CenterPoint Energy

Building Retro-Commissioning Program

Commercial Demand-Side Management

Request for Qualification

Prepared by:

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1. Retro-commissioning Program Overview

The CenterPoint Energy Retro-commissioning (RCx) Program provides assessments to owners and operators of commercial facilities to aid the identification of low-to-no-cost energy and demand savings opportunities with payback periods of less than 1.5 years. To secure RCx service providers (RCx Agents) for the program, Nexant, the program administrator (PA), is issuing this request for proposal (RFP).

The RCx Program is intended to encourage and assist CenterPoint Energy customers in increasing the operating efficiency of their existing energy-consuming equipment and lowering their peak demand. Proposals are sought from qualified RCx Agents to identify and implement low-to-no-cost energy and demand savings measures for participating customers. Successful respondents will contract with Nexant to provide services for the program.

The RCx Program is built upon the following premises:

1. Energy consuming equipment in buildings often uses more energy than is necessary to perform as intended.
2. A systematic evaluation of building systems often identifies significant, otherwise undetected, opportunities to make existing equipment/systems operate more efficiently with little to no capital investment.
3. Many customers do not have the time or in-house expertise to perform the detailed energy-efficiency analysis required to identify these opportunities. If provided assistance in overcoming these hurdles, they are often willing to implement the recommended measures.
4. The benefits to CenterPoint Energy justify CenterPoint's investment in the program.

1.1 Service Provider Eligibility

RCx Agents are expected to be competent in identifying low-to-no-cost energy and demand savings opportunities (RCx measures). The incentives and project timelines are structured to encourage Agents to effectively focus their efforts on RCx measures to the exclusion of longer term capital improvement measures. Successful Agents will be those firms who can showcase significant experience dealing specifically with RCx measures. Agents may be national or local entities but must demonstrate an understanding of the climate and commercial building market in CenterPoint Energy's service territory.

1.2 Facility and Customer Eligibility

The RCx Program offers incentives to projects involving at least 50,000 square feet of space. Facilities must reside within CenterPoint Energy's service territory (Appendix A).

Customers must commit to spending at least $0.03/SF to implement identified RCx measures with paybacks less than 1.5 years (or the total cost of such measures if less than the $0.03/SF value). Customers who fail to fulfill the implementation commitment must pay that amount to CenterPoint Energy to help offset the cost of the RCx assessment (paid via incentive payments to Agent) incurred by the Program but without the expected resulting savings. Agents will not incur a direct penalty for a customer's lack of implementation, but excessive numbers of projects that stall at the implementation phase will be a negative factor in ongoing Agent evaluations.

1.3 Process

The PA will market the program through outreach to professional organizations and direct customer contact, but RCx Agents are encouraged to identify projects on their own. If an approved RCx Agent is identified in an approved application, that RCx Agent will be assigned

to that project. For applications where no preferred Agent is listed, the PA will assign RCx Agents on an equitable rotating basis.

The project lifecycle is broken into the following principal phases:

1. Preliminary Assessment (PA's responsibility)
2. Investigation
3. Implementation (customer's responsibility)
4. Verification

1.3.1 Preliminary Assessment Phase

The Preliminary Assessment phase begins when a complete application is received by program staff. Using information gathered from the application, the PA will create a simple Preliminary Assessment Report detailing the energy consumption profile of the facility and identifying potential areas of interest to explore further during the investigation phase. The report will be used as a screening tool to limit application approval to those facilities meeting the Program's goals for cost effectiveness. The report will be sent to the customer and the RCx Agent along with notification of approval or rejection of the project.

1.3.2 Investigation Phase

The Investigation Phase includes a site assessment to develop an in-depth understanding of the building systems. Guided by the Preliminary Assessment Report, operational and functional data are collected to assess equipment operation and document baseline operating conditions.

A master list is then developed to catalogue deficiencies and potential improvements. Detailed calculations are completed to estimate the demand and energy impacts and simple payback period of these potential improvements. These are all placed into the Owner Selection Table, from which customers select which measures they plan to adopt.

An implementation schedule for each measure must be provided by the customer on the Owner Selection Table. Projects will not be approved at this stage without this schedule, and projects that later fail to meet this schedule of implementation will be at risk of being cancelled.

