

2010 Retrocommissioning Program

a BGE Smart Energy Savers ProgramSM



Participant Manual

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Section 1: Introduction

1.1 Program Overview

Buildings frequently undergo operational and occupancy changes that impact the electrical, mechanical, and control systems, hindering optimal performance. In today's complex buildings, systems are highly interactive. The increased need for system integration, due to the presence of sophisticated control systems, results in a trickle-down effect on building operations—small problems have big effects on performance. Retrocommissioning helps ensure that building equipment and systems are integrated so they perform together effectively and efficiently, and meet the building owner's current operating requirements and expectations.

One of the primary objectives of BGE's Smart Energy Savers ProgramSM is to offer its customers every opportunity to manage their energy expenses. The Retrocommissioning Program (RCx Program) is suited to fit within BGE's existing energy efficiency programs by offering energy engineering services and incentives for low-cost and no-cost measures. The RCx Program is designed to achieve electric demand, and energy savings in industrial and commercial (I&C) facilities through improvements in how facilities' systems are operated and maintained. Savings generated from RCx projects are realized through the systematic evaluation of facility systems and implementation of cost-effective measures targeted to improve facility operation that, in many cases, also improve occupant comfort.

Program participants are BGE I&C customers on service rates GL and P, who have demonstrated a commitment to spend \$15,000 to implement identified measures with an estimated simple payback of 1.5 years or less based on electric savings.

Eligible sites include existing commercial, industrial, government, and institutional facilities with significant energy-saving opportunities related to facility or process operations and maintenance (O&M). In addition, program participants should have no major renovation or large capital investments pending, have a relatively high energy use index (EUI) compared to EUIs of buildings of the same class, and facility owner and operating staff commitments for active involvement in the process.

BGE will provide project-by-project funding incentives that cover up to 75 percent of the study and implementation costs, with a per project funding cap of \$15,000. BGE may also provide incentives, through other efficiency program offerings, to the building owner to offset implementation costs for recommended, low-cost measures if the estimated simple payback exceeds 1.5 years. For projects that have estimated simple payback periods of less than 1.5 years, no additional incentives are available.

To accommodate the needs of various-sized customers, BGE's RCx Program offers two distinct levels of service:

- **Enhanced O&M Services:** Enhanced O&M Services targets commercial facilities with less than 75,000 square feet and not operationally complex, and industrial process systems. This service offering is designed to have a streamlined approach that focuses primarily on RCx measures expected to yield the quickest return on investment. Elements typical in the Enhanced O&M Services Program include (but are not limited to): calibration of building systems and controls, replacing equipment filters, cleaning evaporator and condenser coils, sealing air and water leaks, re-balancing air handling systems and education of facility personnel. The intent is to make the calibrations and operational changes identified in the Action Plan to capture the projected energy savings.
- **Full RCx Services:** Full RCx Services is targeted at BGE's large I&C customers and is more comprehensive in nature than the Enhanced O&M Services with respect to the elements contained in the investigation phase and implementation recommendations. Full RCx Services are available to facilities that are typically greater than 75,000 square feet, have an energy management system with comprehensive direct digital control, and complex HVAC systems. Elements in Full RCx Services typically include (but are not limited to): HVAC calibrations, diagnostic and function tests of major systems and equipment, air and water systems balancing, calibration of energy management and control, and O&M tune ups and education.

Indications that a building may be a candidate for the Full RCx Services include:

- An unjustified, high energy-use index
- Persistent failure of building equipment, control systems, or both
- Excessive occupant complaints about comfort

RCx is *not* appropriate when:

- Most of the equipment and systems are either outdated or at the end of their lives
- Major system design problems exist
- Major equipment malfunctions are extensive enough that equipment replacement is the best remedy

1.2 Manual Organization

This Participant's Manual is specifically designed for use by facility owners, property managers, and O&M staff, and is organized as follows:

- Section 2 provides an overview of the EO&M Services offering
- Section 3 provides an overview of the Full RCx Services offering
- Section 4 includes information on available resources and contact information

The BGE Full RCx Services Process Manual is referenced in several places throughout this document. The manual provides full RCx Program detail, whereas this document provides a high-level overview of the program and associated services. The manual is available electronically and in hardcopy. Visit <http://conservation.bgesmartenergy.com/business/retrocommissioning> to access RCX Program resources, or call 800.845.6195.

Section 2: EO&M Services

2.1 Eligibility

Eligible facilities must meet the following minimum requirements before submitting an application for consideration for EO&M Services:

- The facility must be a commercial, industrial, institutional, school, or government building receiving distribution services from BGE on service rate GL or P.
- Buildings must be less than 75,000 square feet for building system measures. Industrial process measures in any size facility are eligible.
- The facility owner and O&M staff must express a commitment to be actively involved in the EO&M Services process, including the educational and future maintenance plan components.
- The facility owner must commit to funding up to \$15,000 to match the BGE financial incentives. This commitment is for the customer's portion of study costs and implementing identified measures with a payback of fewer than 1.5 years. These measures must be installed within 6 months of BGE's approval of the Final Report or no incentive will be paid.

BGE will select applicant buildings that meet the above criteria and program goals for cost effectiveness, energy savings, and verifiability. Facilities with high normalized demand (peak kW/ sq.ft.) and annual energy costs are good candidates to be selected for program participation. BGE's decision regarding selection of program applicants for the RCx Program will be final and binding for all parties.

2.2 BGE Incentives and Customer Funding Requirements

EO&M Services, BGE incentives, and customer funding requirements are as follows:

- BGE and customer will make equal financial commitments to the total cost of the EO&M project.
- As a rule of thumb, BGE has found that \$4,000 is a reasonable cost to assess EO&M opportunities and develop action and training plans.
- BGE Incentives
 - A maximum 75% cost share for an EO&M Assessment and Study, with a per-project co-funding cap of \$3,000.
 - A maximum 75% cost share for the costs of EO&M implementation measures to demonstrate the value of EO&M practices, with a per-project co-funding cap of \$12,000. Incentives may not be used for major repairs or to place inoperable equipment into operating condition.
 - Identified measures with paybacks over 1.5 years are eligible to apply for incentives in the other BGE programs.
- Customer Funding Requirements
 - The customer must, at minimum, pay 25% of the costs of the EO&M Assessment and Study.
 - The customer must, at minimum, pay 25% of the implementation costs and for installation of other cost-effective low/no-cost measures with electric savings- based paybacks of 1.5 years or less.

The tables below provide examples of project cost sharing at three potential project incentive levels: maximum BGE incentives, a less than maximum level, and where demonstration measures exceed the BGE maximum incentive level.

