

M&V; - Northmore Gordon

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Measurement and Verification determines the effect of an energy improvement by comparing measured energy use before and after implementation, with adjustments for changes in operating conditions. Rather than relying on bill comparison alone, M&V; uses an agreed boundary, data and analysis to establish what energy consumption would have been without the intervention. This approach separates the equipment improvement from other factors such as production changes, weather, or operating hours that also affect energy bills. M&V; is essential for confirming that investments deliver measurable results and for meeting evidence requirements under energy efficiency schemes.

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What is Measurement and Verification (M&V;)?

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Why is comparing electricity bills before and after a project insufficient evidence of savings?

A lower electricity bill can result from multiple factors unrelated to equipment improvements, including production decline, shorter operating hours, weather changes, or price changes. M&V; addresses this by establishing a baseline of representative pre-project conditions and adjusting for relevant operating variables. This structured approach separates the actual effect of the energy improvement from confounding factors, providing credible evidence that the upgrade achieved its intended outcome. Without this distinction, claimed savings cannot be verified or used reliably for investment decisions or scheme eligibility.

What are the six core components of a practical M&V; brief?

A practical M&V; brief includes: Purpose (whether evidence is for internal performance, an investment contract, reporting, or a certificate scheme); Boundary (equipment, meters, energy streams and interactions included); Baseline (representative pre-project conditions and treatment of operating changes); Measurement (instruments, intervals, quality checks and data responsibilities); Implementation Record (what was installed, commissioning date and other changes); and Reporting (calculation, uncertainty, adjustments and exceptions). This structure ensures the assessment is complete, reproducible and suitable for its intended use.

How do engineering estimates, verified energy results and certificate results differ?

Engineering estimates are modelled expectations prepared before or during project design. Verified energy results are outcomes under an agreed M&V; approach and measurement period. Certificate results are quantities accepted or issued under a relevant scheme process. These three outputs serve different purposes and should not be assumed interchangeable. An analysis prepared for one purpose—such as an internal feasibility study—should not be assumed to satisfy another, such as a Victorian Energy Upgrades or NSW ESS certificate pathway. Each requires its own assessment against the applicable scheme requirements.

What is PIAM&V; and when is it required?

PIAM&V; (Project Impact Assessment with Measurement and Verification) is a project-based calculation method available under the NSW Energy Savings Scheme. It compares modelled pre-project consumption with modelled or measured post-commissioning consumption and requires approval by an independent M&V; professional who must deem the project appropriate and provide written explanatory reasoning before the implementation date. PIAM&V; is one option for creating Energy Savings Certificates; projects may alternatively use a prescribed calculation method. Choosing the method early helps identify what baseline data and evidence must be obtained before equipment installation begins.

What role does baseline establishment play in M&V;?

The baseline establishes representative pre-project conditions and defines how changes in operating conditions will be treated in the analysis. It serves as the reference point against which actual energy consumption is compared to calculate savings. Baseline data must be collected before equipment changes occur, making early planning essential. The baseline should account for seasonal variation and represent the conditions the project will serve. Once installation begins, obtaining reliable baseline data becomes difficult or impossible, which is why M&V; planning must occur during project scoping rather than after work is complete.

What measurement planning considerations are most important for energy projects?

Early measurement planning ensures data collection supports the chosen M&V; method and project decisions. Key considerations include: matching the measurement period to the operating cycle so data is representative; establishing data responsibilities before installation, including who owns data, who accesses it and how equipment changes are recorded; specifying instruments, intervals and quality checks appropriate to the decision; and distinguishing measured data from corrections or estimates. The NSW M&V; guide emphasises that leaving measurement planning until immediately before installation can make the intended analysis difficult or impossible, potentially losing funding or certificate eligibility.

How does Northmore Gordon support M&V; in energy projects?

We offer measurement and verification services including project-boundary selection, baseline modelling, savings calculation and reporting. Our knowledge library provides guidance on M&V; methodology, scheme requirements for Victoria and NSW, metering and data quality, and practical project briefing. We work with clients to establish appropriate M&V; approaches for different

purposes—whether for internal performance evaluation, investment contracts, sustainability reporting or certificate schemes. The appropriate entity, professional and activity scope should be confirmed for each engagement to ensure alignment with project objectives and scheme requirements.

What are the Victorian and NSW project-based M&V; pathways?

Victoria offers two project-based methods under Victorian Energy Upgrades: measurement and verification (which uses pre- and post-upgrade energy information) and benchmark rating (which uses NABERS ratings). NSW offers PIAM&V; under the Energy Savings Scheme, requiring an approved independent M&V; professional. Both jurisdictions have their own rules and specifications for project-based activities. The method chosen determines the evidence requirements, baseline approach and calculation basis. Projects must select the appropriate method early and follow the applicable scheme's specific requirements rather than assuming one approach works across jurisdictions.

What makes M&V; important for ongoing energy management?

M&V; confirms that energy management changes achieve their intended outcomes and provides objective evidence that investments deliver measurable results. Beyond certificate schemes, M&V; supports internal performance evaluation and operational improvement by establishing what changed and why. It distinguishes verified savings from feasibility forecasts and helps identify whether performance changes result from the planned intervention or from other operating factors. Measurement records should be updated after energy management changes to maintain accurate baseline data, enabling organisations to track cumulative benefits and make informed decisions about future efficiency investments.