Information gathered and recommendations for implementation are presented in an Investigation Report completed by the Agent. Upon approval of the Investigation Report by the PA, the Agent will receive the Investigation Phase payment.

1.3.3 Implementation Phase

The Implementation Phase begins after approval of the Investigation Report. The customer is responsible for implementing all the measures selected in the Owner Selection Table. Work may be completed by in-house staff or by third parties, and in-house costs may be quantified and counted toward the customer's required implementation commitment (see Section 1.2).

While the customer is responsible for implementation, Agents are expected to maintain biweekly communication with the customer to ensure projects are still on schedule and to notify the PA if and when they fall behind. Projects that do not progress according to the implementation schedule included in the Owner Selection Table are at risk of being cancelled.

1.3.4 Verification Phase

Once the work is complete, the Agent will first inform the PA of its planned verification methods (metering, visual inspection, etc.) for each implemented measure. Upon approval by the PA, the Agent executes the verification plan. After verification activities, the Agent compiles

the findings and savings estimates into the Verification Report submitted to the PA. The Verification Phase payment will be made upon the PA's approval of this report.

1.4 Correspondence

Questions about the RCx Program are always welcomed and can be directed to the PA.

Email: CenterPointEnergyRCx@nexant.com

Mail: Nexant, Inc.

Attn: CenterPoint RCx Program

1331 Lamar St, Suite 1575

Houston, TX 77010-3127

2. Scope of Services

The RCx Agent will plan, manage, perform and report on the RCx activities, utilizing the reporting formats and standardized forms provided by CenterPoint Energy whenever requested. Compilation of an equipment inventory, system troubleshooting, data trends and analysis, demand and energy savings calculations, implementation cost estimates, etc. will be conducted by the Agent, in association with the building operations staff (OS). The Agent will submit deliverable reports to the PA according to the schedule set by the RCx Agent and agreed upon by CenterPoint Energy, the PA, and the customer.

All RCx tasks must be conducted transparently and should directly involve the building engineer and OS whenever possible. This will help ensure the recommendations made by the Agent are adopted by the OS, which will in turn help maximize savings persistence.

The following sections describe the primary tasks that will be required of the Agent in the RCx process.

2.1 Scope of Analysis

Savings are realized through the systematic evaluation of building systems and implementation of low-cost and no-cost measures targeted to reduce the electrical peak demand and energy consumption of the facility. The scope and complexity of the analysis associated with identifying savings opportunities will vary depending on the building size, use, type of equipment, and other factors. Because the objective of this program is to achieve the highest level of demand and energy savings possible at the lowest possible implementation cost, the primary focus of the RCx effort is the principal electric energy consuming equipment in the facility, typically consisting of the systems and equipment listed in Table 1.

A three-stage analysis approach is typically used to rapidly identify problems while avoiding wasted time and resources. The stages in the analysis listed below are intended both to maintain RCx product quality and to guide the Agent in the analysis.

1. Collect operational data for each major equipment item using standard forms provided.
2. Analyze system sequence of operations and design intent.
3. Conduct functional testing and/or collect trend data to document and isolate problems.

Table 1. Typical RCx equipment scope and activities

System or Equipment	Procedures
Chiller Plant (Includes associated equipment such as pumps, valves, flat plate HX, etc.)	Sketch‡ system schematic and evaluate for given application* Document setpoints (e.g. chilled water supply temperature)* Measure supply, return chilled water & condenser water temperatures and flows* Measure actual performance (kW/Ton)* Document sequence of operations (SeqOp) Evaluate† SeqOp for the given application
Cooling Tower	Sketch system schematic (may be included in chiller plant schematic)* Document setpoints (e.g. condenser water leaving temperature)* Measure supply, return condenser water temperatures, flow* Document SeqOp Evaluate SeqOp for the given application
Air Distribution System (Includes air handling unit, ducting, related fans in zone, related terminal boxes, etc.)	Sketch system schematic and evaluate for given application* Document setpoints (e.g. supply air temperature)* Measure supply, return, mixed, outside air temperatures* Verify proper chilled water, hot water, and/or steam valve operation Verify proper economizer operation (if present) Document SeqOp Evaluate SeqOp for the given application
DX Air Conditioning System (Includes all items associated with packaged DX system, such as compressors, condenser fans, economizer, air distribution system, etc.)	Sketch system schematic and evaluate for given application* Document setpoints (e.g. supply air temperature)* Measure supply, return, mixed, outside air temperature* Verify proper economizer operation (if present)* Measure actual performance (kW/Ton) Document SeqOp Evaluate SeqOp for the given application
Control System	Review SeqOp for the HVAC system, integrating the equipment SeqOps Evaluate SeqOp for the given application Sketch system schematic and evaluate for given application