EO&M Project Funding Example With Maximum BGE Incentive			
Project Component	Total Cost	BGE Cost Share	Customer Cost Share
EO&M Assessment	\$4,000	\$3,000	\$1,000
Demonstration Measure Implementation	\$16,000	\$12,000	\$4,000
Implementation of Measures With < 1.5 Year Paybacks	\$10,000	\$0	\$10,000
Total Funding	\$30,000	\$15,000	\$15,000

EO&M Project Funding Example With Less Than Maximum BGE Incentive			
Project Component	Total Cost	BGE Cost Share	Customer Cost Share
EO&M Assessment	\$3,000	\$2,250	\$750
Demonstration Measure Implementation	\$8,000	\$6,000	\$2,000
Implementation of Measures With < 1.5 Year Paybacks	\$5,500	\$0	\$5,500
Total Funding	\$16,500	\$8,250	\$8,250

EO&M Project Funding Example Where Demonstration Measures Exceed BGE Maximum			
Project Component	Total Cost	BGE Cost Share	Customer Cost Share
EO&M Assessment	\$4,000	\$3,000	\$1,000
Demonstration Measure Implementation	\$18,000	\$12,000	\$6,000
Implementation of Measures With < 1.5 Year Paybacks	\$10,000	\$0	\$8,000
Total Funding	\$32,000	\$15,000	\$17,000

BGE incentives will be paid after implementation of the identified measures is complete and has been verified by BGE.

2.3 EO&M Service Providers (ESP)

The customer will select the ESP. BGE can provide a list of Service Providers which includes contractors performing HVAC systems services. After the customer's selection, the ESP will conduct a brief walk-through of the customer's facility and assist the customer in completing the EO&M Application and Checklist.

2.4 EO&M Process

The EO&M process consists of three distinct phases for each project: Application, Study, and Implementation. In the Application Phase, customer interest in EO&M is determined, an ESP is selected by the customer, EO&M opportunities are identified, and the EO&M application is submitted. After the EO&M application is approved by BGE, the opportunities identified in the application are studied in greater detail to determine potential energy savings and implementation costs. An Action Plan for implementing the EO&M measures is then developed and submitted to BGE for approval. After the Action Plan is approved by

BGE, the project moves into the Implementation Phase, where the EO&M measures are implemented. The process involved with each phase is summarized below.

1 Application Phase

- 1 Customer determines interest or need for EO&M services.
- 2 Customer selects ESP.
- 3 ESP is provided with customer's billing history and any previous studies.
- 4 ESP conducts preliminary walk-through and assists customer in completing initial benchmarking and EO&M Checklist. (See Appendix A)
- 5 ESP benchmarks facility using ENERGY STAR® Portfolio Manager™ or equivalent.
- 6 EO&M application is completed and submitted to BGE. (See Appendix B.)
- 7 BGE accepts or rejects application for study.

2 Study Phase

- 1 ESP conducts walk-through assessment.
- 2 ESP refines preliminary checklist measures based on walk-through.
- 3 ESP finalizes benchmark data.
- 4 ESP develops major equipment list and occupancy data.
- 5 ESP analyzes and quantifies opportunities and develop master list of findings.
- 6 ESP develops Action Plan, including educational and future EO&M practice components.
- 7 ESP reviews Action Plan with Customer and BGE.
- 8 ESP finalizes Action Plan for BGE approval.

3 Implementation Phase

- 1 Customer and/or ESP implements EO&M Measures identified in Action Plan.
- 2 ESP documents savings achievements.
- 3 Customer notifies BGE of completion of implementation.
- 4 BGE inspects and approves implementation and issues incentive.

Section 3: Full RCx Services

3.1 Facility Eligibility

Customers must meet the following minimum eligibility requirements to be considered for the RCx Program:

The facility must be a commercial, industrial, institutional, school, or government building receiving distribution services from BGE on service rate GL or P, and typically have a minimum of 75,000 square feet of conditioned space.

- The facility must have an existing building or energy management system (EMS) with direct digital control (DDC) of major facility HVAC systems.
- The facility must have accessible and up-to-date building documentation and records.
- The facility must be free of major maintenance problems requiring costly repairs or replacements, and have no planned major system renovations or retrofits.
- A commitment by the owner and facility staff to be actively involved in the entire retrocommissioning process. This includes:
 - Providing access to the facility
 - Providing time for facility personnel to interface with the RSP
 - Providing and assisting with reporting and collection of pertinent facility information
 - Participating in training
 - Performing ongoing O&M after the formal RCx process
- The facility owner must express a willingness to commit at least \$15,000 of funding and staff resources for completing the project plan and implementing approved RCx measures with an estimated simple payback of 1.5 years or less.
- Plans to implement identified and approved measures within 6 months of BGE's approval of the final report. These measures must be installed within 6 months of BGE's approval of the final report or no incentive will be paid.

Customers must complete and submit a Full RCx Services application and receive written approval from BGE prior to initiating an RCx project. In reviewing program applications, BGE will select applicant buildings that meet the above criteria and program goals for cost effectiveness, energy savings, and verifiability. Facilities with high normalized demand (peak kW/ft²) and annual energy costs and/or have a low ENERGY STAR® rating from Portfolio Manager™ are good candidates for program participation. BGE's decision regarding selection of program applicants for the RCx Program will be final and binding for all parties.

3.2 Incentives

The RCx Program is a “service-incentive” program. This means the RCx analysis and implementation assistance is itself the incentive to the customer and is partially funded by BGE. BGE will provide project-by-project incentives that cover up to 75 percent of the RCx study and implementation costs, with a per-project funding cap of \$15,000. In return, participants must make a commitment to fund a minimum of \$15,000 for approved RCx measures with a simple payback of 1.5 years or less. Implementation of identified and approved measures must occur no later than 6 months from the date of BGE approval of the Final Report. Should the identified measures not be implemented within this timeframe, the customer will be in default of the project contract and may be responsible for the full cost of the RCx services provided to date.

BGE recognizes that an initial investment is typically required at the beginning of the process to determine the possible opportunities. Therefore, BGE will pay for services associated with the development of a preliminary scope of services and preliminary savings estimates as part of the Planning Phase. Incentives for the scope of services development will be based on \$0.025/square foot of building conditioned space up to a maximum of \$3,000 and will be paid directly to the service provider upon commencement of the planning phase; however, BGE may consider higher incentives on a case-by-case basis. Any preliminary scoping services incentives are subject to the 75% maximum BGE co-funding and will be counted as part of the \$15,000 per project maximum incentive

For measures that have an estimated simple payback of fewer than 1.5 years, no implementation incentives will typically be available. To help offset the cost of identified low-cost measures that have an estimated payback of greater than 1.5 years, incentives may be available by submitting a Custom application. Additional information on Custom projects is available at BGESmartEnergy.com.

3.3 Retrocommissioning Service Providers (RSPs)

Activities and services available through Full RCx Services will primarily be delivered through pre-approved RSPs. The role of an RSP is to collaboratively work with the customer through the application process, and upon acceptance into the Program, provide the Full RCx Services analyses and reporting. If the customer has not already selected an RSP when applying to the program, BGE will provide a list of pre-approved RSPs eligible to provide Full RCx Services.

