

EM&V 2.0: An Evaluator's Perspective

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Presentation Overview

- Why Evaluate
- Feedback
- Types of Evaluation
- EM&V Issues
- Objectives of Impact Evaluation
- Objectives of Process Evaluation
- Role of EM&V 2.0
- Advantages and Disadvantages of EM&V 2.0



Why Evaluate?

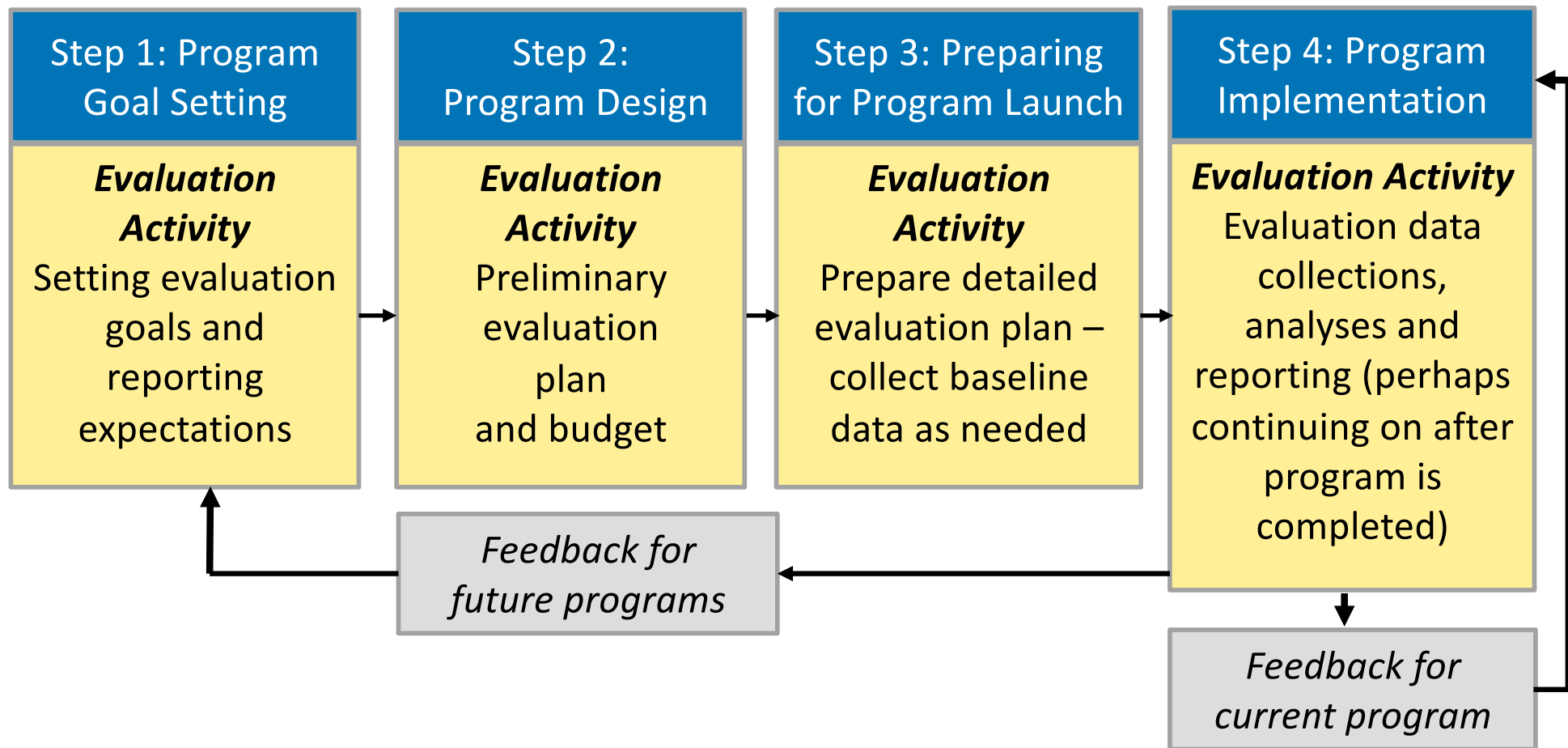
Quantify Results ...

document and measure the energy savings of a program in order to determine how well it has met its goals

Understand Why ...

program effects occurred and identify ways to improve current and future programs as well as select future programs

Provides Feedback for Program Planning & Implementation



Fundamental EM&V Issues

*Evaluation attempts to measure
“what did not happen” – it’s an estimate.*

- **Savings** cannot be determined **directly** but have to be measured by what would have happened without the program.
- **EM&V** is about **risk management**
– documenting savings, using feedback to mitigate the risk of uncertainty.



