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MODULE

15

Reporting on Measurement and Verification (M&V) Projects

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The reporting phase of M&V is essential for communicating the results of energy efficiency projects. Effective reporting offers transparency, builds trust among stakeholders, and enables the dissemination of knowledge regarding best practices. A well-structured report can also showcase the financial and environmental benefits of energy-saving initiatives, thereby justifying further investment and support.

Learning Objectives

- Instrument metering and calibration
- Fieldwork: formal accreditation, safety, OSHA, and NFPA
- Data accessibility, communication, and valuation
- Reporting on Measurement and Verification (M&V) Projects
- Definitions of IPMVP Options
- The future of measurement and verification
- Sample M&V Plan
- Sample M&V Report
- ESCO's Guide to Measurement and Verification
- Summary and Resources



INTRODUCTION

- M&V is a process used to assess the performance and impact of energy efficiency projects.
- It ensures accurate quantification and reporting of energy savings and other project benefits.
- M&V aligns with protocols set forth by the Efficiency Valuation Organization (EVO) in the International Performance Measurement and Verification Protocol (IPMVP).

IMPORTANCE OF REPORTING IN M&V

- Effective reporting communicates the results of energy efficiency projects, builds trust among stakeholders, and enables knowledge dissemination.
- A well-structured report can showcase the financial and environmental benefits of energy-saving initiatives, justifying further investment and support.



KEY FEATURES OF M&V REPORTS



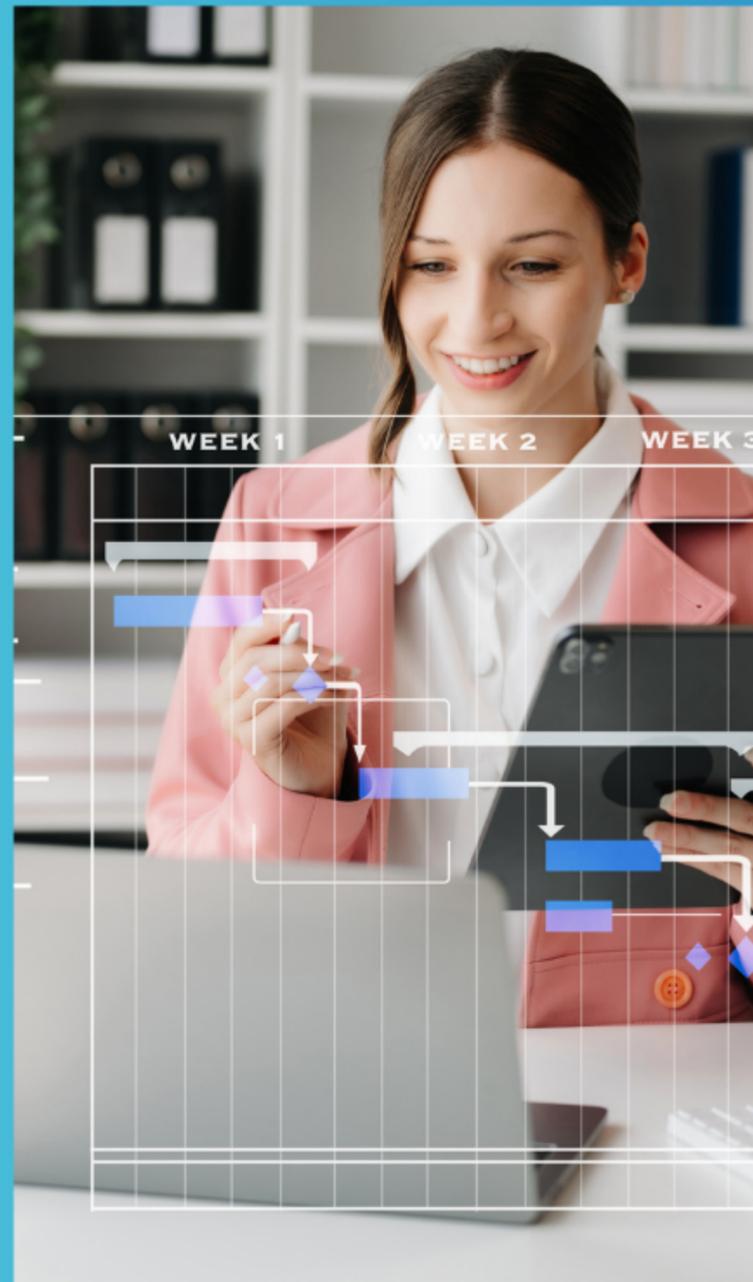
- Verification of energy impacts: Summarize actual vs. anticipated impacts of management activities.
- Project performance assessment: Evaluate the energy efficiency project against its objectives and solutions.
- Cost-benefit analysis: Incorporate a cost-benefit study that contrasts the expenses or the energy efficiency project with the energy impacts achieved.
- Conclusions and future directions: Summarize the principal findings and conclusions and recommended next steps.

