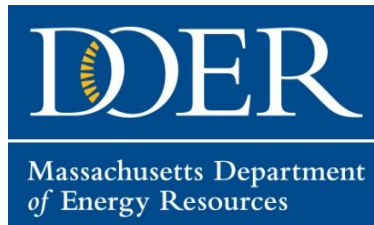


COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES (DOER)
Mark Sylvia, Commissioner

RFI-ENE-2014-039



REQUEST FOR INFORMATION

Creating an Analysis Tool for Potential Pre-Engineered Combined Heat and Power Sites

DOER Issues RFI	May 27, 2014
RFI Conference and Q&A	June 6 , 2014
RFI Final Responses Due	By 4 p.m., June 10, 2014

Interested parties to this Request for Information (RFI) are invited to attend the RFI Conference and Q&A session (see calendar above) and/or submit questions to Kara Sergeant at kara.sergeant@state.ma.us . This RFI is being issued by the Massachusetts Department of Energy Resources (DOER) Renewable Energy team.

Responses to this RFI shall serve solely to assist DOER in understanding the current level of readiness of the energy, education, and marketing communities to provide education and educational materials capable of meeting the goals of the Patrick Administration. The information gathered through this RFI will inform DOER of those capabilities in connection with the potential development of a solicitation for a Request for Responses (RFR) or Request for Proposals (RFP) in the future. This RFI does not in any way obligate or require DOER's Commissioner to issue or amend a solicitation or to include any of the RFI provisions or responses in any potential future solicitations. Responding to this RFI is entirely voluntary, and will in no way affect the Commissioner's consideration of any proposal submitted in response to any subsequent solicitation, nor will it serve as an advantage or disadvantage to any respondent bidder in the course of any RFR or RFP that may be subsequently issued or amended. This RFI

is not an open solicitation for any products or services, but rather is an informational inquiry by DOER into the capabilities and readiness of respondents to meet the challenges posed by the scopes outlined in this RFI. This RFI is NOT a contract or a contract solicitation. Submission of a response to this RFI does NOT create any obligations, contractual or otherwise, on behalf of DOER. Submission of a response to this RFI does NOT create any type or level of agency or partnership or any employer/employee relationship between the submitting vendor and DOER.

RFI Bidder Conference and Q&A

Date: June 6, 2014

Time: 2:00 PM

Location: 100 Cambridge Street
Conference room TBD
Boston, MA 02114

Call-in/View:

<https://attendee.gotowebinar.com/register/3818711993829334785>

Use your microphone and speakers (VoIP) - a headset is recommended. Or, call in using your telephone.

Dial +1 (646) 307-1719 (or number specified on screen)

Access Code: 268-207-246

Audio PIN: Shown after joining the meeting

Meeting ID: 153-556-187

1. Introduction

This Request for Information (RFI) is being published to solicit information about market loads and sector growth potential for pre-engineered combined heat and power units under 200 kW. Information sought through this RFI includes, but is not limited to, review of data collection design and schedule. Further details of the two scopes of work are described in later sections of this document.

Contact:	Kara Sergeant Department of Energy Resources 100 Cambridge Street, Suite 1020 Boston, MA 02114
Telephone:	617-626-7392
E-mail:	kara.sergeant@state.ma.us

RFI Name: **Creating an Analysis Tool for Potential Pre-Engineered Combined Heat and Power Sites**

RFI-ENE-2014-039**Creating an Analysis Tool for Potential Pre-Engineered Combined Heat and Power Sites**

The Massachusetts Department of Energy Resources (“DOER”) is a state agency whose mandate is to analyze and develop policies and programs to ensure that Massachusetts citizens have adequate, diverse energy supplies, at a reasonable cost, with a minimal impact on the environment. To that end, the DOER strives to create a cleaner energy future for the Commonwealth, economically and environmentally, including:

- Accelerating the deployment of cost-effective energy efficiency,
- Increasing the development of greener energy resources,
- Implementing strategies to assure reliable supplies and improve the cost of clean, energy relative to fossil-fuel based generation, and
- Supporting Massachusetts clean energy companies and spurring Massachusetts clean energy employment.

