

INFORMATION COLLECTION REQUEST (ICR)

SUPPORTING STATEMENT

ENVIRONMENTAL PROTECTION AGENCY

WASTE ENERGY RECOVERY REGISTRY

PART B OF THE SUPPORTING STATEMENT:
COLLECTION OF INFORMATION EMPLOYING STATISTICAL METHODS

1. Survey Objectives, Key Variables, and Other Preliminaries

(a) Survey Objectives

The objective is to determine, as required by the Energy Independence and Security Act of 2007, whether major domestic industrial and large commercial facilities that consume electricity and fuel, and may produce exhaust heat or flared gas, waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented, or may have a recoverable pressure drop in high pressure process streams, or may have opportunities for on-site generation with heat recovery for facility or process heating or cooling, should be included in a Registry of Recoverable Waste Energy Sources to be maintained by EPA, OAR.

(b) Key Variables

Working from the same issues above, threshold variables include: primary function of site, annual operating hours, annual electricity purchases and/or annual electricity demand during operating hours, average purchased electricity price, annual fuel consumption, and average purchased fuel price. Other variables include: process-specific variables for exhaust heat or flared gas, waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented, recoverable pressure drop, or on-site generation with heat recovery for site/process heating and/or cooling. Information on these variables is routinely collected in the course of business by facilities.

Data on the key variables will be put into a survey tool (the Waste Energy Survey Tool or WEST) by respondents who choose to participate. The tool will contain algorithms that will calculate output data on waste energy recovery opportunities. All input data will remain in the control of the respondents. Only basic information about the facility and the type of recoverable waste energy opportunity it represents will be placed in the Waste Energy Recovery Registry.

(c) Statistical Approach

The collection will not use a statistical approach. As mandated by the Energy Independence and Security Act (EISA) of 2007, the survey will be directed to all major domestic and large commercial combustion sources. EPA will purchase lists of potential respondents and will distribute the Waste Energy Survey Tool (WEST) to all major domestic and large commercial combustion sources. Threshold variables will be used to ensure that only appropriate respondents are included.

A contractor will be used to develop the WEST and to maintain the survey instrument and associated database. The name and address of the firm are not known because the firm has not yet been selected.

(f) Feasibility

Potential respondents are not expected to have concerns about the response burden, about disclosure of confidential or proprietary data, or about mandatory response. Only basic facility information, routinely collected in the course of business by facilities, will be sought. The major industrial and large commercial sources that will be the subjects of the survey will not be required to install any new monitoring equipment. Only sources above certain threshold levels will be asked to report specific data points that the facilities already monitor. The WEST will contain algorithms that will calculate output data on waste energy recovery opportunities so respondents will be required only to input data. EPA via WEST will then calculate the quantity and quality of potentially recoverable waste energy and if the site meets the Congressionally-established five-year or less payback and primary purpose criteria it will be considered and placed on the Registry of Recoverable Waste Energy Sources. The data inputted to the WEST will remain under the control of the respondent sites. Respondents may submit output results data to EPA either electronically or in hard copy. All facilities and sites that may qualify for listing on the Registry will have the opportunity to decline to provide the information.

The results from the WEST are necessary to implement the program mandated by the Energy Independence and Security Act (EISA) of 2007 as expeditiously as possible.

2. Survey Design

(a) Target Population and Coverage

The target population is composed of all major domestic industrial and large commercial combustion sources, as specified by the Energy Independence and Security Act of 2007.

No portion of the target population will be omitted from coverage.

(b) Sample Design

Because the WEST will seek data from the entire target population, no sample design will be used.

(i) Sampling Frame

Not applicable.

(ii) Sample Size

Not applicable

(iii) Stratification Variables

Not applicable

(iv) Sampling Method

Not applicable

(v) Multi-stage Sampling

Not applicable

(c) Precision Requirements

Because the WEST will obtain information to populate a Registry of Recoverable Waste Energy Sources that is voluntary in nature (i.e., potential respondents can decline to participate), but is based on data from the entire population of major domestic industrial and large commercial sources that choose to participate, no precision requirements with respect to sampling are applicable.

(i) Precision Targets

Not applicable

(ii) Non-sampling error

Not applicable

(d) Questionnaire Design

The objective for each question and related group of questions in the WEST is provided in Section 4. (b) of Part A of this Supporting Statement. The questions request quantitative data on facility operating characteristics and baseline energy use input characteristics to enable calculations to be performed of whether the facility has a waste energy recovery opportunity that passes screening criteria for inclusion on the Registry.

3. Pretests and Pilot Tests

As described in Section 3. (c) of Part A of this Supporting Statement, EPA held extensive listening sessions with over 100 key stakeholders to identify any issues and problems, including information about the types of data already collected by firms and available in-house.

The questions proposed to be included in the WEST will be published with the proposed rule and available for public comment.