‡ *Sketch* may consist of a simple, clear hand-drawn sketch showing major components and control points

† *Evaluation* in this context means identification of peak load reduction opportunities

* Program requirement

2.1.1 Data Collection

Data collection requirements include component specifications (e.g. capacity, size), setpoints (e.g. temperature, pressure, flow), loading characteristics (e.g. tons, amps, flow) and current operating parameters (e.g. temperature, pressure, flow). Following the equipment specifications for each piece of equipment are functional test procedures that may be used as a diagnostic tool to assist the Agent in isolating operational problems. The onsite investigation will inform the RCx Agent of where savings opportunities exist and will focus the efforts in the succeeding phase.

Data representative of actual building operating status are necessary both to provide insight into the operation of equipment and to support the engineering calculations that are the basis of the savings estimates. Collection of these operational parameters may be done using the existing building EMCS, with stand-alone datalogging equipment, by hand using handheld meters, by referring to existing written logs, or through a combination of these methods. The data collection requirements will vary depending on the types of savings measures pursued, the complexity of the systems, the savings potential of a given measure, and the transient or steady-state nature of the parameters being measured.

2.1.2 Master List

The observations made during the site assessment form the basis of the Master List of findings. The Master List identifies performance deficiencies and recommended improvements. It summarizes all of the findings of the investigation phase, including all potential no-cost and low-cost improvements.

The Master List includes the name of the system or equipment, a description of the problem or deficiency, recommended solutions, and cost/savings category. This category represents a rough estimate of the relative ratio of implementation cost to potential peak demand savings. For example, an air-side economizer control sequence may be found to result in maximum outdoor airflow during peak cooling conditions in a large office building ventilation system. The cost to reprogram the controls is relatively small in comparison to the potential savings due to correcting this problem, thus this item would be classified as low cost with high savings.

In contrast, investigation may determine that a large air handling unit originally designed as a 100% outdoor air system to serve a special-use space is now serving typical office space. A recommendation to upgrade the system to operate as a return-air system would potentially yield considerable savings, but at considerable cost, and be classified as high cost with high savings. A complete set of savings calculations would be warranted for the former example, but not for the latter, though both items would be included in the Master List.

2.1.3 Savings Calculations

Calculations based on engineering principles and reliable field data are the foundation for the savings reported by the Program. While there are potential shortcomings to reliance on this approach, the cost to apply detailed measurement and verification procedures is prohibitive. Thus, the engineering calculations must be based on reliable data, sound principles, and good judgment in the use of assumptions.

Savings calculations are not required for every item on the Master List, but only for those which, in the judgment of the RCx Agent, have the potential for high savings at a low cost of implementation. This judgment may be based on preliminary calculations or experience, but with the goal of achieving maximum demand and energy savings for the project.

Three fundamental types of savings calculations, plus an implementation cost estimate and simple payback, as listed below, are required for each measure with significant savings and deemed feasible by the Agent and the building engineer/representative.

- Peak Demand Savings – Defined as the calculated demand savings (kW) that occur during peak building operating conditions. Peak conditions occur during the utility peak demand period defined as Monday through Friday, 1:00 pm to 7:00 pm, June through September, excluding federal holidays during summer and Monday through Friday, 6:00 am to 10:00am and 6:00 pm to 10:00 pm, December to February, excluding federal holidays during winter. Peak conditions typically occur concurrently with extreme outdoor air temperatures, which drive the resulting peak load. The peak demand savings calculation uses actual field data to estimate the reduction in building electrical demand during peak operating conditions due to the implementation of a savings measure. Both summer and winter peak demand savings must be calculated separately in the report. The PA may supply calculation templates for selected measures to reduce calculation efforts.
- Annual Energy Savings – Using the peak demand savings calculation as a starting point, the energy savings calculation estimates the annual electrical energy (kWh) savings potential for a given savings measure. In many cases, this calculation is a function of the part-load operating characteristics of the affected equipment and may also require an independent variable as an input to the calculation.