After acceptance into the program, the customer will contract directly with an RSP for their project. The customer contracts with RSPs for Full RCx Services in one of three ways:

- 1 The customer will, through their own evaluative process, contact, select and contract with an RSP from the list of pre-approved RSPs.
- 2 The customer solicits for RCx services outside of the pre-approved RSP list provided by BGE.
- 3 The customer contracts directly with an RSP with whom a pre-existing relationship exists.

In each scenario, prior to the customer contracting with an RSP, BGE will have the final authority to approve or reject the customer's selected RSP depending upon its assessed match of experience to the project's defined goals and scope.

The contract should delineate costs for different phases of the project—planning, investigation, implementation (if the customer desires the implementation to be performed by the RSP), etc. BGE encourages customers to execute contracts that explicitly require the RSP to provide the RCx services as described in the BGE RCx Process Manual. Capital improvement investigations should not be included in the scope of the RCx services performed and no incentives will be paid for studies that include investigation of capital improvement projects (e.g., major retrofit projects with an estimated simple payback greater than 4 years).

RSPs may be removed from the program (and/or from a project) at BGE's discretion. Examples of activities that will lead to RSP removal include:

- Failure to meet project timelines
- Poor quality of deliverables
- False representation or marketing of the program to BGE customers

When a customer is in the process of selecting an RSP, the following should be key considerations:

- Is RCx a core or a secondary business component of the firm?
- Does the company have any work samples (e.g., final retrocommissioning reports) available for review?
- Is the firm a full member of the Building Commissioning Association (or another nationally recognized building commissioning organization)?

The customer will only receive incentives from BGE if: (1) the RSP follows the processes outlined in this manual; and (2) a customer's RCx application had been formally accepted by BGE. (The application process is the vehicle by which this evaluation takes place.) No incentives will be paid for any measures implemented prior to a formal acceptance into the program by BGE.

Because not all Full RCx Services applications will be accepted into the program, BGE encourages the RSP to understand and convey the full portfolio of energy efficiency program offerings to the customer and assist in the determination of which program(s) is best-suited to a customer's needs.

3.4 Retrocommissioning Service Plan

As the majority of RCx energy conservation measures are O&M in nature, BGE requires participants to deliver a plan outlining their strategies for maintaining the energy savings. All plans must include training of existing and future maintenance staff on improved operation of the facility according to the results of the RCx study, including all changes made as a result of the study. The plan must also show an energy management strategy that includes routine analysis of energy benchmarks and an action plan to resolve any drift or backslide from the new performance level. The plan may call for a 6-month follow-up with the RSP to review the performance of the RCx measures and address any concerns. The cost of this 6-month follow-up may be included in the eligible fees associated with the RCx study and increase the incentive amount if the incentive maximum has not been reached.

3.5 Retrocommissioning Process

BGE's RCx program provides expert building analysis at a reduced cost to help customers optimize the performance of their existing buildings. Financial incentives are available to participants to reduce the cost of this analysis and to offset implementation costs for recommended, low-cost measures if the estimated simple payback exceeds 1.5 years. Engineering support or incentives are not available for capital equipment measures or for new construction projects. However, these opportunities may be eligible for incentives through the Energy Solutions for Business Program.

Full RCx Services are primarily targeted to BGE customers (existing buildings only) with an unusually high energy use, persistent failure of equipment and controls, tenant complaints or indoor air quality problems. Full RCx Services review and assess all energy equipment with a primary focus on HVAC, lighting controls, ventilation, and automated building controls. Full RCx Services consists of six distinct phases for each project:

- | | |
|------------------------------|-------------------------------|
| 1 Application Phase | 4 Implementation Phase |
| 2 Planning Phase | 5 Hand-Off Phase |
| 3 Investigation Phase | 6 Verification Phase |

The following table provides an overview of the key activities associated with each phase of the process.

RCx Process Overview	
Phase	Activity
Application Phase	<ul style="list-style-type: none"> ▪ Building owners submit program application including proposal for development of preliminary scope of services document ▪ BGE reviews application and makes decision ▪ Letter of Intent for preliminary scoping services signed between BGE and customer
Planning Phase	<ul style="list-style-type: none"> ▪ Select the project ▪ Assemble the RCx team ▪ Hold a project kick-off meeting ▪ Set project objectives and obtain support ▪ Perform an initial site walk-through ▪ Benchmark using Portfolio Manager™ ▪ Develop the preliminary scope of services document ▪ Full RCx Services Building Owner's Agreement signed between BGE and customer ▪ Document the current operating requirements ▪ Develop the RCx plan
Investigation Phase	<ul style="list-style-type: none"> ▪ Review facility documentation ▪ Perform diagnostic monitoring ▪ Perform functional tests ▪ Perform simple repairs ▪ Develop Master List of Findings ▪ Prioritize and select operational improvements
Implementation Phase	<ul style="list-style-type: none"> ▪ Develop implementation plan ▪ Implement selected operational improvements ▪ Verify results
Hand-Off Phase	<ul style="list-style-type: none"> ▪ Develop final report ▪ Compile a systems manual ▪ Develop recommissioning plan ▪ Provide training ▪ Hold close-out meeting ▪ Implement persistence strategies
Verification Phase	<ul style="list-style-type: none"> ▪ Re-test and monitor ▪ Explain performance variances from expectations ▪ Update energy savings estimates as necessary ▪ BGE verification of RCx measures ▪ Incentive processed

The following subtasks describe the typical retrocommissioning activities at each phase of the process. It is important to note that the retrocommissioning process must be adapted to meet the needs of each individual building project.

3.5.1 Application Phase

A Full RCx Services project is initiated in the Application Phase. The facility owner or designated RSP completes the project application form (Refer to Appendix A - RCx Application Form) and a proposal for the development of a document and submits both for approval. The customer is responsible for any costs incurred during the Application Phase and holds the final responsibility for ensuring delivery of a completed application to BGE. BGE will then perform a review of submitted applications and preliminary scope of services proposals and identify those projects that meet minimum eligibility criteria, and have viable energy savings potential. When an application is formally accepted by BGE, the customer will be notified in writing and the facility owner must sign a Building Owner Agreement (Appendix B - Building Owner Agreement Form).

