Request for Proposals:
RFP #50898
Commercial Energy Metering Study (CEMS)

Table of Contents
1 Introduction .................................................................................................................. 3
2 Background .................................................................................................................. 3
3 Research Objectives and Approach ............................................................................ 3
  3.1 Geographic Scope & Sampling Approach .............................................................. 4
  3.2 Oversampling and Power Quality Metering .......................................................... 4
  3.3 Research Deliverables ............................................................................................ 5
    3.3.1 Data Sets & Database ...................................................................................... 5
    3.3.2 Analysis, Reporting and Presentations .............................................................. 6
4 Definitions and Supporting Documents ........................................................................ 7
  4.1 Definitions .............................................................................................................. 7
  4.2 Supporting Documents ........................................................................................... 8
5 Project Phases ............................................................................................................. 8
  5.1 Phase One: Sample Design and Work Plan Development ....................................... 8
    5.1.1 Work Plan Development .................................................................................. 8
    5.1.2 Planning Sessions with Working Group ............................................................ 9
    5.1.3 Sample Design ................................................................................................ 9
  5.2 Phase Two: Recruitment, Equipment Procurement, and Pre-testing ..................... 10
    5.2.1 Study Recruitment .......................................................................................... 10
  5.3 Phase Three: On-Site Metering and Database Development .................................. 11
    5.3.1 On-Site Metering .......................................................................................... 11
    5.3.2 Database Development .................................................................................. 12
  5.4 Phase Four: Analysis, Reporting & Presentations .................................................. 12
    5.4.1 Analysis, Presentations and Updates ............................................................... 12
    5.4.2 Annual Reporting ........................................................................................... 13
6 Research Timeline ....................................................................................................... 13
7 Contractor Competencies and Qualifications ............................................................... 14
  7.1 Technical Expertise ............................................................................................... 14
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.2</td>
<td>Outreach &amp; Project Management</td>
</tr>
<tr>
<td>7.3</td>
<td>Collaboration with Utilities &amp; Stakeholder Engagement</td>
</tr>
<tr>
<td>8</td>
<td>Proposal Submission &amp; Deadlines</td>
</tr>
<tr>
<td>8.1</td>
<td>Planned RFP Schedule (Subject to Change)</td>
</tr>
<tr>
<td>8.2</td>
<td>Intent to Respond (REQUIRED)</td>
</tr>
<tr>
<td>8.3</td>
<td>RFP Point of Contact</td>
</tr>
<tr>
<td>8.4</td>
<td>Question &amp; Answer Webinar (REQUIRED)</td>
</tr>
<tr>
<td>8.5</td>
<td>Proposal Format</td>
</tr>
<tr>
<td>8</td>
<td>Proposal Submission &amp; Deadlines</td>
</tr>
<tr>
<td>8.1</td>
<td>Planned RFP Schedule (Subject to Change)</td>
</tr>
<tr>
<td>8.2</td>
<td>Intent to Respond (REQUIRED)</td>
</tr>
<tr>
<td>8.3</td>
<td>RFP Point of Contact</td>
</tr>
<tr>
<td>8.4</td>
<td>Question &amp; Answer Webinar (REQUIRED)</td>
</tr>
<tr>
<td>8.5</td>
<td>Proposal Format</td>
</tr>
<tr>
<td>9</td>
<td>Selection Process</td>
</tr>
<tr>
<td>9.1</td>
<td>Term of Contract</td>
</tr>
<tr>
<td>9.2</td>
<td>Scoring</td>
</tr>
<tr>
<td>10</td>
<td>Minimum Insurance Requirements</td>
</tr>
</tbody>
</table>
1 Introduction
About the Northwest Energy Efficiency Alliance
The Northwest Energy Efficiency Alliance (NEEA) is an alliance of more than 140 utilities and energy efficiency organizations working on behalf of more than 13 million energy consumers. NEEA is dedicated to accelerating both electric and gas energy efficiency, leveraging its regional partnerships to advance the adoption of energy-efficient products, services and practices.

Since 1997, NEEA and its partners have saved enough energy to power more than 900,000 homes each year. As the second-largest resource in the Northwest, energy efficiency can offset most of our new demand for energy, saving money and keeping the Northwest a healthy and vibrant place to live. www.neea.org

2 Background
This Request for Proposals (RFP) is part of a research project that is a collaboration between NEEA and Avista Utilities, the Bonneville Power Administration (BPA), Clark Public Utilities, Energy Trust of Oregon, Eugene Water & Electric Board, the Northwest Power & Conservation Council (NPCC), PacifiCorp, Portland General Electric, Puget Sound Energy, Seattle City Light, Snohomish County PUD, and Tacoma Power (collectively “NEEA and Partners”).

NEEA and Partners are seeking a qualified contractor or team of contractors to conduct a long-term commercial energy metering study (hereafter “CEMS”) for the Northwest over a 5-year period. CEMS will be a regional study to provide a current characterization of the continuous energy consumption (5-minute intervals or less) of key targeted electric end uses within commercial buildings throughout the Northwest.

