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ONLINE PROFESSIONAL COURSES LED BY THE WORLD'S TOP SPECIALISTS

ONLINE TRAINING BY KRISHNAJI PAWAR

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MODULE

8

Special Baseline Considerations for Utility Programs

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As an M&V professional, it is crucial to ensure that the results of M&V meet the context's needs. Impact can be defined in various ways, such as using a "code baseline" instead of an "existing conditions" baseline. A code baseline represents the minimum efficiency standards that should have been in place at the time of implementation to protect utility ratepayers' interests.

Learning Objectives

- Introduction and Course Outline
- Contexts and Concepts: The M&V Specialist's Function
- Standards of Practice
- Practical Considerations for M&V
- Physical and statistical models
- System boundary in M&V
- Baseline: Additional Considerations
- Special Baseline Considerations for Utility Programs
- Implementing the baseline model and data from the reporting period
- Granularity and load shapes
- Using Statistics to Communicate Uncertainty



INTRODUCTION

- Code baseline: This represents minimum efficiency standards that should have been in place at the time of implementation.
- Confusion: Code baselines represent a theoretical minimum efficiency standard, not an actual measure of energy consumption.
- Challenges: Code baselines may not accurately reflect the observed energy impacts of energy efficiency measures.

SPECIAL BASELINE CONSIDERATIONS FOR UTILITY PROGRAMS

Understanding Baselines

- Baselines represent the expected performance of a utility program without any interventions or changes.
- They inform program design, evaluation, and policy-making.
- Static Baselines: Fixed reference points derived from historical data. Example: Average energy consumption data from the previous five years.
- Dynamic Baselines: Adjust over time to reflect changes in external conditions, consumer behavior, or market dynamics. Example: A utility's real-time pricing program



SPECIAL BASELINE CONSIDERATIONS

- Variability in Consumption Patterns: Accounts for factors such as seasonality, economic conditions, and demographic changes.
- Influence of External Factors: Baselines must be adaptable to incorporate policy changes, technological advancements, and economic conditions. Example: A new energy-efficient appliance rebate program may not accurately reflect new consumption levels.
- Behavioral Changes: Factors such as educational campaigns and incentives can lead to changes in consumer behavior. Example: A demand response program encouraging customers to reduce usage during peak hours may no longer be relevant.
- Data Quality and Availability: The accuracy of baseline assessments hinges on the quality and availability of data. Example: Implementing smart meters can improve data quality.
- Geographic and Demographic Considerations: Customized baselines for different segments of the customer base are necessary. Example: Separate baselines for urban and rural areas can ensure fair and accurate program evaluations



ENERGY EFFICIENCY MEASURES AND INDUSTRY STANDARD PRACTICE

Above Code Concepts

- Refers to energy efficiency measures beyond building codes and standards.
- Adopted voluntarily by facility owners and developers to reduce costs, take advantage of incentives, or demonstrate sustainability commitment.
- Examples include building envelope improvements, high-efficiency HVAC systems, efficient lighting systems, and renewable energy systems.

Industry Standard Practice

- Refers to established methods for determining minimum energy efficiency requirements based on building codes, standards, and guidelines.
- Methods are developed and maintained by industry associations, professional organizations, and government agencies.
- Examples include the International Energy Conservation Code (IECC) in the U.S. and ASHRAE's standards and guidelines for energy efficiency in buildings.



INDUSTRY STANDARD PRACTICE IN ENERGY-SAVINGS PERFORMANCE CONTRACTING



- Decision to consider industry standard practice in calculating the impact of energy management activities in ESP depends on factors like ESCO and client's goals, regulatory environment, and contractual requirements.
- From ESCO's perspective, it ensures credible and defensible impact calculations, helps win contracts, and maintains a positive reputation.
- From client's perspective, it provides reassurance that quantifications of the impacts of energy management activities are accurate and expected benefits will be realized.

LIFECYCLE COSTING AND EXPECTED USEFUL LIFE

- Expected useful life is a crucial factor in lifecycle costing, determining the duration of project costs and benefits realization.
- The total cost and value of a project are calculated over its expected useful life, including initial installation costs, operation, maintenance, and replacement costs.
- Short-lived measures may not be cost-effective due to short-term impact not offsetting initial installation costs.
- Long-lived measures may be more cost-effective as the impact over the measure's life may offset initial installation costs.
- This helps ESCO and clients make informed decisions about measures to implement, resource allocation, and financing options.
- Dual baselines in utility energy efficiency programs occur when there are different baseline assumptions for a measure over the reporting period.
- This concept is rare but requires understanding by M&V professionals.



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