



**REGIONAL EVALUATION,
MEASUREMENT & VERIFICATION FORUM**

Request for Consultant Proposals RFP

Commercial Refrigeration Loadshape Project (RE13-1)

Issued by:

**Northeast Energy Efficiency Partnerships, Inc
RFP Schedule: Proposals Due 4:00 PM (EST)**

RFP release	December 18, 2013
Intent to bid notice	January 16, 2014
Close of RFP question period	January 16, 2014
Electronic proposals due	January 27, 2014
Anticipated date of bidder selection	February 7, 2014
Anticipated contract start date	February 21, 2014

[RFP website](#)



EMV Forum RFP: Commercial Refrigeration Loadshape Project

TABLE OF CONTENTS

COMMERCIAL REFRIGERATION LOADSHAPE PROJECT

1. Executive Summary and Project Objectives	4
2. Background	5
3. Work Scope and Deliverables	6
A. Overview	6
B. Specific Project Tasks to Be Included in the Bid	14
4. Project Budget and Schedule	18
5. General Submittal Information	20
A. Contact and Communications	20
B. Bidders' Q&A	20
C. RFP Submittal Format and Due Date	20
D. RFP Schedule	21
E. Minimum Qualifications	21
F. Modifications to the RFP	21
G. Post Proposal Negotiation and Awarding of Contracts	<u>2224</u>
H. Acceptance of Terms and Conditions	22
I. All Submitted Proposals Become Exclusive Property of NEEP	22
6. Proposal Submittal Requirements	22
A. Submission of Proposals	22
B. Proposal Format	22
I. Section 1: Executive Summary	23
II. Section 2: Work Scope and Schedule	23



EMV Forum RFP: Commercial Refrigeration Loadshape Project

III.	Section 3: Staffing Plan.....	24
IV.	Section 4: Firm Qualifications and Experience.....	24
V.	Section 5: Budget and Billing Rates.....	24
VI.	Section 6: Exceptions to contract terms.....	25
VII.	Section 7: Conflicts of Interest.....	25
VIII.	Section 8 (Appendix): Resumes.....	26
7.	Selection Process and Evaluation Criteria.....	26
	Appendix A: Required Proposal Checklist.....	27
	Appendix B: NEEP Professional Services Agreement.....	27
	Appendix C: Load Shape Workbook Specifications.....	28



EMV Forum RFP: Commercial Refrigeration Loadshape Project

1. EXECUTIVE SUMMARY AND PROJECT OBJECTIVES

On behalf of the Regional Evaluation, Measurement and Verification Forum (Forum), Northeast Energy Efficiency Partnerships, Inc. (NEEP) is issuing this request for proposals. The Forum is a regional project facilitated and managed by NEEP representing states in New England, New York and the mid-Atlantic. The Forum is undertaking a number of projects in 2013, including this effort to conduct a saving loadshape study of a variety of small commercial refrigeration measures commonly promoted in energy efficiency programs in the region. The goal of this study is to produce annual (8760) hourly savings loadshapes and associated savings factors that can be used in various applications by Forum members (the Project) through a combination of collecting available loadshape data from recently completed studies, new on-site measurement and engineering analysis. The study results are intended to improve upon the prescriptive savings estimates that are documented in the Technical Reference Manuals (TRM) or in other source files utilized by Forum members to calculate annual energy and peak demand savings resulting from installation of these measures.

This Project is one of many Forum projects intended to help improve and ensure the understanding, transparency, and credibility of energy efficiency resources implemented in the Northeast, New York and mid-Atlantic region. The primary applications of the loadshape data are quantification of small commercial refrigeration measures during peak load hours as defined by New York ISO, and by ISO-New England and PJM market rules governing participation in forward capacity wholesale markets; quantification of annual on-peak/off-peak energy savings; and quantification of savings during high electricity demand days for the purpose of air quality regulation modeling. Expected outcomes of the Project include:

1. Metering and related results in compliance with ISO-NE and PJM forward capacity market requirements
2. Leveraging of existing sources of measured data if available

The final products of the Project will be a draft and final report; Excel workbooks for each measure that allows calculation of parameters based on user-specified time intervals; an electronic file of project data. Other deliverables will include reporting on preliminary/draft findings, participation in several teleconferences, and presentations of results at one or two Forum meetings.

NEEP intends to enter into a contract with one or more consultants, selected on behalf of the Forum, as a result of this RFP process. A NEEP project manager, one or more technical advisors, and a subcommittee of Forum members will provide oversight and guidance during the project. However, the consultant will only report to the NEEP project manager.

It is intended that this work be started as soon as possible during fall of 2013 and completed in the third quarter of 2014 if summer metering is required and in the second quarter of 2014 if no summer metering is required. This schedule is set in order to capture possible seasonal variations in consumption by the equipment being measured.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

2. BACKGROUND

The Regional Evaluation, Measurement and Verification Forum (Forum) includes public and private sector representatives from the New England states, New York, Maryland, the District of Columbia and Delaware.

The objective of the Forum is to support the successful expansion of demand-side resource policies and programs, by:

- Providing for consistent, credible and accessible savings data from demand resources to support state and regional energy, climate change and other environmental policy goals,
- Reducing the cost of evaluation, measurement and verification (EM&V) activities by leveraging resources across the region for studies of common interest, and
- Removing barriers to the participation of demand-side resources in regional markets by establishing regional protocols to be adopted by the states.

The Forum serves five core functions:

1. Provide a framework for multi-state agreement on consistent EM&V protocols;
2. Develop common/consistent protocols;
3. Coordinate multi-state research and evaluation;
4. Aggregate and provide access to state and regional level demand-side resource data, and
5. Provide access to, and visibility and technical support for Forum products and results.