Deliverables:

- Completed RCx Application Form submitted to BGE by the owner or owner’s representative
- Proposal for development of the preliminary scope of services document
- Letter of Intent for preliminary scope of services and energy savings estimate signed between BGE and customer
- Project contract between building owner and RSP authorizing commencement of RCx work
- Scoping services incentive paid directly to RSP

Duration: 1 to 2 weeks

3.5.2 Planning Phase

Initial planning activities are critical to the success of any RCx project as they set the objectives and lay the foundation for the project team to move forward. To plan for an RCx project, the building owner or owner’s representative must determine if the building is a good candidate for RCx, develop the internal goals, and obtain support for the project

After a project is accepted, the building owner or owner’s representative must establish the project scope, goals, timeline, and assemble a team that will guide the project through to successful completion. The Planning Phase, however, first must demonstrate that opportunities for RCx performance improvements exist prior to investing in a full RCx assessment. The Planning Phase focuses on understanding the current building operations, major electricity end use (lighting, HVAC, process), HVAC controls, previous energy conservation opportunities, the owner’s understanding of RCx and opportunities that they feel may exist, and benchmark the facility’s overall efficiency rating using ENERGY STAR Portfolio Manager or equivalent. The plan must identify significant energy and demand savings potential for the project to continue to the Investigation Phase. If the RSP is not able to demonstrate project feasibility, the project may be dropped from the program. In this case, BGE will pay the RSP for Planning Phase services only. No additional work will be performed or payments made. The Planning Phase typically takes 4–8 weeks to complete.

According to “[A Retro Commissioning Guide for Building Owners](#)” (developed by *PECI* with U.S. Environmental Protection Agency ENERGY STAR funding), several energy savings opportunities are often identified during an initial RCx walk-through:

- Systems that simultaneously heat and cool
- Indication of ineffective use of outside air for free cooling
- Pumps with throttled discharge valves
- Extended periods when building is unoccupied
- Improper building pressurization
- Over illuminated spaces

Refer to Appendix E for a detailed list of preferred RCx building characteristics.

Deliverables:

- RSP – Planning Phase deliverables (see Process Manual)

Duration: 4 to 8 weeks

3.5.3 Investigation Phase

During the Investigation Phase, the RCx team conducts a systematic analysis of the building’s performance through observation, review of building documents and O&M practices, and trending and testing of building systems.

The Investigation Phase builds upon the Planning Phase to include activities such as conducting detailed site assessments, diagnostic testing, and trending analyses to evaluate current facility operating procedures, equipment functionality, and to verify planning phase assumptions. This phase involves detailed investigation of the FIMs identified in the RCx Plan and additional investigation to identify other FIMs.

Other operations-validation tasks may include interviewing management and building personnel, and reviewing current O&M practices and service contracts. The goals of the Investigation Phase are to: (1) understand how the building systems are currently operated and maintained; (2) identify operational and system issues and their potential improvements; and (3) select the most cost-effective “fixes” for RCx implementation. The target timeline for completing the Investigation Phase is approximately 12 weeks for a typical project, but is dependent upon the time of year (i.e., affected systems must be operational).

Deliverable:

- RSP – Investigation Phase deliverables (see Process Manual)

Duration: The target timeline for completion of the Investigation phase is about 12 weeks for a typical project, but depends on the time of year (i.e., affected systems must be operational).

3.5.4 Implementation Phase

During investigation, the commissioning team conducts a systematic analysis of the building’s performance through observation, review of building documents and O&M practices, and trending and testing of building systems.

The way implementation is carried out varies greatly among projects. Each building will require different types of measures, each owner is faced with unique budgetary and administrative situations, and each building staff will have different capabilities and contractor relationships.

The Implementation Plan organizes and defines the work needed to obtain the required results. While the Investigation Phase provides important information about improving building performance, unless it is actually implemented, the RCx process remains incomplete. Primarily, the Implementation Plan includes a scope of work for addressing each issue or improvement that the owner has selected to implement along with requirements for verification. The plan also includes recommended methods for calculating energy savings and verifying performance of the measure after implementation. As with all phases of Full RCx Services, implementation of measures can take place only upon formal review and written approval to proceed by BGE.

Deliverable:

- Owner or RSP – Retrocommissioning Implementation Summary Report

Duration: Implementation of identified and approved measures must occur no later than 6 months from the date of BGE approval of the Final Report.

3.5.5 Hand-Off Phase

To ensure the building owner and operators have the knowledge they need to monitor and maintain implemented measures, a thorough project hand-off is essential.

The Final RCx Report is delivered to the customer at the close-out meeting. The report is a resource for current and future operators, and should be made part of the permanent record of recommended O&M plans and practices for the building.

The RSP may include assistance with developing and executing a persistence plan for the customer in the cost of services. The customer is required to submit a plan that includes ongoing training of existing and future maintenance staff on improved operation of the facility in accordance with the results of the RCx study, including all changes made as a result of the study. The plan must also include a strategy for routine energy benchmarks and an action plan to resolve any drift from the new performance levels. The plan may include a 6-month follow-up with the RSP.

Deliverables:

- RSP – Final RCx Report
- Other reports (per customer’s contractual arrangement with RSP)

Duration: 2 to 4 weeks

3.5.6 Verification Phase

Once an improvement is completed, it is important to re-test the equipment or systems over time to ensure that the improvements are working as expected. Re-testing can be done using EMCS trending, data-logging, functional testing, simple observation, or a combination of these methods. To confirm that each improvement and the combination of improvements are integrated and have the desired effect, the post-implementation data needs to be compared to the original, baseline data. This final verification data can also be used to update the energy savings estimates, if needed.

The data gathered as a result of the verification activities and the updated energy cost savings information is compiled into the Implementation Summary Report. During the Verification Phase, BGE will visit the site to verify that measures have been properly installed, new control strategies are in place, repairs have been made, etc. Upon full verification by BGE, incentives payments will be processed and paid to the RSP.

Responsibility for completion of the Verification Phase of the program is the sole responsibility of BGE; there are no specific responsibilities for the RSP during this phase.

Deliverable:

- BGE – Incentive paid to facility owner

Duration: 2 to 12 weeks

Section 4: Participant Resources

4.1 BGE Web Site

For the most current information about the RCx Program, eligibility information, and other updates, visit BGESmartEnergy.com.

4.2 RCx Program Contact Information

BGE Smart Energy Savers ProgramSM
c/o ICF International
7125 Thomas Edison Drive, Suite 100
Columbia, MD 20146
410.290.1202
Business@BGESmartEnergy.com

Appendix A
Enhanced O&M Services Opportunity Checklist

Baltimore Gas and Electric Company
Enhanced O&M Services Opportunity Checklist
 a BGE Smart Energy Savers ProgramSM



Customer Name		Telephone ()	
Street Address (Facility)			
City		State	ZIP
Enhanced O&M Service Provider Firm Name			
Facility Contact Name		Contact Telephone ()	
Facility Analysis Dates			

Opportunity Description	Estimated Simple Payback
<input type="checkbox"/> Reschedule equipment controls. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Calibrate outside ventilation air to meet occupancy. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Recalibrate/update settings of thermostat(s). _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Install programmable thermostat(s). _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Re-commission existing VSDs. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Install VSD fans and/or pumps. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Calibrate static pressure sensors. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Calibrate enthalpy sensor(s). _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Calibrate space sensors. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years

Opportunity Description	Estimated Simple Payback			
<input type="checkbox"/> Calibrate duct pipe temperature sensors. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Eliminate simultaneous heating and cooling. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Re-charge refrigerant. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Replace filters as necessary. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Re-balance air-handling systems. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Downsize pump impeller to match load. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Clean evaporator coils. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Clean condenser coils. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Clean blade fans. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Seal air leaks in air handling casing. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Clean heat exchanger surface/tubes. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Convert fan system from CV to VAV. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Install low leakage outside air dampers. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Re-balance air handling system. _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.
<input type="checkbox"/> Install energy management system (EMS). _____ _____	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> More than 5 years	<input type="checkbox"/> 3-12 mos.	<input type="checkbox"/> 1-3 yrs.	<input type="checkbox"/> 3-5 yrs.