NEEA and Partners are particularly interested in measuring electricity use of HVAC equipment. CEMS will meter circuits and heating, ventilation, and cooling (HVAC) equipment to gain insight on continuous energy use patterns for rooftop units (RTUs), heat pumps, and electric resistance heating. The resulting information will be used by NEEA and Partners for more accurate measurement of available energy efficiency and capacity savings, demand response program planning, improved load forecasting, distribution planning, transmission planning, and financial planning. Metering is anticipated to begin in 2019 and end in 2024.

To the extent possible, CEMS participants will be recruited from commercial electricity customers who agreed to participate in NEEA's 2019 Commercial Building Stock Assessment (CBSA). This will facilitate selection and recruitment of commercial participants with the desired end use technologies.

Bidders may propose augmenting the study with data from other sources, such as past commercial studies of individual end use equipment in the Northwest region.

3 Research Objectives and Approach
The primary objective of CEMS is to develop time-differentiated end use load shape data representative of commercial HVAC in the Northwest region, based on data from a sample of
circuits and end use equipment in existing buildings. NEEA believes that this can be achieved by sampling approximately 75 to 125 buildings from the 2019 CBSA sample of approximately 860 buildings taken across the region. For these buildings, the 2019 CBSA (in process) will provide detailed descriptive information about the building’s size, features, occupants, operating schedule, and HVAC equipment. Recruitment for the 2019 CBSA will occur into 2019. It is anticipated that data from the 2019 CBSA will be available in the fourth quarter of 2019.

The CEMS will enable accurate estimations of time-differentiated energy (kWh) and capacity (kW) savings possible (savings load shapes) from substituting more energy efficient electric technologies for baseline or status quo electric technologies. Additionally, the CEMS will facilitate better targeting of demand response programs, provide more accurate information for transmission and distribution planning, and enable more accurate load forecasting, revenue forecasting, and rate-making.

3.1 Geographic Scope & Sampling Approach
NEEA and Partners request that given an estimated sample size of between 75 and 125 buildings, bidders suggest a sampling approach that will offer the most representative load data for targeted HVAC equipment for commercial electricity customers in Washington, Oregon, Idaho, and western Montana.

NEEA encourages bidders to review the reports from the 2014 CBSA and others provided in Section 4 (Definitions and Supporting Documents). NEEA believes the sampling methodologies being utilized in the 2019 CBSA will be adequate to serve as the base population for CEMS sampling, though bidders are also invited to propose alternative approaches. If bidders wish to propose alternative approaches, they should fully address both the requests in this RFP and their proposed alternative.

Bidders should provide an approach that covers the Northwest Power and Conservation Council heating and cooling zone 1 and combines zones 2 and 3 (see “RTF Utility Climate Zone Designations” referenced in Section 4.2) into the sample design to the extent feasible. Since end use equipment, not buildings, are the focus of the research, it may be necessary to adjust sampling in order to obtain sufficient representation of some end-use technologies.

3.2 Oversampling and Power Quality Metering
In addition to the regional research, individual utilities may be interested in understanding the end-use load shape data from the perspective of their own service territory or for some sub-regional combination of service territories. For oversampling, utility partners wishing to augment the study scope with oversampling for their service territory will work directly with the awarded Contractor. For these utilities, the bidder must provide separate cost estimate for oversampling and analytical services in their service territory that would augment the larger, regional study. Bidders should include in their proposals a section that addresses estimated cost per building and per targeted end use equipment to the utility for oversampling and associated analytical services at the same level as other buildings and equipment.

Additionally, BPA is interested in sub-second metering of power quality in commercial buildings. The intent is to analyze select characteristics of the incoming electricity
interacting with the electrical equipment and devices that use it. BPA wishes to individually meter five (5) of the recruited commercial buildings using BPA-provided metering equipment. Installation of these meters would involve CT and PT wiring and termination to a provided enclosure. Bidders should include a separate cost estimate for the wiring and installation of the BPA metering equipment. In addition, annual site visits will be conducted to recover data from the meters, which should be included as a separate line item within the cost estimate.

