

Evaluation Measurement and Verification for Missouri's 2014 Utility-Funded Energy Efficiency Programs

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Missouri's Utility Funded EE Programs

- Examples of **Residential Programs**:
 - Residential lighting
 - Whole House Efficiency
 - Home Appliance Recycling Rebate
- Examples of **Business Programs**:
 - Small Business Direct Install
 - Business Standard Energy Efficiency
 - Business Custom Energy Efficiency
- **Low-income Programs** include:
 - Low-income weatherization
 - Multi-family low-income
 - Social marketing distribution (food banks)

What is EM&V?

- **EM&V**

The term “evaluation, measurement, and verification” is frequently seen in evaluation literature. EM&V is a catchall acronym for determining both program and project impacts.

- **Evaluation**

The performance of studies and activities aimed at determining the effects of a program.

- **Measurement and Verification**

Data collection, monitoring, and analysis associated with the calculation of gross and net energy and demand savings from individual sites or projects.

Who performs EM&V?

- **Independent EM&V Contractors** hired by the utility are to provide EM&V services for the utility and provide a annual report.
- **EM&V Auditor** hired by the Missouri Public Service Commission works with each utility's independent EM&V Contractor and provides an annual report on the EM&V annual report submitted.

4 CSR 240-20.093(7) Evaluation, Measurement, and Verification (EM&V) of the Process and Impact of Demand-Side Programs. Each electric utility shall hire an independent contractor to perform and report EM&V of each commission-approved demand-side program in accordance with 4 CSR 240-20.094 Demand-Side Programs. The commission shall hire an independent contractor to audit and report on the work of each utility's independent EM&V contractor.

2014 Cost of Programs and EM&V

- Annual programs' costs: \$72 million
- Annual EM&V costs are normally 5% of programs' costs
- Annual EM&V costs \$4 million

Process and Impact Evaluation

- The American Evaluation Association defines evaluation as *“assessing the strengths and weaknesses of programs, policies, personnel, products and organizations to improve their effectiveness.”*
- **Process Evaluation** describes and assesses program delivery.
- **Impact Evaluation** examines the long-term energy and demand savings from a program (RESULTS), including those unintended.
- Process and Impact Evaluations **work together** to provide a complete picture.

Key Terms

- **Baseline:** Condition that would have occurred without implementation of the energy efficiency project or program.
- **Deemed savings:** An **estimate** of energy savings or energy-demand savings outcome (gross savings) for a single unit of an installed energy efficiency measure that: (a) has been developed from data sources and analytical methods that are widely considered acceptable for the measure a purpose, and (b) is applicable to the situation being evaluated. Deemed savings are usually contained in a technical resource manual (TRM).
- **Free ridership:** Energy savings from participants that would have purchased energy efficient equipment without the program.
- **Spillover:** Other types of actions taken by participants and non-participants on their own to install energy savings measures.
- **Market effects:** Structural market or behavior changes caused by program activity that result in additional purchases of efficiency measures.
- **Measure Life or Persistence:** Number of years that a measure will continue to provide savings.

Gross Savings vs. Net Savings

- **Gross Savings:** Gross energy or demand savings are the **change in energy** consumption or demand that results **directly** from program-promoted actions taken by program participants regardless of extent.
- **Net savings.** Net energy or demand savings refer to the portion of gross savings that is attributable to the program. **This involves separating out the impacts that are a result of other influences, such as consumer self-motivation.**
- **Net = Gross – Free Riders + Spillover + Market Effects**

2014 EM&V Results for Ameren Missouri

Program	PSC-Approved Targets	Ex Ante Gross Savings	Ex Post Gross Savings	Net Savings Ex Post: 2014	% of Target Achieved
Efficient Products	15,768	11,849	6,697	6,089	39%
Home Energy Analysis	1,070	701	442	375	35%
HVAC	36,643	39,777	36,004	34,343	94%
Lighting	96,837	144,913	156,842	155,780	161%
Low Income	4,530	6,561	5,081	4,867	107%
ENERGY STAR® New Homes	1,440	408	275	118	8%
Refrigerator Recycling	11,950	12,932	8,850	6281	53%
Business Custom	50170	80,380	83,161	76,494	138%
Business Standard	30901	38,590	40,071	38,407	112%
Business New Construction	3773	13,171	13,400	13,373	320%
Business Recommissioning	2363	11,641	9,626	9,056	346%
Total	264,710	360,923	360,449	345183	132%

Missouri's 2014 EM&V Results

2014 Deemed Energy Savings

	Energy Savings (GWh)	Energy Sales (GWh)	Savings Percent of Sales
Ameren Missouri	362	37,023	0.98%
KCP&L	55	14,920	0.37%
KCP&L GMO	58	8,195	0.70%
Empire District	4	4,694	0.09%
Total	479	64,831	0.74%

Questions

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