Opportunity Description	Estimated Simple Payback
<input type="checkbox"/> Repair compressed air leaks. <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> Calibrate air compressor sequencing controls. <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years
<input type="checkbox"/> <hr/> <hr/>	<input type="checkbox"/> 0-3 mos. <input type="checkbox"/> 3-12 mos. <input type="checkbox"/> 1-3 yrs. <input type="checkbox"/> 3-5 yrs. <input type="checkbox"/> More than 5 years

Appendix B

Enhanced O&M Services Application Form

Baltimore Gas and Electric Company
Enhanced O&M Services Application Form
 a BGE Smart Energy Savers ProgramSM



INTRODUCTION

BGE's Enhanced O&M Services (EO&M) is available to qualifying commercial customers within the BGE service territory. The goal of this program is to help you identify opportunities to improve the efficiency of major electrical systems in your building and reduce energy costs without adversely affecting facility or system operations.

EO&M may offer financial incentives to buy-down implementation costs for qualified and accepted measures. For complete information about program terms and conditions, please visit the Retrocommissioning (RCx) Participant's Manual or visit BGESmartEnergy.com. You may also contact the Program Administrator at 410.290.1202 or Business@BGESmartEnergy.com.

I. PRE-APPLICATION CHECKLIST

Please confirm that you meet the following minimum eligibility requirements prior to submitting an application to participate in BGE's RCx Program.

Yes

- Is your facility fewer than 75,000 square feet? Or is this application for an industrial process?
- Are you willing to commit up to \$15,000 for your share of study and measure implementation costs?
- Are you able to complete the installation of identified Action Plan measures within 6 months of receiving the Final Action Plan?
- Do you understand that approved measures are to be implemented no later than 6 months after BGE's approval of the Final Action Plan? (Incentives may be foregone and/or the full RCx service cost incurred to date may be imposed on the customer for non-implementation of measures).
- Are you willing to commit the necessary time and personnel resources to fully support the EO&M process and educational requirements?
- Has your facility been benchmarked using ENERGY STAR[®] Portfolio Manager if it is a facility type covered by Portfolio Manager?
- Is a completed EO&M Checklist attached to this application?

II. NEXT STEPS

If you answered yes to the above questions, please complete this application and submit it to BGE for consideration. In reviewing your application, BGE will be reviewing evidence that cost-effective retrocommissioning opportunities exist at your facility. BGE's decision regarding selection of program applicants into the Enhanced O&M Services will be final and binding for all parties.

III. CUSTOMER INFORMATION

Company Name	Facility Name (if different)	Federal Tax ID #
Street Address (Facility)		Electric Acct #
City	State	ZIP
Mailing Address (if different)		
City	State	ZIP

For more information about the program, go to BGESmartEnergy.com.
 Please submit for review via one of the following: Fax to 410-290-0861, email to Business@BGESmartEnergy.com or mail to BGE Smart Energy Savers ProgramSM, c/o ICF International, 7125 Thomas Edison Drive, Suite 100, Columbia, MD 21046

IV. FACILITY OWNER REPRESENTATIVE INFORMATION

Contact Name			Contact Title		
Street Address					
City	State	ZIP	Contact Telephone ()	Contact Fax ()	Email

V. EO&M SERVICE PROVIDER INFORMATION

Company Name					
Contact Name			Contact Title		
Street Address					
City	State	ZIP	Contact Telephone ()	Contact Fax ()	Email

VI. PAYMENT INFORMATION

Payee Company or Corporate Tax ID (9 digits required. Do not include tax-exempt number.)					
Business Classification for Payee: <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Ltd. Partnership <input type="checkbox"/> Non-Profit <input type="checkbox"/> Other					
Make incentive checks payable to: <input type="checkbox"/> Customer <input type="checkbox"/> RCx Service Provider					
Company/Corp./Owner's Legal Name					
Street Address					
City		State		ZIP	

VII. FACILITY INFORMATION

Year of Construction	Number of Floors
Total Floor Area (sq. ft.)	Total Conditioned Area (sq. ft.)
Electric Account Number(s)	Natural Gas Utility
Annual kWh Usage	Natural Gas Account Number(s)
Peak kW and Month Occurring	Annual Therm Usage

VIII. HVAC SYSTEMS

Check all of the HVAC system(s) in the facility.

Cooling Systems

- Chiller Air Cooled
- Chiller Water Cooled
- Water Source Heat Pump
- Condenser
- Other

Heating Systems

- Boiler, Hot Water
- Boiler Steam
- Rooftop Furnace
- Electric Baseboard
- Other

Ventilation & Distribution

- Central AHU
- VAV and Reheat
- Dual Duct
- Economizers
- Other

IX. FACILITY CONTROL SYSTEMS

Age of Energy Management Control System (EMCS)

Capable of trending and storing multiple points?

Components and systems controlled by digital direct controls (DDC)

Components controlled (not just actuated by pneumatics)

X. CUSTOMER ACCEPTANCE OF APPLICATION TERMS

By signing below, I certify that: (1) the information contained in this application is accurate and complete to the best of my knowledge; (2) I have read and understood the obligations of program participants, including the commitment of the minimum of \$15,000 to implement identified and approved RCx measures; (3) I will put forth a good faith effort to comply with all of the RCx Program requirements if selected for participation in the program.

Customer Name/Title

Customer Signature

Date

ADMINISTRATIVE USE ONLY

Project ID Number

Program Rep.

Date Received

Date Input

Inspection Required

Program Manager Approval

Date Approved

Appendix C

Full RCx Service Application Form

Full RCx Services Application Form

a BGE Smart Energy Savers ProgramSM



We're on it.SM

INTRODUCTION

BGE's Retrocommissioning (RCx) Program is available to qualifying commercial customers within the BGE service territory. The goal of this program is to help you identify opportunities to improve the efficiency of major electrical systems in your building and reduce energy costs without adversely affecting facility or system operations.

The RCx Program may offer financial incentives to buy-down implementation costs for qualified and accepted measures. For complete information about program terms and conditions, please review the RCx Process Manual or visit BGESmartEnergy.com. You may also contact the Program Administrator at 410.290.1202 or Business@BGESmartEnergy.com.

