 5 points)		
Review of Published Paper (1 point/Paper)		
Published Energy Mgmt. Book (20 points/first edition; 10 points/other editions)		
Whitepaper (5 points)		
User’s Manual for Industry Standards (5 points)		
Published Technical Handbook (2 points/chapter)		
Review Published Technical Handbook (1 point/chapter reviewed)		
<b>SUB-TOTAL: QUALIFYING RECERTIFICATION OPTIONS (MINIMUM 15, MAXIMUM 40 POINTS)</b>		
<b>COMBINED TOTAL: MUST BE AT LEAST 50 POINTS, WITHIN RULES</b>		

## Section 6: EMP Code of Ethics

EMA established the EMP Code of Ethics to promote honesty and integrity among Energy Management Professionals, as well as quality workmanship in accordance with industry standards. Violation of one or more tenets of the EMP Code of Ethics on the part of Applicants, Candidates and EMP certification holders may result in disciplinary procedures and sanctions, including: demands to cease and desist; written reprimand; written reprimand with remediation; censure; suspension, revocation, or permanent revocation of certification; and/or dismissal from EMA committees.

Certification and Recertification applicants are required to uphold and abide by the tenets of the EMP Code of Ethics, as a condition for certification and recertification. Applicants, candidates, and EMP certification holders pledge to:

1. Exercise a reasonable industry standard of care in the performance of professional duties.
2. Perform professional duties with trust, integrity, and honesty.
3. Hold paramount the health and safety of the public in the performance of professional duties.
4. Work in a manner consistent with applicable laws and regulations; demonstrate integrity, honesty, and fairness in all activities; and strive for excellence in all matters of ethical conduct.
5. Act with integrity in any relationship that involves an employer or client and disclose fully, in writing, to an affected employer or client, any conflicts-of-interest resulting from business affiliations or personal interests.
6. Represent qualifications accurately and honestly.
7. Offer products and services only in areas where competence and expertise will satisfy the client and public need.
8. Comply with and uphold all policies, procedures, guidelines, and requirements of the EMP program; use the designation as authorized and only in the approved manner.
9. Accept responsibility for maintaining the EMP credential through recertification and continuously uphold the EMP Code of Ethics.
10. Voluntarily and immediately report to EMA any felony convictions or other legal dispositions that would constitute violations of this Code of Ethics that have not already been disclosed, regardless of when they occurred, and report any conditions that prohibit fulfillment of duties as set forth in the competency requirements.

By agreeing to and signing the EMP Code of Ethics statement, applicants, candidates, and EMP certification holders also acknowledge that the EMP certificate and marks are the property of EMA and agree to return the certificate to EMA and discontinue use of EMA's Energy Management Professional designation and related marks when required to do so.

## *Compliance*

EMA requires adherence to the EMP Code of Ethics by all EMP certified individuals and requires individuals to return a signed copy of the EMP Code of Ethics to the EMA Certification Department as a condition of applying for initial certification and recertification.

Any individual may file a complaint against a certified person and complaints shall be fully investigated and adjudicated by the Council. All complaints must allege a violation of the EMP Code of Ethics and shall be investigated according to EMA's rules and procedures, which allow for due process.

## Section 7: Ethics Complaints/Disciplinary Actions

In order to maintain and enhance the credibility of the EMP certification program, the Council has adopted these Administrative Procedures to allow clients and others to bring complaints concerning EMP program participants' ethical conduct to EMA.

The EMP Code of Ethics (see [Section 7](#)) requires certified persons and those seeking certification to uphold the rules and requirements of the certification scheme that allow for the proper discharge of their responsibilities to those served, protect the integrity of the credential, and safeguard the public's trust. EMP program participants are required to agree to uphold and abide by the Code of Ethics by returning a signed copy as a condition of applying for initial certification and recertification. Implicit in this agreement is an obligation not only to comply with the mandates and requirements of all applicable laws and regulations, but to act in an ethical manner in all professional services and activities.

Certificants, candidates and applicants who fail to comply with the EMP Code of Ethics are subject to disciplinary procedures which may result in sanctions. The EMP Code of Ethics is not set forth to determine behaviors resulting in criminal or civil liability, nor are they intended to resolve matters of market competition or contractual disputes.