NEEP staff serves as facilitators, conveners, project managers and administrators for the Forum and its activities. A regionally representative Forum Steering Committee of stakeholders directs the Forum's agenda. Specific Forum projects are undertaken with the input and guidance of topical Project Committees, which recommend products to the Steering Committee for Forum adoption.

The three Project Committees are:

- Protocol Development Committee. Focus is to consider and develop a) common/consistent protocols for EM&V characteristics (e.g. EM&V methods, precision/accuracy guidelines); b) common energy and demand savings assumptions, including stipulated values for common measures, input assumptions (e.g. measure life/persistence), and coincidence factors, and potential supporting on-line database; and c) common reporting formats for savings data and associated cost and emission reductions.
- Research & Evaluation Committee. Focus is to undertake and support coordinated research and evaluation projects that serve as basis for protocol development (e.g. common assumptions). Examples of projects include savings load shape analyses (e.g. to inform coincidence factors); measure life and persistence studies; spillover and free-ridership approaches; and common measure cost input assumptions. Projects may include coordination of multi-state projects that involve a subset of the region.
- Education and Information Access Committee. Focus is to guide and help ensure Forum products and results (e.g. studies, reports, protocols, recommendations, references, etc.) are



EMV Forum RFP: Commercial Refrigeration Loadshape Project

visible and readily accessible to stakeholders, while ensuring protection of any confidential information.

This Project falls within the purview of the Research and Evaluation Committee. For more information on the Forum, please see <http://www.neep.org/emv-forum>

3. WORK SCOPE AND DELIVERABLES

While information in this Section is being provided to assist potential bidders, bidders are requested to propose their own approach to meeting the project objectives, including their recommendations with respect to appropriate report contents, the schedule and budget, and possibly modified or additional tasks, given the Project objectives.

A. Overview

The selected consultant's client will be NEEP, which will have final say on scope issues and deliverables approvals in consultation with the Forum project subcommittee and one or more technical advisors. The subcommittee will be responsible for providing broader Forum participant input and comment; its support, interaction, and input will be critical to the success of the Project. NEEP will be responsible for managing an efficient interaction process between the Forum subcommittee, the Forum participants, and the consultant - where such process involves:

- Subcommittee reviews and provides input to initial draft documents; and
- Discussion and input provided by Forum members on final drafts.

Technical Requirements

Technical requirements for completion of this study include selection of types of commercial refrigeration equipment/measures to study and development of a sample, based on a comprehensive review and inventory of available data from other recent evaluations. It will also include on-site measurement of various types of commercial refrigeration equipment and site-specific analysis of hourly savings in a sample of commercial facilities selected from targeted populations of energy efficiency program participants located in New York, New England and Mid-Atlantic states. The data collected on site will be utilized to develop annual (8,760 hour) measure savings load shapes that can be used in various applications by Forum members. The load shapes will be differentiated as a function of simple variables collected for each customer such as motor horsepower, pre installation motor type, length or duration of fan control cycle.

The primary applications of the load shape data are:

- Quantification of refrigeration measure savings during peak load hours as defined by New York ISO and by ISO New England and PJM market rules governing participation in forward capacity wholesale markets.
- Quantification of refrigeration measure energy and demand savings during summer/winter, on-peak/off-peak energy costing periods.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

- Quantification of refrigeration measure savings during High Electric Demand Days (HEDD) for the purpose of air-quality regulation modeling.

Measure Selection

Feedback from Forum members indicate that existing data on common commercial refrigeration measures are insufficient in quality and quantity and in some cases simply too old to provide appropriate or accurate estimates of \ savings load shapes that can be used by Forum members. Refrigeration measures make a significant contribution to small commercial energy efficiency program savings and a sizable contribution to large commercial retrofit programs. Because of the diversity of refrigeration measures installed by Forum members an initial task will be to make a final determination of which measures to study. Refrigeration measures are offered to customers via both custom and prescriptive program delivery channels. Whereas site-specific savings estimates are developed for custom refrigeration measures, savings estimates for prescriptive measures are based on generic assumptions that are not always informed by site-specific data concerning motors sizes, number of linear feet of refrigeration case etc. The present study is therefore being undertaken in order to improve upon the prescriptive savings estimates that are documented in the Technical Reference Manuals (TRM) or in other source files utilized by Forum members to calculate annual energy and peak demand savings resulting from installation of these measures.

Measures of highest interest, likely to be studied will include:

- Evaporator Fan Controls
- Electrically Commutated Motors (ECM) installed in coolers and freezers
- Anti-Sweat Door Heater Controls (humidity or time controls)

Other measures which may be studied in the event that one or more of the three became unsuitable for study or the budget allows, include:

- Strip curtains
- New cooler doors “zero energy” doors
- Conversion of open air coolers to coolers with doors
- General loadshape of small refrigeration compressor/condenser systems
- Vending Miser/novelty cooler shut off

For the purposes of responding to this RFP, the maximum number of measures that will be studied will be three due to budget constraints. If after receiving the proposals, it appears that more than three measures will fit into the proposed budget additional measures will be proposed.

Loadshape Estimation.

The primary objective of the project is the estimation of savings load shapes (defined below). The estimated load shapes must accordingly account for both the installed energy efficient measure and baseline/pre-retrofit equipment operation as appropriate to calculate hourly demand savings. The operation of the installed equipment must be determined empirically on the basis of site-specific measurements and engineering analysis that are designed to reflect the actual installation, control settings, functionality and operation during the monitoring period. The on-site data collection protocols must provide for the identification and documentation of any factors that may have a



EMV Forum RFP: Commercial Refrigeration Loadshape Project

significant impact on the expected savings, including system control parameters (e.g. store humidity, defrost cycle, etc), control malfunctions, improper or sub-optimal installation, commissioning and operation of the controlled equipment.