3.3 Research Deliverables
The research deliverables for the CEMS are as follows:

3.3.1 Data Sets & Database
1. A minimum of five-minute interval data on current and voltage by circuit of targeted end use equipment in Northwest commercial buildings, synchronized with interval data for indoor and outdoor temperature:
   a. Targeted equipment includes time-differentiated load data from circuit metering and/or equipment metering of:
      • Rooftop units (RTUs)
      • Heat pumps
      • Electric resistance heating

      Please note that buildings with secondary heating sources may significantly affect the accuracy of heating load shapes.

   b. Metering of the targeted commercial end use equipment listed above will be conducted for office buildings larger than 5,000 square feet and retail buildings larger than 10,000 square feet.

   c. Other identifiable end use equipment on its own circuit should also be metered. These may include supply fans, exhaust fans, lighting, electric resistance domestic hot water, refrigeration, vertical transportation and terminal reheat systems. Bidders should explain how they will map and verify circuit labeling on circuits with single end use equipment.

   d. Metering of both current and voltage of the whole building service drop is required.

   e. Quality-assured interval data for indoor and outdoor temperature, synchronized with the interval of the metered equipment and circuit-metering data will also be collected. For buildings with zonal systems, temperature should be collected in each heating and cooling zone served by the corresponding heating and cooling equipment being metered. Bidders should propose approaches for collecting indoor and outdoor temperature and any other data needed to establish relationships between temperatures and temperature-sensitive end uses to produce weather normalized load shapes.
f. Data collected for heat pumps should identify when the units are in heating mode or cooling mode. This may be accomplished by measuring vapor line temperature, or by other means proposed by the bidder.

2. A database containing all data collected at each metered site:
   a. The database should be clearly labeled, annotated, quality assured, cleaned, and in a delimited format (pipe or comma) flat file (or other common data format).
   b. Bidders should explain their proposed quality assurance procedures to avoid missing values and how they propose to deal with missing or corrupted values.
   c. Bidders should identify how metered data anomalies will be detected and metering performance issues corrected before data are lost.
   d. The database will be augmented each year of the study with the previous year of metered data.
   e. The database will contain two (2) versions of the cleaned data: (i) one with non-anonymized, identifiable building information (e.g. building address, ownership, business name, etc.) and (ii) one with only anonymized information. Non-anonymized data is considered confidential and should be delivered to NEEA on a weekly or on an otherwise agreed upon schedule, via a method yet to be determined.
   f. The database will include a data dictionary and documentation.

3.3.2 Analysis, Reporting and Presentations

1. Annual load shape analysis, including:
   a. Regional coincident system peak day 1x24-hour generalized load shapes for metered commercial end use equipment for both winter and summer.
   b. Weekday 1x24-hour generalized load shapes in each month for metered end use equipment.
   c. Confidence intervals for the 1x24 load shapes above.
   d. 1x8,760 hourly (annual) data and generalized load shapes for metered end use equipment.
   e. The generalized load shapes listed above should be consistent with the methodology of the Regional Technical Forum (RTF) of the NPCC (“Regional Technical Forum Tool”, Section 4.2). While bidders may propose different methodologies, using publicly-available RTF tools for constructing and viewing load shapes is recommended.

2. Annual reports summarizing all findings developed for the targeted HVAC equipment, segmented where possible by heating and cooling zones, state, and
building type.

3. One or more annual presentations to regional stakeholders regarding findings and their implications for energy efficiency efforts in the region; bidders should assume a minimum of five (5) presentation events.

4 Definitions and Supporting Documents

4.1 Definitions

<table>
<thead>
<tr>
<th>Acronym / Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Load Shape</td>
<td>A graph of 8,760 hours of kilowatt-hour (kWh) electricity consumption by electric end use equipment</td>
</tr>
<tr>
<td>CEMS</td>
<td>Commercial Energy Metering Study</td>
</tr>
<tr>
<td>CBSA</td>
<td>Commercial Building Stock Assessment</td>
</tr>
<tr>
<td>End Use</td>
<td>For purposes of this RFP, the application for which an appliance or device is designed (for example, equipment for heating, air conditioning, ventilation, and water heating)</td>
</tr>
<tr>
<td>Equipment</td>
<td>Specific electric devices within an end use category (for example, ductless heat pumps, baseboard heaters, or heat pump water heaters)</td>
</tr>
<tr>
<td>Load Shape</td>
<td>Graph of time-differentiated kWh consumption by end use equipment</td>
</tr>
<tr>
<td>NEEA Project Manager</td>
<td>Point of contact for NEEA and Partners</td>
</tr>
<tr>
<td>NILM</td>
<td>Non-intrusive load monitoring</td>
</tr>
<tr>
<td>NPCC</td>
<td>Northwest Power and Conservation Council</td>
</tr>
<tr>
<td>Protocol</td>
<td>An agreed upon procedure or convention for how important details in CEMS will be managed.</td>
</tr>
<tr>
<td>RTF</td>
<td>Regional Technical Forum of the Northwest Power and Conservation Council</td>
</tr>
<tr>
<td>Savings Load Shape</td>
<td>Graph of the time-differentiated kilowatt-hour (kWh) electricity savings from applying energy efficient equipment versus the standard equipment</td>
</tr>
<tr>
<td>Steering Committee</td>
<td>A committee of senior executives from each NEEA Partner organization who will oversee the CEMS, approve project plans and budget, and have final decision authority on research project-related matters</td>
</tr>
<tr>
<td>Working Group</td>
<td>A committee of representatives from each NEEA Partner organization engaged in detailed project design and providing recommendations to the Steering Committee</td>
</tr>
<tr>
<td>UL Listed</td>
<td>Underwriters Laboratory listing is a U.S. certification, often required for electrical equipment in homes and businesses</td>
</tr>
</tbody>
</table>
4.2 Supporting Documents

