



Portland Energy Conservation, Inc.	RCx Provider Firm
Initial: _____	Initial: _____
Date: _____	Date: _____

Contract No. 955-4xxx-xx

Attachment A: SCOPE OF WORK for Retrocommissioning Services Commercial and Institutional Buildings San Diego Electric and Gas Retrocommissioning Program as Implemented by PECI

This Scope of Work (“Work”) sets forth the professional services and technical assistance the Subcontractor will supply PECI for the Program, shall meet the requirements of the Program and be performed pursuant to the Agreement for **OWNER** (“Owner”) at **BUILDING NAME** located at **ADDRESS** (the “Project Site”). The Owner has selected **RCxP Name** of **RCxP Firm** (“Subcontractor”) from the Program’s pool of qualified retrocommissioning providers (“RCx Providers”) to conduct the following services at the Project Site.

A. RCx Investigation

The Subcontractor will conduct a rigorous and comprehensive on site investigation and analysis of the building operations, seeking to identify deficiencies and potential optimization in the operation of the building energy consuming systems and related controls. Although the identification of major retrofits is encouraged, the goal of the Program is to optimize existing equipment with minimal repairs and upgrades.

The tasks include, without limitation:

- Attend an Investigation kick-off meeting with the Owner and appropriate facility staff to discuss any facility access and security issues, and to communicate the approach for the investigation process, including data acquisition. Two weeks after the kick-off, confirm timelines and that collection has begun in a kick-off follow-up call with PECI.
- Gather information to define the Owner’s Operating Requirements, including operational schedules, implementation limitations, etc. (see Attachment B of the RCx Investigation Guidelines). Gather operational and maintenance information (see Attachment A of the RCx Investigation Guidelines). Gather building documentation (plans, equipment schedules, schematic flow diagrams, specifications, etc.) to help understand the original design intent.

Gather equipment lists for, at a minimum, central plant systems, including major chillers, boilers, AHUs and coils, and packaged units >15 tons, and submit to PECI. In addition, submit any systems diagrams pertinent to the investigation such as diagrams for the chilled water and heating hot water systems.

- Investigate, and analyze the general types of systems:

Central Plant(s) including the following general types of equipment:

- Chillers
- Cooling Towers



- Boilers
 - Pumps
 - Control Systems
- Central Air Handler(s)
- Fans
 - Chilled water coils and valves
 - Hot water coils and valves
 - Dampers
 - Control Systems, including VFDs and Outside Air and Economizer control
- Zonal HVAC
- HVAC delivery to the Space (air and/or water distribution, whether dual duct, VAV terminals with re-heat, hydronic, etc.)
 - Control Systems for HVAC delivery and zonal temperature control
- Major Unitary Systems
- Water Source Heat Pumps
 - Rooftop Package Units (15 Tons or over)
 - Controls
- Lighting Systems
- Interior Lighting Controls
 - Exterior Lighting Controls
- Refrigeration Systems
- Controls
- Domestic Hot Water Systems
- Heaters/Boilers
 - Controls

For similar equipment having similar operating schedules and serving similar occupancy types, sampling may be used for purposes of problem identification and baseline documentation / data collection (see Section 5.3.4 of the RCx Investigation Guidelines for sampling guidelines).

4. Gather operational and functional performance data to assess equipment operation and to identify deficiencies and measures for improvement. Gather data to quantify building operation, and deficiencies using the appropriate methods for the building including the building automation system to trend data, monitoring with portable data loggers, and on-site measurements. Obtain baseline data for identified measures, according to the Program's Documentation Guidelines for RCx Measures. Any costs associated with this process are the responsibility of the Subcontractor.
5. Track investigation activities and report progress to PECI and Owner on a monthly basis. Work proactively with Owner and PECI to address issues impacting project schedule and implement timely resolutions to project barriers and delays.
6. Attend a Mid-investigation check-in meeting with the Owner, PECI Program Representatives, the implementing contractor (if known), and the SDG&E Account Representative (if appropriate). During this meeting, review the project progress and schedule, address project issues that are delaying progress, and develop action plans as needed to reach agreed upon project milestones.
7. Use engineering calculations or approved simulation models to estimate the potential energy impacts of implementing the identified measures, including annual kilowatt hour and peak



electrical demand according to the Program’s Documentation Guidelines for RCx Measures. Also refer to section 5.4.3 of the RCx Investigation Guidelines.

