Energy Efficiency – Evaluation, Measurement and Verification Frequently Asked Questions

1. What is EM&V?

Evaluation, Measurement and Verification (EM&V) refers to the systematic, third-party review of the design, delivery and impacts of energy efficiency programs offered by the eight investor-owned utilities (IOUs or utilities) regulated by the Public Utility Commission of Texas (PUCT).

- Evaluation uses scientific sampling of projects to calculate the results of the energy efficiency program or portfolio within specified confidence intervals.
- Measurement and Verification (M&V) is a tool used in evaluation to determine impacts at the individual project-level.

2. What are the objectives of the PUCT EM&V?

The EM&V objectives are to:

- Document gross and net energy and demand impacts of utilities' individual energy efficiency and load management portfolios,
- Determine energy efficiency program cost-effectiveness,
- Prepare and maintain the Texas Technical Reference Manual (TRM),
- Provide feedback to the PUCT, utilities, and stakeholders on program portfolio performance, and
- Help assess the effectiveness of energy efficiency programs and identify ways to improve utility energy efficiency portfolios.

EM&V ensures a thorough and independent assessment of IOU energy efficiency portfolios to document demand reductions, energy savings and portfolio compliance with regulatory and statutory energy efficiency objectives.

3. Who hired the EM&V contractor and why?

The PUCT hired the EM&V contractor through a Request for Proposals.

In 2011, the Texas Legislature enacted SB 1125, which required the PUCT to develop an EM&V framework that promotes effective program design and consistent, streamlined reporting for the eight utilities' energy efficiency programs. The EM&V framework is embodied in 16 Texas Administrative Code §§ 25.181, relating to Energy Efficiency Goal.

4. Who is the current EM&V contractor?

Tetra Tech is the third-party contractor for EM&V of Texas IOU energy efficiency and load management portfolios.

The Tetra Tech team also includes the following Texas-based small business subcontractors:

- Texas Energy Engineering Services, Inc.,
- Energy Bees, and
- Blink Energy.

5. What program years will be evaluated?

Under the current contract, Tetra Tech will be evaluating program years 2024-2027 conducted in calendar years 2025-2028. To date, the PUCT has conducted annual EM&V since the 2012 program year.

6. How does EM&V data collection work?

The EM&V contractor meets with IOUs periodically to understand energy efficiency program design, delivery, data capture, data tracking processes, and savings calculations. At the end of each calendar year, the EM&V contractor requests data from the utilities to verify all claimed savings. The EM&V contractor also requests data during a program year to sample projects for in-depth evaluation activities. IOUs are responsible for fulfilling all data requests from the EM&V contractor. IOU-designated contractors may also send requested data and information directly to the EM&V contractor through its secured system.

7. Does the EM&V contractor contact energy efficiency consumers directly?

Yes, the EM&V contractor may conduct on-site inspections and web or telephone surveys for each IOU. All data collection instruments are available for utility review, and the utilities will be informed of data collection field periods.

8. How are program data handled?

Tetra Tech maintains a secure SharePoint site for program tracking data and all supporting documentation. The site is accessible only to Tetra Tech team members, relevant utilities, contractors, and PUCT staff. Data security protocols are continuously improved and monitored to ensure secure transmission and storage.

9. What are confidence intervals? How are they used in the EM&V effort?

A confidence interval is a range of values that describes the uncertainty surrounding an estimate. Confidence intervals are one way to represent the strength and validity of an estimate — the larger a confidence interval for a particular estimate, the more caution is required when using the point estimate.

Energy efficiency program evaluations routinely employ 90% confidence intervals with +/-10 percent as the industry standard. The "90%" in the confidence interval represents a level of certainty about our estimate. If one was to repeatedly obtain new estimates using exactly the same procedure (by drawing a new sample, conducting new interviews, calculating new estimates and new confidence intervals), the confidence intervals would contain the average of all the estimates 90% of the time. The EM&V results will report confidence intervals by its endpoints to show the uncertainty of the estimates.

10. How rigorous is the EM&V?

The EM&V activities are designed to result in a minimum confidence interval of 90 percent +/-10 percent (90/10) at the IOU portfolio level. A precision of 90/10 is the industry standard as discussed above.

A critical first step in the EM&V process is to prioritize evaluation efforts and the associated level of rigor. The prioritization process is important in allocating resources required to meet evaluation needs while ensuring cost-effective use of evaluation funds. Evaluation prioritization decisions includes:

- Magnitude of savings—percentage of contribution to the portfolio of programs' impacts;
- Level of relative uncertainty in estimated savings;
- Level and quality of existing quality assurance and verification data from on-site inspections completed by IOUs or their contractors;
- Stage of program or programmatic component (e.g., pilot, early implementation, mature);
- Importance to current and future portfolio performance; and
- PUCT and Texas utilities' priorities.

The EM&V contractor, using the program tracking data, provides a due-diligence review of impacts across each program for every utility's portfolio. This broad reach review of all programs is then supplemented with rigorous evaluation methods for programs assigned a higher priority during the prioritization process. Rigorous evaluation methods include:

- engineering desk reviews,
- on-site M&V,
- participant surveys,
- program design, and delivery staff in-depth interviews,
- interval meter data analysis,
- consumption or energy usage analysis, and
- participation analysis.

11. How are the EM&V results applied?

EM&V results are applied prospectively to improve the accuracy of reported impacts and program designs and processes. This is most commonly completed through:

1) Annual updates to the Texas TRM, which provides guidance on how to calculate demand reductions and energy savings, and
2) IOUs implementing EM&V recommendations such as
    - improving program tracking and documentation,
    - QA/QC practices,
    - reporting transparency and consistency, and
    - comprehensiveness of offerings.

If a calculation error exceeding five percent of project-level demand reductions or savings or other major factor that affects savings is found, the EM&V contractor recommends an adjustment to the annual claimed savings based on the evaluation findings.

12. Are EM&V results available publicly?

Yes. An annual IOU energy efficiency report is filed with the Commission in the Energy Efficiency Implementation Project, Docket No. 38578.