(Source: Schiller Consulting 2011)

Types of Evaluations Used

- **Process Evaluation** describes and assesses program materials and activities.
- **Impact Evaluation** examines the long-term effects from a program, including those unintended effects.
- **Market Effects** evaluations determine changes in technologies or attitudes due to energy efficiency program activities.



These activities **work together** to provide a complete picture; activities related to these separate evaluation efforts often overlap.

Objectives of an Impact Evaluation

Provides an impartial
comparison of program
results against
benchmarks
or a baseline

*Determines gross
savings* of a program

Determines net savings
attributable to program
activities.

$$\text{Impact} = \text{Actual}_{\text{post}} - \text{Projected}_{\text{pre}} \pm \text{Adjustments}$$

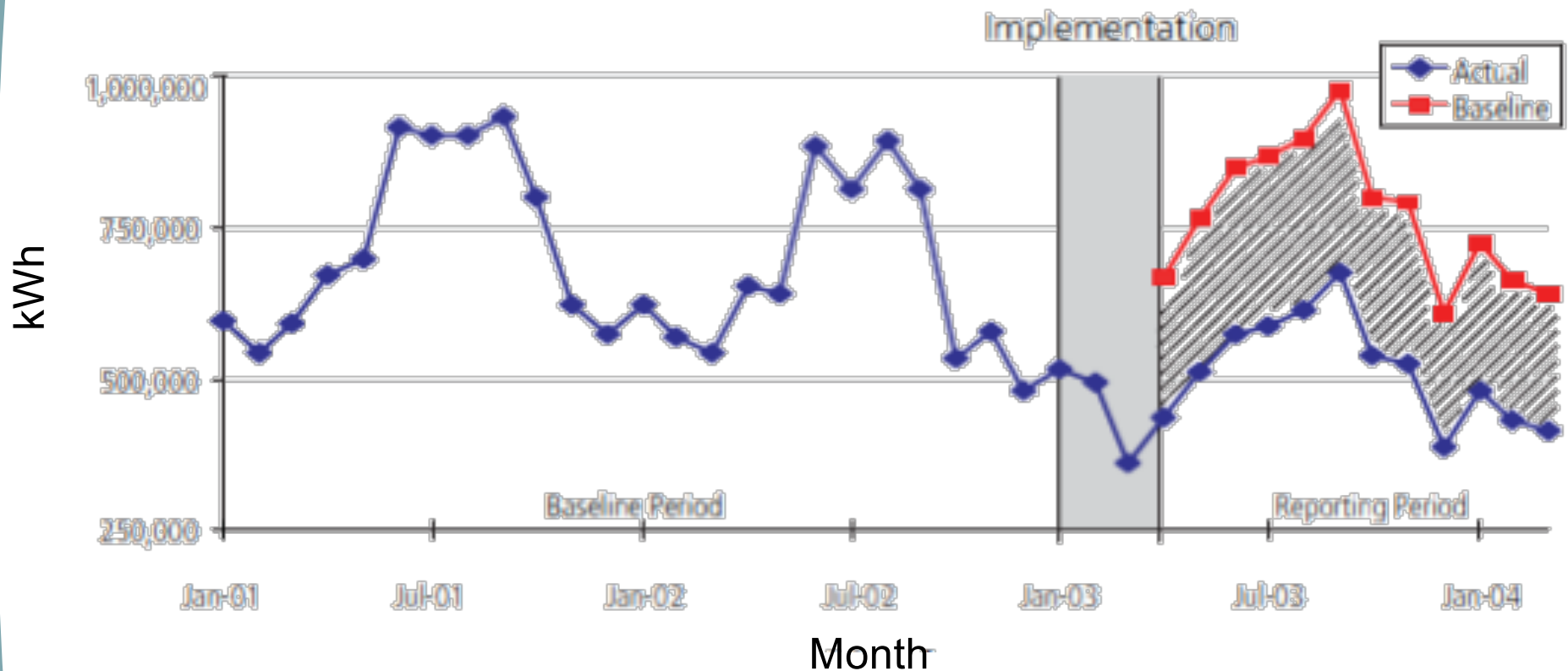
Objectives of a Process Evaluation

“A systematic assessment of an energy efficiency ‘program’ for the purposes of:

- 1) **Documenting** program operations at the time of the examination, and
- 2) **Identifying and recommending** improvements that can be made to the program to increase the program’s efficiency or effectiveness for acquiring energy resources while maintaining high levels of participant satisfaction.”