I. PRE-APPLICATION CHECKLIST

Please confirm that you meet the following minimum eligibility requirements prior to submitting an application to participate in BGE's RCx Program.

Yes

- Do you have a combined conditioned area of 75,000 square feet or larger served by a central system?
- Are you a BGE delivery service customer, regardless of which electric supplier you have chosen?
- Do you have an existing building automation system or energy management system (EMS) with direct digital control (DDC)?
- Are you free from planned major system renovations or retrofits?
- Are you able to complete the installation of identified retrocommissioning measures within 6 months of receiving the Final RCx Report?
- Do you understand that approved measures are to be implemented no later than 6 months after BGE's approval of the Final Report? (Incentives may be foregone and/or the Full RCx Services cost incurred to date may be imposed on the customer for non-implementation of measures).
- Are you willing to commit the necessary time and personnel resources to fully support the RCx process?

If selected for participation in the program, will you accept the following responsibilities?

- Are you willing to commit up to \$15,000 for Full RCx Services measures identified with an estimated simple payback of fewer than 1.5 years?
- Provide access to the facility and time for facility personnel to interface with the retrocommissioning provider?
- Provide and assist with the reporting and collection of information pertaining to the retrocommissioning of the facility?
- Implement in a timely manner the mutually accepted retrocommissioning measures according to the scope and procedures outlined by BGE?

II. NEXT STEPS

If you answered yes to the above questions, please complete this application and submit to BGE for consideration. In reviewing your application, BGE will be reviewing evidence that cost-effective retrocommissioning opportunities exist at your facility. BGE's decision regarding selection of program applicants into the RCx Program will be final and binding for all parties.

III. CUSTOMER INFORMATION

Company Name	Facility Name (if different)	Federal Tax ID #
Street Address (Facility)		Electric Acct #
City	State	ZIP
Mailing Address (if different)		
City	State	ZIP

For more information about the program, go to BGESmartEnergy.com.

Please submit for review via one of the following: Fax to 410-290-0861, email to Business@BGESmartEnergy.com or mail to BGE Smart Energy Savers ProgramSM, c/o ICF International, 7125 Thomas Edison Drive, Suite 100, Columbia, MD 21046

IV. FACILITY OWNER REPRESENTATIVE INFORMATION

Contact Name		Contact Title			
Street Address					
City	State	ZIP	Contact Telephone ()	Contact Fax ()	Email

V. RCx SERVICE PROVIDER INFORMATION

Company Name					
Contact Name			Contact Title		
Street Address					
City	State	ZIP	Contact Telephone ()	Contact Fax ()	Email

VI. PAYMENT INFORMATION

Payee Company or Corporate Tax ID (9 digits required. Do not include tax-exempt number.)					
Business Classification for Payee: <input type="checkbox"/> Corporation <input type="checkbox"/> Partnership <input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Ltd. Partnership <input type="checkbox"/> Non-Profit <input type="checkbox"/> Other					
Make incentive checks payable to: <input type="checkbox"/> Customer <input type="checkbox"/> RCx Service Provider					
Company/Corp./Owner's Legal Name					
Street Address					
City		State		Zip	

VII. FACILITY INFORMATION

Year of Construction	Number of Floors
Total Floor Area (sq. ft.)	Total Conditioned Area (sq. ft.)
Electric Account Number(s)	Natural Gas Utility
Annual kWh Usage	Natural Gas Account Number(s)
Peak kW and Month Occurring	Annual Therm Usage

VIII. HVAC SYSTEMS

Check all of the HVAC system(s) in the facility.

Cooling Systems

- Chiller Air Cooled
- Chiller Water Cooled
- Water Source Heat Pump
- Condenser
- Other

Heating Systems

- Boiler, Hot Water
- Boiler Steam
- Rooftop Furnace
- Electric Baseboard
- Other

Ventilation & Distribution

- Central AHU
- VAV and Reheat
- Dual Duct
- Economizers
- Other

IX. FACILITY CONTROL SYSTEMS

Age of Energy Management Control System (EMCS)

Capable of trending and storing multiple points?

Components and systems controlled by digital direct controls (DDC)

Components controlled (not just actuated by pneumatics)

X. CUSTOMER ACCEPTANCE OF APPLICATION TERMS

By signing below, I certify that: (1) the information contained in this application is accurate and complete to the best of my knowledge; (2) I have read and understood the obligations of program participants, including the commitment of the minimum of \$15,000 to implement identified and approved RCx measures; (3) I will put forth a good faith effort to comply with all of the RCx Program requirements if selected for participation in the program.

Customer Name/Title

Customer Signature

Date

ADMINISTRATIVE USE ONLY

Project ID Number

Program Rep.

Date Received

Date Input

Inspection Required

Program Manager Approval

Date Approved

Appendix D

Building Owner Agreement Form

Baltimore Gas and Electric Company
**Full RCx Services Building Owner
 Agreement Form**



a BGE Smart Energy Savers ProgramSM

I. PROJECT INFORMATION

Company Name		Facility Name	
Street Address (Facility)			Electric Acct #
City	State	ZIP	
Mailing Address			
City	State	ZIP	
Facility Contact Name		Facility Contact Title	
Telephone ()	Fax ()	Email	
Building Owner's Retrocommissioning Service Provider		RSP Contact Name	
Telephone ()	Fax ()	Email	

The BGE Retrocommissioning (RCx) Program (Program) helps building owners improve the efficiency of their building operations by offering incentives and technical assistance for RCx services. The Program funding is offered on a first-come, first-served basis and is effective until funding is expended or the Program is discontinued by BGE.

Program pre-screening has determined that opportunities for cost-effective retrocommissioning measures exist in this facility. By signing the Building Owner Agreement Form (Form) _____ (Owner) commits to proceeding with the Program and confirms his/her agreement to and understanding of the Program process, and the following obligations and responsibilities.

II. BGE RESPONSIBILITIES

1. BGE will assign a Program Representative to be the Owner's (or Owner's designated Building Contact's) point of contact for the project. The Program Representative will assist the Owner with the project, attend meetings as necessary, and work closely with the Owner to select measures for implementation that best meet the Owner's needs and budget cycles, as well as the Program's energy savings goals.
2. BGE will provide a list of pre-qualified retrocommissioning service providers (RSP) to perform in-depth RCx investigations and follow-up services.
3. Incentives will be paid, as described below, approximately 4-6 weeks after all the appropriate documentation is submitted. Incentive payment is contingent upon meeting all requirements of the Program.