- Annual Cost Savings – The cost savings calculation accounts for electrical energy and demand savings, and uses the electrical rate tariff to determine the dollar savings achievable due to implementation of a savings measure.
- Implementation Cost Estimate - For each Master List item for which savings calculations were completed, the cost to implement the measure must be determined. This cost includes the materials, equipment and labor to fully implement the measure, and must include the source of the estimate, which may consist of list pricing, an actual quotation, or a recognized cost estimation database. In-kind contributions of OS time and materials are eligible for inclusion in the cost estimate.
- Simple Payback – The simple payback is calculated as the Implementation Cost divided by the Annual Cost Savings. This value is used as the basis for determining the required customer implementation commitment, which only applies to measures with paybacks less than 1.5 years.

2.2 Deliverables

Each project includes two deliverable reports from the RCx Agent: the Investigation Report, which details findings and recommendations, and the Verification Report, which provides the measurement and verification details supporting the achieved savings.

Agents are encouraged to deliver concise reports that focus solely on those measures the program seeks – low-to-no-cost electric savings measures with paybacks less than 1.5 years. The level of detail and rigor applied to each measure should be commensurate with the level of savings and the expected simple payback, i.e. the likelihood the measure will be selected by the customer for implementation.

2.2.1 Investigation Report

After completing the Investigation Phase, the RCx Agent delivers to the PA a report summarizing the investigation activities, findings, and recommendations. This report documents investigation activities, presents detailed engineering calculations and supporting data behind the savings estimates, and demonstrates the quality of the services provided.

The Investigation Report includes the following principal components.

- Master List of findings (must include all items identified, regardless of savings potential).
- Summary of functional test results, field observations, monitored data, etc. used to assess equipment operation and to support savings calculations.
- Engineering calculations estimating the potential peak electrical demand and energy savings associated with each master list item having significant savings potential.
- Engineering calculations estimating the potential annual energy and demand cost savings associated with each master list item having reasonable simple payback (typically zero to four years).
- Estimated cost to correct identified opportunities and corresponding simple payback period based on annual electricity cost savings.

2.2.2 Verification Report

The verification report is prepared by the RCx Agent and submitted to the PA and the building owner once implementation verification is completed.

This report summarizes the implemented measures, documents estimated project demand and energy savings, and verifies that the measures were properly implemented. The report lists the implemented measures and discusses any insufficiencies found. If implementation was not as

outlined in the Investigation Report, the RCx Agent must provide updated savings estimates in the Verification Report, based on the actual implementation.

2.3 Program Quality Control

In order to maintain high quality in the RCx services provided to customers, an Agent performance rating system will be used. At the outset of the year, the PA will jointly develop with each Agent annual project quantity goals appropriate for the Agent. Throughout the program year, individual projects will be scored for things like report quality and customer satisfaction, and progress toward annual project quantity goals will be assessed. Agents will receive feedback from the PA throughout the year regarding their overall performance ratings as indicated by these metrics, described in detail in the following sections.

2.3.1 Annual Project Quantity Goals

RCx Agents are expected to be actively delivering RCx services on qualified projects throughout the program year. To facilitate progress toward this goal, a targeted quantity of approved projects will be established by the Agent and the PA, giving consideration to Agent staffing and workload, engineering expertise, and other relevant factors. At the request of the Agent, the PA may review and revise an annual target during a program year, provided reasonable justification is given.

2.3.2 Project Delivery Quality

By participating in the RCx program, the RCx Agent agrees to perform high-quality work and deliver thorough reports that address the needs of the customer and meet the goals of the program within relevant time frames.

Report time frames shall be defined as follows:

- Investigation Phase reports shall be submitted to the PA for review within two months of the site survey.
- Verification Phase reports shall be submitted to the PA for review within one month of the site survey.