Savings loadshapes for some measures will require measurement of the baseline, but the duration of the pre installation measurements may be very brief (spot measurements of a few minutes) as in the case of EC motors where the pre and post installation run times of motors without controls can be assumed to be the same. For other possible measures, the pre installation baseline may need to be measured for longer periods to capture the pre period wattage and usage profile. The final schedule will be subject to the approach.

The final deliverables include a set of weather-normalized 8,760 hour load shapes that represent the typical weather patterns, equipment characteristics and participating facilities within each target population. The methodological approach - sample design, on-site measurement and data analysis - must therefore recognize and address the necessary trade-offs between data quality, consistency and (temporal and geographic) scope. The scope of the data collection and analysis is discussed below.

The final loadshape data for this project should follow the data collection protocol developed by NEEP. The final report for that project can be found at:

<http://www.neep.org/Assets/uploads/files/emv/emv-products/NEEP%20Data%20Protocol%20final%20Delivered%20101212.pdf>

The spreadsheet referenced in the report can be found at*:

<http://neep.org/Assets/uploads/files/emv/emv-products/Commercial%20-%20FINAL%20NEEP%20Data%20Protocol.xlsx>

**Please note that Internet Explorer does not support downloading Excel files. To access the data collection protocol spreadsheet, please either use a different browser or take the following steps:*

- a. Right click on the link*
- b. Choose "Save Target As" in the menu that appears*
- c. Save file to desktop or other folder - the box that appears will look just like the one used when saving a new document*

Target Population

The target population consists of small commercial program participants that will install or have installed the targeted refrigeration measures using savings estimates which are simple in nature and do not rely on detailed site specific engineering estimates of savings. Some large customer rebate program projects which meet these general requirements may also fall under that description. Measures installed through Custom programs that tend to treat larger commercial customers where the savings estimates can be more site specific and complex in nature will not be covered in this study but some of the savings estimates developed as part of this study may be applicable to those situations. The target population will be more refined at the time of project initiation to specify the range of installation dates that will be included. The organizations with asterisks in Table 1 below offer rebates for commercial refrigeration measures and may contribute data for this project. Various organizations from the states identified below are cosponsoring the project.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

Table 1			
2013: States Participating in Loadshape Project (*denotes prescriptive rebates of ref. measures)			
State	Program Administrator	State	Program Administrator
DC	DC SEU	NY	Central Hudson
MA	Cape Light Compact*		Consolidated Edison*
	NU(NSTAR/WMECo)*		LIPA
	National Grid*		National Grid*
	Unitil*		NYPA
MD	BGE*		NYSEG/RGE*
	FirstEnergy		NYSERDA
	PHI/Pepco*		ORU
	SMECo	RI	National Grid*
NH	Liberty	VT	Efficiency Vermont*
	NH Elec Coop*		
	PSNH*		
	Unitil*		

Attached in Exhibit 1 are examples of three Program Administrators' (PA) breakdowns of refrigeration measures installed through prescriptive or small business programs. The contractor will work with the study sponsors to confirm the final list of measures to be studied. Bidders responding to this RFP are being requested to bid on evaluating three measures: EC motors, door heater controls and evaporator fan motor controls, because they are likely to be included in the study. Bidders are also being requested to discuss one of the additional measures listed above. Please refer to page 13 of this RFP for further explanation of expectations of the proposal.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

Within each measure, such as EC motors, the savings estimates are likely to be dependent on a variety of factors such as motor size, pre motor type, whether the fans are controlled or not, defrost cycle time, etc. The load shapes must be normalized or disaggregated by the variables that are deemed relevant for an accurate representation of savings. The analytical justification of the proposed disaggregation must address the following considerations:

- Representation of PA participant populations
- Representation of differences in products on the market within a given measure (ie, different control strategies for door heater controls)
- Statistical accuracy
- Degree of weather-sensitivity
- Degree of seasonality
- Dependence on size or type of facility
- Load shape dependence on baseline system assumptions (EC motors controlled by evaporator fan control or not)

Definition of Load Shape Data

The source end-use load data should be derived from hourly on-site measurements of the operation of the equipment. For each measure category, the Load Shape is the relative amount of electric energy saved in every hour of the calendar year. The hourly savings is quantified relative to a normalizing constant, e.g. connected motor hp, linear feet of door, per door, etc). The contractor will be required to calculate load shapes for the target population disaggregated as described in the previous section. (The final disaggregation will be determined in Task 5, as described in Section B below.) If the measure is determined to be weather-dependent, each load shape must be normalized to typical weather conditions for the designated population. The contractor will also be required to calculate and report estimates of the average load factors during summer and winter peak periods (see below under Statistical Precision and Bias). The final data will be provided in a spreadsheet that will allow the user to specify time-averaged load shape estimates (see Task 14 below and Appendix C).

On-Site Measurement

On-site measurements must be based on some combination of interval demand (kW) metering of the measures, spot kW measurements for constant load, runtime data, temperature data and proxy variables (e.g. EMS trending data). The on-site monitoring periods must be of sufficient duration to support the development of hourly load profile estimates that can be extrapolated to an entire calendar year of operation. The proposed measurement procedures must comply with the requirements specified by ISO New England and PJM in market rules governing participation in forward capacity wholesale markets. Please consult the following documents which describe these requirements:

ISO New England Manual for Measurement and Verification of Demand Reduction Value from Demand Resources, Manual M-MVDR, Revision 1, Effective Date: October 1, 2007. Prepared by ISO New England. Available at:

http://www.iso-ne.com/rules_proceeds/isone_mnls/



EMV Forum RFP: Commercial Refrigeration Loadshape Project

PJM Manual 18B: Energy Efficiency Measurement & Verification. Revision 0, Effective Date April 23, 2009. Prepared by PJM Forward Market Operations. PJM 2009. Available at:

<http://www.pjm.com/-/media/documents/manuals/m18b.ashx>

The following document may also be of assistance in the interpretation of the requirements described in the ISO-NE M&V manual:

Review of ISO New England Measurement and Verification Equipment Requirements FINAL REPORT. April 24, 2008. Prepared for: Northeast Energy Efficiency Partnerships' Evaluation and State Program Working Group. Prepared by RLW Analytics. Available at:

<http://neep.org/emv-forum/emv-library/regional-policies-activities>

The Forum recognizes that it may not be cost-effective to measure every sample unit during every hour of annual operation. However, the proposed monitoring period should be sufficient to support a reasonable extrapolation of the measured data to the entire period of annual equipment operation using analytical techniques such as regression modeling, bin analysis etc. The proposal should provide a detailed description of the site monitoring plan, including the approximate continuous measurement interval (e.g. Feb 1 - July 31) at each site and the type of measurement that will be employed, for example, if different measurement techniques will be used during different time intervals at the same site.

Although the duration and timing of on-site monitoring required to yield a reasonable extrapolation to an annual load shape can vary depending upon the measure application, it is expected that all measures will be monitored for a minimum of one month for non weather dependent measures and up to 6 months for measures determined to be very weather dependent (or two shorter time period which captures most weather conditions). The proposal should also include a discussion of the trade-off between cost and accuracy that is reflected in the proposed monitoring plan and budget.

The proposed on-site measurement plan must include a description of the data collection activities that will be employed to identify and analyze design, installation and operational factors that are relevant to the realization of measure savings. Such activities may include on-site interviews, inspections and measurements to determine system design and control parameters and if controls are functioning.

Baseline

The proposal should provide a detailed explanation of the methodology that will be employed to estimate the baseline load shape that represents the hourly normalized demand of the pre-retrofit or baseline equipment. It is essential that the methodology be designed to make a site-specific determination of the relevant baseline condition.

Data Analysis Methodology

The proposal must include a detailed description of the methodology that will be employed to derive the required savings load shape data from the sampled on-site measurements and baseline estimates. The proposed methodology must address the following elements:



EMV Forum RFP: Commercial Refrigeration Loadshape Project

- calculation of hourly load from measured data
- extrapolation of measured data to 8,760 hourly loads
- baseline load profile estimation
- weather normalization of load shape data if weather sensitive
- statistical estimation procedure
- use of regression or other modeling techniques (if applicable)
- applicability of load shapes to target populations
- site-specific identification and analysis of design, installation and operational factors that are relevant to measure savings.

Statistical Precision and Bias

The objective of the study is to achieve 10% precision at a two-sided confidence level of 90% for each major measure category. The precision criterion applies to estimates of the following load shape parameters when aggregated across facility for a specific population:

- Average Summer 2-6 pm, non-holiday week days in June, July and August
- Average Summer 1-5 pm, non-holiday week days in June, July and August
- Average Summer hours, non-holiday week days in June, July and August when the ISO New England Real-Time System Hourly Load is equal to or greater than 90% of the most recent “50/50” System Peak Load Forecast for the applicable Summer Season.
- Average Winter hours, non-holiday week days in December and January when the ISO New England Real-Time System Hourly Load is equal to or greater than 90% of the most recent “50/50” System Peak Load Forecast for the applicable Winter Season.
- Average Winter 5 - 7 pm, non-holiday week days in December and January

The methodology to extrapolate the measured data to a representation of annual (8,760 hour) load shape and the methodology to account for the relevant weather conditions for each target population should be designed to control bias in the resulting estimates.

Special consideration should be given to how the precision is calculated given the combination of data sources discussed below, including some limited pre-metering data and possibly combining data from other evaluations completed already.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

Data Leveraging

The proposal should include a summary review of existing evaluation data from other PAs in order to determine if existing data can be used, and it should also include a discussion of how any available data may be used to inform or complement the collection and analysis of load shape data in the present study, in order to leverage resources. The NEEP Technical Advisors will provide the contractor with help in identifying available evaluation data. Some suggestions on how to use available data are provided below.

Structure of the Proposal Response

The specific measures to be studied will be finalized during the first phase of this project, but for the purposes of the RFP and selecting a bidder, the bidders are to describe the methodology, sample size and estimate the cost for a project that includes only Electrically Commutated Motors (ECM) installed in coolers and freezers and Evaporator Fan controls. In addition the bidders are to estimate the incremental cost of adding Anti-Sweat Door Heater Controls (humidity or time controls) to the project.

- Electrically Commutated Motors (ECM) installed in coolers and freezers
- Evaporator Fan Controls
- Anti-Sweat Door Heater Controls (humidity or time controls)

Specific assumptions to be made in the bid for the three primary measures are:

Evaporator fan control:

- Fan operating profile is not weather sensitive and post-metering period of two months and detailed interview with the store maintenance person and/or the refrigeration service contractor will be sufficient to document year round operation though verification of any changes in defrost cycle over the year is required
- Control hours are not affected by whether the motors is an EC Motor or not
- Pre metering on a limited sample of installations is needed to verify pre-retrofit 24/7 operation
- Load profiles may need to be produced for controlled EC and standard efficiency motors unless it can be shown that most customers who install evaporator fan controls also install high efficiency EC motors
- Interactive refrigeration compressor effects can be estimated but consideration of actual performance of refrigeration systems versus rated performance should be considered (but no additional metering is required)

EC Motors :

- Data from at least 10 installations of EC motors of a variety of sizes will be made available from member PAs to demonstrate both controlled and uncontrolled runtimes. These data can be used to supplement the new primary data developed as part of this study to reduce sample size