KEY RELATIONSHIP BETWEEN M&V PLANS AND REPORTS

- Strategy vs. documentation: M&V plans outline the strategy and methodology for M&V, while reports provide detailed documentation of the actual impacts.
- Framework vs. presentation: M&V plans provide a framework for data collection and analysis, while M&V reports present the actual outcomes.
- Metrics and baseline vs. comparison: M&V plans set performance metrics and baseline, while M&V reports contrast actual performance against these metrics.
- Roles and responsibilities vs. record of activities: M&V plans define the roles and responsibilities of all participants, while M&V reports document the activities and contributions of these participants.
- Regular vs. record of success: M&V plans act as a blueprint for the entire project, while reports describe outcomes at the project outset



SPECIAL CONSIDERATIONS FOR REPORTING IN UTILITY PROGRAM CONTEXTS



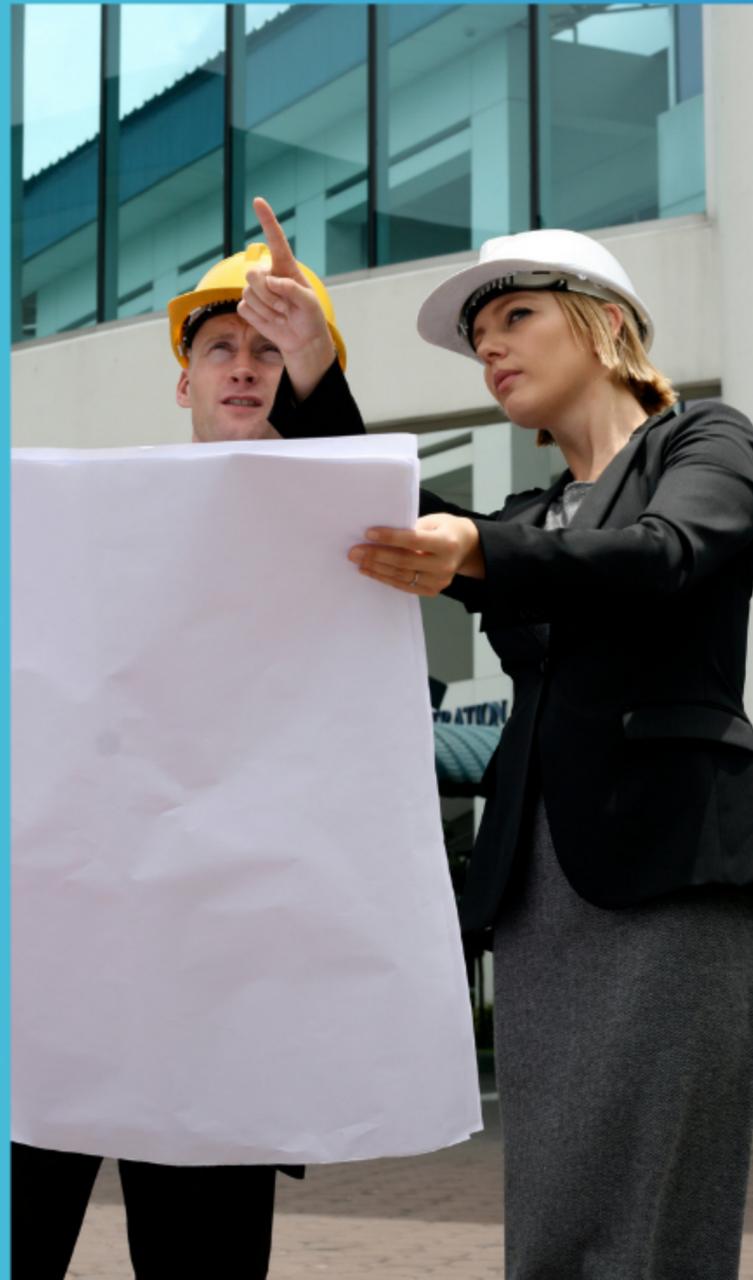
- Alignment with program goals and requirements: Ensure the M&V report aligns with the program goals and requirements.
- Consistent reporting formats: Utility programs often require specific reporting formats for simplified data analysis and cross-project comparison.
- Stakeholder engagement: Utility programs often involve diverse stakeholders, requiring M&V reports to provide actionable insights and recommendations for program and project improvement.

