

Certified Energy Manager



“The Most Recognized and Respected Certification in Energy Management”

The Certified Energy Manager (CEM®) was established in 1981 to meet the growing needs of individuals and organizations wishing to advance their position in the energy efficiency field. The Association of Energy Engineers (AEE) has certified more than 15,000 professionals thus enabling them to receive special recognition for their expertise in a variety of specialized areas of the energy, power and green facilities industry. The CEM® is a registered trademark with the United States Trademark and Patent Office and the Certified Energy Manager has been filed to be a registered Service Mark. Individuals granted to use this designation by the Association of Energy Engineers have distinguish themselves as earning the highest level of competency in energy management.

Why earn the Certified Energy Manager (CEM®) Certification?

The CEM® provides a recognizable affirmation of demonstrated competencies in a wide range of energy related principles and practices. Professionals seeking the CEM® designation must meet a board approved list of pre-qualifications in experience in the field and/or prior educational achievements. This certification helps an individual distinguish themselves and helps them obtain their career objectives.

The CEM® is nearly universally accepted and recognized by a cross-section of institutions both public and private. **Certified Energy Managers** are now found engaged in all the various aspects of the energy industry including: major multi-national corporations, utilities, controls & performance contractors, federal, state and local governments, universities, hospitals, regional school districts, local entrepreneurs and as well as consultants in the energy field.

The Certified Energy Manager designation and program is widely accepted and promoted both in the **United States AND Internationally.**

Employment and Consulting Opportunities

With fierce competition and opportunities for obtaining **employment** in the energy industry, professionals might be astounded to know how many employers already require a **Certified Energy Manager** as a condition of hiring. Here is a list of some you may recognize:

- Johnson Controls
- Siemens Building Technologies
- Honeywell-Novar
- General Motors
- General Services Administration
- Department of Defense
- Sain Engineering Associates
- Trane Corporation
- Florida Power & Light
- Southern California Edison
- University of Minnesota

The Certified Energy Manager (CEM®) designation is an energy industry wide accepted standard to help to evaluate a professional's experience in the field. Several States, as well as the Federal Government / Agencies require a Certified Professional such as the Certified Energy Manager, Certified Sustainable Development Professional, Certified Carbon Reduction Professionals, Certified Energy Auditor, and Certified GeoExchange Designer professional.

The following are some examples.

State of Utah

Rule R638-2. Renewable Energy Systems Tax Credits.

(D) In order to be eligible for residential or commercial tax credits, a geothermal heat pump system must have been designed by either:

1. A professional engineer licensed in Utah;
2. A person designated as a "**Certified GeoExchange Designer**" by the Association of Energy Engineers; or
3. A person designated as a "**Certified Energy Manager**" by the Association of Energy Engineers

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<http://www.rules.utah.gov/publicat/code/r638/r638-002.htm>

State of Virginia

Executive Order 48

All agencies and institutions shall provide adequate management support to their energy savings activities. In order to ensure agencies have sufficient expertise in energy management, every Agency energy manager for an agency or institution with energy costs exceeding \$1 million shall be certified as an energy manager by the Association of Energy Engineers.

Executive Order 48 (2007): Energy Efficiency in State Government

http://www.governor.virginia.gov/initiatives/ExecutiveOrders/pdf/EO_48.pdf

State of Nebraska

Technical Analysis Loans

A technical analysis of energy saving improvements or waste minimization projects may be financed with a Dollar and Energy Saving Loan provided it will be done, as appropriate, by a Professional Engineer or Architect, **Certified Energy Manager, Certified Lighting Efficiency Professional** or Home Energy Rater. Use [Form 30](#) and [Form 31](#) to apply for a technical analysis loan through a participating Nebraska lender.

<http://www.neo.ne.gov/loan/index.html>

There is a collection of **Electric and Gas Utilities, Municipalities, Cities, Colleges, School Districts** both local and statewide, as well as nearly every **ESCO** and an enormous amount of private employers who seek CEM® qualified professionals.

Many government organizations require a Certified Energy Manager, as in the case of the **State of Virginia**, which requires that any agency with an annual energy budget of \$1,000,000 or more have a **CEM®** on staff.

Recently, **The Air National Guard** selected the Certified Energy Manager's Program for continuing education of its energy and facility engineers throughout the United States.

