

Massachusetts C&I Evaluation Contract Project Summary: Massachusetts Commercial/Industrial Baseline Framework

Project timeframe: Mar 2016 – Feb 2017

Research Area: Impact (Policy)

High-level study objectives: This document articulates a statewide-framework for evaluators to consistently characterize the baseline of commercial or industrial (C&I) measure selected for evaluation measurement & verification (EM&V) in an impact evaluation.

Key Principles

Baseline is the condition that would have existed absent the installed measure.

- If there is a recognizable market for the measure, the baseline is the applicable code or standard, or industry standard practice (ISP), whichever is more efficient. This definition complies with ISO-NE requirements. ISP is in turn defined as the equipment or practice specific to the application or sector that is commonly installed absent program intervention. The framework expands on this definition and specifies relevant exceptions to this general rule, including some cases (e.g., lighting) where ISP is less efficient than the code or standard due to product sell through.
- For unique measures without a recognized market, the baseline is what the particular customer otherwise would have done absent the measure.

Evaluators must assess baseline over time. The framework introduces dual baseline principles to MA C&I evaluation and requires lifetime savings evaluation.

- Dual baseline applies unless the preexisting equipment likely would have been used over the full effective useful life (EUL) of the installed efficient measure.
- Exceptions to the dual baseline approach are allowed if there is evidence showing a customer's long-term commitment to pre-existing equipment or if there are not material differences between the initial and later period baselines.
- The framework presents logic regarding how to both characterize the second period baseline and specify when it starts (almost always assumed to be 1/3 through the measure's effective useful life).
- The principle of how to evaluate lifetime savings and realization rates is included; application of the principles through PA tracking systems is not.

The framework distinguishes five baseline event types. It provides guidance on how to distinguish between each, and on how to characterize the baseline within each event type. The types are:

- *New construction or major renovation* – Measures installed at the time of new construction, as part of a major renovation, or part of manufacturing capacity expansion. Example: A new facility's rooftop unit (RTU).
- *Replace on failure* – Measures installed in response to the failure of a previously functioning system, or if a customer is compelled to replace an old working system. Example: Replacement of a failed oven.
- *Add-on to existing equipment* – Measures that improve the efficiency of an existing system but do not replace it. Examples: New energy management systems, pre-rinse spray valves, and VFDs added to previously constant speed systems.
- *Early replacement with remaining useful life consideration* – Measures replacing operational equipment that had a definable remaining life and a different baseline efficiency at the end of that remaining life than it was when it was replaced. Example: Early replacement of a working RTU.
- *Early replacement without remaining useful life consideration* – Measures replacing operational equipment that either had a no definable remaining life or the same efficiency at the end of that remaining life than it was when it was replaced. Example: Early replacement of a working fractional hp motor. There is no efficiency standard or ISP trend. The current replaced motor and future expected baseline efficiencies are the same.

For full report see: MA Baseline Framework 2017-02-02.docx on the EEAC website, <http://ma-eeac.org/studies/>



Massachusetts Commercial/Industrial Baseline Framework Summary (cont.)

Other principles that are new or newly articulated include:

- High and low rigor protocols for determining ISP
- Non-regressive baseline guidance
- Fuel switching guidance
- Timing—the period for which baseline is most relevant (e.g. at the time of decision-making, or if new construction, at the time the most relevant permit is pulled.
- The option for concurrent evaluation—PAs engaging evaluators prior to measure approval and installation—and associated obligations and protocols

Application of baseline findings to avoid interaction with net-to-gross savings

Application of results:

- First-year savings evaluation results should be applied retrospectively. This is a continuation of past practice.
- Lifetime savings evaluation including dual baseline consideration should start for educational purposes in 2017. Results should be applied retrospectively to PA tracking savings for projects completed after 12/31/18.
- ISP baseline study results should be used in future evaluations and not prompt restatement of savings for which evaluation has been completed and applied.

Next Steps

There will be a follow-on study (Baseline Transition Planning) to develop specific protocols and timelines for implementing the principles set forth in the Massachusetts Commercial/Industrial Baseline Framework document. The timeline of the Baseline Transition Planning study is January 2017 – April 2018; Stage 3 work plan development commenced in February 2017.