8. Estimate the implementation costs for identified measures. With the Owner, establish the level of additional RCx Provider assistance desired or warranted for each potential measure. Additional implementation assistance may include: preparing detailed scopes of work, writing detailed control sequences and schematics, working with in-house staff to implement and optimize measures, or providing full turn-key implementation services. As appropriate, total estimated costs should detail out Owner contractor costs and RCx Provider implementation assistance costs. The basis for cost calculations must be documented.
9. Record and track investigation findings using the *Findings Workbook* supplied by PEGI. From the *Findings Workbook*, produce a *Master List of Findings*, including potential measures for implementation, energy savings, estimated costs, and initial payback calculations. Include narrative and/or comments describing the current state, method of improvement and calculation approach for each finding with sufficient detail to support third party engineering reviews. Include and reference supporting documents such as schematics, memorandums, equipment lists and other appropriate documents.
10. Support each finding with data that clearly indicates the deficiency or problem, including engineering calculations, trend or portable logger data plots and files, functional test results, building simulation input parameters and results, site visit reports, and photographs, as appropriate.
11. Meet with the Owner, PEGI Program Representative, and as applicable the SDG&E Account Representative to present the *Master List of Findings*, and assist the Owner in selecting measures for implementation.
12. Using the Program’s template, produce the *RCx Investigation Report*, further detailing the measures that were selected for implementation. The *RCx Investigation Report* should provide information to assist the Owner with implementation, including: recommendations for how to implement the selected measures, estimated costs for the selected measures, proposed RCx Provider assistance (if chosen by Owner), and the appropriate methods for verifying measures (refer to RCx Documentation Guidelines).

PECI FEE AND PAYMENT SCHEDULE

Investigation Fee	\$XXXXX
Payment schedule	<ol style="list-style-type: none"> 1. 50% of investigation incentive paid upon completion and approval of the <i>Master List of Findings</i> and other supporting documents as shown in section E, below 2. Remaining balance of investigation incentive paid upon completion and approval of the <i>RCx Investigation Report</i> and receipt of invoice

B. Implementation Verification

A portion of the Project Site’s follow-up incentive will be designated in order to ensure that Subcontractor will be available to answer Owner or contractor questions regarding measures being implemented ,and to ensure that the Program reporting and verification requirements are fulfilled. The tasks include, without limitation:



1. Attend an Implementation kick-off meeting with the Owner, PECI Program Representatives and implementing contractor to help ensure clear understanding of schedule, roles, responsibilities and contact points at the outset of implementation.
2. Prior to work starting, review the contractor bids ensuring that the contractor scope of work adequately reflects the intent of the original RCx Provider recommendations, and include verification of performance sufficient to meet Program requirements. If needed, answer questions that arise during implementation and provide clarification or advice on measures being implemented.
3. Report on the progress of each measure on a monthly basis until implementation is complete. Work proactively with the Owner and PECI to address issues impacting project schedule and implement timely resolution to project barriers and delays.
4. Attend Mid-implementation check-in meeting with Owner, PECI Program Representative, and as applicable SDG&E Account Representative, to discuss implementation actions taken to date, confirm project schedule and milestones and resolve any issues that have arisen. Attend additional implementation progress meetings as needed.
5. Verify completion of each measure and update Findings Workbook with final implemented measures including final savings, costs, and payback calculations. To support the *Implementation Summary Table* (included in the Findings Workbook), all measures must have verification data and updated savings calculations. When feasible, verification data should include trends or functional test results, though other methods, such as copies of invoices, site visit reports, and before/after photos, may be acceptable.

C. Follow-Up

PECI will apply the remaining balance of the follow-up incentive to assist documentation and training at the project’s end. The tasks include, without limitation:

1. Using the Program template, develop the *RCx Final Report* to document the implemented measures, including, but not limited to: new or improved sequences of operation, the energy savings impact of the measures, the requirements for ongoing maintenance and monitoring of the measures, and contact information for the RCx Provider, in-house staff, and contractors responsible for implementation.
2. Conduct an in-house training presentation for the Owner and the appropriate building operations personnel covering the new documentation, measures that were implemented, and requirements for ongoing maintenance and monitoring. Document the attendance of the building operations staff.

