

# CEM®

## Certified Energy Manager Instructions CEM Exam with Live Seminar, Canadian Version

Note: All applicants must take the required CEM preparatory seminar before sitting for the exam.

The following information is contained in this document:

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# CERTIFIED ENERGY MANAGER (CEM<sup>®</sup>)

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## Information for Applicants

Please read through the following important information before submitting your **CEM<sup>®</sup> Application**.

### 1. CEM<sup>®</sup> OBJECTIVES

- To raise the professional standards of those engaged in energy management.
- To improve the practice of energy management by encouraging energy managers in a continuing program of professional development.
- To identify persons with acceptable knowledge of the principles and practices of energy management related disciplines and laws governing and affecting energy managers through completing an examination and fulfilling prescribed standards of performance and conduct.
- To award special recognition to those energy managers who have demonstrated a high level of competence and ethical fitness for energy management.

## 2. ELIGIBILITY

Energy managers with one of the following prerequisites may apply to sit for exam:

### **Full Certified Energy Manager Certification**

A Four-Year Engineering or Architecture degree or Professional Engineer (P.E. or P.Eng) or Registered Architect (R.A.) with at least three years of experience in energy engineering/management

OR

A Four-Year Environmental Science, Physics, or Earth Science degree with at least four years of experience in energy engineering/management

OR

A Four-Year Business or related degree or three-year diploma in engineering with at least five years of experience in energy engineering/management

OR

A Two-Year Energy Management associate degree with at least six years of experience in energy engineering/management

OR

A Two-Year Technical degree with at least eight years of experience in energy engineering/management

OR

Ten years or more verified experience in energy engineering/management

If you do not meet one of these criteria, you are likely eligible for the Energy Manager in Training (EMIT) designation, which entails the following eligibility criteria:

## Energy Manager in Training (EMIT) Designation

A Four-Year Engineering or Architecture degree or Professional Engineer (P.E. or P.Eng) or Registered Architect (R.A.) and less than three years of experience in energy engineering/management

OR

A Four-Year Environmental Science, Physics, or Earth Science degree and less than four years of experience in energy engineering/management

OR

A Four-Year Business or related degree or three-year diploma in engineering and less than five years of experience in energy engineering/management

OR

A Two-Year Energy Management associate degree and less than six years of experience in energy engineering/management

OR

A Two-Year Technical degree with at least two years of experience in energy engineering/management

OR

At least four years of verified experience in energy engineering/management

Please note that **acceptable experience is full-time direct energy management work.** This means that **higher education, part-time internships, and research positions are not acceptable.**

As a guideline to determine your eligibility, energy management experience acceptable for CEM certification could involve some of the following elements:

- Conducting detailed energy audits and analyzing technical alternatives
- Analyzing heat loads and heat flows, power factor improvement, chilled water flow rates, pump and fan loads, VAV systems, steam loads, etc.
- Designing retrofit lighting systems for offices and factories
- Assessing the opportunity for Premium efficiency motors and VFD's
- Designing energy management systems, engineering distributed generation or waste heat recovery systems, etc.
- Purchasing supply side energy commodities
- Managing a demand response program
- Working as a full-time energy manager in a variety of industry settings in which you would analyze energy use, look at opportunities to reduce use and/or costs, and implement energy reduction programs, etc.

**Energy engineering or energy systems engineering is a broad field of engineering dealing with:**

- energy efficiency
- energy services
- facility management
- plant engineering
- environmental compliance
- sustainable energy
- renewable energy technologies.

### **Energy management includes:**

- planning of energy production
- operation of energy production
- energy consumption units
- resource conservation
- climate protection and cost savings
- environmental management
- production management
- logistics and other established business functions related to energy management

If you cannot find any of your day-to-day tasks in the list above, please send your resume (including a detailed description of your energy management tasks) at [info@cietcanada.com](mailto:info@cietcanada.com) to receive an eligibility confirmation

### **3. THE REQUIRED BODY OF KNOWLEDGE**

The effective practice of energy management requires an in-depth knowledge of a wide variety of subjects. All applicants must take a required approved preparatory seminar before sitting for the certification exam. For certification purposes, however, the candidate must also demonstrate to the satisfaction of the local CEM certification board the knowledge and ability to apply the essentials of energy management.

