



MA22CO3-B-PO - Performance Optimization Offerings Literature Review Final Summary

Memo to:

Massachusetts Program Administrators

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Performance Optimization Offerings Review

This memo provides a summary of our research findings regarding the Massachusetts Program Administrator's Equipment & Systems Performance Optimization offering (ESPO) and our review of other commercial and industrial (C&I) Performance Optimization (PO) offerings across North America. For detailed findings, please refer to the "Key Findings" tab of the MA22CO3-B-PO Literature Review Findings workbook.

1 INTRODUCTION

This study focused on C&I performance optimization offerings, which identify low- and no-cost energy savings opportunities, as well as retro-commissioning and other controls-based measures, to customers. Our review focused on programs with the following characteristics: programs that emphasize low or no-cost energy savings opportunities such as setpoint changes, equipment tune-ups, and behavioural changes. These programs engage at the facility level, either as individual relationships with each facility or in cohort settings, and may include performance tracking, such as regression modelling, bottom-up calculations, or advanced metering. Specifically, this review investigated both Strategic Energy Management (SEM) programs and ESPO programs. Within the ESPO program category, we investigated low-cost tuning measures, retro-commissioning (RCx) with custom savings estimates, and monitoring based commissioning (MBCx) programs.

2 METHODOLOGY

This research study had three primary objectives:

- Interview PAs to develop an in-depth understanding of ESPO and assess the program for problem areas
- Characterize the C&I performance optimization programs in other regions
- Provide considerations for program modifications and future program offerings

2.1 Identifying Key Research Questions

The research team interviewed four Massachusetts PA implementation teams, representing Unitil, Eversource, National Grid, and Cape Light Compact, as well as a member of the EEAC consulting team to uncover current concerns and problem areas for the purpose of guiding the team's subsequent literature review.

While some areas of current program design are working well, the PAs voiced the following concerns:

- **MBCx:** PAs are concerned with **transparency of savings calculations** and **high upfront cost** to customer
- **Low-Cost Tuning:** PAs are concerned with validating **energy savings** and program **outreach**
- **Measure Life and Savings Persistence:** PAs are concerned with savings persistence and short measure lives
- **Offering Simplification:** PAs suggested that **complex offerings act as a barrier to growth** - both for customers and for account managers

- **SEM:** PA’s are interested in how comparable SEM programs deliver **lower cost-of-savings** and **handle data availability/security issues**

2.2 Programs we reviewed

We performed a literature review including website content, evaluation studies, and promotional materials for each comparable ESPO program listed below. For those **indicated in green**, we also interviewed representatives from the companies or implementers:

- **ComEd:** Commercial and Industrial Retro commissioning Program
- **Bonneville Power Administration (BPA):** Industrial SEM program
- **Baltimore Gas & Electric (BG&E):** Building Tune-up and Monitoring Based Building Tune Up programs
- **Energy Trust of Oregon (ETO):** Commercial Strategic Energy Management and Industrial Energy Management
- **Pacific Gas & Electric (PG&E):** Commercial and Public Sector Whole Building Performance Based Retrofit Program Offering
- **NYSERDA:** Real Time Energy Management (aka “MBCx”)
- **Southern California Edison (SCE):** Industrial Energy Efficiency Program (IEEP) and Commercial Energy Efficiency Program (CEEP)
- **Xcel:** Business Energy Assessment Offering
- **BC Hydro:** RTEM (“MBCx”) Offering and Continuous Optimization Program

3 FINDINGS

The following table includes a high-level overview of our research findings:

Table 3-1 Research Findings summarized by topic.

Summary of findings by research topic	
<i>Monitoring Based Cx</i>	<ul style="list-style-type: none"> • Programs tend to use qualified pre-approved providers for both software and contractors • High upfront costs are a real concern; higher incentives towards upfront costs can help • Programs use both top-down and bottom-up calcs to quantify savings • In PY 2021 evaluations, ComEd’s MBCx track accounted for 51% of verified kWh savings and 54% of verified therm savings. More details on the program evaluation can be found in the workbook’s ComEd tab. • NYSERDA RTEM had a considerably low (20%) realization rate, in part because participants, without performance incentives, did not implement recommended measures at anticipated levels. More details on the program evaluation can be found in the workbook’s NYSERDA tab.
<i>Low-Cost Programs</i>	<ul style="list-style-type: none"> • Partner with trade allies for recruitment

	<ul style="list-style-type: none"> • Rely on account managers to funnel projects into the proper program • Independent commissioning agents have a vested interest in saving energy that controls contractors do not necessarily share
<p><i>Measure Life and Savings Persistence</i></p>	<ul style="list-style-type: none"> • Evaluation studies have proven the reliability of longer measure lives for O&M. • Implementers can increase persistence by metering and/or follow-up visits to spot check implemented measures. • Follow-up visits by independent commissioning providers may increase measure life
<p><i>Offering Simplification and Organization</i></p>	<ul style="list-style-type: none"> • Group programs by similar application process, and let the account manager and technical team direct a project to the correct offering • Train account managers to understand all program offerings
<p><i>Strategic Energy Management</i></p>	<ul style="list-style-type: none"> • SEM programs can be cost effective; ensure sub-measure savings are attributed to SEM versus other O&M programs • Virtual delivery reduces costs of savings • Energy Trust suggested looking into existing resources to help guide program design: SEM Hub, the North American SEM Collaborative, and the Northeast SEM Collaborative. • Data can be shared through encrypted file sharing platforms
<p><i>Recruitment</i></p>	<ul style="list-style-type: none"> • Trade allies can be effective partners in recruitment • Pre-qualify clients/projects to ensure resources are invested in good projects • After prequalification, vendors undertake a scoping or study effort to document savings opportunities and recommend both low cost and in-depth measures

4 CONSIDERATIONS

After conducting our review, we presented our considerations to the PAs. In summary, the PAs should consider incorporating the following strategies into their Performance Optimization offerings.

