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# Competency Certification for Energy Efficiency

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California Public Utilities  
Commission

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## Survey of the Audience

✧ Raise your hand if you are:

- ✧ Accountant?
- ✧ Engineer?
- ✧ Economist?
- ✧ Lawyer?
- ✧ Market/ing expert?
- ✧ Behavioral scientist?
- ✧ Natural scientist?
- ✧ Data specialist?
- ✧ Entrepreneur?
- ✧ Statistician?
- ✧ Other?

✧ Energy Efficiency Experts  
may also be...

- ✧ Physicist
- ✧ Journalists
- ✧ Fisheries Biologists
- ✧ Material Scientists
- ✧ Propulsion Scientist

**Point: While there are  
trained skills that are  
important...it's not rocket  
science.**



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## Competency Expectations for Program Implementation

*Over 66 companies  
represented by the*

California  
Energy Efficiency  
Industry Council



*Implementation and  
Evaluation*

### ***No formal Competency Certification for Implementers***

This is countered by:

- Program Administrators review contracts with service providers
- Tasks may require certifications/license from other professions (i.e. Professional Engineers) regulated outside our jurisdiction
- Robust, accountable industry
- Still have been some concerns about quality and safety



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## Competency for Evaluation, Measurement & Verification

### *No formal Competency Certification REQUIREMENT for Evaluators*

However, certifications and trainings are available to enhance skills and competitiveness:

- Technical field methods for measurement and verification
- Statistical methods and study design
- Evaluation planning

ASSOCIATION OF  
ENERGY SERVICE  
PROFESSIONALS

International Energy  
Program Evaluation  
Conference

Efficiency Valuation  
Organization



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## Protocols & Standards Support Industry Development

Several industries have Protocols & Standards from their professional organizations and support EE:

- ASHRAE – Protocols for servicing Heating Ventilation and Air Conditioning systems

The energy efficiency industry (implementation and evaluation) likewise is supported by:

- *International Performance Measurement & Verification Protocol*

Which provides:

- Standardized guidelines for site measurement and verification for the purposes of quantification of energy savings
- The results may be used for performance payments, program credit, or ex post evaluation
- Primarily a certification and training for engineers



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## IPMVP – What is THAT?

- Overview of current best practice techniques available for:
  - Verifying results of energy efficiency, water efficiency, and renewable energy projects in commercial and industrial facilities.
  - Specific Energy Conservation Measures (ECM)
  - Use by facility operators to assess and improve facility performance.
- Increase certainty, reliability, and level of savings;
- Reduce transaction costs by providing an international, industry consensus approach and methodologies;
- Reduce financing costs by providing a project with a Measurement and Verification Plan (M&V Plan) standardization, thereby allowing project bundling and pooled project financing.
- Provide a basis for demonstrating emission reduction
- Provide a basis for negotiating the contractual terms to ensure that an energy efficiency project achieves or exceeds its goals of saving money and improving energy efficiency

[www.evo-world.org](http://www.evo-world.org)





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## A little bit of history on IPMVP...

- Developed by a coalition of international organizations (led by the United States Department of Energy – Lawrence Berkeley Labs) starting in 1994-1995.
- Become the national measurement and verification standard in the United States and many other countries, and has been translated into 10 languages.
- Published in three volumes, most widely downloaded and translated is *IPMVP Volume 1 Concepts and Options for Determining Energy and Water Savings*.
- A major driving force was the need for a common protocol to verify savings claimed by Energy Service Companies (ESCOs) implementing Energy Conservation Measures (ECM).
- Maintained by the non-profit *Efficiency Valuation Organization*



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## IPMVP is THE standard for Energy Efficiency Project M&V

Use is widespread amongst ESCOs in the US and is gaining popularity in many other countries worldwide - China, UK, India, South Africa.

California Public Utilities Commission's Impact Evaluation Framework and protocols are grounded in

Austral

Being considered for adoption by International Standard Organization

NAESCO promotes it as the standard for energy services projects, facilitating the rapid growth of the industry by making the large-scale market for third-party





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## IPMVP Training is available

*[Pasted directly from [www.EVO-world.org](http://www.EVO-world.org) – Training]*

### **To help move the basic methods in the IPMVP into real applications:**

- EVO provides training at various levels for a variety of audiences.
- Training draws on the expertise and experience within EVO, around the world, to provide M&V training tailored to the needs of different regions, where no other suitable training is available.
- Energy efficiency projects around the world have many basic similarities, and can all benefit from M&V.
  - Local M&V training must recognize local techniques, technologies, materials, prices, expertise and budget.
  - In order to increase international investment in energy efficiency projects, EVO's instructors highlight the internationally common elements, while tailoring the presentations to local realities.



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## CMVP Requirements and Qualifications

*[Pasted directly from [www.EVO-world.org](http://www.EVO-world.org) – Certification]*

The right to use the CMVP title is granted to those who demonstrate proficiency in the M&V field by passing a **4-hour written exam** and meeting the **required academic and practical qualifications**.

EVO's **certification level training** is offered as preparation for the exam and as a review of basic principles for experts.

Education		Work Experience
4-year degree from an accredited university or college in science, engineering, architecture, business, law, finance, or related field	AND	3 years of verified experience in energy or building or facility management, or measurement and verification
Registered Professional Engineer (PE) or Registered Architect (RA)	AND	3 years of verified experience in energy or building or facility management, or measurement and verification
4-year non-technical degree from an accredited college or university in a field not specified above	AND	5 years of verified experience in energy or building or facility management, or measurement and verification
2-year technical degree	AND	5 years of verified experience in energy or building or facility management, or measurement and verification
None	AND	10 years of verified experience in energy or building or facility management, or measurement and verification



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## Professional Skills in using IPMVP comes from CMVP

*[Pasted directly from [www.EVO-world.org](http://www.EVO-world.org) – Certification]*

The Efficiency Valuation Organization (EVO) offers worldwide the **Certified Measurement and Verification Professional** program

Dual Purpose:

- recognizing the most qualified professionals in this growing area of the energy industry, and
- raising the overall professional standards within the measurement and verification field.

The Association of Energy Engineers is the certification body for the CMVP certification provided in conjunction with the EVO training.



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## For More Information

Title	Weblink
Role of IPMVP in Performance Contracting	<a href="http://www.unece.org/fileadmin/DAM/energy/se/pp/eneff/eneff_feei_Kiev_April11/evo_Chabcchoub.pdf">http://www.unece.org/fileadmin/DAM/energy/se/pp/eneff/eneff_feei_Kiev_April11/evo_Chabcchoub.pdf</a>
National Association of Energy Service Companies	<a href="http://www.naesco.org">http://www.naesco.org</a>
California Energy Efficiency Council	<a href="http://efficiencycouncil.org">http://efficiencycouncil.org</a>
Efficiency Valuation Organization	<a href="http://www.evo-world.org">www.evo-world.org</a>
American Society of Heating, Refrigerating and Air-Conditioning Engineers	<a href="https://www.ashrae.org/standards-research--technology/standards--guidelines">https://www.ashrae.org/standards-research--technology/standards--guidelines</a>
Building Operation and Maintenance Association	<a href="http://www.boma.org/standards/Pages/default.aspx">http://www.boma.org/standards/Pages/default.aspx</a>