<table>
<thead>
<tr>
<th>Title</th>
<th>Description &amp; Link</th>
<th>Date Published</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwest Heating and Cooling Zone Definitions: “RTF Utility Climate Zone Designations”</td>
<td>Public link from the Northwest Regional Technical Forum consisting of a spreadsheet with information associated with the “climate zone” definitions: <a href="https://nwcouncil.app.box.com/s/yzj0hwaulan8qeolwck6q3stibnczn5">https://nwcouncil.app.box.com/s/yzj0hwaulan8qeolwck6q3stibnczn5</a></td>
<td>Most Current</td>
</tr>
<tr>
<td>CBSA Reports and Documentation</td>
<td><a href="https://neea.org/data/commercial-building-stock-assessments">https://neea.org/data/commercial-building-stock-assessments</a></td>
<td>All</td>
</tr>
<tr>
<td>Regional Technical Forum Tool</td>
<td>This MS Excel tool is used to convert 8,760 hour raw data into the Regional Technical Forum’s Generalized Load Shape (GLS) format. <a href="https://nwcouncil.app.box.com/s/9osbb86pgtc1hzhuaxzowyp4i4uvnzit">https://nwcouncil.app.box.com/s/9osbb86pgtc1hzhuaxzowyp4i4uvnzit</a></td>
<td>Most Current</td>
</tr>
<tr>
<td>Northwest Power &amp; Conservation Council Seventh Power Plan</td>
<td><a href="https://nwcouncil.org/energy/powerplan/7/plan/">https://nwcouncil.org/energy/powerplan/7/plan/</a></td>
<td>Most Current</td>
</tr>
</tbody>
</table>

5 Project Phases

CEMS will have four distinct phases:
1. Sample Design and Work Plan Development
2. Recruitment, Equipment Procurement, and Pre-testing
3. On-Site Metering and Database Development
4. Analysis, Reporting & Presentations

Proposals should identify the bidders’ suggested approach and sampling methodology, activities, deliverables, timelines and cost estimates for each phase.

5.1 Phase One: Sample Design and Work Plan Development

5.1.1 Work Plan Development
The awarded Contractor shall submit a draft Work Plan to be presented and discussed at a kick-off meeting with the Working Group. The Work Plan will describe each phase, including how the Contractor will proceed with the research, data collection, analysis, report preparation, pre-testing associated with each phase, and other proposed activities. The Work Plan will consist of, but may not be limited to the following:
- Proposed methodology for sampling and sampling plan;
- Approaches to be used for each study phase;
• Schedule of the major tasks, including milestones and estimated completion dates;
• High-level outline of reports;
• Estimated hours and time required for each major task in each phase; and
• Party responsible for each task.

Bidders should note that part of the sampling plan potentially could include a decision to use existing metered data for a particular end use. For example, there is a possibility that existing data may be a sufficiently representative load shape for heat pumps. Thus, it may not be necessary to target as many buildings with heat pumps in the metering sample. Bidders should propose (i) how they would assess whether existing data were sufficiently reliable and sufficiently representative, and/or (ii) how they might adjust existing data to ensure that it is more representative of the actual end use load shapes.

5.1.2 Planning Sessions with Working Group
Bidders should be aware that an important task involved in the planning of CEMS involves participating in or facilitation of Working Group and Steering Committee sessions. Bidders should note that NEEA is responsible for the outreach and initial engagement with regional parties in order to establish scheduling of Working Group sessions. NEEA wants bidders to understand the importance of these sessions and their contribution to the overall research.

NEEA and Partners envision an initial engagement process that will include three (3) meetings over the course of three (3) months with the Working Group, in which a draft Work Plan is presented in the first meeting (the kick-off meeting) and input is captured from Working Group members. The second and third meetings will also address plans for sampling, recruitment and quality assurance.

5.1.3 Sample Design
The preferred sampling methodology for end use metering:

• Uses analysis of variance to estimate the required sample sizes for each end use, over a range of confidence intervals. Use of coefficients of variation from past studies may facilitate comparisons with this analysis.
• Is representative of the Northwest in proportion to its population.
• Is representative of the heating and cooling zones in the Northwest. Bidders may consider whether modeling heating and cooling zones from sample data may partially substitute for a smaller sample size in areas with low population.
• Will allow inferences to be drawn for the following strata:
  o The Northwest region including commercial electric utility customers in Washington, Oregon, Idaho, and Western Montana (the BPA region with Northwestern Energy).
  o Commercial electric utility customers by state.
• Achieves an 80 percent confidence interval for targeted end use equipment load shapes in the region.

