

Evaluation of Energy Efficiency Programs Delivered by Utilities



NARUC Energy Regulatory Partnership Program

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and
The Vermont Public Service Board*

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Overview of presentation discussion points

- ❖ Energy efficiency program monitoring and evaluation objectives, principles and practices
 - Use and value of information
- ❖ Evaluation research priorities, methods, tools and expectations
 - Research design and implementation
- ❖ Regulatory relations, oversight and reporting
 - Participants in the evaluation process
- ❖ A decade of energy efficiency program evaluation in Vermont
 - A focus on key uncertainties and changing circumstances
- ❖ Emerging issues and new directions
 - Utility restructuring, markets and demand-side resources



Energy efficiency program monitoring and evaluation objectives, principles and practices

- ❖ What information do we need?
 - Empirical data to ascertain if energy efficiency program is, or is not, meeting intended purposes and achieving expected results
 - Quantitative and qualitative feedback on program design, delivery, performance and cost-effectiveness
 - Objective findings, results, recommendations and lessons learned
- ❖ Why do we need it?
 - Assess performance of efficiency program design and implementation (process evaluation)
 - Estimate energy savings and other benefits resulting from efficiency program investment (impact or results evaluation)
 - Measure market effects of program (market characterization)
 - Provide quick and ongoing feedback on program implementation (communication and reporting)
 - Support least-cost planning and policy development



Energy efficiency program monitoring and evaluation objectives, principles and practices

- ❖ How (and when) do we get it?
 - Progress reporting (monthly, quarterly, annually)
 - Regular communication and feedback (ongoing)
 - Process evaluation (typically within first year of program start-up)
 - Impact/results evaluation (typically after first year of program start-up)
 - Market characterization (ideally begins before program start-up)
- ❖ Key issues, questions and priorities
 - Link evaluation research with program theory and design
 - Develop researchable questions designed to address key program concerns and market uncertainties
 - Develop evaluation plan, and budget that realistically align research methods with primary objectives



Regulatory relations, oversight and reporting

- ❖ Project management, staff, contracts and budgets
 - Utility capacity and commitment to manage evaluation research and retain outside expertise
 - Regulatory oversight capabilities
 - Outside consultants to assist regulatory personnel
 - Evaluation plans developed in conjunction with program theory, design and implementation plans
 - Evaluation contractor selection and management
 - Evaluation work plans, budgets, schedules and reporting
 - Integration of formal evaluation findings with other program monitoring and verification activities (program activity, lost-revenue and performance measurement reports)



A decade of energy efficiency program evaluation in Vermont

- ❖ Early to late 1990s - Integrated utilities plan, implement, and evaluate individual programs in their respective service areas
 - Collaborative process involving utilities, Department of Public Service, environmental groups and other interested parties develop efficiency programs, monitoring and evaluation plans and standard program reporting format
 - Public Service Board approves program designs, budgets, evaluation plans, reporting requirements, program cost-recovery policy and lost-revenue mechanism
 - Department of Public Service provides formal and informal oversight of utility monitoring, evaluation and reporting including litigation in front of the Public Service Board
 - Utility/regulatory conflict and institutional inefficiencies result in shift toward better coordination of individual utility programs



A decade of energy efficiency program evaluation in Vermont

- ❖ Late 1990s to Early 2000s - Statewide Energy Efficiency Utility (EEU) established
 - Department of Public Service develops a statewide energy efficiency plan and negotiates with utilities and other interested parties to transfer individual utility programs to statewide EEU
 - Public Service Board and State legislature authorize the establishment of the EEU and a wires charge to collect funds for core statewide efficiency programs including evaluation
 - EEU assumes operation of statewide efficiency programs under an initial three year contract with the Public Service Board
 - The new EEU develops information management systems and program reporting capabilities to support regulatory reporting, oversight and program evaluation
 - Public Service Department assumes responsibility for evaluating the EEU statewide energy efficiency programs



Emerging issues and new directions for energy efficiency program evaluation in Vermont

- ❖ Strategic integration of formal evaluation activities with ongoing regulatory oversight and reporting
 - EEU evaluation strategy combines traditional program evaluation research with annual savings verification process, performance indicator measurement and multi-year market characterization assessment
 - Department hires evaluation consultant to assist staff develop evaluation plan and manage evaluation project
 - Three evaluation contractors are hired through a competitive bidding process to perform primary evaluation research and report findings to the Public Service Board, legislature, utilities, interested parties and the public



Emerging issues and new directions for energy efficiency program evaluation in Vermont

- ❖ A sharper focus on market characteristics, market barriers and market opportunities
 - EEU evaluation plan targets investigation at market conditions, market actors and customer and trade ally decision making processes affecting the adoption of energy efficiency equipment and practices
 - Baseline conditions for key market indicators and construction practices are established as reference point from which to measure future market effects
 - EEU performance indicators are refined to reward superior performance for successful market intervention efforts with targeted markets and participation groups (e.g., low-income, small commercial customers, summer peak savings)



Emerging issues and new directions for energy efficiency program evaluation in Vermont

- ❖ Integrating efficiency program evaluation research with developments in utility industry restructuring, emerging competitive power markets, real-time pricing and least-cost environmental planning
 - Tailoring evaluation research to address interrelationships between system wide efficiency programs, distributed demand-side alternatives to transmission system expansion and emerging real-time, market based mechanisms for balancing supply and demand (and transmission system congestion)
 - Applying evaluation research to help identify non-internalized social and environmental costs associated with electrical generation, delivery and consumption and better quantify the priced and non-priced benefits of energy efficiency investment



Emerging issues and new directions for energy efficiency program evaluation in Vermont

❖ Evaluation Reference documents and sources

- *IPMPV (International Performance Measurement and Verification Protocol, 2001)*

Available at: <http://ipmvp.org/>

- *European Ex-post Evaluation Guidebook for DSM and EE Services Programmes; and*

- *Evaluation, Verification and Performance Measurement of Energy Efficiency Programs*

Both available at: <http://dsm.iea.org/>

❖ Thank you