2. Overview

Combined heating and power (CHP) is a proven technology that while eligible for state incentives still remains underutilized in many sectors. Though CHP is a popular option for projects 1 MW and above, smaller projects are not aware of the benefits of CHP, the available incentives for CHP, and the appropriate equipment size. Even when the owner is interested in the technology, it is often difficult to determine what projects are a good fit for CHP. The purpose of this RFR is to develop a tool that the building owner can use as well as the utility to easily determine whether or not the building would be a good candidate for a pre-engineered CHP system.

Part of the reason that CHP is not more prominent in the state is because each project goes through an extensive review process by the utilities. As part of the review, the project must pass the benefit cost ratio (BCR) in order to qualify for incentives from the utilities. The CHP approval process can take up to a year or more. DOER, in conjunction with Northeast Utilities and National Grid, are proposing to radically change how CHP is evaluated in the state by creating two approval systems – a new streamlined process for pre-engineered systems and a separate extensive process for larger, custom projects.

Pre-engineered systems are designed for smaller CHP projects (under 200 kW). In order to create a streamlined process for pre-engineered systems, this RFR is focused on identifying sectors whose end users would meet the load size of a pre-engineered system. The contractor will develop a calculator where the end user and the utility can enter information about the building and know what size system would be appropriate.

Gathering data on potential sites is an essential element to streamlining the approach and developing the calculator. Utilities have found that installed CHP systems are often oversized

and do not realize the same energy efficiency ratings, so it's important that the tool is based on real data.

Once the consultant develops the tool, DOER along with the utilities will hold educational seminars with industry associations to promote the technology and the energy efficiency savings.

3. Deliverables

All deliverables will reinforce the overall initiative, and each element will be consistent with and support other elements. Materials, messaging, and visual displays must be developed so that they could be extended beyond public investments, to clean energy improvements in the private sector.

4. Scope of Work - 1 – Restaurants and Residential Apartment Buildings

The Consultant's responsibilities cover five main categories: data collection, creation of a CHP sizing tool, and catalog, and financial feasibility analysis. The tasks include, but are not limited to:

1. Data collection from potential pre-engineered CHP system users

The contractor will target 10 stand-alone restaurants and 10 residential apartment buildings. Each of these industries should have a high enough thermal load for CHP to be a good investment according to data collected from 2008 KEMA study Market Potential of Combined Heat and Power in Massachusetts, but data is needed to further clarify their demand needs. A similar sector specific streamlined CHP program exists in New York. Multi-family residential apartment buildings are eligible for the accelerated the NYSERDA CHP Acceleration Program. Restaurants to be considered will be free-standing restaurants that are owner occupied rather than leased.

The utilities will provide a list of potential candidates for data collection and the consultant will select a subset for study. The consultant will obtain thermal and electrical load profiles for each facility over a minimum of 15 consecutive days during the summer months (June, July, or August 2014) and use the data collected to build an algorithm.

The consultant will need to develop the algorithm to account for variables in each sector that would impact thermal load.

- a. Restaurant algorithm should account for
 - i. Restaurant hours
 - ii. Types of meals served
 - iii. Number of table covers
- b. Residential apartment buildings should account for
 - i. Number of units
 - ii. Number of occupants
 - iii. Average age of occupants

- iv. If there is a pool installed
 - 1. Size of pool
 - 2. Indoor or outdoor pool
 - v. Laundry capabilities
- 2. Creating a CHP sizing tool and catalog
 - a. Develop a tool that both the potential installer and the utility can use to determine the correct size unit for the application. The end user should be able to input the variables for their application and determine what size system would be the best fit for thermal and electric load. Utilities will be able to use this tool to determine whether proposed units are correctly sized. It should be clear from the sizing tool which variables have the most impact on determining the appropriate size of the system. The consultant will also develop a CHP catalog of existing pre-engineered systems that owners can install.
- 3. Determine which units pass the BCR
 - a. The consultant will utilize the CHP sizing tool to create a decision chart that outlines what range of projects would pass the BCR given the variables for each four sectors and determination of which CHP pre-packaged systems would meet the load requirements. The range should include both the size of the proposed system and the variables. It should also be clear which variables have the most impact on whether the project passes the BCR. For instance, a consultant should be able to say a 60 kW project would pass the BCR if the hotel has 100 beds and onsite laundry but not pass the BCR if the hotel had 200 rooms and no laundry. Consultants should have extensive knowledge of how the BCR is calculated and be able to replicate scenarios based on the different variables.
- 4. Determine economic feasibility
 - a. The contractor will outline the financial incentives available for the projects and use this information to calculate the payback period. The end user will be able to use this information to make
- 5. Maintenance and data monitoring post installation
 - a. The consultant will be required to monitor the results of units post installation or obtain results from the utilities and revise the model assumptions as necessary