NEEA and Partners are aware that limitations on the size of the sample and the project budget may affect the extent to which the above goals are achieved.

The final Work Plan will describe the final, agreed-upon sampling approach and detail the sampling methodology, recruitment plans and quality assurance, as informed by the
Working Group and Steering Committee engagement process described above.

5.2 Phase Two: Recruitment, Equipment Procurement, and Pre-testing

5.2.1 Study Recruitment

For the initial three to four years of the study, NEEA and Partners expect the project will rely on the 2019 CBSA as the primary sample frame for recruitment, which includes approximately 860 buildings. For the final year(s) of the study recruitment, NEEA and Partners expect the sample frame to be expanded to include any future CBSA data.

If circumstances arise where specific HVAC equipment is not common enough in the 2019 CBSA sample to achieve a desired degree of confidence in the load shape, the 2014 CBSA and other secondary data sources (such as utility surveys and end-use rebate databases) may help identify buildings with the targeted end uses. If recruiting from secondary data sources, it may be necessary to collect additional building characteristic data (including information on the age of building, square footage, number of occupants, operating schedule, control systems, set points, and the specific types of heating, ventilation, and air-conditioning equipment, including the manufacturers and model numbers).

Bidders must provide a cost estimate for each of the three following sample size scenarios for the 5-year data collection period: a total sample of (i) 75 metered buildings, (ii) 100 metered buildings, and (iii) 125 metered buildings. Bids should include the cost for recruiting 30% of the metering sample from outside the CBSA.

Bidders must also provide their proposed recruitment methodology that minimizes sample bias and costs. Recruitment will also involve obtaining signed participant agreements.

Buildings with open energy management systems should be investigated for the potential to utilize their existing sub-metering as part of the study. The existence of an energy management system, the extent of the sub-metering, and other information may be collected and verified through on-site inspection if the building is selected for metering.

Given the time required of building managers or tenants to facilitate on-site visits, bidders should include a cost estimate for appropriate participant incentives and incorporate these costs into the proposal as a separate line item. Past research incentives have typically ranged between $100 and $300 per visit, depending upon the circumstances.

A strategy to address attrition of study participation is important. Study participants may move or building ownership may change at any time; the ability to convince a new building owner or tenant to continue participation in the study may prove less expensive than having to remove the metering equipment and restart recruitment to replace lost participants. Bidders should address their proposed strategy for addressing attrition. Reporting to the NEEA Project Manager and Working Group should include progress on recruitment and retention efforts.

Bidders should include a cost estimate to conduct annual telephone surveys with participants to identify changes in building equipment, structure or occupancy.
5.2.2 Equipment Procurement and Pre-Testing
Bidders should identify the specific meters and equipment they propose to use for this study (including technical specifications, capabilities, and all direct costs of the meters, data storage, and communications equipment). Any metering or other equipment purchased to execute CEMS will be owned by the awarded Contractor. All meters and electrical equipment proposed to be installed must be UL listed. Proposals solely for non-intrusive load monitoring (NILM) and load disaggregation for purposes of collecting end use load data will not be considered. However, bidders wishing to propose NILM to augment a commercial end use load metering study may do so.

NEEA and Partners are seeking metering of electric current to the circuits and targeted end uses, but also are interested in being able to calculate the power factor for the building. Bidder should also indicate if proposed metering equipment will enable calculation of the power factor for a building.

The awarded Contractor is expected to provide a test capable of demonstrating that all equipment, communications, data storage, and protocols work to the satisfaction of NEEA and Partners. This may be achieved by demonstrating that the Contractor has successfully used the same ensemble of data collection tools, software, and protocols in the past. Given changes in technology and metering equipment, over the course of the five-year project, the awarded Contractor is expected to consider newer, cheaper methods that improve metering options and/or data collection methods.

5.3 Phase Three: On-Site Metering and Database Development

5.3.1 On-Site Metering
Metering for all targeted end use equipment must commence no later than the end of year three (of the five-year data collection period) in order to ensure a sufficient volume of data is collected. Bids should include a cost estimate for outdoor temperature monitoring and indicate whether this is based upon collecting data from outdoor equipment or from an external weather service (an acceptable alternative).

Bidder proposals should also (i) identify where the use of subcontractors (such as electricians) will be required during installation and (ii) include installation costs and quality assurance methods for the installation. Bids should be constructed based upon an assumption of an eight-hour average site visit to the buildings for meter installations.

Bidders should note that if their proposed metering approach will require electrical permits to be acquired for commercial building metering, a cost assumption for acquiring the permits should be included as a separate line item in the cost estimate. The need for electrical permits may vary by jurisdiction. It will be the responsibility of the awarded Contractor to identify where they are required and to acquire the necessary permits.