KEY COMPONENTS OF AN M&V REPORT

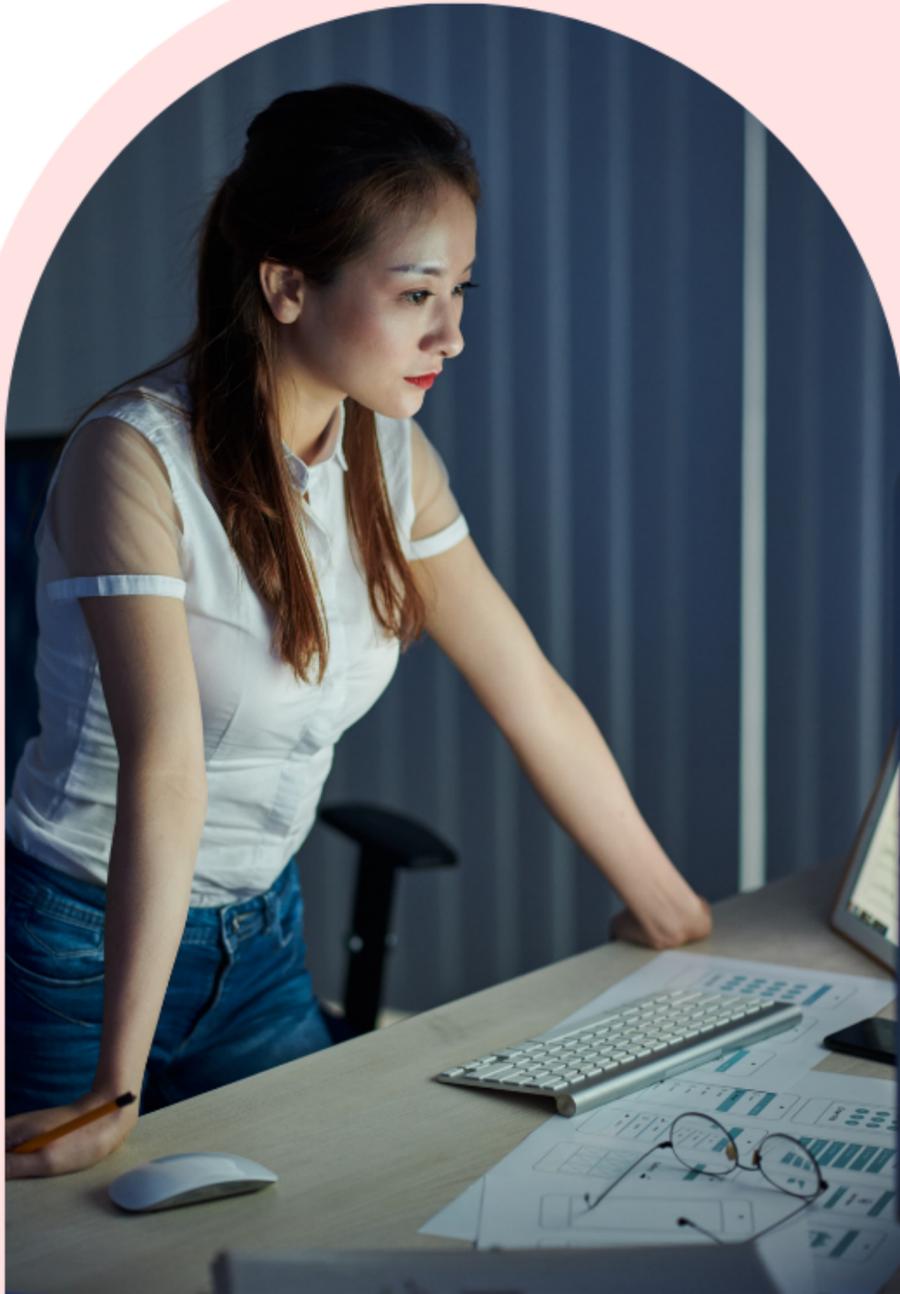
- **Executive Summary:** Provides a high-level overview of the project, including objectives, key findings, and recommendations.
- **Project Description:** Details about the project scope, technologies implemented, baseline conditions, and anticipated savings.
- **Methodology:** Explains the M&V approach used, including specific protocols, data collection methods, and assumptions made.
- **Data Analysis:** Presents data collected during the M&V process, including statistical analysis and comparisons between baseline and post-implementation performance.
- **Results:** Presents the energy savings achieved, including any discrepancies between projected and actual savings.
- **Conclusions and Recommendations:** Highlights the implications of the results for future projects and suggestions for improving the M&V process.



