Seattle City Light

Monitoring Based Commissioning Incentive Overview

Background

Seattle City Light is launching incentives for Monitoring Based Commissioning (MBCx) in Q2 2021. MBCx incentives are being offered as an additional path for completion of an Existing Building Commissioning (EBCx) process. Incentives will be paid for completion of program milestones documented by submission of MBCx planning and reporting documents to City Light that confirm that the MBCx process meets Seattle City Light's EBCx program requirements and is likely to result in energy savings at participating buildings.

City Light's intent is that the incentive program submittal requirements are aligned with the documentation and reporting produced in conjunction with a typical MBCx implementation, and not just for utility use. Commissioning industry best practices for MBCx developed by the USDOE Energy Smart Analytics Campaign, Building Commissioning Association, and California Commissioning Collaborative provide the basis for City Light's MBCx submittal requirements.

This overview provides a summary of requirements for the MBCx path. Also included are appendices with a detailed description of each submittal drafts of an MBCx deliverables template (Optional for Commissioning Provider use) and a draft of Program Requirements for building owners participating in the EBCx incentive program.

MBCx at Seattle City Light will offer the same incentives and follow the same milestones as an RCx project:

EBCx Program Phase	Typical Duration	Incentive
Assessment Phase	1 – 3 months	$4,000 per building *(up to 100% of assessment cost)*
Commissioning phase *Through completion of "Hand-off"/ training*	4 – 12 months	$0.25/Ft^2 conditioned space *(Up to 75% of Commissioning Provider's costs)*
Performance Phase	12 - 18 months	$0.05/kWh for electric savings if >7%, up to 15% savings *(Up to 100% of commissioning and implementation costs)*

Eligibility requirements for buildings the same as in EBCx program
- >50,000 SqFt
- Modern BAS system, does not need a controls upgrade
- High EUI or potential for >7% energy savings

Cx Provider requirements (Same as EBCx program)
- Lead Cx provider (individual, not company) meets Seattle Building Tune-Up Specialist requirements
- Cx provider has been the lead provider on at least 2 similar projects (submit Cx Reports)

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MBCx / FDD Software Requirements

Participants in the Monitoring Based Commissioning path must deploy a Fault Detection & Diagnostic (FDD) software application with the following functionality and reporting capabilities. FDD Applications must be able to:

- Continuously monitor systems controlled by the Building Automation System (BAS)
- Apply algorithms and rules to identify operational inefficiencies or "faults"
- Recommend corrective action to resolve faults
- Track resolved faults over time
- Provide exportable reports (CSV or Excel) that summarize corrected faults.

The FDD Application must be able to identify and recommend corrective actions for the most common operational issues:

- Equipment scheduling issues (too little, too long, wrong time, too early, etc.)
- Simultaneous heating and cooling
- BAS sensor errors/faults
- Economizer and ventilation issues
- Control-related pressurization issues
- Space cooling/heating issues (overshooting, undershooting, etc.)

Customer Commitment

- 2-Year commitment by customer
- Customer designates staff member to monitor & act on issues identified by FDD software
- Requires FDD application, EIS (energy monitoring recommended)

Seattle City Light will provide:

- Assistance with matching electric meters to account and consumption data
- Historical electric consumption data in excel format (15-minute if available)
- Regular quarterly updates of electric consumption data throughout the project
- Tracking progress via ECAM or other excel-based regression tool
- Templates and guidance on level of documentation needed to meet requirements for incentive payment

Submittals for MBCx path of Existing Building Commissioning Program

Below is a high-level outline of submittals required (typically from the commissioning provider) to meet program requirements for payment of assessment and commissioning incentives. Submittals for the commissioning incentive begin with updates to documentation produced in the assessment phase.

Assessment Report

- Executive summary
- Facility Description
- Analysis of energy use for previous 24 months (electricity, natural gas, steam, etc.)
  - Include energy meters for project area (boundary) and areas served by each meter
- How will commissioning process result in annual electric savings≥7%?
- Cx Provider's Recommendation:
  - Proceed with Commissioning (RCx or MBCx) process; Or
  - Pursue other efficiency strategies (controls, equipment upgrades)
- If recommendation is to proceed with RCx/ MBCx include:
  - Preliminary Commissioning (Cx) Plan
  - Cx Schedule
  - Cx Proposal
  - *MBCx only* – Specify FDD software application, confirm its compatibility with BAS

MBCx Project Plan (Commissioning incentive)

- Executive Summary
- Project Scope (Building(s), systems)
- Project Team
- Project Schedule
- Current Facility (Owner's) Requirements
- EMIS/FDD application specification
- Monitoring Action Plan
- Training Plan

Implementation Documentation (Commissioning incentive)

