



Efficiency  
Valuation  
Organization



# ENERGY EFFICIENCY PERFORMANCE MEASUREMENT AND VERIFICATION **ANALYST**

## TRAINING AND CERTIFICATION PROGRAM



INTERNATIONAL  
PERFORMANCE  
MEASUREMENT  
& VERIFICATION  
PROTOCOL



**ENERGY EFFICIENCY'S FIRST NEED IS AN  
EFFICIENT PROFESSIONAL - LIKE YOU!**

**AEEE BRINGS IPMVP TO INDIA AND  
NEIGHBOURING COUNTRIES**

The AEEE is facilitating the PMVA™ certification in India and neighbouring countries. AEEE is an industry-led association of energy efficiency companies, and an affiliate of Efficiency Valuation Organization (EVO®).

EVO is a non-profit organization whose products and services help people engineer and invest in energy efficiency projects. EVO owns and manages the International Performance Measurement and

Verification Protocol (IPMVP®), the globally recognized reference for reliably measuring and verifying savings of energy efficiency projects.

EVO's vision is to create a world that has confidence in energy efficiency as a reliable and sustainable energy resource. EVO's mission is to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified. EVO's capacity-building activities include measurement and verification protocol development, M&V and IPMVP training courses, and professional certification programs.

## TRAINING PROGRAM OVERVIEW

### CURRICULUM

- *M&V Fundamentals and IPMVP®*

### PREREQUISITE

- *Introduction to Statistics for M&V.* (Included. Short self-taught online course)

### CERTIFICATION

- All participants will receive a certificate of attendance.
- Participants interested in receiving the **Performance Measurement and Verification Analyst (PMVA)** certification must take the certification exam.

## KEY FACTS

- EVO has offered this training program since 2009 (15,000 + individuals trained in more than 60 countries)
- Duration: 3 days + exam.
- Learning approach: theoretical
- Reflects the latest version of *EVO's International Performance Measurement and Verification Protocol (IPMVP)*
- Over 40 instructors from all continents are involved in continuous program improvements through EVO's Training Committee
- Course content discussed and validated by the IPMVP-TC Discussion Group

# TRAINING CONTENT (11 MODULES)

1. Introduction to M&V
2. Key Concepts
3. Short Examples
4. M&V Planning
5. Critical Issues
6. Statistics for M&V
7. Retrofit Isolation Details (Option A + B)
8. Option C Details
9. Option D Details
10. Other M&V Applications
11. Summary and Review of an M&V Plan

## LEARNING OBJECTIVES

- Understand the fundamental principles of M&V for individual energy efficiency and water projects
- Understand relevant statistical concepts and how they apply to M&V
- Understand the IPMVP four Options and the essential elements/content of an M&V Plan
- Be able to provide professional advice to energy efficiency program developers, utilities, governments, financial institutions, and other parties interested in M&V.

## TARGET AUDIENCE

- Energy performance contractors and their customers.
- Demand-side management program designers, managers, and evaluators or others working at utilities or in public administration.
- Energy users implementing energy efficiency measures and looking to account for savings.
- Facility managers properly accounting for energy budget variances.
- Building managers seeking recognition for the energy efficiency of their building operations.
- New building designers wishing to account for the sustainability of their designs.
- Water efficiency project developers.
- Designers for emission-reduction trading program.
- Energy end-users seeking ISO 50001 certification.



# PROFESSIONAL CERTIFICATION

The *Performance Measurement and Verification Analyst (PMVA)* professional certification establishes the primary standard for individuals applying performance, measurement, and verification concepts to energy efficiency projects. *PMVAs* typically work in an Analyst role for ESCOs, public administration, utilities, financial institutions and are involved in the design and implementation of energy efficiency programs and the financing of energy efficiency projects. They have demonstrated M&V capabilities including good understanding of how to apply the IPMVP to determine savings. *PMVAs* could be building technologists, HVAC specialists, engineers, architects, economists, financial analysts, etc.

NOTE: EVO's PMVA CERTIFICATION is earned by demonstrated field M&V work achieved through a mix of M&V relevant education, professional expertise, and experiences.