EMV Forum RFP: Commercial Refrigeration Loadshape Project

- Post installation wattages per motor of a variety of motors of different sizes will be available from 10 installations
- Interactive effects can be estimated but consideration of actual performance of refrigeration systems versus rated performance should be considered
- Hours of operation are not changed by the installation of the high efficiency motors themselves so no runtime pre-metering is needed.
- Pre metering wattage measurements are required on a large enough percentage of the motors to verify pre installation wattages across the variety of motors sizes and motor types but not on the majority of sites

Door heater controls

- Type of control. There are two types of door heater controls that are known to the PAs. The first controls the heaters by modulating the pulse of the electric heat sent to the doors and limiting the amount of time the heaters are on in a given second, ie turning the heaters on and off very quickly within the timeframe of a single second. The second type controls the heater output using a humidistat and the heaters are turned off for longer periods of time. It is believed that most of the door heater controls offered in the region (by Natural Resource Management (NRM)) are the former type and metering should assume that. The reason this is significant is that previous evaluation efforts have had trouble measuring the on/off periods with their metering equipment. Bidders should describe how they will overcome this technical challenge.
- Pre metering is required on enough doors to demonstrate that the doors run at constant power levels regardless of time of day or season, so a combination of pre and post metering for some sites and post only metering for the remainder is acceptable
- Interactive effects can be estimated but consideration of actual performance of refrigeration systems versus rated performance should be considered (but no additional metering is required)

Where limited pre-metering is required to demonstrate constant load conditions, the metering can be:

- shorter duration
- more limited number of sites than the post metering
- subject to less rigorous precision requirements
- pre and post measurements may be on the different customer populations, ie the post measurements on recent past participants and the pre measurements on future participants.

Interactions between the measures should be considered in developing the load shapes. For example it may be necessary to develop two load shapes for EC motors in cooler cases, one for fan control and one for no control.

The assumptions above are meant to solicit bids on a consistent basis. After responding to the basic requirements laid out above, vendors can discuss alternative approaches and provide options with accompanying budgets.

B. Specific Project Tasks to Be Included in the Bid

Task 1: Kick Off Meeting.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

The contractor will hold a kick off meeting or teleconference with NEEP's project manager, NEEP's technical and policy advisor, and a sub-committee of Forum members to: Discuss scope, schedule and approach; Review objectives and expectations for sub-committee participation in study; Review the proposed work plan and schedule; Review contractor data requirements, secondary data sources and information characterizing PA programs; and establish project management process.

Schedule: *within one week of contract signing*

Deliverable: *minutes of meeting*

Task 2: Procurement of Program Administrator Data and Inventory of Potential Secondary Source Data

The contractor will prepare and submit a data request to the Project Coordinator specifying the required information characterizing PA programs and secondary data sources.

Schedule: *data delivered to contractor within three weeks of contract signing*

Task 3: Review and Procurement of Secondary Data

The contractor will review available reports and supplemental information to determine which data sources may be useful in the present project. The contractor will document the review and selection process and submit the report to the Project Coordinator for review and approval by the Project Review Team. If some secondary data is approved for use, the contractor will either procure the data themselves or will prepare a detailed data request and the Subcommittee will help facilitate the procurement of the source data from the sources identified.

Schedule: *within five weeks of contract signing*

Deliverable: *report of the results of the assessment and selection of data sources*

Task 4: Review and Analysis of Program Administrator and Secondary Data

The contractor will review and analyze the PA and Secondary data in order to develop the recommended load shape disaggregation in terms of specific measure category and other critical factors (e.g. variability of specific measures and weather dependence). The contractor will submit to the Project Coordinator for review and approval a detailed memorandum that documents the recommended disaggregation and the analysis which supports the recommendations. The memorandum will explain how the recommended load shape disaggregation will produce results that can be used by the PAs in their tracking and reporting calculations of demand and energy savings for the selected refrigeration measures.

The memorandum will also describe the methodology to integrate the existing data into the load shape analysis and produced results at the expected precision.

Schedule: *within seven weeks of contract signing*

Deliverable: *Memorandum documenting the analysis and recommendations*

Task 5: Sample Design



EMV Forum RFP: Commercial Refrigeration Loadshape Project

The contractor will develop a sample design to conduct on-site measurement in the target populations which will complement available existing data sources. The contractor will submit the proposed sample design to the Project Coordinator for review and approval by the Project Review Team. The sample design will include:

- sample allocation to measure categories/equipment type
- sample allocation to target program participant populations/weather zones if necessary
- explanation of how the sample design will achieve the required statistical precision
- explanation of how the sample design will address potential bias
- explanation of the impact of the use of secondary data on the proposed sample design.

Schedule: within eight weeks of contract signing

Deliverable: Proposed Sample Design

Task 6: Final Work Plan

The work plan will be finalized and submitted to the Project Coordinator for review and approval by the Project Review Team. The workplan will take into account the available funds for the project which will be disclosed at the time of the contract award.

Schedule: within 11 weeks of contract signing

Deliverable: Final work plan

Task 7: Sample Selection and Customer Recruitment

The contractor will conduct the sample selection in accordance with the approved sample design and implement the process to recruit the selected customers for participation in the study. Sample selection will take into account the availability of other data sources. A status report will be submitted to the Project Coordinator. Depending on how much pre-metering is required, some customers will be selected from pools of customers who have not yet installed the measures and some will be selected from customers that have previously installed measures and only require post installation data. NEEP understands the difficulties in conducting pre and post metering and selecting the appropriate willing customers without bias.

Schedule: to begin within ten weeks of contract signing

Deliverable: Status report

Task 8: On-Site Measurement Protocols

The contractor will prepare a description of the protocols that will be used to collect all information at customer facilities, including the installation and operation of all monitoring equipment, on-site



EMV Forum RFP: Commercial Refrigeration Loadshape Project

inspection of equipment, procurement of EMS data, if available and survey instruments used to interview facility personnel. The measurement protocols will be submitted to the Project Coordinator for review and approval by the Project Review Team.