### Complaints

Any individual may file a complaint against an applicant, candidate or certified person. All complaints must be submitted to EMA in writing, must allege a violation of the EMP Code of Ethics, and shall be investigated and adjudicated according to the Council's rules and procedures.

### Complaint Handling and Disciplinary Measures

#### *Review of Complaints*

Upon receipt of a complaint, the Council Chair, with assistance as needed, shall review the submitted complaint and any documentation and determine whether the allegations are valid and warrant review by the entire Council. Complaints determined to contain unreliable or insufficient information, to be frivolous, or to involve matters not covered by the EMP Code of Ethics (such as contractual disputes), may be dismissed by the Chair with written notice.

If a review is deemed warranted, written notice will be sent to the individual who is the subject of the complaint, who shall be given the opportunity to respond to the complaint. The individual submitting the complaint shall also receive notice that the complaint is being reviewed by the Council.

The Council, with assistance of staff, shall conduct an investigation into the complaint and determine if any actual violations of the EMP Code of Ethics took place, and if any sanctions are warranted. The grounds for sanctions under these Procedures are as follows:

1. Conviction of a felony or other crime of moral turpitude under federal or state law in a matter related to the practice of, or qualifications for, energy management.
2. Gross negligence or willful misconduct in the performance of professional services, or other unethical or unprofessional conduct based on demonstrable and serious violations of the EMP Code of Ethics.
3. Fraud or misrepresentation in the application or maintenance of EMA membership, professional certification, or other professional recognition or credential.

The Chair exercises general supervision over all investigations. The timeline for the investigation and ruling shall be established by the Council.

### *Sanctions*

If the Council determines that a violation of the EMP Code of Ethics or of other substantive requirements of the certification process by an EMP program participant has occurred, the Council may impose one or more sanctions. Sanctions shall be based on the severity of the violation, and may include, but not be limited to: cease and desist, written reprimand, written reprimand with remediation, censure, suspension, revocation, permanent revocation.

### *Appeal*

Within 30 days from receipt of notice of a determination by the Council that an EMP program participant violated the EMP Code of Ethics, the affected individual may submit to the Council in writing a request for an appeal. No current members of the Council may serve on the Appeal Committee. Further, no one with any personal involvement or conflict of interest may serve on the Appeal Committee.

The Appeal Committee will conduct and complete the appeal within 90 days after receipt of the request for an appeal. The decision of the Appeal Committee will either affirm or overrule the determination of the Council, but will not address a sanction imposed by the Council. The decision of the Appeal Committee is binding upon the Council, the individual who is subject to the sanction(s), and all other persons.

## Section 8: Other Policies & Procedures

### Nondiscrimination

EMA does not discriminate in the participation in the EMP certification program and prohibits discrimination against its applicants, candidates, certification holders, employees, and volunteers on the bases of race, color, national origin, age, disability, sex, gender identity, religion, political beliefs, marital status, or sexual orientation.

### Non-Disclosure Agreement and General Terms of Use

The EMP Certification Examination is confidential and proprietary. It is made available to the examinee solely for the purpose of assessing competency in the field of energy management. All candidates are expressly prohibited from recording, copying, disclosing, publishing, reproducing, or transmitting the examination, in whole or in part, in any form or by any means, verbal or written, electronic or mechanical, for any purpose, without the prior express written permission of EMA. Non-compliance may lead to the revocation of certification.

### Confidential Applicant & Candidate Information

EMA is committed to protecting confidential and/or proprietary information related to applicants; candidates; certificants; and the examination development, maintenance, and administration process.

Information about applicants/candidates/certificants, their application status, and their examination results is considered confidential. Exam results will be released only to the individual candidate unless a signed release is provided. EMA will not disclose confidential applicant /certificant information unless authorized in writing by the individual, or as required by law. When release of confidential information is required by law, the individual will be notified unless prohibited by law.

Aggregate exam statistics (including the number of exam candidates, pass/fail rates, and total number of certificants) will be publicly available. Aggregate exam statistics, studies and reports concerning applicants/certificants will contain no information identifiable with any applicant, unless authorized in writing by the applicant/certificant.

### Verification

The names of certified individuals are not considered confidential and will be published by EMA unless otherwise requested by the EMP. The certification status of any individual may be verified by contacting EMA, or by visiting the EMA website ([www.energymgmt.org](http://www.energymgmt.org)).