For purposes of the proposal, bidders should assume the need to remove installed meters and equipment from metered buildings at the end of the study. Cost estimates should include the cost per building for removal of meters and equipment as a separate line item in the proposal.
Bidders should address the following questions in their proposals:

- What will be done to ensure the safety of field staff, including subcontractors?
- What quality assurance protocols will be used, and with what frequency, to ensure that meters are working properly, data are accurate, and the data are accurately transferred to the database?
- What protocols will be used to ensure that time intervals are consistent within a building and across buildings (e.g. data are always recorded on the same five-minute marks)?
- How will the participants’ privacy and safety be protected? (For example, field staff entering a building should be clearly identifiable to the study participants and have had a background check prior to beginning work on the premises.)

5.3.2 Database Development
The awarded Contractor shall deliver all metered data, along with participating site data and building characteristics, to NEEA in a database format that is easily interpreted and user-friendly and will include a data dictionary.

The database will contain two (2) versions of the cleaned data: one with non-anonymized, confidential data, and one with anonymized information. Anonymized data will be cleaned to remove any proprietary or identifying information, including business names and addresses. The anonymized dataset must contain an ID variable that allows the data to link each site’s metered data to CBSA data for that site where applicable. Protecting the privacy of commercial study participants is very important. Proposals should include a description of bidders’ internal data security protocols and how data security will be managed in the field. Bidders should also include their quality assurance approach for identifying and addressing any missing or corrupted data.

NEEA and Partners would also like to determine if use of an energy usage report specific to a participant’s building would be a cost-effective recruitment tool. Bidders should include a separate cost estimate for providing such a report to participating commercial buildings at the conclusion of metering.

5.4 Phase Four: Analysis, Reporting & Presentations

5.4.1 Analysis, Presentations and Updates
The awarded Contractor will conduct analysis of metered data on an annual basis, identifying descriptive statistics, measures of volume and quality of data collected, including load shapes for targeted end uses/technologies, as agreed to by the Working Group. The awarded Contractor should anticipate presenting findings to regional stakeholders on an as-needed basis. NEEA suggests bidders assume a minimum of five (5) presentations associated with findings and implications of CEMS results over the course of the study.

Additionally, the awarded Contractor will need to provide weekly status updates to the NEEA Project Manager (by phone) as well as regular status updates to the Working Group via a conference call and a monthly written progress report that will include progress of recruitment, meter installations, and a count of operational and non-operational installed meters.
5.4.2 Annual Reporting
The CEMS will include the delivery of two (2) annual reports for each year of the study including: (i) a report identifying and discussing lessons learned and recommendations for the upcoming year; and (ii) an energy analysis report on the current year’s data. The energy analysis report should include characterization of the end use load shapes by equipment, any impacts on data due to building changes, the degree of variance around peak demand and average energy, and a discussion of the implications of reliance upon the load shape for measuring peak and energy savings.

Each year, the awarded Contractor will submit report outlines that will serve as a basis of discussion between the Contractor, the NEEA Project Manager, and the Working Group to ensure alignment on report structure and content. Draft reports will be reviewed by the NEEA Project Manager, Working Group, and any other parties deemed appropriate by NEEA. Final versions of the reports will incorporate any feedback received during review.

6 Research Timeline
Note that the first year of metering and analysis described in this solicitation (including presentations of year one results) should be completed no later than August 2020. Bidders should provide their approach to completing the work according to the following prescribed timeline associated with each major phase.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Study Component</th>
<th>Deliverable</th>
<th>Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sample Design &amp; Work Plan Development</td>
<td>Work Plan (including sampling methodology and recruitment plan)</td>
<td>January 2019</td>
<td>March 2019</td>
</tr>
<tr>
<td>2</td>
<td>Recruitment and Pre-test of Equipment and Protocols</td>
<td>Initial 25 buildings recruited</td>
<td>April 2019</td>
<td>May 2019</td>
</tr>
<tr>
<td>3</td>
<td>Metering and Database Development</td>
<td>Meters installed in the initial 25 buildings and initiation of metered data</td>
<td>June 2019</td>
<td>May 2020</td>
</tr>
<tr>
<td>4</td>
<td>Analysis, Reporting, and Presentations</td>
<td>Year 1 Database &amp; Reports</td>
<td>August 2020</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Final Presentation (Year 1)</td>
<td>Q4 2020</td>
<td></td>
</tr>
</tbody>
</table>

Note on scheduling: Timelines for initial recruitment and on-site metering should avoid scheduling of installations during the holiday season (approximately November 15 through January 5). NEEA and Partners expect that the four phases and timelines described above
will be repeated on an annual cycle into the year 2023. The final project timeline will be determined in consultation with NEEA and Partners as part of Phase One in the first year.

7 Contractor Competencies and Qualifications
NEEA encourages proposal submissions from qualified contractors or teams of contractors with a proven track record of collaboration.