The PA will review each report and provide feedback to the Agent. The Agent will be expected to correct any deficiencies and resubmit the report within two weeks of receiving comments from the PA. Multiple iterations may ensue until a satisfactory report is delivered.

New RCx Agents will be supported by the PA in the development of their first project's reports. The first project's reports will be graded according to the criteria in Table 2 and feedback will be provided by the PA, but the score will not be recorded for the purpose of ongoing Agent evaluations. Beyond the first project, Agents will be expected to deliver satisfactory reports with minimal input from the PA, and all project reports will be graded according to Table 2 and recorded for Agent evaluation purposes.

The report grading will be based on the following scoring system:

- Acceptable
    - Quality issues in the initial submission are within the grading allowances (Table 2) AND
    - Report is approved after no more than three submission to the PA AND
    - Project achieved 65% or greater savings harvest rate AND
    - Report is completed according to the timeline in Table 2 AND
    - Customer provides positive feedback about project.
- Needs Improvement
    - Quality issues of initial submission are beyond the grading allowance OR
    - More than three submissions are required for report approval OR

- Savings harvest rate is less than 65% OR
- Initial report is not submitted according to the timeline in Table 2 OR
- Customer provides negative feedback about the project experience.

Table 2. Grading Criteria for RCx Agent Reports

Criteria	Allowance
Calculation Errors	Less than 25% of EEMs have calculation errors in initial report submission.
Report Completeness	All sections must be included and complete.
Timeliness	Two months from site visit to initial submission of Investigation Phase report. One month from site visit to initial submission of Verification Phase report.
Savings Harvest Rate	Verification Phase energy and demand savings at least 65% of Investigation Phase savings.
Customer Satisfaction	PA receives positive feedback from customer.

2.3.3 Ongoing Agent Evaluation

Overall RCx Agent performance will be evaluated throughout the program year. Satisfactory Agent performance on project delivery will be defined according to Table 3. If the maximum number of allowed NI grades is exceeded, the PA will meet with the Agent to discuss the causes of and possible solutions for the deficient performance. The PA and the Agent will together develop an improvement plan, and the PA will continually monitor progress. If the next two projects do not show substantial improvement demonstrated by ratings of Acceptable, the PA reserves the right to remove the Agent from the program.

Table 3 RCx Agent Performance Standards

Agent Completed Report Quantity	Allowance
5 reports	No more than 2 reports graded NI
6 – 10 reports	No more than 3 reports graded NI
> 11 reports	No more than 4 reports graded NI

While Agents who fail to reach their annual goals in a given program year will not be automatically removed from the program, it is the intent of the PA to maintain a pool of Agents who are actively engaged with the program and whose core competencies and routine business offerings include qualified RCx services. Agents determined to be inactive over a period of time

may be removed from the program and required to submit a new RFQ response to participate in the program at a later time.

2.4 Project Fees and Schedule

2.4.1 Agent Project Fees

The RCx Agent will receive a payment for RCx services based on the verified square footage of the facility that is relevant for the RCx project and the amount of energy savings found at each stage, to be paid on a milestone schedule. This payment breakdown presented in Table 4 below is subject to change at the sole discretion of Nexant and CenterPoint Energy.

Table 4. Agent Fee Structure

Project Deliverable	Agent Fee	
	$/SF	$/kWh
Investigation Report	$0.0475	$0.0085
Verification Report	$0.02	$0.0056

The energy savings to be used for calculating these fees are those from measures that meet the following criteria:

- Measures are RCx in nature and not capital intensive replacements;
- All simple paybacks of individual measures are less than 3.0 years; and
- The combined simple payback of the entire recommended measure bundle is less than 1.5 years.

It is expected that Agents will focus their fieldwork, analysis, and report writing on measures that meet these criteria. Measures outside this scope whose potential is significant and obvious as determined during fieldwork may be mentioned as a courtesy to building owners, but Agents are expected to minimize such efforts to ensure profitability for their RCx projects under this performance based fee structure.

