



MEASUREMENT AND VERIFICATION FUNDAMENTALS

ONLINE PROFESSIONAL COURSES LED BY THE WORLD'S TOP SPECIALISTS

ONLINE TRAINING BY KRISHNAJI PAWAR

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MODULE
05

Fundamental principles of M&V

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Principles of M&V

The fundamental principles of good M&V practice described below provide the basis for assessing adherence to IPMVP. These principles should be considered and applied throughout the M&V process.



LEARNING OBJECTIVES

- ✓ Principles of M&V
- ✓ International Performance Measurement and Verification Protocol
- ✓ Other M&V Guidelines
- ✓ International Performance Measurement and Verification Protocol

FUNDAMENTAL PRINCIPLES

1. Accurate: M&V reports should be as accurate as the M&V budget will allow. In addition, M&V costs should normally be small relative to the monetary value of the savings being evaluated. M&V expenditures should also be consistent with the financial implications of over/under reporting of a project's performance. Accuracy tradeoffs should be accompanied by increased conservativeness in any estimates and judgements.
2. Complete: The reporting of energy savings should consider all effects of a project. M&V activities should use measurements to quantify the significant effects, while estimating all others.
3. Conservative: M&V procedures should be designed to under-estimate savings where judgements are made about uncertain quantities.
4. Consistent: Recognizing that any empirically derived report involves judgements which may not be made identically by all reporters, the reporting of a project's energy effectiveness should be consistent between:
 - a. (i) different types of energy efficiency projects.
 - b. (ii) different energy management professionals for any one project.
 - c. (iii) different periods of time for the same project.
 - d. (iv) energy efficiency projects and new energy supply projects.
5. Relevant: The determination of savings should measure the performance parameters of concern, or least well known, while other less critical or predictable parameters may be estimated.
6. Transparent: All M&V activities should be clearly and fully disclosed

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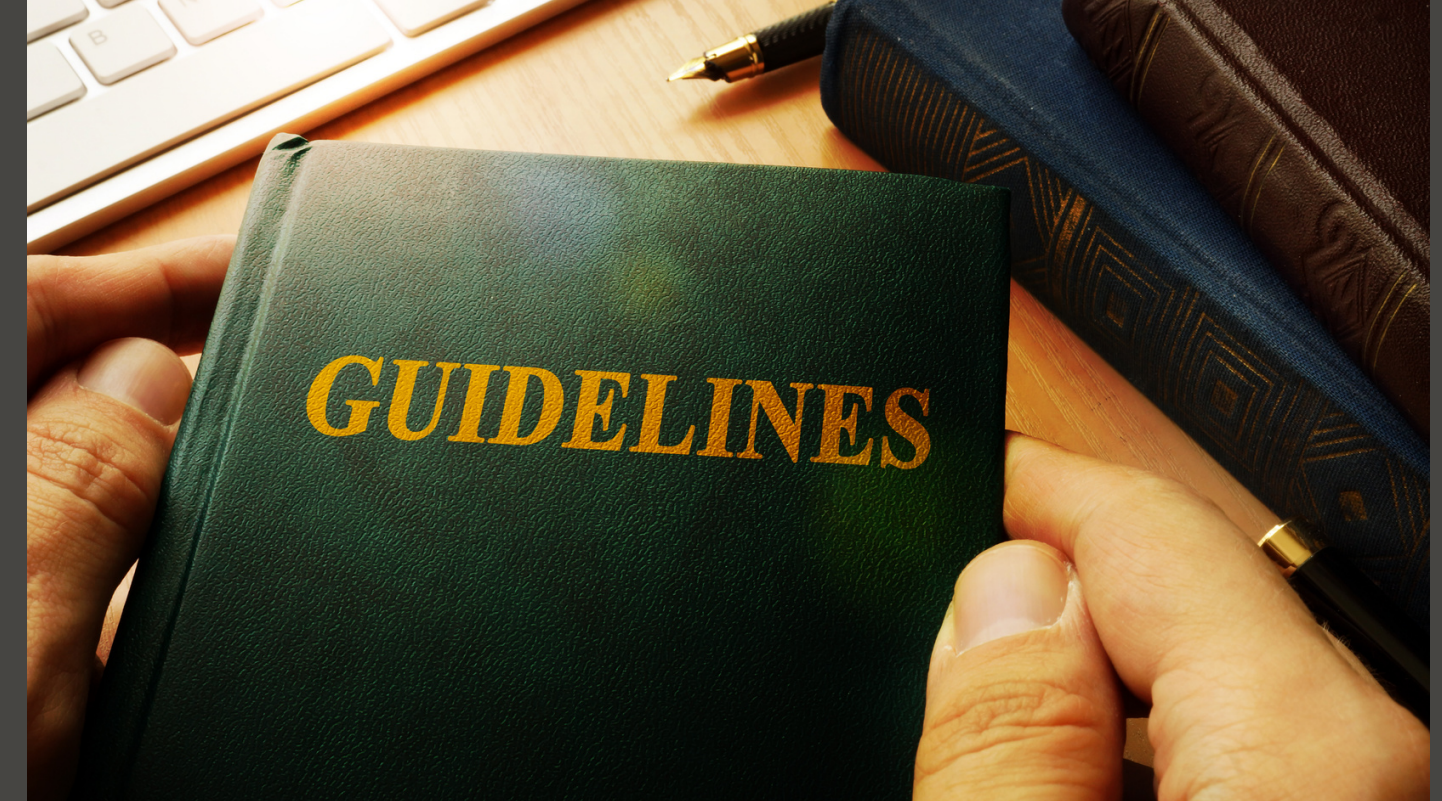
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Other M&V Guidelines