Schedule: *within eleven weeks of contract signing (can be done at same time as Task 7)*

Deliverable: *Measurement protocols*

Task 9: Data Collection

The contractor will initiate the data collection process and submit bi-weekly status reports to the Project Coordinator. (NOTE: The data collection time frame and schedule will be finalized in Task 6.)

Schedule: *TBD in workplan; as soon as possible after sample design and customer recruitment and will take into account what if any summer measurements are needed*

Deliverables: *Status reports*

Task 10: Data Analysis

The contractor will complete the analysis of the data. As noted above, the scope of the analysis will include:

- baseline load profile estimation, including comparison/calibration to available pre-metered data
- analysis of design, installation and operational factors that are relevant to the measures studied (ie are the controls working as intended)
- extrapolation of measured data to 8,760 hourly loads
- calculation of disaggregated savings load shapes
- calculation of key load shape parameters and associated statistical precisions
- development of recommendations regarding the specific application of load shape results to program tracking (TRM) calculations.

Schedule: *TBD in Workplan; the desire is to have data analysis completed in time to deliver a final report by year end 2014.*

Task 11: Draft Report

The contractor will submit a draft report for review and approval that includes a comprehensive description of the methodology to produce the annual load shapes and other results. The report will present the final load shape parameter estimates, precisions and annual load shapes for each disaggregated load shape category.

Schedule: *The target schedule for delivery of the draft report November 14, 2014*

Deliverable: *Draft Report*



EMV Forum RFP: Commercial Refrigeration Loadshape Project

Task 12: Presentation of Findings

The contractor will present the methodology and results to the project sub-committee.

Schedule: November 3, 2014

Deliverable: Presentation of Findings

Task 13: Final Report

The contractor will submit the final report for review and approval.

Schedule: December 2, 2014

Deliverable: Final Report

Task 14: Data Transfer

The contractor will submit the final load shape data in electronic format.

Schedule: December 9, 2014

Deliverable: Load Shape Data file (see Appendix C)

4. Project Budget and Schedule

It is intended that this work be started as soon as possible - February 2014 and completed by the end of 2014.

Some notes on the budget and schedule:

- This schedule is set in order to ensure capture of seasonal variation in energy consumption of the equipment being studied if needed. If no summer metering is needed the schedule will be accelerated as appropriate.
- The amount of allocated funds is not being indicated in order to allow bidders to present their unbiased estimates. However for some guidance, we note that NEEP allocated approximately \$500,000 for two of its most recent loadshape studies.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

SUMMARY OF TASKS AND DELIVERABLES

PROJECT TASKS	Schedule ¹	DELIVERABLES
Task 1: Kick-off Meeting	<i>within one week of contract signing</i>	<i>Meeting Minutes</i>
Task 2: Procurement of Program Administrator Data and Inventory of Potential Secondary Source Data	<i>within three weeks of contract signing</i>	<i>Program Administrator and Inventory Data</i>
Task 3: Review and Procurement of Secondary Data	<i>within five weeks of contract signing</i>	<i>Data Assessment Report</i>
Task 4: Review and Analysis of Program Administrator and Secondary Data	<i>within six weeks of contract signing</i>	<i>Memorandum documenting the analysis and recommendations</i>
Task 5: Sample Design	<i>within seven weeks of contract signing</i>	<i>Sample Design</i>
Task 6: Final Work Plan	<i>Within nine weeks of contract signing</i>	<i>Work Plan</i>
Task 7: Sample Selection and Customer Recruitment	<i>within nine weeks of contract signing</i>	<i>Status report</i>
Task 8: On-Site Measurement Protocols	<i>within nine weeks of contract signing</i>	<i>Measurement Protocols</i>
Task 9: Data Collection	<i>TBD in workplan</i>	<i>Status Reports</i>
Task 10: Data Analysis	<i>TBD in workplan</i>	<i>Data Analysis</i>
Task 11: Draft Report	<i>November 14, 2014</i>	<i>Draft Report</i>
Task 12: Presentation of Findings	<i>Nov 3, 2014</i>	<i>Presentation of Findings</i>
Task 13: Final Report	<i>December 2, 2014</i>	<i>Final Report</i>
Task 14: Data Transfer	<i>December 9, 2014</i>	<i>Load Shape Data File</i>

¹ Schedule of deliverables can be adjusted if warranted by the approach that is used.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

5. GENERAL SUBMITTAL INFORMATION

This Section of the RFP provides information for bidders concerning the submittal process, general requirements, schedule, and qualifications. Specific requirements for the content and preparation of bids are contained in Section 5.

A. Contact and Communications

All communications between bidders and NEEP are to be directed to:

Elizabeth Titus, etitus@neep.org 781-860-9177 x111

Danielle Wilson, dwilson@NEEP.org 781-860-9177 x150

Any unauthorized contact may result in the disqualification of the contacting firm's proposal(s).

Potential bidders are encouraged but not required to submit a notification of intent to submit a proposal in response to this RFP by 4:00pm on the day noted in the RFP Schedule Table below in Section D to NEEP contacts above. This information helps NEEP plan and administer the RFP.

B. Bidders' Q&A

Bidders may submit questions via e-mail for this RFP. A website has been established for this Project RFP: [EM&V Forum RFP Website](#). All questions submitted prior to 4:00pm on the day noted in the Close of RFP Question Period of the RFP Schedule Table below in section D will be posted and answered on the website as soon as possible after the close of the Question Period. All questions and answers will be available to all respondents.

C. RFP Submittal Format and Due Date

Bidders are required to submit electronic versions of their proposal to the individuals identified under Section A, Contacts and Communications.