Another important aspect of the Certified Energy Manager comes about as being “highly suggested” or “recommended” and no small amount of organizations consider it essential for advancement. Some of these include, **Southern California Edison, Duke Energy, the U.S. Postal Service, Ford Motor, NYSERDA, TAC America, PEPCO, Ameresco, Macy's, Toyota Motor Company**, as well as many other corporations and institutions.

Many companies and governmental agencies have required Certified Energy Managers in their "Request for Proposals" or in auditing opportunities. Recently the utility company the National Grid (which is one of the largest investor-owned energy companies in the world) offered an [Energy Efficiency Engineering Study](#) whereby it will Finance 50% (up to \$10,000) of the cost incurred as part of an approved energy efficiency engineering study. “The study must be completed by a **Certified Energy Manager (CEM®)** or a professional engineer (PE).” In the U.S., the National Grid serves nearly 5 million electric and 3.4 million gas customers in Massachusetts, New Hampshire, New York, and Rhode Island.

What the Industry Has to Say Regarding the CEM® Program

There is clearly significant value in the **Certified Energy Manager** and that is why all these highly visible and respected organizations make it a requirement for employment. Corporations frequently insist, request or strongly encourage the **Certified Energy Manager**. Here are a few experiences from AEE members:

Bob Galler, C.E.M., of Intel says:

“At **INTEL** site audits were conducted at almost every Intel major manufacturing location in the last 5 years, and a list of projects that can be proliferated as findings, were produced. This work was done by corporate engineers that must have one or more **Certified Energy Manager** on their membership body.”

Tom Reinsel, PE, C.E.M., Coordinator, Energy Management, Fairfax County Public Schools tells us that:

“Fairfax County Public Schools, Virginia, the nation’s 12th largest public school district has the following position: Energy Management Coordinator – **Certified Energy Manager (CEM®)** preferred.”

Vince Marshall, C.E.M., MBA, Cherokee Energy Management & Construction, LLC., offers:

“I’m a Resource Efficiency Manager for the **US Navy** (Contractor). CEMs are not *always* required, but highly encouraged. There are 7 of us currently working for the Navy. Two of us are CEMs and there are five others who are pursuing that qualification.”

Linda Popik, C.E.M., Siemens Building Technologies tells AEE that: “Lakeland Community College put the Measurement & Verification by a **Certified Energy Manager**, in their latest RFP. More and more organizations are requiring a CEM on a potential bidder’s staff because they appreciate the extent of the training and testing needed to earn the CEM.”

Jay Garbarino, PE, C.E.M., LEED® AP, US Sales Manager says:

“**Delta Controls** recommends that all of our dealers in North America have at least one **Certified Energy Manager** on staff.”

Kathy Loftus, C.E.M., Whole Foods Market says:

“While working as Director of Business Development for EnerNOC from 2004-2006, I was the only CEM on staff, and since I had the best sales record and developed business with utilities, I recommended strongly that folks in the organization take the course. The VP of Sales & Marketing then made it a requirement for the sales team, and several leaders of the organization also went through the training.”

The Association of Energy Engineers (AEE) is widely recognized as a valuable educational organization. Under the recent Stimulus Package, the **U.S. Department of Labor** has approved AEE for workforce training in energy for several states including Colorado, Maine, Massachusetts, Oklahoma, and Vermont. Please refer to the [American Recovery and Reinvestment Act page](#) on AEE’s website for additional information and for new States added to the program.

Career Objectives and Opportunities

The **Certified Energy Manager (CEM)** allows a potential employer to assess the qualifications of a candidate in a very efficient manner knowing the individual has demonstrated certain capabilities.

The following bullet points are from the **Certified Energy Manager** application and highlight the pre-requisites of the program as well as the professional objectives of the program.

The prerequisites to qualify for the certification process have been designed to take into account the possible diversity of education and practical experience an individual may have. However each CEM® candidate must meet one of the following criteria:

- *A four-year engineering degree or architecture degree. Or a P.E. with at least three years experience in energy engineering or energy management.*
- *A four-year business or related degree, with at least five years experience in energy engineering or energy management.*
- *A two-year technical degree, with eight years experience in energy engineering or energy management.*
- *Ten years or more verified experience in energy engineering or energy management. Note: letters of reference and verification of employment must be submitted.*

Program 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.*

CEM® and Career Enhancement

One aspect of what is really important is how an individual is perceived as a **Certified Energy Manager (CEM®)** and how the program has helped their career. Here are just a few of the letters and comments AEE has received:

My CEM certification enabled me to obtain my position with McCain Foods USA, Inc. My designation with them is as a resource conservation engineer and I utilize the expertise I acquired by holding my CEM certification (#6160). McCain's is one of, if not the largest, producer of french fries (potato) in the world. I truly believe if not for my CEM certification I would not have my job at McCain's today.