## Use of Certification Mark

The certification mark and logo are the property of EMA. Permission to use the certification mark or logo is granted to EMP certificants at the discretion of EMA, for permissible uses only.

After receiving notification of certification, the EMP credential may be used only as long as certification remains valid and in good standing. Individuals may not use the EMP designation until they have received specific written notification that they have successfully completed all requirements for EMP certification, including passing the exam. Certificants must comply with all verification and recertification requirements to maintain use of the credential.

Certificants will receive a certificate that includes their name, company, credential awarded, expiration date, and other information. The certificate may only be displayed during the time period for which the credential is valid. Certificates remain the property of EMA and must be promptly returned upon request.

EMP marks and logos may be used only on business cards, stationery, letterhead, and similar documents on which the name of the individual certified is prominently displayed.

EMP marks and logos may not be used in any manner that could bring the EMP program, or EMA, into disrepute or in any way that may be considered misleading or unauthorized.

Use of the mark and logo by individuals who have not been granted and maintained the certification is expressly prohibited. Should any person continue use of the EMP marks or logos after notice of suspension or revocation, EMA shall seek full equitable and/or legal remedies through a court of competent jurisdiction.

## Appeals, Complaints, or Requests for Reconsideration

EMA is committed to a fair appeals process for any applicant, candidate, or certificant with any adverse outcome of a decision. EMA's General Appeals process, listed in this section (below), is used for appeals of issues related to:

- Eligibility
- Requests for accommodation
- Exam administration irregularities
- Recertification
- Other non-disciplinary issues
- Certification program complaints

Applicants, candidates and certificants who are notified of an adverse outcome as listed above may appeal the decision by sending a written notice of the appeal to the EMA Director of Accreditation within 30 calendar days of the postmark date on the original letter, or delivery date on email correspondence, of adverse outcome. The appellant shall clearly set forth the reasons he or she believes the decision was improperly decided, including documentation to

support such claim. The EMA Director of Accreditation shall confirm receipt of the letter of appeal via email upon receipt.

Appeals that cannot be resolved to the appellant's satisfaction will be forwarded by the EMA Director of Accreditation to an Appeals Committee established by EMA for review, along with any relevant information used in making the initial decision. The Appeals Committee shall establish a schedule, gather evidence in the case, and make a determination.

Once a decision is reached, the Director of Accreditation shall send the appellant a letter, via email, communicating the Appeals Committee's decision. The decision of the Appeals Committee will be final.

### *Complaints*

For customer service complaints or general certification program complaints, please contact Contact the EMA Certification Department at (202) 737-1334, or via email at [certification@energymgmt.org](mailto:certification@energymgmt.org).

Complaints about EMP certification activities or the certification program, may be submitted by an individual or entity to the Director of Accreditation and must include a written description of the complaint and the name and contact information of the person submitting the complaint. Please submit complaints via email ([certification@energymgmt.org](mailto:certification@energymgmt.org)) and enter "COMPLAINT" in the subject line. For assistance with a potential complaint, please contact the Director of Accreditation at (202) 737-1334 or via the above email address.

Complaints will be confirmed via email upon receipt, after which the Director of Accreditation will conduct a preliminary review to validate the complaint and determine if it is actionable. This determination may be made in conjunction with other certification personnel where warranted and will be completed within 30 business days from the date the complaint was received. Periodic progress updates will be provided for issues taking longer than 30 days to resolve.

Valid and actionable complaints will be brought before upper management for resolution. The person filing the complaint will receive periodic progress reports, including the schedule to be followed in addressing the complaint. Complaints related to previous decisions will be addressed through the appropriate appeals process. The final decision will be communicated to the person filing the complaint at the time the decision is reached, including confirmation that the complaints-handling process has been completed.

# Appendix A: Examination Development

## How the Exam Was Developed

The EMP exam was developed using the analyzed data and content outline generated from the National Institute of Building Sciences (NIBS) Commercial Workforce Credentialing Council (CWCC) Job Task Analysis for the Better Building Workforce Guidelines (BBWG) Building Energy Manager Certification Scheme.