7.1 Technical Expertise
The awarded Contractor or Contractor team should be well qualified and able to demonstrate experience in the following areas:

- Sample Design / Development of Sampling Plans
- Recruitment of Commercial Metering Participants
- Data Collection Design & Development
- Conducting Commercial Energy Metering
- Statistical Analysis of Energy End Use Data
- Database Design and Implementation
- Publication-Quality Reports Development

7.2 Outreach & Project Management
The awarded Contractor will be responsible for the design and development of all participant-facing materials including but not limited to: introductory letters or postcards; FAQs or similar collateral seeking to provide general information about the study; and other collateral deemed necessary and requiring presentment to CEMS participants.

The awarded Contractor will also be responsible for coordination of any subcontractors including those utilized for recruitment and installation. These duties include coordination during the recruitment phase to receive lists of prospective respondents for whom to distribute introductory letters or postcards, informational collateral, make recruitment telephone calls, provide information regarding the on-site installations, thank you letters and incentive payments upon installation of meters, and coordination/scheduling of site visits to install metering equipment.

7.3 Collaboration with Utilities & Stakeholder Engagement
A study of this magnitude will require significant coordination with regional utilities. NEEA will take the lead on all activities that involve NEEA-funder cooperation and coordination; the awarded Contractor will maintain a support role unless otherwise directed. Bidders should be aware of time required for coordinating with NEEA, utilities, and other parties. Bidders must describe their intended methods of project management and utility coordination to ensure smooth execution of data collection and collaboration among all relevant stakeholders.

The awarded Contractor will be expected to resolve study participant (utility customer) complaints quickly and effectively. Any disagreements or issues with study participants should be promptly reported to the NEEA Project Manager and communicated to the appropriate Working Group representative of the utility of the customer in question.

The awarded Contractor should understand sensitivities of the utility industry and the regulatory environment in which they operate.
Engagement with stakeholders prior to starting onsite metering will involve incorporating utility funder input into final Work Plan and protocols, including the sharing of test results and recommendations for any potential changes to the study. Once onsite metering begins, NEEA envisions the level of engagement to be primarily focused on information sharing (including regular updates on progress, written and by conference call) with some potential for input depending on potential issues that may arise during the course of fieldwork.

8 Proposal Submission & Deadlines
Each bidder shall submit one (1) electronic copy of their proposal according to the RFP schedule below.

8.1 Planned RFP Schedule (Subject to Change)

<table>
<thead>
<tr>
<th>Date Due</th>
<th>Time</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>September 24, 2018</td>
<td>–</td>
<td>RFP posted</td>
</tr>
<tr>
<td>October 1, 2018</td>
<td>5 pm</td>
<td>Intent to Respond forms submitted to NEEA (REQUIRED)</td>
</tr>
<tr>
<td>October 5, 2018</td>
<td>5 pm</td>
<td>Bidder questions submitted to NEEA</td>
</tr>
<tr>
<td>October 10, 2018</td>
<td>10-11 am</td>
<td>Bidders’ conference (REQUIRED)</td>
</tr>
<tr>
<td>October 22, 2018</td>
<td>5 pm</td>
<td>Proposals due to NEEA</td>
</tr>
<tr>
<td>November 5, 2018</td>
<td>5 pm</td>
<td>Notifications sent to finalists</td>
</tr>
<tr>
<td>November 8-9, 2018</td>
<td>–</td>
<td>Finalists oral presentations</td>
</tr>
<tr>
<td>November 16, 2018</td>
<td>5 pm</td>
<td>Awarded Contractor notified</td>
</tr>
<tr>
<td>November/December 2018</td>
<td>–</td>
<td>Contract negotiated &amp; executed</td>
</tr>
<tr>
<td>January 7, 2019</td>
<td>–</td>
<td>Estimated work start date</td>
</tr>
</tbody>
</table>

8.2 Intent to Respond (REQUIRED)
All Intent to Respond forms (see Appendix A) must be received as directed in the RFP Schedule. Bidders that submit an Intent to Respond form are under no obligation to submit a proposal. Only those parties submitting the Intent to Respond form will be provided with updates to the RFP, have questions responded to and have their proposals considered.

NEEA strongly encourages firms that believe they have the capabilities and qualifications to conduct any or all of the scope described in Section 5 to submit an Intent to Respond form.

8.3 RFP Point of Contact
All correspondence, included but not limited to, questions and submissions shall be directed to:

David Clement, Senior Program Manager
Northwest Energy Efficiency Alliance
421 SW 6th Avenue, Suite 600
Portland, OR 97204
Direct: (206) 852-5512
Email: dclement@neea.org
8.4 Question & Answer Webinar (REQUIRED)
A Q&A webinar is tentatively scheduled for Wednesday, October 10, 2018 from 10:00 am - 11:00 am PST. The Q&A webinar is mandatory for all entities who submit an Intent to Respond form as described above. Entities submitting an Intent to Respond form are free to delegate responsibility for attendance to anyone within their organization, but NEEA expects at least one representative in attendance.