III. OWNER RESPONSIBILITIES

1. Owner will assign a designated staff member to be BGE's point of contact. This point of contact will be responsible for working with BGE and ensuring that all Program requirements are being met in a timely fashion.
2. Owner agrees to reimburse BGE for the RCx costs incurred to date should the Owner fail to implement all the required, reasonable, and eligible RCx measures within 6 months of the signatory date of this agreement.
3. Owner agrees to designate appropriate facility staff and staff hours to participate in the RCx process and project meetings, including assistance to the RSP during its RCx work, access to pertinent facility areas and systems, and training given by the RSP at the project end. Costs associated with the Owner's facilities staff shall be at the Owner's expense.
4. Owner agrees to pay for any ancillary expenses that may be incurred during the course of the Program, including copying of plans or building documentation, access to equipment, security access, and documentation of contractor work (e.g., programming changes) for implemented measures, etc.
5. Owner understands that, to optimize the RCx services, scheduled preventative maintenance and repair tasks, such as cleaning coils, changing filters, tightening belts, and calibrating strategic sensors, must be completed prior to the RCx investigation.
6. Upon completion of the investigation phase, BGE, Owner, and RSP will review the findings and select measures for implementation. The Owner is encouraged to implement reasonable and eligible RCx measures that pay back in 1.5 years or less.
 The Program will offer an incentive to assist with implementing RCx measures that exceed a 1.5 year payback based upon each measure's cost effectiveness with regards to the Program's energy goals. The customer may elect to implement non-approved RCx measures at his/her own expense. Major retrofit measures identified by the Program may not be eligible for RCx Program funding. In these cases, BGE will assist the owner in determining whether other potential BGE programs provide funding for these measures and if the facility and/or the Owner are eligible for those programs/incentive/funding.
 The approved BGE Incentive for the RCx Study will be: \$ _____.
 The implementation incentive offer will be finalized by BGE and Owner once measures are selected for implementation.
 For implementing selected measures, Owner's investment responsibility will not exceed: \$ _____.
7. The Owner shall be responsible for all aspects of implementing the agreed upon measures. This includes, but is not limited to, getting bids, negotiating scope of work, paying for materials and labor and approving the completed product. BGE will assist in this process, but the ultimate responsibility for proper implementation shall lie with the Owner.
8. Owner agrees to give BGE and its contractors, and project-approved RSPs access to his/her facility in order to perform work for this Program and evaluate building operations both before and after measure implementation.
9. Owner further understands and agrees that BGE makes no warranty or representation of any kind nor is it liable for any of the work provided by RSPs or its contractors and vendors.

IV. BGE PROGRAM REPRESENTATIVE SIGNATURE

Authorized Program Representative (print name)	Title
Signature	Date

V. BUILDING OWNER REPRESENTATIVE SIGNATURE

By signing this Building Owner Agreement Form, Owner represents and warrants that it has read, understands, and agrees to the terms and conditions of this Agreement.

Owner or Authorized Representative (print name)	Title
Signature	Date

VI. TERMS & CONDITIONS

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Incentives: Owner confirms they have not received incentives or services for the same services from another utility, state, or local program. Owner agrees not to apply or receive incentives for the same services from another utility, state, or local program. 2. Eligibility: Incentives are available to industrial and commercial electric service customers of BGE (service rates GL & P) that are in good standing with BGE. 3. Safety and Building Codes: Owner represents that all equipment installed and work performed complies with all federal, state, and local safety, building, and environmental codes, and any manufacturer instructions. 4. Property Rights: Owner represents that it has the right to perform the energy-saving measures on the property on which those measures are performed and that any necessary consents have been obtained. 5. Indemnification: Owner shall, at its own cost, defend, indemnify and hold harmless BGE and its Affiliates and all officers, employees, assigns, and successors in interest of BGE, from and against any and all liability, damages, losses, claims, demands, actions, causes of action, costs, including attorney's fees (which shall include allocable costs of in-house counsel) and expenses or any of them, resulting or arising from any (i) negligent or wrongful acts or omissions of the Owner or of its officers, employees, agents, representatives, subcontractors, or affiliates, (ii) breach by the Owner of its officers, employees, agents, representatives, subcontractors, or affiliates of this Agreement, or (iii) any willful or negligent conduct of the Owner, its officers, employees, agents, representatives, and affiliates, arising out of the performance of the Owner's obligation under this Agreement. 6. Information Release: Owner agrees that the Program or BGE may include Owner's name, program services and resulting energy savings in reports or other documentation submitted to BGE. BGE will treat all other information gathered in evaluations as confidential and report it only in the event that Owner agrees to release such information. | <p>Owner shall repay any amounts due to BGE within thirty (30) calendar days of notification by BGE that repayment is required in accordance with the provision above. BGE shall be entitled to offset against payments owed to Owner any amount due to BGE that remains unpaid forty (40) calendar days after BGE's written demand for payment.</p> <ol style="list-style-type: none"> 10. Disputes: The Parties shall attempt in good faith to resolve any dispute arising out of or relating to this Agreement promptly by negotiations between the Parties' authorized representatives. The disputing Party shall give the other Parties written notice of any dispute. Within twenty (20) days after delivery of such notice, the authorized representatives shall meet at a mutually acceptable time and place, and thereafter as often as they reasonably deem necessary to exchange information and to attempt to resolve the dispute. If the matter has not been resolved within thirty (30) days of the first meeting, any Party may initiate a mediation of the dispute. The mediation shall be facilitated by a mediator that is acceptable to all Parties and shall conclude within sixty (60) days of its commencement, unless the Parties agree to extend the mediation process beyond such deadline. Upon agreeing on a mediator, the Parties shall enter into a written agreement for the mediation services with each Party paying a prorate share of the mediator's fee, if any. The mediation shall be conducted in accordance with the Commercial Mediation Rules of the American Arbitration Association; provided, however, that no consequential damages shall be awarded in any such proceeding and each Party shall bear its own legal fees and expenses. 11. Force Majeure: Failure of a Party to perform its obligations under this Agreement by reason of any of the following shall not constitute an event of default or breach of this Agreement: strikes, picket lines, boycott efforts, earthquakes, fires, floods, war (whether or not declared), revolution, riots, insurrections, acts of God, acts of government (including, without limitation, any agency or department of the United States of America), acts of terrorism, acts of the public enemy, scarcity or rationing of gasoline or other fuel |
|---|--|