#### 4. PROCEDURES

The first step in the CEM certification process is to register for a required approved preparatory seminar with CIET. After seminar registration has been completed, the certification application should be filled and submitted online through CIET's certification platform. Since certification is based on education, experience and passing the examination, it is important that the applicant understands the eligibility requirements (see section 2) and has attained the prerequisite to qualify for certification.

***The application should be submitted online through CIET's certification platform at least 3 weeks prior to the desired exam date*** if the applicant feels confident he/she has the necessary prerequisite for certification. Once the application is complete and the CEM exam is passed, all applications are to be sent by CIET to the local CEM certification board for final approval. Only after Board approval is certification granted. Should applicants have questions about the experience prerequisite for certification, he/she can have his/her application reviewed by the CEM local certification board prior to taking the exam, by contacting CIET ([info@cietcanada.com](mailto:info@cietcanada.com)).

It is very important that all applicants give clear and complete details concerning energy management experience so that the local CEM certification board can have a clear understanding of the applicant's energy management experience.

***The application should be submitted online through CIET's certification platform at least 3 weeks prior to the desired exam date*** if the applicant feels confident, he/she has the necessary prerequisite for certification. Once the application is complete and the CEM exam is passed, all applications are to be sent by CIET to the local CEM certification board for final approval. Only after Board approval is certification granted. Should applicants have questions about the experience prerequisite for certification, he/she can have his/her application reviewed by the CEM local certification board prior to taking the exam, by contacting CIET ([info@cietcanada.com](mailto:info@cietcanada.com)).

It is very important that all applicants give clear and complete details concerning energy management experience so that the local CEM certification board can have a clear understanding of the applicant's energy management experience.

## 5. CANDIDATE'S EVALUATION PROCESS

The Application Form provides an organized method for documenting professional and educational background.

The Personal Data Form is divided into the following three parts:

- Division I – Education
- Division II – Professional Registration (i.e. PE, Registered Architect)
- Division III – Experience/Employment in Energy Management

The applicant is requested to list on the Application Form all pertinent information in these categories for evaluation by the local CEM certification board. All applicants must complete the application; **a resume does not replace the application and does not need to be submitted to CIET.**

The two areas of evaluation shall be considered as follows:

**Application Form Data**    Meeting Education Requirements    Meeting Experience Requirements

**CEM Examination**            Maximum Score 1040 points            Minimum Score Required 700 points

To be awarded the CEM designation, candidates must meet both requirements on the CEM Application Data and achieve the minimum score of 700 points on the CEM examination individually.

If a candidate has failed to acquire sufficient points to be recommended for CEM, the candidate may be re-examined at a subsequent examination period and/or resubmit an updated Application Form. Examination scores will be kept on file by CIET for a period of 3 years. Applicants have 3 years to follow up and complete his/her CEM file; after 3 years, applicants must resubmit the application and retake the CEM exam.

**It is essential that candidates devote considerable time and effort to completing the Application Form since certification by the CEM local board can be based only on the information provided. Inaccurate and/or incomplete data will only be a liability for the applicant.**

## 6. FEES

### Retesting Fee

For each re-examination held with live seminar or online through proctor U, a fee of \$150.00 CAD will be required. Additionally, a \$50 exam retake postponement fee is charged for changing your exam retake date (no refunds allowed). You must contact CIET at [info@cietcanada.com](mailto:info@cietcanada.com) to program an exam retake.

### Renewal Fee

- Three-year renewal fee: \$300.00 USD
- Reinstatement fee: \$350.00 USD  
*No refunds allowed.*

## 7. INCOMPLETE APPLICATIONS

Incomplete applications will remain on file with CIET for a period of three (3) years. After three years, application materials will be deleted.