Scope of Work – 2 Hotels and Nursing Homes

The Consultant's responsibilities cover five main categories: data collection, creation of a CHP sizing tool, and catalog, and financial feasibility analysis. The tasks include, but are not limited to:

- 1. Data collection from potential pre-engineered CHP system users

The contractor will target 15 hotels and motels and 10 nursing homes. Each of these industries should have a high enough thermal load for CHP to be a good investment according to data collected from 2008 KEMA study Market Potential of Combined Heat and Power in Massachusetts, but data is needed to further clarify their demand needs. A similar sector specific streamlined CHP program exists in New York. Both of these entities are eligible for the accelerated the NYSERDA CHP Acceleration Program. Nursing homes are of particular interest to DOER as those sites can be utilized as energy resiliency.

The utilities will provide a list of potential candidates for data collection and the consultant will select a subset for study. The consultant will obtain thermal and electrical load profiles for each facility over a minimum of 15 consecutive days during the summer months (June, July, or August 2014) and use the data collected to build an algorithm.

The consultant will need to develop the algorithm to account for variables in each sector that would impact thermal load.

a. Hotels

- i. Number of units
- ii. Laundry onsite or offsite
- iii. Food service capabilities
- iv. If there is a pool installed
 1. Size of pool
 2. Indoor or outdoor pool

b. Nursing home

- v. Number of units
- vi. Number of occupants
- vii. Laundry capabilities

2. Creating a CHP sizing tool and catalog

- a. Develop a tool that both the potential installer and the utility can use to determine the correct size unit for the application. The end user should be able to input the variables for their application and determine what size system would be the best fit for thermal and electric load. Utilities will be able to use this tool to determine whether proposed units are correctly sized. It should be clear from the sizing tool which variables have the most impact on determining the appropriate size of the system. The consultant will also develop a CHP catalog of existing pre-engineered systems that owners can install.

3. Determine which units pass the BCR

- a. The consultant will utilize the CHP sizing tool to create a decision chart that outlines what range of projects would pass the BCR given the variables for each four sectors and determination of which CHP pre-packaged systems would meet the load requirements. The range should include both the size of the proposed system and the variables. It should also be clear which variables have the most impact on whether the project passes the BCR. For instance, a consultant should be able to say a 60 kW project would pass the BCR if the hotel has 100 beds and

onsite laundry but not pass the BCR if the hotel had 200 rooms and no laundry. Consultants should have extensive knowledge of how the BCR is calculated and be able to replicate scenarios based on the different variables.

4. Determine economic feasibility
 - a. The contractor will outline the financial incentives available for the projects and use this information to calculate the payback period. The end user will be able to use this information to make
5. Maintenance and data monitoring post installation
 - a. The consultant will be required to monitor the results of units post installation or obtain results from the utilities and revise the model assumptions as necessary

5. Costs

By submitting a response, respondents agree that any cost incurred in responding to this RFI, or in support of activities or presentations associated with this RFI, shall be the sole responsibility of the submitting respondent. EEA/DOER shall not be held responsible for any costs incurred by respondents in preparing their respective responses to this RFI.

6. Review Rights

DOER reserves the right to have a review performed of any and all responses to this RFI, including materials presented at any presentations. Said review may be conducted by, but is not limited to, officials in DOER or any Massachusetts state agency and any independent consultants retained by DOER.

7. Public Record

All responses to this RFI will be public record under the Commonwealth's Public Records Law, Mass. Gen. L. ch. 66 s. 10, regardless of confidentiality notices set forth on such writings to the contrary.

8. Information Requested

Please provide the following for the purposes of this RFI.

Company Name (please list parent company as well)

Company Address

Company Website

Contact name and information (e-mail address required)

Provide a description of your company and the basis of your expertise in offering a response to this RFI.

Please provide email responses to this RFI to the addressee listed above.