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4. INITIAL ASSESSMENT PHASE EBCX

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COMMISSIONING SPECIALIST CURRICULUM



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Learning Objectives

- Introduction to initial assessment Phase
- Review Building Documentation
- Analyze Energy Data
- Update EBCx Plan and Scope
- Develop an Initial Assessment EBCx Report
- Meet with Owner
- Deliverables

The objective of the initial assessment phase is to gain a basic understanding of how and why the building systems and equipment are currently operated and maintained, to identify areas of performance concern, to estimate the potential for improvement, and to determine where the Investigation Phase should concentrate its efforts.



Introduction

Initial Assessment Phase tasks include these activities:

- Review Building Documentation
- Analyze Energy Data
- Perform Initial Facility Staff Interviews
- Perform Building Occupant Interviews, when appropriate
- Perform Initial Site Walk-Through and BAS Review
- Update EBCx Plan and Scope
- Develop an Initial Assessment EBCx Report
- Meet with Owner

Review Building Documentation

1. The objective of the initial assessment phase is to gain a basic understanding of how and why the building systems and equipment are currently operated and maintained, to identify areas of performance concern, to estimate the potential for improvement, and to determine where the Investigation Phase should concentrate its efforts.
2. To comprehend the building and assess documentation availability for the EBCx Investigation process, briefly analyse current building paperwork, such as building plans and specifications, control drawings, O&M manuals, maintenance documentation records, TAB reports, and energy studies. Identify project-related missing documentation.
3. If no one-line diagrams exist for critical or complex systems, the CxP should construct them with hand sketches or drawing programmes to evaluate and measure feasibility.



Analyze Energy Data (Utility Billings and Interval Data)

- For EBCx projects that include energy savings/demand reduction components to meet the Owner's fiscal payback metrics, the CxP evaluates the facility's energy use from monthly utility bills and determines the facility's annual energy use intensity (EUI) and compares the EUI to the facilities industry peer group.
- Ideally, several years of energy data are evaluated in order to establish a trend.
- The monthly data are plotted in graphs and multiple years overlaid for comparison, creating load profiles.
- Identify whether energy use is increasing year over year for the same month.
- Monthly outside air temperature or cooling and heating degree days are also used to normalize or account for variations in the monthly and annual energy use.
- Demand data are also evaluated through graphing and inordinately large use during unoccupied periods and too early of starts and too late of equipment shut down are identified.
- Peak demand spikes are also identified and documented for further evaluation during the Investigation Phase.



Perform Initial Facility Staff Interviews

- Interview key O&M (manager, operations and maintenance) personnel to learn from their extensive knowledge and experiences working in the building daily, to establish a baseline knowledge of current issues and operational problem areas, systems or equipment, building and equipment time of day schedules and areas of required investigation.
- Note if there are planned replacements or renovations that would disrupt potential EBCx scope items.
- Also note all operator overrides and ask why they are being used.

Perform Building Occupant Interviews

- Interview chosen building occupants to learn about occupant and space challenges and address unmet requirements and expectations when the EBCx goals include comfort.
- Revise the CFR as needed.
- Temperature, humidity, draughts, air quality, lighting, acoustics, safety, security, productivity, and health are common interview subjects. Energy-efficiency projects may not require occupant interviews.



Perform Initial Site Walk-Through and BAS Review

- The CxP and facility staff assigned to the project conduct a walkthrough of all major spaces to gain an understanding of the building's layout, types and condition of spaces, occupancy levels, lighting and controls, location of equipment rooms, location of documentation, building automation system, its age, and what it controls, as well as the general condition of equipment.
- Components of the initial site walk through pertaining to equipment observation include a broad appraisal of the systems and equipment to be included in the EBCx project's scope and condition.
- Also, document any components that have beyond their service life and must be replaced with capital expenditures instead of being included in the EBCx project.



Update EBCx Plan and Scope

- Updates are made to the EBCx plan and scope, including modifications to the scope based on the identification of areas as either more or less significant than others. Additional factors to focus on when upgrading the EBCx plan are based on information gathered from interviews with facility personnel and building occupants.
- These aspects may contain updated outlines for the Implementation and HandOff Phases, as well as additional information regarding the trending and monitoring strategy, calibration and testing plan, M&V activities, savings and implementation costs and procedures, and M&V activities.



Develop an Initial Assessment EBCx Report

Create an Initial Assessment Phase Findings Report. This report informs the Owner if the EBCx project will fulfil the Owner's fiscal KPIs for expenses and return on investment (ROI) and if the CxP advises proceeding. The report comprises the CxP's walk-through, document evaluation, staff and tenant interviews, a list of ECM and FIMs, their estimated order of magnitude implementation costs and energy savings potential, and any applicable utility incentives. Updated EBCx Plan, CFR, utility analysis, and initial Master List of Results are also possible. Owner reviews CxP's findings and First Assessment EBCx Report.



Meet with Owner

1. Review:

- EBCx Plan, including roles and responsibilities
- Outcome from the facility staff and building occupant interviews
- Findings from the initial planning assessment and Master List of Findings
- EBCx project financial summary for measure costs vs. savings potential (capital, energy, maintenance)
- Investigation Phase scope
- Scheduling of testing and facility access

2. Discuss training requirements

3. Additional meetings are scheduled throughout the investigation to further coordinate testing, sub-contractor support, schedule, identified issues, and gain feedback on early identified FIMs





Meet with Owner

The difference between an energy audit, condition assessment and Initial Assessment is that during the Initial Assessment the CxP has the ability to walk around and take quick, cursory measurements/ tests (pre-tests) and do some quick-type metering and analysis. This is a good time to focus on goals that may be beyond energy, like maintenance improvements, troubleshooting, and even improving safety. The CxP's testing abilities and beyond- energy (total package/measures) eye make Cx more comprehensive than a condition assessment or energy audit alone.



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Initial Assessment Phase Deliverables

- Initial Assessment EBCx report
- Updated EBCx Plan



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