As an example, a project in a 500,000 square foot facility with Investigation Report savings of 1,100,000 kWh and Verification Report savings of 850,000 kWh would achieve the following Agent fees:

Phase	$/SF	$/kWh	Total
Investigation Report	$23,750	$9,350	$33,100
Verification Report	$10,000	$4,760	$14,760
Project Total	$33,750	$14,110	$47,860

2.4.2 Sample Project Timeline

The schedule for RCx projects is anticipated to roughly follow that outlined in Table 5. The timetable indicates expected duration of project phases and not manpower requirements.

It should be noted that portions of the investigation phase might need to coincide with the building peak-demand period (i.e. hot summer days or cold winter days). This should be kept in mind when scheduling project tasks. Also, the implementation of RCx measures is the duty of the building owner and not the RCx Agent. The duration noted in the table is only an estimate.

Table 5. Sample Project Timeline

Dates	Activity and/or Milestone
Preliminary Assessment Phase	
Week 1	PA review of application, analysis of utility bills, and screening; PA delivers Preliminary Assessment Report
Weeks 2-3	If approved, PA issues Building Owner Agreement and owner signs
Week 4	Kick-off meeting; notice to agent to proceed to Investigation Phase
Investigation Phase	
Weeks 5-12	On-site interviews and fieldwork; engineering calculations; prepare and issue Investigation Phase Report
Week 13	PA review and comment on report
Week 14	Agent addresses review comments
Week 15	PA reviews and approves revised Investigation Phase Report, initiates Investigation Phase payment
Week 16	Presentation to customer; customer agrees to implement identified EEMs and provides implementation schedule
Week 17	Agent informs PA of planned verification methodology
Implementation Phase	
Weeks 18-23	Client implements EEMs; Agent tracks progress against schedule
Verification Phase	
Weeks 24-28	Agent performs site verification and issues Verification Phase Report
Week 29	PA review and comment on report
Week 30	Agent addresses review comments
Week 31	PA reviews & approves revised Verification Report, initiates

	Verification Phase payment
Week 32	Final wrap up meeting

Appendix A – Proposal Stipulations

Review, sign, and submit the following Proposal Stipulations as part of the proposal.

Acceptance and Rejection of Qualifications

CenterPoint Energy reserves the right to open qualifications privately, unannounced and to reject any and all proposals and waive irregularities and informalities in any proposal that is submitted and to be the sole and final judge of all qualifications. CenterPoint Energy reserves the right to discontinue its evaluation of proposals from any respondents who submits false, misleading, or incorrect information.

Interpretation of Scope of Work

It is the respondent's responsibility to advise Nexant, the program administrator, of conflicting requirements or omissions in the RFQ that describe proposal requirements or scope of work before submission. Nexant will resolve acknowledged omissions and questions through electronic correspondence. It is the respondent's responsibility to contact Nexant if they did not receive the anticipated electronic correspondence.

Preparation Costs

The costs incurred by a respondent in the preparation of this proposal, attendance at information sessions, or in contract negotiation will not be reimbursed.

Contract Award

This RFQ does not commit CenterPoint Energy to award a contract. CenterPoint Energy reserves the right to modify or withdraw this Request for Qualification. CenterPoint Energy also reserves the right to reject program applications.

Orientation Meeting

Successful bidders will be required to meet with Nexant to cover program administration issues, provide an overview of the savings calculations, further describe required project deliverables, and answer any remaining questions that the approved RCx Agent may have.

Contract Requirements

The Service Contract that will be used to secure services by Nexant will be provided after the RFQ is accepted. As noted in the Service Contract, contractors of CenterPoint Energy and their subcontractors must meet minimum insurance requirements. The respondents must agree to abide these provisions to participate as an RCx Agent in the program.

Notice of Exceptions to the Service Contract

List in this section exceptions the respondent has to accepting the terms of the Service Contract.

Acceptance of Proposal Stipulations

Respondents' must sign in the space provided below to acknowledge acceptance of the proposal stipulations outlined above. In addition, the respondent, by signing below, acknowledges that they have read and understand all sections of this RFQ. Please submit an original signed copy of this sheet with your proposal.