***Burl Ray Chambers, C.E.M., C.E.P.
Resource Conservation Engineer
McCain Foods USA***

To whom it may concern. As a longtime member of the AEE and holding a CEM, BEP and CSDP certification I have found this to be tremendously beneficial to my career. I have been designing and engineering energy conservation projects for both the Private and Public business sectors for over 15 years. Holding these accreditations has been invaluable in the sense of giving me instant credibility when approaching potential customers. Historically, salesmen have developed a stigma of being pushy,

overly persistent and lacking knowledge of their product. Anyone who has been in this business is aware of all of the snake oil which leads up to energy reduction short falls and or inoperative systems. To fully achieve the long term goals of Global energy conservation all projects must be analyzed thoroughly from many perspectives. CEM certification is not an easy moniker to be awarded. This badge personifies the true energy professional and their dedication to the art of reducing the need for fossil fuels. Do not listen to anyone not holding one or more of these coveted certifications.

Rick W Konkel, C.E.M., B.E.P., C.S.D.P

I believe the CEM is an invaluable Certification. Please allow me to elaborate. I received my CEM in 1994 while working with Johnson Controls. In 1995, I took a contract management position as a Project Engineer/Project Manager with the Corps of Engineers (COE) at the Walter Reed Army Institute of Research. During this project, I was afforded the opportunity to work with the Directorate of Public Works Federal Energy Manager's. I was able to sit in the Federal Energy Managers Course, which eventually led to implementing Energy Conservation Measures during construction. I was assigned the task to perform as a Commissioning Agent while performing concurrent duties as the Mechanical Engineering Representative with the COE. The result was a Commissioning Program that has influenced the way the COE aggressively approach Commissioning, and Building Automation System (BAS) Quality Verification and TAB in the field.

As a Team we had a great project, but as an individual with a CEM designation, I was able to approach the project with outside the box thinking, which eventually was recognized by the COE as a Controls Systems Expert at the time. Prior to the COE, I spent (4) years with JCI at the Chrysler Technology Center, in Auburn Hills, Michigan after my stint with the US Army as a Gulf War Era Veteran. After surviving the Enron situation as a National Facilities Maintenance Manager, I was able to use my CEM designation to focus on Facilities Maintenance Management with an emphasis in Energy Engineering. My CEM allowed me to obtain my Certified Plant Maintenance Manager (CPMM), and now the CSDP designation

Again, if I were not a CEM, during the Enron situation, I am not sure professionally how I would have been able to expedite my career search. I took a position with Aramark two weeks after we were affected by change. I used the CEM as an up sell to a Facilities Manager/Project Manager, thus, I am "Back in the Saddle", and eventually became a, "Legend in Energy." I would like to be your poster child for the CEM. If I were not a CEM, I would not have had the opportunity to build a boiler plant, and receive the EarthWise Chiller Award from Trane for the WRAIR Project.

Terrence Rollins, CEM, CPMM, CSDP
Facilities Project Manager, US Facilities, Inc.
Philadelphia, PA

CEM® and Business Opportunities

Another critical importance for having a **Certified Energy Manager (CEM)** designation comes about during the competition to win a contract or project from a customer in the public and private marketplace. Certification can have a positive impact and be a differential asset to the potential customers. The **Certified Energy Manager (CEM®)** Certification allows a customer to know that the proposal submitted is based on sound energy engineering principles and that the individual has passed the required ([exam](#)) to **earn** the distinction.

Prospective clients and customer apply different methodology in the selection of an ESCO or an Energy Conservation Contractor. In many cases the customer is in need of analysis and recommendations to implement the project. A certified professional is one of the most qualified individuals to make the required calculations and proposed retrofits. Additionally, more and more manufacturers and system distributors are encouraging or insisting their representatives obtain their **Certified Energy Manager** since it provides the potential customer with a measure of assurance knowing the training and testing that the representative has received.