<p>7. Governing Law AND Venue: This Agreement shall be interpreted, governed, and construed under the laws of the State of Maryland as if executed and to be performed wholly within the State of Maryland.</p> <p>8. Termination: The term of this Agreement shall not exceed the term of the Program, or the availability of funds provided by BGE to pay for the services or incentive payments provided by the Program. Either the Owner or BGE may terminate this Agreement at any time by providing the other party with 30 days advance written notification, provided however, that if the Owner terminates participation, they agree to reimburse BGE for the project costs BGE incurred to date in full.</p> <p>9. Payment Disqualification: Owner understands that implementation incentives paid are based on providing related energy benefits for five (5) years. I agree that if (a) Owner knowingly takes actions to decrease savings and does not provide BGE with 100% of the related energy benefits specified in the Investigation Report for a period of five (5) years from receipt of implementation incentive, or (b) Owner ceases to be a customer of BGE during said time period, Owner shall refund a prorated amount of implementation incentive dollars to BGE based on the actual period of time for which Owner provided the related energy benefits as an electric customer of BGE.</p>	<p>or vital products, inability to obtain materials or labor, or other causes which are reasonably beyond the control of such Party.</p> <p>12. Miscellaneous: Neither Party may assign its rights under this Agreement without the prior written consent of the other. Any assignment of such rights hereunder without such consent shall be deemed void. No waiver, consent, or modification of any other provisions of this Agreement shall be binding unless in writing and signed by duly authorized representatives of all Parties, and no waiver by any Party of any default of the other shall be deemed to be a waiver by such Party of any other default. Each Party represents and warrants to the other Party that it is duly authorized to execute, deliver, and perform its respective obligations under this Agreement.</p> <p>13. Facsimile/Scanned Signatures: Facsimile transmission of any signed original document, and the retransmission of any signed facsimile transmission, shall be the same as delivery of the original signed document. Scanned original documents transmitted to BGE as an attachment via electronic mail shall be the same as delivery of the original signed document.</p> <p>14. Taxes: Owner is required to submit a completed W9 for tax purposes. Please consult your tax advisor concerning the taxability of incentives.</p>
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Appendix E

List of Preferred RCx Building Characteristics



Preferred RCx Building Characteristics

The following identifies important building characteristics that should be considered during the Planning Phase (when the retrocommissioning service provider, RSP, and owner are developing the project scope and budget) of a retrocommissioning (RCx) project. These characteristics are not meant to eliminate buildings from going through the RCx process. Rather, the identification of these characteristics may help to improve the effectiveness of an RCx project by virtue of the implementing team having a more robust understanding of the elements it is undertaking. For owners with a portfolio of buildings, understanding these characteristics can help prioritize which buildings to retrocommission first.

1. Mechanical Equipment Age and Condition

As RCx projects generally consist of activities intent on improving an existing building's performance via *operational* improvements, the cost effectiveness of a project depends in large part on the age of the energy using equipment, systems, and controls. Buildings with broken equipment (or equipment in need of major upgrades) generally do not make good candidates for RCx projects. As long as most of the equipment and systems are fewer than 12 years old or are several years from the end of their useful life (well maintained equipment can often last well beyond the typical 15 year replacement life cycle), the RCx process is, generally speaking, appropriate. As part of the initial walkthrough of the building, an RSP may perform a quick conditions assessment of the mechanical and electrical systems to get a feel for how well the facility is maintained and operated.

2. Financial Considerations

Early in the Planning Phase, the RSP needs a full understanding of the owner's criteria for project cost limits, and simple payback times to develop and implement a successful RCx strategy. Further, it is important to realize how the owner intends to obtain funds to finance the RCx project (e.g., capital budget, operating budget, outside financing, etc). These criteria, along with budget cycle information, can help the RSP and building owner determine how to prioritize the work during the RCx process and how to develop implementation strategies that fit within the financial criteria. The BGE project incentives need also to be integral to these initial project discussions.

3. Building Staff Participation

The overall cost of an RCx project will be reduced when the owner is willing to engage the facility team in getting the maintenance items and simple repairs (coil cleaning, filter changes, belt tightening, broken linkages, and damper blades) completed before the more in-depth RCx Investigation Phase begins. In turn, this will enable the RSP to more efficiently and effectively proceed through the Investigation Phase without continuous interruption for simple maintenance and repair issues. To the extent that the facility's maintenance staff has the know-how, RCx project costs can further be reduced by helping to set-up the trend logs, and implementing some of the less complicated, yet necessary, measures. At a minimum, it is important for building staff to be available to provide the RSP with as much information about the building's operating strategies, maintenance procedures, and perceived problems as possible.

4. Building with Energy Management Control Systems

Buildings with computerized energy management control systems (EMCS) are preferable RCx candidates to those with purely pneumatic systems. This is primarily due to three factors:

- An EMCS can be used as a data acquisition tool during RCx; a purely pneumatic system cannot.
- Operational improvements are generally easier and less costly to implement through an EMCS compared to making physical changes to individual pneumatic controllers.
- Pneumatic controls tend to drift out of calibration much more frequently than electronic-based controls. Subsequently, the energy saving may not be long lasting. (Therefore, the increased maintenance cost associated with sensor calibration should be considered to ensure the energy savings identified in the RCx project persist over time.)

Some of the more sophisticated EMCS systems also have additional benefits, such as:

- Ability to trend and store large amounts of data at short frequencies (2 minutes or less) for long periods of time without slowing down the normal control functions of the system.
- Internet-based systems enable the RSP to look at building data from a Web connection at any time, thereby reducing the need (and cost) of portable monitoring equipment.

5. Up-to-Date Building Documentation

Clear, complete, up-to-date documentation expedites the Investigation Phase of a project. Buildings that lack good documentation (especially as it relates to mechanical and control systems) can drive costs up if the RSP has to spend time gathering and re-creating critical information in order to assess system operation. Below is a *non-exhaustive list* of building documents to have on-hand and up-to-date prior to the start of an RCx project:

- As-built mechanical and electrical drawings including piping and riser diagrams
- An equipment list with nameplate information and dates of installation
- As-built control system documentation
 - Points list
 - Sequences of operation
 - User's manual
 - Control drawings with as-built sensor locations
- Testing, adjusting, and balancing reports
- Operation and maintenance manuals
- Pump and fan curves
- Copy of current service contracts
- Equipment warranties still in effect

6. Owner Support and the In-house Champion

An involved, supportive building owner coupled with a technical savvy facility staff is critically important to the success of an RCx project. Absent this combination, the RCx project will not be as successful as it could be, regardless of how well the RSP performs its job. Therefore, a critical element for a project's success is an in-house champion (e.g., energy manager, facility manager, or property manager) to work closely with the RSP and help to gather materials, documents, or other information as required in an efficient and timely manner.

7. Future Building Projects and Changes

When developing an RCx project scope, it is wise for the RSP to understand the building owner's future plans. For example, if an owner is considering doing some retrofit projects or major tenant improvements in the near future (within the next year or two), it may be advantageous to wait for these activities to occur before going forward with a full RCx project. On the other hand, depending on the planned improvements, the RCx project may be designed to have a commissioning component to ensure that new installations are specified, installed, operate as intended, and integrate completely with the existing systems in the building. Further, it may be beneficial to retrocommission some of the systems before a major retrofit in cases where reducing loads may lead to downsizing equipment included in the retrofit. Another consideration is how the operations and maintenance will be accomplished in the future. Questions about plans for outsourcing the maintenance and staff turnover can affect the training and documentation scope for the project.