Webinar/audio log-on information will be provided to firms that submit an Intent to Respond form. NEEA will attempt to provide answers to questions during this event, but may allow additional questions to be asked and submitted by email if needed. Answers to written questions will be sent to all respondents.

8.5 Proposal Format
Bidders should note that proposals MUST adhere to the page limits noted below; core proposals (not including Appendix materials) must not exceed 33 pages and include the following components:

1. **Executive Summary (2-page maximum)** – Include the key strategies and approach to executing the CEMS, proposed costs, and the reasons NEEA should select your team.

2. **Introduction (3-page maximum)** – State your understanding of the scope and key objectives of this project.

3. **Project Team Identification (4-page maximum)** – Provide information regarding the proposed project team, including hierarchical team structure. Note that project team bios and/or resumes should be included in the Appendix section.

4. **Proposed Methodology/Approach (12-page maximum)** – Provide information regarding the specific methodologies and approach to be undertaken to complete CEMS.

5. **Timeline (6-page maximum)** – Provide the proposed timeline for all major phases and milestones of the project broken out by proposed task and associated deliverables.

6. **Project Cost (6-page maximum)** – Provide the cost estimate for each phase of the project (as described in Section 5) by proposed task outlined in the proposal timeline. In addition, bids should be presented on a not-to-exceed cost per building and cost per end use equipment type. General format should be a cost matrix whereby tasks are “rows”, and contributors are identified in “columns”. A detailed breakout of any direct costs and an hourly rate sheet should be included the Appendix (see item 7 below).

7. **Proposal Appendix** – Appendix materials do not count against the 33-page maximum and should include the following:
   - Hourly Rate Sheet – For all proposed project team members including estimated hours by Task and any projected annual hourly rate increases.
   - Company Background & Qualifications
   - Project Team Bios – Include information about program team members and team structure, past team efforts on similar work, years of experience and other relevant qualifications.
• Cost Estimates – Include detail on all direct cost estimates (for meters, equipment, permits as needed) itemized separately.

9 Selection Process

9.1 Term of Contract
The project will be executed over a period of approximately six years to allow for five years of data metering and collection. However, NEEA retains the right to review contractor(s) performance on an annual basis to determine if work will continue for the subsequent year. Responding bidders should note that the Working Group made up of representatives of NEEA and Partners will be central to the evaluation process, reviewing all responses to this solicitation and recommending the finalists.

9.2 Scoring
Proposals will be evaluated in terms of the following criteria:

1. Responsiveness to the RFP and demonstrated understanding of the issues surrounding the project.
2. The thoughtfulness and appropriateness of the proposed methodology used to accomplish the desired results of the project.
3. The experience and qualifications of the individuals specifically proposed to execute and manage the project. (Note: Proposed staffing is a significant factor in bidder selection. As such, no changes in key staff/substitutions or changes in roles/ responsibilities can be made without the written agreement of the NEEA Project Manager.)
4. The experience of the firm or team of firms making the proposal.
5. The capability to execute the work, including experience and aptitude for collaboration.
6. The cost of the work should be bid as described in Section 5.

**NEEA is under no obligation to select any proposal that results from this solicitation, nor is there any obligation or intent implied to reimburse any party for the cost of preparing a proposal in response to this RFP.** NEEA encourages bidders to submit proposals that include innovative methods or tasks in addition to or different from those listed in the RFP; however, these should be listed as additional “options” over and above the scope envisioned in this solicitation to facilitate comparisons between competing proposals.

10 Minimum Insurance Requirements

Bidders should be aware of the following minimum insurance requirements for all NEEA vendors.

Vendors must maintain adequate and reasonable insurance covering their performance under any offered contract, including, but not limited to Commercial General Liability of at least $1,000,000/occurrence, Business Automobile Liability insurance, and any workers' compensation and unemployment insurance required by law. Professional Liability insurance may also be required. NEEA may request a copy of such insurance policies prior to awarding work.
Appendix A – Intent to Respond Form

**RFP #: 50898**

Project Title: Commercial Energy Metering Study

Please respond to the NEEA Point of Contact:
David Clement, dclement@neea.org

**PLEASE PRINT:**

<table>
<thead>
<tr>
<th>Company</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td></td>
</tr>
<tr>
<td>City, State, Zip</td>
<td></td>
</tr>
<tr>
<td>Contact Name</td>
<td></td>
</tr>
<tr>
<td>Contact Title</td>
<td></td>
</tr>
<tr>
<td>Phone #</td>
<td></td>
</tr>
<tr>
<td>Fax #</td>
<td></td>
</tr>
<tr>
<td>E-mail</td>
<td></td>
</tr>
</tbody>
</table>

The company named above intends to submit a proposal in response to NEEA’s request for proposal listed above.

Deadline for submitting the “Intent to Respond” form is end of business day of date listed in the RFP schedule.

Signature of Authorized Representative ________________________________________
Print
Name ________________________________
Title ________________________________
Date ________________________________