(Source: TecMarket Works Team 2006)

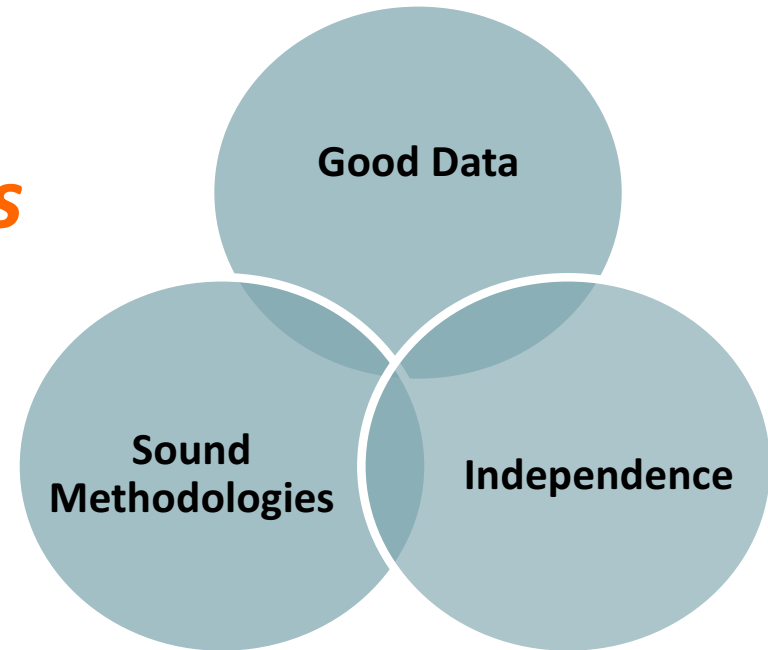
Impact Evaluations Compare Actual to Estimated Results Using Baselines



(Source: Schiller Consulting and NAPEE 2010)

Key Elements Necessary for EM&V

- *Good Data*
- *Sound Methodologies*
- *Independence*



Comparison of Current EM&V to EM&V 2.0

Attribute	Current EM&V	EM&V 2.0
Good Quality Data	✓	✓
Sound Methodologies	✓	✓
<i>Impact Evaluation</i>	✓	
Validate Custom Savings Estimates	✓	
Validate Deemed Savings Estimates	✓	✓
Determine Net Savings	✓	
<i>Process Evaluation</i>	✓	
Assess Program Effectiveness	✓	
Identify Areas for Program Improvement	✓	
<i>Market Effects</i>	✓	
Determine Changes in Baselines	✓	
Determine Effects of Technologies	✓	
Inform Future Program Design	✓	
Independence	✓	✓ - partially

What is the role of EM&V 2.0?