CEM & International Accomplishments

The CEM course and exam has been administered in over a dozen countries outside the U.S. The course material and certification exam has been translated into five languages and is presented on a regular basis in close to ten countries worldwide. Professionals from over twenty-five countries currently hold the esteemed title of **Certified Energy Manager (CEM®)**.

CEM® Training Abroad

The US Agency for International Development has used the Certified Energy Managers program to develop the energy efficiency infrastructure in **Egypt, Romania, Bulgaria, Armenia, Hungary, Ukraine, Poland, India** and **Jamaica**.

Recently, **The U.S. State Department** used the CEM® Program to train engineers from **Iraq**. The CEM® workbook and exam were translated into Arabic and the first CEM® Course and exam was presented for select Energy Managers of Iraq.

In **India**, through a U.S. Agency for International Development (USAID) program initiated in 2003, AEE developed the country specific curricula to train and certify energy managers in response to government's implementation of the Indian Energy Act. The [Bureau of Energy Efficiency](#) operates the **Certified Energy Manager** in India and has trained and certified hundreds of CEMs.

In 2007, the Vice President and Prime Minister of the **United Arab Emirates** and Ruler of Dubai implemented a historic resolution to take effect January 1, 2008 making Dubai the first city in the Middle East to adopt green building specifications. In response, the **Certified Energy Manager (CEM®)** course and exam was presented in Dubai to a large group of top energy professionals. Since this course AEE has held several energy management workshops and is looking forward to implementing a self sustaining **Certified Energy Manager** in the near future.

The USAID program developed in **Egypt**, administered by the **Egyptian Energy Service Business Association**, continues to thrive. They have trained and certified over 250 CEMs since 2000.

Current Regularly Scheduled International CEM® Training Programs

AEE Chapters have teamed with universities and other well known training entities to present regularly scheduled Certified Energy Manager (CEM) training courses in the following countries, **Canada, China, Hong Kong, Ireland, Mexico, South Africa**, and most recently **Jamaica**.

In **Canada**, the CEM Course has been presented in English for several years through the [Canadian Institute for Energy Training](#) (CIET). Hundreds of professionals have received their CEM certification through this program.

Within the last year, the AEE Quebec Chapter in Association with the [Association québécoise pour la maîtrise de l'énergie \(AQME\)](#) has translated the material and exam into French and are presenting CEM training and certification in Quebec, Canada.

Since 2008, the Certified Energy Manager course has been presented several times in mainland **China** with a total of over 100 participants and is currently being translated into Chinese (Mandarin). Since 2006, the **AEE**

Hong Kong Chapter, in cooperation with AEE, has presented many successful CEM® courses and trained over 100 professionals as well.

AEE held an initial Certified Energy Manager course in **Ireland** and it has remained a successful program through the **AEE Ireland Chapter** and **Eirdata**. They have held many training courses and have worked with the Irish Defense Forces and the Irish Naval Service to train their energy managers.

Eirdata was awarded the Energy Services Company of the Year award by Sustainable Energy Ireland, a government funded body with responsibility to promote energy efficiency, for 2008. Their relationship with AEE and the introduction of the CEM to Ireland was stated to be a factor in the selection of Eirdata for this prestigious award when the presentation was made by the Irish Minister for Energy and Natural Resources. Ireland has also received official Continuous Professional Development approval from Engineers Ireland.

Tecnológico de Monterrey, Mexico, in association with **AEE Chapter Nuevo León**, translated the Certified Energy Manager (CEM) course and exam into Spanish several years ago and have had close to 100 participants take the course in Mexico to date.

The Energy Training Foundation (ETF), in conjunction with AEE and the **AEE Southern African Chapter**, has been presenting the **Certified Energy Manager** program in **Southern Africa** since 2002. The CEM course has been CPD (Continuous Professional Development) accredited and will earn professionals credits for the course. This successful CEM program in Southern Africa has trained close to 400 professionals.

The **AEE Jamaican Chapter** is currently in development and is scheduling a **Certified Energy Manager** course in Jamaica through the **University of Technology Jamaica** in response to a request from the Jamaican government to train and certify energy professionals.

There is a version of the Comprehensive 5-day training program in for energy managers, as well as the CEM® exam which is instructed in SI units.

