



THE ROLE OF IPMVP IN ESCO M&V ACTIVITIES

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What Is M&V?

“Measurement & Verification (M&V) is the process of using measurements to reliably determine actual saving created within an individual facility by an energy management program.”

Ref: IPMVP Vol I, 2010, Chapter 9

What Is M&V?

Measurement and Verification is a balancing act
between cost and risk

risk = uncertainty

and

uncertainty = volatility

M&V seeks to optimize the costs to **identify and measure**
technical and contractual volatility

ESCOs and M&V

The Concept

- ESCOs have to rely on M&V activities to demonstrate the achieved savings, in order to be paid for their services
- As no real references existed at the start of the ESCO concept, the development of M&V protocols had to be realized by each ESCO
- This created some lack of credibility in the market, as ESCOs were sometimes seen as biased in the development of such protocols

M&V Protocols

- Need for standardized M&V protocols met by different organizations that produced M&V documents for different audiences and purposes:
 - IPMVP
 - FEMP
 - ASHRAE 14-2002
 - IPMVP emerged rapidly as the most widely recognized standard in the ESCO industry worldwide
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IPMVP

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- International Performance M&V Protocol
 - Created by a committee seeking to reduce uncertainty in M&V
 - Flagship product of Efficiency Valuation Organization (EVO)

IPMVP Overview

- IPMVP presents a **framework** and **defines terms** needed in determining energy savings after implementation of a project.
- IPMVP specifies the contents of the **M&V Plan** that must be prepared for each specific project.
- IPMVP **allows flexibility** in creating M&V Plans for individual projects, while adhering to the principles of **accuracy, completeness, conservativeness, consistency, relevance and transparency**

IPMVP Benefits

- Defines standard approaches to “measuring” “savings,” to reassure facility owners.
 - Legitimizes ESCO projects through international recognition of the “cash register” for savings.
 - Provides guidance on the trade-off between measurement “accuracy” and measurement cost
 - Helps parties to create transparent, repeatable performance contract terms and emission trades regarding savings settlement
 - Updates the definition of the state of the M&V art through constant evolution on the EVO website
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IPMVP does NOT cover in detail:

- Design of meter and instrumentation systems
- Cost estimating of M&V activities

IPMVP Documents

- IPMVP Vol. I - **Concepts and Options for Determining Energy and Water Savings**
 - IPMVP Vol. II - **Concepts and Practices for Improved Indoor Environmental Quality**
 - IPMVP Vol. III - **Applications**
 - Part I: Concepts and Options for Determining Energy Savings in **New Construction**
 - Part II Concepts and Practices for Determining Energy Savings in **Renewable Energy Technologies Applications**
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IPMVP Added Value

- Savings verification framework for commercial and industrial energy conservation measures
- Standardizes M&V terminology and defines various M&V options
- Risk management tool that allocates risks between buyer and seller of energy services
- Allows parties to create transparent, repeatable contract terms governing savings settlement

IPMVP Options

- OPTION A
 - Retrofit isolation with measured performance and stipulated operation
- OPTION B
 - Retrofit isolation with measured performance and measured operation
- OPTION C
 - Whole building or utility bill comparison
- OPTION D
 - Calibrated simulation (using simulation tools as Trace, DOE-2, etc.)

Conclusion

- M&V activities are a fundamental part of ESCO activities, needing recognized norms to gain credibility
- EVO's IPMVP can play an important role in the development of the ESCO concept, providing guidelines and credibility to M&V activities

Efficiency Valuation Organization (EVO)

Efficiency Valuation Organization (EVO)

www.evo-world.org

- The home of the IPMVP
- A non-profit U.S. corporation
- Led by volunteers around the world
- Administrative office in Sofia, Bulgaria.

Efficiency Valuation Organization (EVO)

International non-profit organization offering products and services to aid:

- M&V of energy and water savings resulting from energy & water efficiency projects
- Financial risk management of energy savings performance contracts
- Quantifying emissions reductions from energy efficiency projects
- Promoting sustainable and green construction through cost-effective and accurate accounting of energy and water savings

EVO: Vision & Mission

Vision

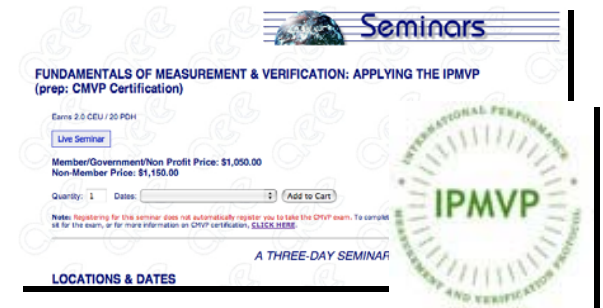
A global marketplace that correctly values the efficient use of natural resources and utilizes end-use efficiency options as a viable alternative to supply options

Mission

To develop and promote the use of standardized protocols, methods and tools to quantify and manage the performance risks and benefits associated with end-use energy efficiency, renewable energy, and water efficiency business transactions

EVO

- **Protocols**
 - M&V (IPMVP)
 - Financing (IEEFP)
- **Training, Certification**
 - Certification (CMVP) is joint with the Association of Energy Engineers



- **Building Community, Promoting Efficiency**
 - Subscriber services through www.evo-world.org: industry newsletter, library, discounts, pre-release access to public documents
 - World wide partnerships for communication, training and development

EVO: 2010 IPMVP

2010 Sixth edition of Volume 1

- ***Vol I - Concepts and Options for Determining Energy and Water Savings***

- Defines basic M&V terminology
- Provides M&V design flexibility by defining 4 Options for determining savings
- Presents general procedures to achieve reliable and cost-effective determination of savings
- Applicable to energy or water efficiency projects in buildings and industrial plants

EVO: Subscriber Services

www.evo-world.org

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