The proposals should be submitted in both Microsoft WORD (97-2003) and Adobe Acrobat format. An electronic receipt will be sent to those who submit proposals on time.

Late submittals will be rejected.

EMV Forum RFP: Commercial Refrigeration Loadshape Project

Bidders are not required to submit print copies of their proposals.

The transmittal letter contained in the proposal package must have an electronic signature and must be signed by a person who is authorized to bind the proposing firm.

NEEP reserves the right to reject as non-responsive any proposals that do not contain the information requested in this RFP. NEEP is not liable for any costs incurred by any person or firm responding to this RFP or participating in best and finals interviews.

D. RFP Schedule

RFP release	December 18, 2013
Intent to bid notice	January 16, 2014
Close of RFP question period	January 16, 2014
Electronic proposals due	January 27, 2014
Anticipated date of bidder selection	February 7, 2014
Anticipated contract start date	February 21, 2014

The above schedule is subject to change by NEEP.

E. Minimum Qualifications

A single firm or a team of firms under a single primary contractor may submit bids. Key staff members must have demonstrated experience delivering high-quality EM&V services and/or studies for system benefit charge funded DSM programs. Experience evaluating these specific measures is preferred as well as a demonstrated in-depth understanding of the technologies to be evaluated

Changes in proposed key staff members may not be made during the execution of the work without written approval of NEEP.

F. Modifications to the RFP

NEEP may modify the RFP prior to the date fixed for submission of proposals by the issuance of an addendum to all parties who have submitted a notice of intent to bid by the required date.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

G. Post Proposal Negotiation and Awarding of Contracts

NEEP reserves the right to negotiate both price and non-price factors during any post-proposal negotiations with a finalist. NEEP has no obligation to enter into an Agreement with any respondent to this RFP and may terminate or modify this RFP at any time without liability or obligation to any respondent.

H. Acceptance of Terms and Conditions

The submission of a proposal to NEEP shall constitute a Bidder's acknowledgement and acceptance of all the terms, conditions and requirements of this RFP.

NEEP will utilize its standard Services Agreement to contract for the services outlined in this RFP. **A list of exceptions to this document should be returned with bidder's response, see Section 5 of this RFP.** The Services Agreement is included as an attachment to this RFP, Appendix B.

I. All Submitted Proposals Become Exclusive Property of NEEP

All proposals submitted to NEEP pursuant to this RFP shall become the exclusive property of NEEP and may be used for any reasonable purpose by NEEP.

6. PROPOSAL SUBMITTAL REQUIREMENTS

A. Submission of Proposals

Proposals should provide straightforward and concise descriptions of the proposer's ability to satisfy the requirements of this RFP. Omissions, inaccuracies or misstatements will be sufficient cause for rejection of a proposal. Proposals not submitted as indicated may be rejected.

NEEP and the Forum are looking for proposals demonstrating creativity, expertise and experience in how bidders approach the work scope - recognizing that final sampling plan and design will be established in the course of the project. Once the consultant is selected, an initial task will be to review the scope and deliverables with the NEEP project manager, technical advisor, and a Forum subcommittee.

Bidders are invited to submit optional tasks and budgets if they believe there are additional or tangential tasks that they believe would benefit the objectives of the Project.

All proposals must include the documents identified in Appendix A "Required Proposal Checklist". **Proposals not including the Checklist may be deemed non-responsive.**

B. Proposal Format

Bidders are requested to provide concise yet complete description of the bidder's approach and capabilities for satisfying the required services outlined in this RFP. **Excessive length is discouraged.**



EMV Forum RFP: Commercial Refrigeration Loadshape Project

In addition, bidders are encouraged to proactively present additional information and responses, not specifically requested, that help demonstrate understanding of this project's objectives and needs as well as bidder's creativity, experience, and/or expertise.

Proposals must adhere to the following set format (the numbers indicated are suggested maximum page limits):

- Proposal cover;
- Signed cover/transmittal letter;
- Table of Contents (include proposal date and page numbers on each page of proposal);
- Completed proposal checklist;
- Executive summary (2 pages);
- Work scope and schedule (10 pages);
- Staffing and subcontracting plan (2 pages);
- Qualifications and Experience (10 pages);
- Budget and Billing Rates (2 pages including tables);
- Exceptions to contract terms (if needed); and
- Appendix - Resumes (2 pages per resume).

The proposal cover must indicate the RFP name, the proposal date, bidder's name and list of subcontractors. The transmittal letter must also state that the person signing the letter is authorized to commit the bidding organization to the proposed work scope, budget and rates; that the information in the proposal is accurate; and that the proposal is valid for 90 days from the date of submittal.

For the checklist please use the form in Appendix A.

The required content of the specific sections is listed below.

I. Section 1: Executive Summary

Section 1 of the proposal should contain a high level summary of the proposal including the approach to the tasks, key staff assigned to the effort, and the consultant's or bidding team's qualifications to perform the services sought through this RFP.

II. Section 2: Work Scope and Schedule

Section 2 of the proposal should discuss bidder's approach to Tasks defined in the RFP. Describe bidder's approaches to each of the work scope tasks with sufficient detail to distinguish the strengths and unique features of the bidder's team and approach. Section 2 must include a schedule for performing the work. The schedule should be presented graphically and supplemented with text explanations needed to provide a complete understanding of the proposed timeline. Section 2 should be limited to 15 pages.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

III. Section 3: Staffing Plan

In Section 3 bidders are requested to provide a staffing plan. Note that assigned staff qualifications are more critical than firm qualifications and that staffing changes for key personnel are subject to approval by NEEP. In particular, a successful proposal will indicate one or more experienced principals that will direct and commit to the Project.