Please see:

<http://www.aeecenter.org/certification/international/index.htm>

<http://www.aeecenter.org/certification/intlapplications.htm>

CEM® and AEE Training Partnerships

The Association of Energy Engineers is currently working with a cross-section of accredited institutions, organizations and Universities to offer additional energy management, green, sustainable, and industry training & educational programs. Featured programs include:



The Association of Energy Engineers (AEE) has a Memorandum of Understanding with UC Davis University Extension (UCDE) to advance the knowledge and professionalism in the field of energy management. As an adjunct to the Certified Energy Manager (CEM®) and Business Energy Professional (BEP®) AEE pleased to be an official sponsor of the **U.C. Davis University Energy Resource Management Certificate program**. This initiative aims at enhancing student's involvement and increases their role in the growing energy management discipline. The course will serve as a solid foundation for students to move towards obtaining their CEM® or BEP® Certification. For more information on the U.C. Davis certificate program [CLICK HERE](#). UC Davis Extension is the professional and continuing education branch of UC Davis and is a link to the many resources students can only get from the University of California.



AEE Partners the Green Building Engineer Certification (GBE™) Program with US EPA ENERGY STAR Challenge. GBE's must be Certified Energy Manager (CEM®) and be a Professional Engineering (PE) License (*P.E. is U.S. only). AEE's participation in the ENERGY STAR Challenge – *Build a Better World 10% at a Time* is a natural extension of AEE's efforts to encourage its members to reduce energy usage in buildings by 10% or more. AEE is committed to provide training and certification opportunities to help the profession meet the ENERGY STAR Challenge ahead. To find a Professional Engineer (P.E.) and/or GBE™, please refer to EPA's online directory: http://www.energystar.gov/index.cfm?fuseaction=PE_DIRECTORY

U.S. Green Building Council



The Association of Energy Engineers is a qualified education provider under the U.S. Green Building Council educational program and its programs are featured in the [GREENBUILD 365 course catalogue](#). Whether you are a design, construction or real estate professional, an educator or student, or a LEED AP, Greenbuild365's rich variety of educational offerings will inform your journey from novice to expert and beyond. Information on a broad range of green building topics is available in formats tailored to your knowledge level and preferred learning style, whether you're looking for in-person interaction, online courses you can take in the comfort of your own home, or do-it-yourself research through an extensive online media library. A number of AEE courses have been reviewed and approved for the USGBC provider program.



The Georgia Tech Enterprise Innovation Institute works with Georgia enterprises to help them compete nationally and internationally. By calling on the resources of Georgia Tech – one of the world's leading engineering, technology and research universities – our team can keep you current with the leading research, methods, technology and more in your industry. The [Certified Energy Manager \(CEM\) Program](#) is recognized by the [Georgia Tech Enterprise Innovation Institute](#) and they have several faculty on staff with CEM Certification.

The Association of Energy Engineers, a non-profit professional association, was established in 1977. The AEE Association of Energy Engineers (AEE) is your source for information on energy efficiency, sustainability, renewable, end user energy management, combined heat & power, building systems, distributed generation, energy services & the environment marketplace. AEE offers several programs: seminars, conferences, books, tradeshow & expositions, job listings, and certification programs (such as Certified Energy Manager, Sustainability Professional, Business Energy Professional, Carbon Reduction Manager). AEE, with over 32 years of being a voice & resource for the energy industry, is a growing membership organization with over 10,000 professionals serving the commercial, industrial, institutional & government marketplace.

CEM Information & Overview: <http://www.aeecenter.org/certification/CEMpage.htm>

CEM Applications: <http://www.aeecenter.org/certification/CEMAppPacket-LiveSeminarVersion.pdf> (Live Seminar Version)

<http://www.aeecenter.org/certification/CEMAppPacket-RemoteTestingVersion.pdf>
(Remote Testing Center Version)

5-Day Seminar:

https://www.aeecenter.org/store/detail.cfm?id=745&category_id=4

Fast Track Program:

https://www.aeecenter.org/store/detail.cfm?id=948&category_id=4

Real-time Online Program:

<http://www.aeecenter.org/realtime/FastTrackCEM/>

CEM Reference Books:

<http://www.aeecenter.org/certification/CEM-RecommendedReferenceBooks.pdf>

For Additional Information about CEM Certification:

If you have any questions about CEM certification, or if you prefer to receive your Certified Energy Manager Application Package by mail, please write, call or email: Helen Ardavin, CEM Certification Director, Association of Energy Engineers
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