CONTRACTOR

Signature:_____ Date: _____

Name: _____ Phone: _____

Title: _____ E-mail: _____

Appendix B – Proposal Submittal Forms

The electronic version of the Appendix B - Proposal Submittal Forms may be downloaded from the CenterPoint Energy website that describes the CenterPoint Building Retro-commissioning Program at http://www.CenterPointEfficiency.com/. Please complete all sections. Expand the space provided to answer questions as needed.

General Information

Company Name	Contact Person, Title		
Address	City	State/Prov	Zip/Postal
Telephone	Fax	E-Mail	

Description of business

Describe your Houston office, and staffing. If located out of the area, how does your firm propose to complete on-site retro-commissioning work over an extended period of time?

Affiliation with specific equipment suppliers, distributors and product brand names

Retro-commissioning Activities

Percentage of overall business devoted to retro-commissioning services _____%

How long has the firm offered retro-commissioning services _____years

Average number of retro-commissioning projects performed each year _____projects

Number of registered professional engineers on staff who have directed retro-commissioning projects _____engineers

Number of CenterPoint Energy Retro-commissioning Program projects firm would be available to complete in this program year _____projects

Systems or technologies for which firm has provided retro-commissioning services (check all that apply)

☐Pkg. or split HVAC ☐Electrical, emerg. power

☐ Chiller system
☐ Boiler system
☐ Energy Mgmt. Sys.
☐ Variable Freq. Drives
☐ Lighting Controls
☐ Daylighting
☐ Electrical, general

☐ Envelope
☐ Fire/Life Safety
☐ Plumbing
☐ Commercial refrigeration
☐ Telecommunications
☐ Thermal Energy Storage
☐ Labs & Clean Rooms
☐ Other: _____

The firm has provided retro-commissioning services in the following: **(check all that apply)**

Building Sector	**New Construction/ Major Renovation**	**Existing Building Tune-up**	**Equipment Replacement**
Office or retail	☐	☐	☐
Grocery	☐	☐	☐
Hospitals	☐	☐	☐
Laboratories	☐	☐	☐
Schools or universities	☐	☐	☐
Industrial / Manufacturing	☐	☐	☐
Special purpose–prisons, museums, libraries, etc.	☐	☐	☐

Technical Approach

Please complete the questions below, using additional space as required.

1. **Describe your firms general approach to retro-commissioning.**

2. **Describe your firms approach to achieve maximum peak demand savings.**

3. **Describe your approach for prioritizing retro-commissioning services.**

4. **Indicate the data gathering methods and tools used to measure performance (i.e. field observations, spot measurements, EMS reports, trend logs, etc.).**

5. **List of datalogging equipment your firm uses.**

6. **List of EMCSs your firm is experienced with.**

7. **List of automated software tools your firm uses.**

8. **Describe methods used to calculate achieved savings.**

9. **Provide examples of checklists or special documentation used in your work.**

Relevant Work Experience

Please complete the questions below, using additional space as required.

10. **List relevant projects, identify any demand-side management projects.**

11. **Provide examples of prior projects energy savings achieved (kW, kWh, CCF/MCF, BTUs, cost).**

12. **Provide a brief description of relevant experience and training of staff you would assign to the project, attach resumes of key personnel.**

13. **Identify optional services you offer beyond energy system retro-commissioning.**

14. **Provide an example of your work (i.e. report prepared for a client).**

Reference Projects

Please complete the table below and provide references and descriptions for three projects your firm has completed.

	Project 1	Project 2	Project 3
Project (Name, Date, Bldg Size, Type, new or existing)			
Project Contact (Title, City, State, and Phone)			
Name & Role of Persons(s) Assigned to Project by Firm (identify any sub-consultants)			
Systems Recommissioned (Identify if tested by sub-consultants)			
(Enter "X" if by own firm, "S" if by sub-consultant) **Retro-commissioning Tasks Performed** Wrote the retro-commissioning plan			
Wrote functional test procedures			
Calculated demand or energy savings			
Witnessed and documented functional tests			
Performed functional tests (hands-on)			
Used data loggers or EMS trend logs for testing			
Developed or approved staff training			
Reviewed completed O&M manuals			

Management	Retro-commissioning service provider was part of the firm			
	Supervised a consultant retro-commissioning service provider to our firm.			
	Worked with a retro-commissioning service provider hired by others			