## TRAINING REQUIREMENT

- *M&V Fundamentals and IPMVP*

## CERTIFICATION EXAM

- The certification exam test reflects the following competencies:
  - » Knowledge and basic understanding/comprehension of the fundamental principles of M&V for individual energy efficiency projects and specifically the key concepts of the IPMVP.
  - » Understanding relevant statistical concepts and how they apply to M&V
  - » Understanding the IPMVP four Options and the essential elements/content of an M&V Plan
  - » Capacity to provide professional advice to energy efficiency program developers, utilities, governments, financial institutions, energy users, and other parties interested in M&V.

- The exam consists of multiple-choice questions. Before taking the exam, candidates have access to a series of knowledge-based questions on various M&V topics to test their acquired knowledge and to help them identify subjects/themes requiring further study and revision.

## PMVA APPROVAL CRITERIA

- Take the *M&V Fundamentals and IPMVP* course and pass the exam with a mark of 70 % or higher. More than 15,000 individuals have already taken this course in the past decade. (Candidates must take the exam and file their PMVA application with EVO within three years after taking the training.)
- Have successfully graduated college/university in engineering, architecture, economics, sustainability, finance, building technology, HVAC, or related (requires a copy of the diploma or other relevant credentials)
- Work in the field – M&V, energy, energy efficiency, government, ESCO, utility, financial institution or related – should be advising/developing/implementing energy efficiency programs, energy projects, financing of energy projects, energy management, energy audits (provide contact details for reference and also a short description of duties), for at least two years.
- Complete the PMVA electronic application form on EVO's website, upload information as required, and pay the certification fee.
- *The PMVA certification is valid for 36 months from the date of inception.*

**IMPORTANT NOTICE ON RECIPROCIITY** If you took EVO's *M&V Fundamentals and IPMVP* course and exam in past years, and you received a professional certification co-sponsored by EVO, you may apply to receive your PMVA professional certification without further requirement.

- If you hold such certification and it is still valid, you may apply for the PMVA, and EVO will issue your PMVA certification for the time left before the expiration of such certification. Complete the PMVA electronic application form on EVO's website and upload information as required.
- If such certification lapsed and is expired, you may apply for the PMVA by providing details on your past certification. Such information should include the date you took the M&V Fundamentals training, a copy of your former certificate, etc. Complete the PMVA electronic application form available on EVO's website, upload information as required, and pay the certification fee.





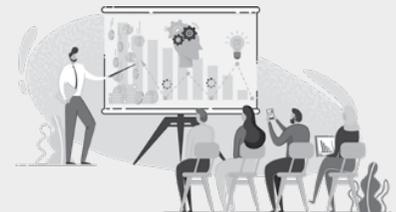
### PMVA RENEWAL CRITERIA – Mix of the following:

- Being employed in the field for the period of the certification (require start/end dates of employment and description of the duties. The duties should be the same or similar to the ones for initial PMVA approval)
- Teaching M&V, energy, EE, energy financing, etc. courses/webinars/masterclasses (should provide the title of the courses, dates when delivered, program/agenda showing they were the instructors, reference contact details)
- Prepare simple M&V plans or advise/be part of a team doing/reviewing M&V plans (names should be on the M&V plan; should provide the title of the M&V plan, when it was prepared or implemented – should be in the same renewal cycle, and contact details for reference)
- Speak at conferences on M&V relevant topics (should provide the title of the event, dates within the renewal cycle, programs showing they were the speaker/presentation)
- Trainee to relevant courses (provide a certificate of attendance within the renewal cycle)
- Author of published articles, papers (provide the title, date of publication, copy or link to the publication; names should be on the publication)

**NOTE:** *If your government requires you to be IPMVP certified, please make sure you apply for renewal 2-3 months before your certification is due to expire. Thus, it will not lapse, and you will have been continually certified without interruption.*

### ABOUT THE INSTRUCTOR

Insturctor has over 20 years' experience in HVAC industry, having worked in sales, service and product management roles. Since 2014, he has been working as a Freelance Energy Engineer helping Building Clients run their HVAC systems more efficiently thru' Retro-commissioning, Retrofits and Energy Management. He is a BEE Certified Energy Auditor, LEED AP, CMVP & BCXP. He is also a certified Level 4 EVO Trainer & has conducted numerous workshops in India & abroad.



**FOR  
REGISTRATION  
AND QUERIES**

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