- Describe the roles of each of the positions listed in bidder’s staffing plan.
- Identify the lead staff member assigned to manage the work, provide a short biography, and explain why he or she is qualified for this position. Describe this person’s availability for the project, and the office where he or she will be based.
- Identify the key personnel to be assigned to this project, describe their responsibilities, and provide a paragraph biography for each person. Indicate availability and length of time commitment to project.
- Specify any anticipated subcontractors who will be used, roles, responsibilities, and proposed subcontractor mark-up percentage.

Include resumes for all individuals named in the staffing plan. Resumes and bios should describe relevant responsibilities from other projects that will help NEEP evaluate the qualifications and experience of key personnel. Please limit length of resumes to **two** pages and place in an appendix.

IV. Section 4: Firm Qualifications and Experience

Use this section to address bidding team’s qualifications and experience, drawing on lessons learned and best practices experience. Bidders should also provide two to four references from current (preferred) or recent clients for whom they have performed projects that are relevant to the work scope. References should include a brief synopsis of specific services provided, company name and location, contact name, contact title, telephone number and, email address of the reference. In the event the bidder is forming a new organization to bid on this proposal, the bidder should provide the related references for the key staff members proposed for the project.

References should be included (two to four each) for any major subcontractors.

V. Section 5: Budget and Billing Rates

Using the two tables shown below bidders must provide labor and other direct costs proposed for this project.

Budget Table One - Billing Rates

Person	Title	Hourly Billing Rate for relevant year all inclusive)



EMV Forum RFP: Commercial Refrigeration Loadshape Project

Budget Table Two - Task by Task (one table for the first 2 measures and a separate table for the third measure) and Total Budget

Task	Personnel Assigned	Hours per Personnel Assigned	Labor Costs	Directs Cost (to be billed at cost to Consultant)	Per Task or Total Cost
1					
2					
3					
4					
5					
...- etc..one row per budgeted task					
Total					

VI. Section 6: Exceptions to contract terms

Bidders must provide any requested exceptions to the Services Agreement included as Appendix B.

VII. Section 7: Conflicts of Interest

Bidders should identify, and address as they feel appropriate, potential situations that may be perceived as a conflict of interest in completing this work. Examples would be work performed implementing or evaluated programs in the Region. Such situations are not necessarily a conflict, and may speak to the bidder’s qualifications, but should be disclosed.



EMV Forum RFP: Commercial Refrigeration Loadshape Project

VIII. Section 8 (Appendix): Resumes

7. SELECTION PROCESS AND EVALUATION CRITERIA

NEEP and the project subcommittee will base their evaluation of proposals on a scoring matrix below. As noted above, the qualifications of key staff (principals) assigned to lead this Project and the amount of time (commitment) they commit to the Project will be weighed heavily.

RFP Evaluation Criteria/Scoring Matrix

Part A: Technical Approach
1. Proposal quality - comprehension and clarity regarding meeting project objectives and quality of proposed approach for meeting those objectives
2. Thoroughness and practicality of approach particularly the sampling approach when combining data sources including some existing data and pre-metering data from a smaller sample of sites than may or may not be from the same sites as the post metering
3. Creativity of approach
Part B: Management Approach
1. Dedicated resources
2. Demonstrated management competence of key staff
3. Approach to use and management of subcontractors
Part C: Qualifications and Experience
1. Demonstrated competence and experience of key staff and firm(s) with the specific measures to be studied
2. References
Part D: Cost
1. Total costs
2. Billing rates and direct costs/subcontractor mark-up rates (if any)



EMV Forum RFP: Commercial Refrigeration Loadshape Project

APPENDIX A: REQUIRED PROPOSAL CHECKLIST

REQUIRED PROPOSAL CHECKLIST

Bidder Information		
Name of Bidder:		
Contact Name:		
Contact Phone:		
Contact Email:		
Subcontractors:		
Evaluation Scope		
Proposal Checklist & Locator	Included	Section/Page
Proposal Cover		
Transmittal Letter - signed original		
1. Executive summary		
2. Work scope and schedule		
Schedule figure		
3. Staffing and subcontracting plan		
4. Qualifications and Experience		
References		
5. Budget		
Budget Tables		
6. Exceptions to contract terms		
7. Conflicts of Interest		
8. Resumes		

APPENDIX B: NEEP PROFESSIONAL SERVICES AGREEMENT

The NEEP Terms and Conditions and Non-Disclosure Agreements are available [here](#).



EMV Forum RFP: Commercial Refrigeration Loadshape Project

APPENDIX C: LOAD SHAPE WORKBOOK SPECIFICATIONS

This RFP requires the development of an Excel file containing weather-normalized 8,760 hour load shape data, disaggregated by the designated load shape categories, that will be set up to allow the user to specify the calculation of load shape parameters over user-specified time intervals. The following specifications describe the required functionality of the workbook.

Format: Excel Workbook

Spreadsheets:

1. LS Parameter Definition
 - a. For each user-defined LS Parameter (up to 10):
 - i. Select Day Types (any subset of Weekday, Weekend, Holiday)
 - ii. Select Months (any subset of January-December)
 - iii. Select Hours (any subset of 1-24)
 - iv. Specify Connected Load Reduction (kW)
 - v. Output Annual kWh savings (sum over 8,760 hours)
 - vi. Output Period kWh savings (sum over specified hours)
 - vii. Output Period kW savings (average over specified hours)
 - viii. Output Period kWh savings as per cent of Annual kWh savings
 - ix. Output number of Period hours
 - x. Output estimated precision of aggregated LS Parameter estimate
2. Disaggregated Load Shapes in a modified EEI* format (one sheet for each LS)
(NOTE: A generic calendar year must be specified.)

*EEI (Edison Electric Institute) format is a standard data format used in Load Research. The modified format organizes the data in 365 rows and 27 columns, sorted chronologically. Each row consists of the following columns: Month, Day, Day Type, LS Hours 1-24.