



EBCx Services provide technical support to ESCOs and engineering firms, especially on larger projects that require additional resources during periods of peak work load. The demand placed on engineering teams is significant when faced with a combination of a large energy or RCx project that may have several hundred buildings, plus the normal work load. It is challenging to provide enough in-house resources to effectively handle everything within a timely manner.

EBCx Services provides technical field support, working as a sub consultant during the project development phase, from the PA through the IGA. We work with your teams to help “expand the bench” during periods of heavy resource demand. Additionally, we are available to provide commissioning and TAB support during the construction phase, plus M&V support post construction. Below is the type of assistance that we provide during each phase (work can be adjusted to accommodate specific project or process requirements).

Preliminary Assessment (PA) Phase:

- Review available as-built drawings to understand general equipment/systems in each building.
- Perform a cursory review of available BAS graphics for each building and obtain screen shots to obtain a high-level understanding of the control system structure and identify possible issues that drive energy waste. We identify trending capability of the BAS and if data loggers will be required during the IGA phase.
- Perform a site survey of each building to obtain the necessary information to write a report of the as-found data including: onsite utility meters, generators, HVAC equipment/systems, control system, lighting and general retrofit opportunities for mechanical, lighting, water, building envelope and other possible ECMs.
- Meet with the Facility Manager (briefly) to understand facility use, occupancy, scheduling and any wide spread or ongoing general issues.
- Write a report for each building that summarizes the existing conditions and recommended ECMs.

IGA Phase:

- Following the report developed in the PA Phase, a testing plan is developed for each building. All field testing is recorded in an Excel workbook, which when completed, has all recommended ECMs, including control sequences and an issue log generated through the site investigation/testing work. The workbook is used to calculate energy savings or an energy model. An M&V approach is provided for each ECM.
- The testing plan will leverage the BAS as much as possible to establish a baseline of how equipment and systems are operating. Trends are used to establish set points, schedules and

2609 N. Forest Ridge Blvd #280

Hernando, FL 34442

423.737.5085, 352.327.9385 www.ebcxservices.com



various control issues such as simultaneous heating/cooling and if economizers are operating correctly (depending on weather conditions). Each ECM is backed up by a combination of field testing, BAS or data logger trends. Copies of all trends are included in the workbook, identified by number to match up with each ECM.

- Data loggers are deployed in areas that do not have BAS points available. EBCx Services owns over 80 data loggers for temp, rh, lighting, plus dozens of additional logging accessories for amperage, voltage, kW, static pressure, CO2 and CO.
- kW, volts, amps and pf will be measured on all motors 5 HP and larger.
- Meet with the Facility Manager to fully understand facility use, occupancy, scheduling and any wide spread or ongoing general issues. During this meeting, we sit down with the FM and develop a zone by zone schedule to understand when areas of the building are occupied and if any wide spread comfort issues exist. Use of space heaters is determined.
- When required, AHU airflow rates are measured to determine ventilation flow, min/max flow on vavs (generally a statistical sample rate as per FEMP guidelines). Additionally, field testing of DAT, Discharge Duct Static Pressure are measured and compared to the BAS for accuracy. Low DAT and high duct static pressures are often discovered that lead to low cost, high savings ECMs.
- Chiller efficiency is measured, including waterflow using various testing methods including ultrasonic water flow testing.
- Motor and equipment tag data is recorded.
- Issue log is developed indicating O&M measures and any deferred maintenance issues.
- Recommended ECM list is developed, including a recommended M&V approach for each ECM.
- Generally, the energy engineer for the ESCO runs their own calculations or energy simulation model, using the field data provided by EBCx Services. However, when required, EBCx Services can perform energy calculations for each recommended ECM.
- Scope of Work (SOW) document are developed, and include enough detail, sketches and submittal data to allow contractors to provide fixed pricing on recommended ECMs.
- Budget costs estimating can be performed (if required) using the current edition of RSMeans Cost Data.

Construction Phase:

- Existing Building Commissioning (EBCx) when required in SOW

2609 N. Forest Ridge Blvd #280
Hernando, FL 34442

423.737.5085, 352.327.9385 www.ebcxservices.com



- Commissioning of ECMs to verify that the estimated energy savings are achieved.
- Testing, Adjusting and Balancing (TAB)
- M&V support