1. Add pre-qualifications for projects
2. Train account managers in offerings
3. Partner with trade allies
4. Investigate using IPMVP Option C calculation methods
5. Simplify offerings

4.1 Add pre-qualifications for projects

We found that additional screening practices help ensure savings and cost effectiveness. We identified common screening practices for the PAs to consider incorporating into the ESPO offering:

- Minimum sizes and operating hours
- High relative EUI
- Customer commitment: on-going involvement/ access to building & operators
- Existing BAS (MBCx)
- Not designated for upcoming major renovations or change in use

“The account manager is key for recruitment- they’ve been to the site and know the issues the customer might have. Customers find that having a single point of contact across the organization makes working with the program much easier.”

Energy Trust of Oregon

It is worth noting that additional pre-qualifications involve a tradeoff between increased likelihood of realizing savings versus greater access to the offerings. Having a minimum facility size may end up screening out lower income customers, for instance. Other reviewed programs have had to weigh these considerations, including Xcel’s Business Energy Assessment Offering. Xcel invites interested customers to input some of their attributes and qualifications, initiates a prescreening on their behalf, and then filters projects into the appropriate track. Account managers then reach out to recommend the appropriate offering.

4.2 Train Account Managers in Offerings

Multiple reviewed programs use account managers (internal staff) as the main source of program recruitment. Our findings indicate that:

- Account Managers are a valuable leverage point in recruitment and can direct participants into the correct track.
- Training account managers in offerings allows them to be the first step in project screening.
- Involving Account Managers on an ongoing basis can help prevent dropouts.
- Work on clear and simple educational materials for internal staff. This can empower AMs to communicate the offering effectively.
- Multiple programs including PG&E, Energy Trust, BPA, BC Hydro, and SCE all use account managers as a main source of program recruitment.

Account Managers can have a bigger impact when they are empowered by strong program design. Therefore, PAs should undertake efforts to increase measure lives, thereby increasing incentives for Account Managers to promote O&M measures. Program design should help ensure that savings are attributed to the proper programs, and not diverted to different program streams. PAs should work on developing clear and simple educational materials for internal staff, which allows AMs to communicate the offerings effectively.

4.3 Partner with Trade Allies/ Approved Contractors

A Trade Ally is a qualified mechanical contractor or service provider who understands the incentive processes and requirements, can advocate for the program to customers, and can fill out paperwork. The PAs should consider

partnering with Trade Allies, to generate quality leads and promote uptake of low-cost tuning measures. Our findings indicate:

- Trade Allies may have existing relationships to customers.
- Successful programs properly educate & incentivize (such as on performance).
- Trade Allies can gain on-going relationships to new customers.
- Trade Allies can provide feedback on program design and industry trends.
- Multiple programs, including BPA, Energy Trust of Oregon, and ComEd all rely on Trade Allies to bring in leads for low-cost programs. ComEd had to increase their Trade Ally incentives in order to improve their low-cost track
- Partnering with reputable commissioning agents and ESCOs helps ensure energy savings. Relying on controls contractors risks a conflict of interest and controls contractors may not provide the level of service needed to ensure savings. Many surveyed programs maintain a list of qualified and independent RCx trade allies.

4.4 IPMVP Option C is well-accepted by industry

We reviewed programs to uncover the methodologies used for calculating and evaluating savings. Our findings indicate that:

- There are several detailed implementation guides that focus on proper statistics and methods for claiming savings using top-down regression models
- Strategic Energy Management programs are strongly bolstered by Option C energy tracking, as it allows for real-time tracking of facility energy performance.
- Top-down models using electric bill data (in the absence of AMI or interval meter data) are possible, so long as the project saves significant energy relative to total facility energy use.
- PG&E's Whole Building Retrofit program uses metered data and IPMVP-Option C as the main means of savings verification. Implementation staff at PG&E find top-down models critical for capturing and incentivizing stranded savings, as well as incentivizing persistence. PG&E will facilitate the installation of all necessary metering and sub metering by including these costs as an approved component of a project's capital costs.
- PG&E program implementers assured that site level normalized energy use modeling software are inexpensive, well-vetted, and easy-to-use. PG&E recently offered webinar trainings in a few popular modeling tools (see more information in the PG&E Interview takeaways tab).
- Multiple programs, including BPA, NYSERDA, PG&E, So Cal Edison, and Energy Trust use Option C.
- Program implementers cited that bottom-up calculations can be used as a back-up, if meter data proves problematic.

4.5 Simplify offerings

We found a trend of consolidating offerings to simplify administration and reduce confusion in outside communications. Our findings indicate that:

- PA's have had best success when one facility-specific representative is responsible for guiding them through the different offerings.



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- Some external Program Administrator's are redesigning offerings to consolidate multiple tracks under one larger umbrella.
 - ComEd is a good example of this kind of program design and has recently restructured their program to so that three similar tracks ("RCx Building Tune Up", "RCx Express" and "Traditional Retro-commissioning") are bundled under one overarching umbrella ("RCx Flex"). By marketing multiple offerings under one broad umbrella, PA's can engage customers while avoiding decision fatigue.