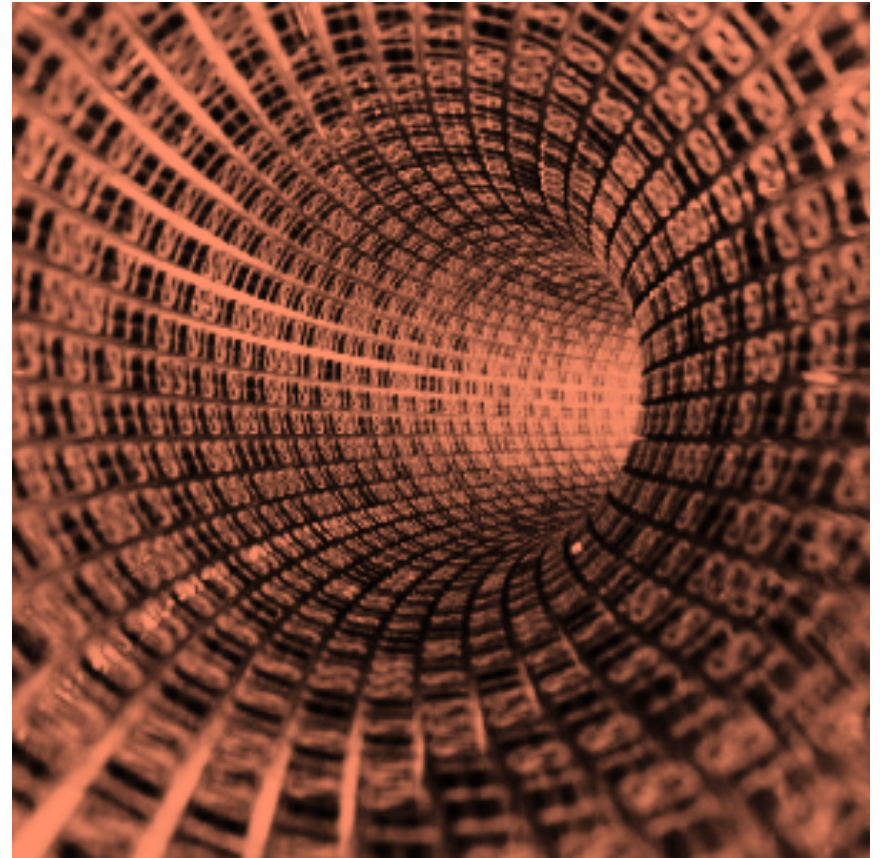
The Primary Research Questions

Evolution of EM&V Practices	How are EM&V practices likely to evolve?
Program Enhancement with Real-Time Results	How has experience with automated M&V demonstrated the value of real-time or quick turnaround evaluation supports a feedback loop that informs program changes in a timely manner?
Leveraging New Data	What data from emerging tools can be leveraged to meet EM&V needs and how?
Benefits and Challenges	What benefits of and challenges to the deployment of new tools and increasing data sources need to be considered in the context of improving EM&V practices for EE programs?
Standardization	How, where, and at what level would any standardization of practices associated with these trends benefit EM&V?
Program Preparation	What can and should administrators do to prepare for changes in EM&V?

(Source: NEEP Regional EM&V Forum DNV GL www.dnvgl.com)

EM&V 2.0 Advantages

- *Better data*
- *Faster data*
- *Stronger*
(more robust analysis)



Faster

- **Automated M&V** could help shorten evaluation timelines in some cases
 - But not for all evaluations, especially those involving custom project analysis



Stronger

- *Can provide* more robust data that is helpful when analyzing savings estimates for deemed projects- especially large programs.
- *Increased* sample sizes may be beneficial.



Disadvantages of EM&V 2.0

- *Evaluation* is not just about analyzing large data sets.
- *Rather, it is about estimating* data and arriving at conclusions and recommendations regarding program performance.



EM&V 2.0 Does Not



- *Provide any insights* regarding:
 - Estimating Measure Persistence
 - Net Savings- Critical to Measuring Program Impacts (i.e., free ridership, spillover)
 - Changes in Baseline Conditions
 - Changes in Technologies (i.e., market effects)
 - Assessments of Overall Program Performance
 - Areas for Program Improvement

EM&V 2.0 Is Best For

- *Validating Deemed Savings Assumptions*
 - Often the critical value used in Technical Reference Manuals
 - Accelerating the analysis of large volumes of deemed savings number



Commission Perspectives



- Gaining interest in jurisdictions because of its capabilities
- However, each jurisdiction differs Incentive and recovery mechanisms
- Application of EM&V findings
- Reporting requirements
- Program administration and EM&V models
- Concern over consistency of EM&V techniques
- Scrutiny over how EM&V funds are spent and attempt to determine value for funds

Mixed Results with Commissions To Date

- Some states are seriously considering EM&V 2.0
 - Especially in New England/West Coast



- Others are taking a “wait and see” attitude
 - Need a “proof of concept”
 - Better understanding of its scope



EM&V 2.0 Conclusions

- *Good for impact evaluations*

when used appropriately and its limitations are well understood

- According to DNV GL/NEEP: EM&V 2.0 is still not being used to support savings claims reported to utility commissions

- *Evaluation is a complex topic*

that requires a lot of tools

- One more tool in the evaluator's tool kit
- But not the *only one* needed



Questions

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