## 8. THE CEM EXAMINATION

The applicant must complete a four-hour exam. The examination questions are based on concepts and experiences basic to energy management, on recognized tests, and on supplemental reading. **The exam is Open Book!** Because of the diversity of background and experience of Energy Managers, the examination will permit the candidates some choice of subject areas. Two subject areas will be mandatory. Of the remaining 13 examination sections, the candidate will choose 9 sections he/she feels best qualified to answer. The exam consists of multiple choice and true/false questions. Candidates are notified of exam results by email within 60 days of the exam date.

**The CEM examination contains the following mandatory subjects:**

All candidates must answer Sections 1 and 2.

- |                                       |            |
|---------------------------------------|------------|
| 1. *Energy Accounting and Economics   | 160 points |
| 2. *Energy Audits and Instrumentation | 160 points |

The candidate will choose 9 of the remaining 13 sections. If more than 9 additional sections are marked, only the first 9 will be scored. Eleven Sections Total: two mandatory and nine chosen by candidate.

- |  |           |
|--|-----------|
| 1. Electrical Systems  | 80 points |
| 2. Heating, Ventilating and Air Conditioning Systems               | 80 points |
| 3. Motors and Drive Systems  | 80 points |
| 4. Industrial Systems  | 80 points |
| 5. Building Envelope   | 80 points |
| 6. Combined Heat & Power Systems and Renewable Energy Systems      | 80 points |
| 7. Building Automation Systems                                     | 80 points |
| 8. Control Systems   | 80 points |
| 9. Thermal Energy Storage Systems                                  | 80 points |
| 10. Lighting Systems   | 80 points |
| 11. Boiler and Steam Systems                                       | 80 points |
| 12. Maintenance and Commissioning                                  | 80 points |
| 13. Financing, Performance Contracts, Measurement and Verification | 80 points |

## 9. MAINTAINING CERTIFICATION

The continuing education of Energy Managers is essential to cope with the rapidly changing field of energy management. CEM renewal notices are emailed in the 3<sup>rd</sup> year of certification, about 6 months prior to the expiration date, which falls on December 31 of that year.

Each certified professional is required to obtain Continuing Education Units (CEU) or Professional Development Hours (PDH) each renewal period. A total of 10 renewal credits are required. AEE does not maintain a record of your continuing education in the interim. You must maintain record of continuing education and complete a recertification form at the time of your renewal. You will reach your recertification date on the fourth January 1st following the date of certification. Professional credits for recertification should be accumulated during the three-year renewal period for each renewal cycle. The seminar taken to acquire your certification does not apply towards your renewal credits. \*All certification renewals are subject to 30-day renewal processing.

### Activities applicable as credits for certification renewal

- **Continued employment in energy management/energy engineering**
  - 1 credit per year of continued work experience per year of renewal cycle (3 credits max)
    - Example 1: Worked at Honeywell in energy management all three years of the renewal cycle = 3 credits
    - Example 2: Worked at Honeywell in energy management for two years. Have been unemployed the last year = 2 credits.
- **Membership in a professional membership organization**
  - 1 credit per year of membership in a professional membership organization per year of renewal cycle (3 credits max)

\*Having an AEE certification is not the same as membership in AEE. Membership is separate from certification. \*\*Membership credits do not apply to the CEA certification renewal. \*\*PE License does NOT qualify for this category.

    - Example 1: Member of AEE for 3 years and member of ASHRAE for 3 years = 3 credits.
    - Example 2: Had my CMVP for 3 years = 0 credits (This is not the same as membership).

➤ **Continuing education: energy-related seminars and college courses (includes in-house or online seminars)**

- 2 AEE credits per: 1 Continuing Education Unit (CEU) earned (e.g. 1.6 CEU = 3.2 credits)
- 2 AEE credits per: 1 College Credit Hour earned
- 1 AEE credit per: 5 Professional Development Hours (PDH)
- 1 AEE credit per: 5 Contact Hours

\*Required information for renewal documentation includes sponsoring organization, course name and brief description, location, dates, and number of CEUs or PDHs earned  
1 Hour of Energy Training = 1 Contact Hour = 1 PDH = 0.1 CEU = 1 CE hour = 1 GBCI = 1 AIA credit = 1 LU = 0.2 AEE credits

- Example 1: I took a 5-day CEM course in Florida. This course is worth 3.0 CEUs = 6 AEE credits.
- Example 2: I took an energy management course at a major university that was worth 3 College Credit Hours = 6 AEE credits.
- Example 3: I took an energy auditing course and received 20 approved PDHs – 4 AEE credits.
- Example 4: I took an energy training worth 16 contact hours = 3.2 AEE credits.