PECI FEE AND PAYMENT SCHEDULE

Follow-up Fee	\$XXXX
Payment schedule	<ol style="list-style-type: none"> 1. 50% of follow-up incentive paid upon completion and approval of the <i>Implementation Summary Table</i> and other supporting documentation as shown in section E, below 2. Remaining balance of follow-up incentive paid upon completion and approval of the <i>RCx Final Report, Training Completion Form</i> and other supporting documentation as shown in section E, below



D. Schedule

The schedule below details the timeline for key project milestones, deliverables and meetings. The schedule is subject to the Terms and Conditions of the Agreement and can only be amended if agreed to by both Parties.

PROJECT START DATE:	MONTH DAY, YEAR
----------------------------	------------------------

Milestone	Project Milestones & Deliverables	Timeline Guidelines	Responsibility
Investigation			
1	Investigation kick-off meeting	No later than two (2) weeks from RCx Provider SOW execution	Provider, Owner, Program
2	Initiate data collection (trending)	No later than two (2) weeks from project start (Investigation kick-off meeting)	Provider, Owner
3	Kick-off follow-up call	Two (2) weeks after project start	Provider, Program
4	Monthly investigation progress report	Based on input from Provider and issued by Program monthly	Provider, Program
5	Mid-investigation check-in meeting	Within one (1) month after kick-off meeting	Provider, Owner, Program
6	Submittal of <i>Master List of Findings</i>	No later than two and a half (2.5) months from project start	Provider
7	Meeting to review <i>Master List of Findings</i>	Within two (2) weeks of Program approval of <i>Master List of Findings</i>	Provider, Owner, Program
8	Submittal of <i>RCx Investigation Report</i>	Within two (2) weeks of Owner selecting measures for implementation	Provider
Implementation			
1	Implementation kick-off meeting	No later than two (2) weeks from Owner selection of measures	Provider, Owner, Program, Contractor
2	Monthly implementation progress report	Based on input from Provider and issued by Program monthly	Provider, Program
3	Mid-implementation check-in meeting	Within one (1) month of kick-off meeting	Provider, Owner, Program
5	Owner completes implementation of measures	Within five (5) months from meeting to review <i>Master List of Findings</i>	Owner
6	Submittal of <i>Implementation Summary Table</i>	Within four (4) weeks of Owner implementing measures	Provider
Final Report and Follow-Up			
1	Submittal of <i>RCx Final Report</i>	Within two (2) weeks of Program approval of the <i>Implementation Summary Table</i>	Provider
2	Training presentation	Within two (2) weeks of Program approval of the <i>RCx Final Report</i>	Provider, Owner



E. Deliverables

Deliverable	Payment
Investigation	
<ul style="list-style-type: none"> • <i>Master List of Findings</i> (contained in Findings Workbook) • Data to clearly define the baseline operating conditions (refer to RCx Investigation Guidelines) • Energy savings calculations • Supporting information for implementation cost estimates (to include costs for implementation assistance if offered) • Invoice for 50% of investigation incentive 	50% of investigation incentive
<ul style="list-style-type: none"> • RCx Investigation Report • Invoice for 50% of investigation incentive 	50% of investigation incentive
Implementation	
<ul style="list-style-type: none"> • <i>Implementation Summary Table</i> (contained in Findings Workbook) • Supporting data as evidence of optimized operation (see RCx Implementation Guidelines) • Updated energy savings calculations, if applicable (see RCx Implementation Guidelines) • Copies of Owner’s invoices for implementation as proof of Owner implementation costs • Copy of invoice for implementation assistance provided by RCx Provider, if applicable • Invoice for 50% of Follow-Up incentive (RCx Provider to the Program) 	50% of Follow-Up incentive
Follow-Up	
<ul style="list-style-type: none"> • <i>RCx Final Report</i> • <i>Training Completion Form</i> • Copies of any documents presented as part of training • Copies of any updated materials from building Operations & Maintenance Manual • Copies of updated/new building plans or wiring diagrams • Copies of new sequences of operation. If not possible, EMS screenshots as evidence of revised sequences 	50% of Follow-Up incentive