OTHER M&V GUIDELINES

- Measuring and verifying savings from performance-based contracts requires special planning and engineering activities.
- Although M&V is an evolving science, industry best practices have been developed.
- These practices are documented in several guidelines, including the International Performance Measurement and Verification Protocol (IPMVP) and American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) Guideline 14, Measurement of Energy and Demand Savings.

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Efficiency Valuation Organization (EVO)

MANDATE EVO is a non-profit organization whose products and services help people engineer and invest in energy efficiency projects worldwide.

VISION EVO's Vision is to create a world that has confidence in energy efficiency as a reliable and sustainable energy resource.

MISSION EVO's Mission is to ensure that the savings and impact of energy efficiency and sustainability projects are accurately measured and verified.

CORE VALUES

- Not-for-profit and virtual to the extent possible
 - Not a consulting or implementation organization
 - Politically, geographically, commercially and technologically neutral
 - Centered in an ever expanding global community of volunteers and practitioners
 - Encourages and recognizes the value of contributions made by EVO volunteers
 - Governed by an international Board of Directors supported by a small core staff
- Maintains fiscal responsibility

[HTTP://WWW.EVO-WORLD.ORG](http://www.evo-world.org)





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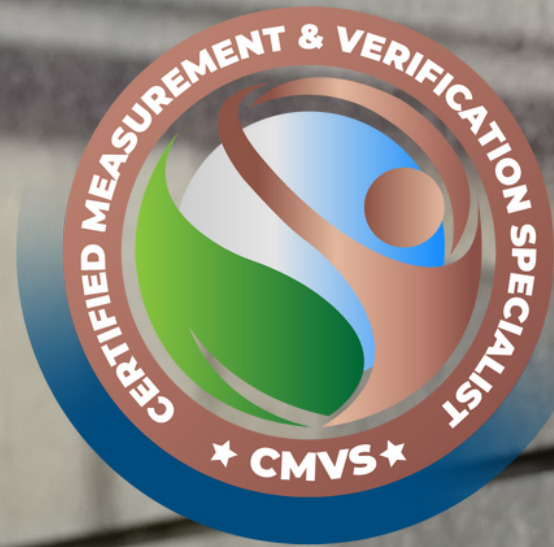
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