➤ **Energy conference attendance**

- If a show awards a certificate of attendance, credits will be based off what the show assigns. If no certificate is awarded, credits will be based on the number of hours documented.

\*No credits are awarded for attending a trade show or expo.

- Example 1: Attended an AEE show. A certificate of attendance will be mailed.  
AEE Energy Conference East = 0.8 CEUs = 1.6 AEE credits / AEE Energy Conference West = 0.8 CEUs = 1.6 AEE credits / AEE World Energy Conference = 1.0 CEUs = 2 AEE credits
- Example 2: I attended a 2-day energy conference. Each day was 4 hours long for a total of 8 hours = 1.6 AEE credits

- **Professional awards or papers presented and published (must be related to energy/energy efficiency and cannot be given at the workplace for credit)**
  - 2 credits per: one energy-related paper or presentation
  - 2 credits per: one energy-related individual award
    - Example 1: Presented the same presentation two times = 2 AEE credits
    - Example 2: Published the same paper in two different magazines = 2 AEE credits.
    - Example 3: Gave two presentations on two different energy topics = 4 AEE credits
    - Example 4: Wrote and presented a company report = 0 credits.
    - Example 5: Taught a CMVP course 3 times = 2 AEE credits.
    - Example 6: My company won Best Energy Efficiency 2012 Award = 0 credits.
    - Example 7: My company's Energy Management Team won the Best Energy Efficiency 2018 Award (If the certificate holder is part of this team) = 2 AEE credits
  - Credits are only granted one time for the same presentation or publication within the same renewal cycle. For publications, it should include that the certificate holder must be the author or co-author
  - Only professional editorial content is accepted (no blogs or YouTube videos)
  - Awards must be awarded to the individual or a team that the individual was a member of. Company awards do not count.
  
- **Offices held in a professional membership organization**
  - 1 AEE credit per year holding an elected Board member position of any professional engineering society/organization such as: President, Vice President, Secretary, Treasurer, or Committee Chair
    - Example 1: VP of AEE in 2016 and President of AEE in 2017 = 2 AEE Credits
    - AEE's Scholarship Committee Chair in 2015 = 1 AEE Credit

### Required information for renewal documentation:

1. Sponsoring Organization (Name of the Training provider)
2. Course name and brief course content description and/or skills to be addressed
3. Location
4. Date of Activity
5. Duration (Hours of training): Instructor/Speaker/Facilitator's name (if applicable)
6. Number of Continuing Education Units (CEU) or Professional Development Hours (PDH) earned

### Keep in mind

- Credits may only be used for the 3-year renewal cycle. If this is your first renewal, you can only submit credits earned after you received the certification and the preparatory course used prior to the exam is not eligible for credit.
- The maximum credit available for Memberships or Offices held is 3 credits (membership does not apply for CEA certification). Local chapter memberships and PE licenses are not acceptable forms of membership.
- If your training certificate does not specially state CEU or PDH it will be considered a "contact hour." Any contact hours must be educational training directly related to your certification and you must be able to verify your attendance. Sales meetings and non-educational meetings do not qualify. Please use the chart above (under "Equivalencies") to calculate your training credits.
- CEH, CEU, LEU, LS, LU, SD, CE, CPE, PDH = measurements for hours of training. Each hour of training = 0.2 AEE credits.
  - For example: 10 hours of training (0.2 credits x 10 hours) = 1 CEU = 2 AEE credits

## For course providers

The course provider shall be an accredited college or university, nonprofit organization or continuing education department of an organization which meets the following:

- Awards Continuing Education Units (CEUs) or Professional Development Hours (PDHs) to students who have completed a Learning Event. A Learning Event shall have clear objectives, include evaluation at the conclusion and incorporate review into learning activity improvements
- Provider must maintain a list of all instructors, including qualifications
- Provider must keep a permanent record of attendees, including course name, brief content, location, date of activity, duration, and number of CEUs or PDHs awarded
  - Each attendee shall be provided with a Certificate of Participation indicating Learning Event attended, date, location, and CEUs or PDHs awarded

## **10. REINSTATEMENT OF CEM**

Certified Professionals who do not acquire sufficient CEM maintenance points to be recertified on the recertification date will be dropped from active certifications and notified in writing of suspension from using the CEM designation. They will also no longer be listed as a CEM in any AEE publication. A lapsed CEM has the following options to reinstate:

1. Resubmit to the certification process and successfully meet the criteria for certification by personal data information and examination or,
2. 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 CEM exam.

## **11. RETIRED CERTIFICATION STATUS**

A CEM, upon retiring and reaching the age of sixty-five, will be designated as “CEM – Retired,” will no longer be required to pay renewal fees, and will no longer be listed in our directory of actively practicing CEMs. No further reporting is necessary except to notify CIET of meeting the age requirement by sending a copy of the retired CEM’s Driver’s License.

## **12. REQUEST FOR DUPLICATE CERTIFICATE**

Any certified professional may request additional copies of his or her certification document. Requests must be made in writing to AEE and may be made at any time. The fee of \$20 must be included with the request. The request for a duplicate certificate form can be found at <http://www.aeecenter.org/certification/CEM>.

### 13. USE OF CEM DESIGNATION

The certificate mark and logo are the property of AEE. Permission to use the certification mark or logo is granted to certified persons at the discretion of the AEE's CEM Board, for permissible uses only. As a Certified Energy Manager (CEM<sup>®</sup>), the Energy Manager may use the designation with his/her name on organization letterheads, business cards, certain internet listings and forms of address. The Energy Manager may be required to surrender the certificate in the event that it is revoked or suspended. An official CEM<sup>®</sup> Stamp which authenticates your Certification and Certification validation is available for purchase. The official stamp is useful for proposals and official documents (see below).

Certification is for individuals only. The CEM designation may not be used to imply that an organization, company or firm is certified. AEE does not endorse or recommend any individual CEM, product or service. Improper usage of CEM or AEE logo may result in suspension. If you have questions about usage of the CEM designation, please contact AEE.

#### **Sample Correct Usage** (Signature or Business Card):

John A. Smith, P.E., C.E.M. / Mary Jones, B.E.P., C.E.M.

#### **Web Usage:**

John A. Smith is an individual member of the Association of Energy Engineers ([AEE](#)) and is a [Certified Energy Manager](#) (CEM<sup>®</sup>).

#### **Incorrect Usage:**

ABC Company is Certified by AEE.

### Correct Usage:

- ABC Company has many Certified Energy Managers -CEMs<sup>®</sup> on its staff.
- ABC Company is looking for a Certified Energy Manager candidate for a position.
- John Smith, President of ABC Company, is an individual member of the Association of Energy Engineers and is a Certified Energy Manager (CEM), Certified Carbon Reduction Professional (CRM) and Certified Sustainable Development Professional (CSDP).
- ABC Company is a Corporate Member of the Association of Energy Engineers (AEE) and has five current Certified Energy Managers (CEM) on staff including.....

John Smith is an individual:

**CEM**<sup>®</sup>

Link to [www.aeecenter.org/certification](http://www.aeecenter.org/certification)

Corporate Member of:



Link to [www.aeecenter.org](http://www.aeecenter.org)

### 14. CEM STAMP

As the CEM designation becomes a requirement for more jobs and projects, AEE is pleased to announce the availability of an official stamp that will authenticate your status as a CEM in good standing. The stamp will include your name, your CEM ID number, and the expiration date of your CEM. Stamp is self-inking with dark blue ink. Download the order form at [www.aeecenter.org/cemstamp](http://www.aeecenter.org/cemstamp).



Price: \$50 (includes shipping) / Electronic Version: \$15 (only available as an add-on to \$50 stamp)