### *Job Task Analysis*

The CWCC followed national and international best practices for workforce credentialing in developing the scheme requirements, beginning with a job-task analysis study. The CWCC identified a volunteer committee of 10-15 experienced subject-matter-experts from across the industry to develop the Job Task Analysis (JTA) for Building Energy Managers. This JTA was adopted by EMA as the basis for the EMP Certification program.

The JTA outlines the key duties, tasks, knowledge, skills, and attitudes necessary to perform the job at a high level of competence and formed the examination blueprint upon which to base the certification assessments. The National Renewable Energy Laboratory (NREL) facilitated the JTA sessions, using professional psychometricians from Professional Testing, Inc., a company specializing in developing high-quality certification programs. The CWCC then validated the tasks and knowledge areas with input from industry stakeholders and practitioners via survey. The original committee of subject matter experts then reconvened to review industry feedback and produce the final JTA documents, which form the foundation of the certification scheme.

The JTA Reports were finalized in 2014 and approved in March 2015.

### *Certification Scheme Development*

Following approval of the JTA document, the CWCC convened a new committee of subject matter experts from across the energy management industry. This committee was comprised of some of the original participants in the JTA studies and some new subject matter experts, to develop the remaining scheme requirements.

The competency requirements as set forth in the certification scheme were done so in accordance with the accreditation requirements of ISO/IEC 17024 (Requirement 8, Certification Schemes). The certification scheme identifies the components of a certification program, including: the scope of certification; job and task description; required competence; abilities (when applicable); prerequisites, and code of ethics, as agreed upon by experienced industry subject matter experts through a deliberative process.

Together, the JTA Report and the certification scheme comprise the content of the voluntary, industry-developed, and industry and government-recognized Better Buildings Workforce

Guidelines. The advantage to EMA, its members and certificants is that the resulting scheme meets the requirements of ISO/IEC 17024, consistent with the new consensus qualifications guidelines for Building Energy Managers.

EMA chose to use the certification scheme as the basis for updates to the EMP certification program. Once the transition process is completed, the EMP exam and other elements of the program will be aligned with industry and government-recognized guidelines for workforce competency.

- The EMP examination was updated to align with the BBWG content outline
- Prerequisites for participation in the EMP certification program are aligned with the BBWG
- The EMP Code of Ethics is based on the BBWG
- The EMP recertification program is also aligned with the BBWG

### *New Examination Development*

A diverse committee of subject matter experts (SMEs) was assembled to work with EMA Certification staff and Alpine Testing Solutions, a firm that specializes in development of high quality certification exams. The committee met in October 2015 to receive instruction on writing quality test questions and begin writing new questions. In 2017 the committee convened in person and via teleconference to review, edit, finalize and categorize questions in an organized question bank.

Individual questions were then assembled into a test form, consistent with an exam blueprint that specifies the number and percentage of questions for the various content domains that define the scope of the EMP program. This combined form was then reviewed as a whole to ensure the questions performed well when paired with other questions on the exam. A pre-test was conducted as an additional quality assurance measure before the exam was finalized.

### *Establishing the Passing Score*

A criterion-referenced standard setting process will be used to establish the passing point following administration of the new exam in April 2017. This means that each candidate's performance on the exam will be measured against a predetermined standard. Candidates will not be graded on a curve and will not compete against each other or against a quota.

This passing score for the exam was established using a panel of subject matter experts who carefully review each exam question to determine the basic level of knowledge or skill that is expected. The passing score is based on the panel's established difficulty ratings for each exam question. Under the guidance of a psychometrician, the panel developed and recommended the passing point, which was reviewed and approved by EMA. The passing point for the exam was established to identify individuals with an acceptable level of knowledge and skill. Receiving a higher than passing score is not an indication of more advanced knowledge or a predictor of better job performance. All individuals who pass the exam, regardless of their score, will have demonstrated an acceptable level of knowledge.

## Appendix B: EMP Self-test Answers

### Answer Key for EMP Self-test

- |      |       |       |
|------|-------|-------|
| 1. C | 8. B  | 15. D |
| 2. D | 9. B  | 16. A |
| 3. B | 10. A | 17. C |
| 4. C | 11. B | 18. C |
| 5. D | 12. B | 19. A |
| 6. D | 13. C | 20. C |
| 7. D | 14. D | 21. A |