ROLE OF STAKEHOLDERS IN M&V REPORTING



- Project Owners: Require detailed reports to assess project performance and support future investments.
- Financing Institutions: Seek assurance that energy savings will be realized to ensure loan repayment and financial viability.
- Regulatory Agencies: Need comprehensive reports to evaluate compliance with energy efficiency mandates and policies.
- Energy Service Companies (ESCOs): Utilize M&V reports to substantiate their performance guarantees and enhance their reputation.



Challenges in M&V Reporting

- **Data Quality and Availability:** Inaccurate or incomplete data can compromise the reliability of the M&V results.
- **Complexity of Energy Systems:** Balancing technical detail with accessibility for diverse audiences can be challenging.
- **Cost and Time Constraints:** Comprehensive M&V processes can be resource-intensive.

THIRD-PARTY MEASUREMENT AND VERIFICATION (M&V) IN ENERGY MANAGEMENT



- M&V is a critical component of energy management, especially in energy efficiency projects.
- Third-party M&V involves an independent entity to assess and verify the performance of energy projects.

ROLE OF THIRD-PARTY M&V

- Ensures impartiality and credibility: Third-party M&V provides a unbiased evaluation, building trust among stakeholders.
- Enhances expertise: Third-party M&V providers have specialized knowledge in energy management practices, measurement techniques, and data analysis.
- Adheres to established protocols and standards: Third-party M&V often adheres to established protocols and standards, such as the International Performance Measurement and Verification Protocol (IPMVP).
- Ensures regulatory compliance: Third-party M&V helps organizations meet regulatory requirements for independent verification of energy savings.



METHODOLOGIES FOR THIRD-PARTY M&V



- Retrofit Isolation: Evaluates the energy savings of a specific measure or project by isolating its impact from other variables.
- Statistical Sampling: Employs statistical sampling when measuring every unit or area impacted by an energy project.
- Monitoring-Based M&V: Leverages real-time data from energy management systems or smart meters to continuously assess energy performance.
- Deemed Savings: Relies on pre-established savings values for specific measures based on historical data or engineering estimates.

IMPLEMENTING THIRD-PARTY M&V

- Defining Objectives and Scope: Organizations must articulate the goals of the M&V process.
- Selecting a Third-Party Provider: Organizations should choose a reputable M&V provider with relevant experience and expertise.
- Developing an M&V Plan: A comprehensive M&V plan outlines the methodologies to be used, data collection protocols, baseline conditions, and performance metrics.
- Data Collection and Analysis: The third-party M&V provider collects data according to the agreed-upon plan.
- Reporting and Communication: The final phase involves documenting the findings in a detailed report that clearly communicates the methodology, results, and implications of the evaluation.



THIRD-PARTY M&V IN ENERGY MANAGEMENT

Role and Qualifications

- Third-party M&V provides an independent, unbiased assessment of the impact of energy management activities.
- Providers should have expertise, experience, and understanding of industry standards and best practices.
- M&V for contracts is more comprehensive and customized than M&V for utility programs.



CHALLENGES AND CONSIDERATIONS

- Facility owners and ESCOs may not want to perform M&V themselves due to lack of expertise, potential questions about results' impartiality, and potential improvement areas.
- Third-party M&V may not be feasible for small projects, limited budgets, low-risk projects, owner experience, or regulatory exemptions





Importance of Assessment

Each project's unique circumstances should be assessed to determine the necessity and cost-effectiveness of third-party M&V.

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THANK YOU