- Document configuration of EMIS/FDD application
  - Calibration of critical sensors
  - Validate quality of BAS data supplied to FDD application
  - Configure fault reporting and tracking
- Utilize software to identify and correct faults.
  - Submit reports generated by FDD/ EMIS system showing issues identified and resolved for at least 3 months after configuration is completed.
- Facility Guide/ Systems Manual
- Training and O&M time
- Implementation Cost Tracking Report

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Appendix A- Detailed checklist for MBCx Plan and Implementation Submittals
(Required for payment of commissioning incentive)

MBCX Plan
Executive Summary

Deliverable / Submittal	Update from Assessment Report. Include:
	    • Final Scope of Project
	        ○ Building(s)
	        ○ Systems to be commissioned
	        ○ EMIS/ FDD application(s) to be deployed
	        ○ MBCx Project Goals
	        ○ MBCx process overview
	        ○ High-level project schedule

Project Scope

Deliverable / Submittal	Detail the scope (boundary) of the MBCx project. Insert your own tables or modify these tables to match the scope of your MBCx effort.
	    • Buildings
	    • Energy Meters (Elec., gas, steam,)
	        ○ Areas served by each
	    • Systems monitored by FDD
	        ○ HVAC systems controlled by BAS
	        ○ lighting systems (optional, but recommended)

Project Team

Deliverable / Submittal	Identify members of your project team, titles, and roles/ responsibilities

Project Schedule

Deliverable / Submittal	Submit a schedule for your MBCx project. Include: MBCx activity, responsible parties, Due dates

Current Facility (Operating) Requirements

Deliverable / Submittal	Submit an updated Current Facility Requirements document. Sometimes referred to as Owner's Operating requirements.

Monitoring Action Plan (MAP)

Deliverable / Submittal	Submit a MAP that covers the following topics (See sample Table X Below):
	    • Establishes schedule for monitoring & reporting
	    • Designates parties responsible for:
	        ○ Maintaining the FDD/EMIS application(s)
	        ○ Reviewing/ investigating faults
	        ○ Implementation of corrective actions
	        ○ Tracking and reporting
	    • Designates due dates or sets milestones / cadence for MBCx activities
	    • Recommended (Optional) MAP elements
	        ○ Identifies resources needed
	        ○ Defines Key Performance Indicators (KPIs) to assess progress of the MBCx effort

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Training Plan

Deliverable / Submittal	Submit a high-level training plan that outlines planned training activities for facility staff to be conducted as part of your MBCx project. Include: topic, intended audience, schedule/ frequency.

MBCX Implementation Documentation

BAS Sensor Calibration Summary

Deliverable / Submittal	Submit a report documenting calibration of critical sensors

Fault Detection and Diagnostics (FDD) Configuration Summary

Deliverable / Submittal	Submit a report/ list that details the faults or rules that your FDD application will flag as operational issues. The FDD application must be configured to identify and recommend corrective actions at a system or facility-wide level for the most common HVAC operational issues: • Equipment scheduling issues (too little, too long, wrong time, too early, etc.) • Simultaneous heating and cooling • BAS sensor errors/faults • Economizer and ventilation issues • Control-related pressurization issues • Space cooling/heating issues (overshooting, undershooting, etc.) Screenshot(s) of the FDD application

MBCx Implementation Report

Deliverable / Submittal	Submit at least one report generated by your FDD application covering one (1) calendar quarter that documents identification and resolution of operating faults in your BAS. Report shall indicate that faults are investigated and resolved regularly on an ongoing basis.

Facility Guide

Deliverable / Submittal	How Systems Work (efficiently), Current Facility Requirements, EMIS/FDD Specs and Requirements, Ongoing training plan, Energy Tracking & Benchmarks (Optional)

Completed Training Documentation

Deliverable / Submittal	Provide a brief summary of training completed by facility staff involved in the MBCx project. See sample table below. Utility expectation is that a total of 30-50 hours of training/ orientation will be completed in the course of the MBCx project.

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Appendix B: MBCx Draft Deliverables Template

This template offers a checklist with examples of submittals that would meet City Light requirements for documentation of MBCx planning and implementation required to authorize payment of the commissioning milestone incentive to a participating building owner.

It is available for use by Commissioning providers to submit deliverables or can serve as a detailed outline to assist providers in submitting MBCx implementation details that meet requirements for authorizing incentive payments to participating building owners.

2021_MBCx_Draft
Deliverables Templa

Appendix C: 2021 EBCx Program Requirements

This Program Requirements document serves as a detailed reference outlining terms and conditions for building owners (participants) to participate in the EBCx incentive program. It covers eligibility and participation requirements that must be met to receive incentives via either Retro-Commissioning or Monitoring-Based Commissioning paths. It is publicly available on the City Light website and is an attachment to a building owner's participation agreement (legal incentive contract) with City Light for program participation.

2021_EBCx_Program
Requirements_FINAl

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