4. Collection Methods and Followup

(a) Collection Methods

As described in Section 4. (b)(ii) and Section 5 (b) of Part A of this Supporting Statement, the survey will be administered through notification of the survey and Registry requirements to potential responders with directions on where and how to download WEST. Those respondents who choose to take part in the survey will load WEST onto their own computers and input information according to the protocol of questions included on WEST. The tool will calculate, according to algorithms developed by EPA, the waste energy recovery potential of the site. Only the results of the calculations and a determination of whether or not the site meets the

criteria and should be placed on the Registry will be reported back to the EPA. The input data will remain in the respondent's control. The respondent also may notify the EPA that it declines to have its name placed on the Registry even if it meets the criteria for the Registry.

EPA will rely upon information technology tools to administer the survey. EPA expects to contact approximately 17,000 facilities to submit the Survey, based on the thresholds defined in the proposed rule. The Survey will be internet-based. Those industrial and commercial entities that elect to participate will download a survey tool (the Waste Energy Survey Tool or WEST) to their own computers. They will input detailed information, which will be used in algorithms embedded in the tool and based on the criteria in the proposed rule to generate summary information on the potential waste energy recovery opportunity of the source. Only site contact information and summary data will then be sent to EPA; all detailed site data, including any potential CBI data, will remain on the respondent's computer. Once a respondent has completed the Survey, WEST will generate a final summary report, which the respondent will submit to EPA in hard copy form via mail or by email. It is estimated that 100 percent of the potential responses will be filed electronically. However, the proposed rule gives respondents the option of filing a hard copy response. Sources or sites that meet the criteria in the proposed rule will be included on the Registry.

(b) Survey Response Rate and Followup

As described above under Survey Design, a target response rate is not applicable to this survey. Followup to the WEST to gather missing survey data will not be necessary. The tool will alert respondents to input any necessary but missing data elements.

5. Analyzing and Reporting Survey Results

Survey results will be reported through inclusion of the names of facilities that meet the specified criteria on the Registry of Recoverable Waste Energy Sources.

(a) Data Preparation

Contractor resources will be used to transfer the results from WEST into the Registry and to maintain the Registry. Data entry will involve simple word processing and database management. Quality control will be performed through periodic examination by EPA staff of a selection of WEST results and their corresponding entries in the Registry. In addition, respondents will be able to compare their results from WEST to their Registry entry and notify EPA of any discrepancies. Procedures for estimating missing data items will not be required.

(b) Analysis

No statistical procedures will be used to analyze the data.

(c) Reporting Results

Survey results will be displayed as entries in the Registry of Recoverable Waste Energy Sources to be maintained by EPA. No other systems will share data or have access to data placed in the WEST by individual respondents, who will retain control of such data. Only basic information about the facility and the type of recoverable waste energy opportunity it represents will be included in the Registry.

Attachments:

1. Waste Energy Survey Tool (WEST) - Survey Questions

1. Waste Energy Survey Tool (WEST) - Survey Questions

Introduction

Section 372 of the 2007 Energy Independence and Security Act (EISA) calls for EPA to publish a rule to establish a Registry of Recoverable Waste Energy Sources (Registry). EPA intends to populate the Registry through responses to an ongoing waste energy recovery survey (Survey), also required under EISA. The survey is designed to estimate the potential for waste energy recovery projects at major industrial and large commercial sources and the sites at which the sources are located based on readily available information on the site and each potential waste energy source at the site.

The survey EPA is proposing is an internet-based survey, the Waste Energy Survey Tool (WEST), which is downloaded by owners or operators of the sites or sources (the respondents). The respondents will enter data into WEST to be used to determine the potential waste energy recovery opportunity of the source.

Survey Questions

A. Site Information – Information on the site name, address, primary contact, and NAICS/application; site-wide information on electricity and thermal use, and electricity and fuel prices.

1. Site Name #:
2. Site Address #:
3. Site Contact:
 - Name #:
 - Title #:
 - Address (street address, city, state, zip code) #:
 - Phone Number #:
 - E-mail #:
4. Primary NAICS code (6 digit) #:
5. Site Description (Brief sentence description of primary function of site - e.g., hospital, petroleum refinery, etc) *:
6. Annual operating hours:
7. Annual electricity purchases (kWh):

and/or

Average electricity demand during operating hours (kW):
8. Average purchased electricity price for 2007 (cents/kWh or specify units) – include total costs – commodity and delivery, and all costs – demand and energy:
9. Annual fuel consumption (Specify units – MMBtu, therms, etc)

10. Average purchased fuel price for 2007 (\$/MMBtu or specify units):
11. Electric distribution utility serving site *:
12. Is there an existing on-site generation system (do not include back-up or emergency generators)?
- If so, what is the capacity (kW) and annual operating hours, or annual electricity generation (kWh/yr)

Site information that will be submitted to EPA and published in the public waste energy registry

* Site information that will be submitted to EPA and can be designated by the respondent as Detailed Quantitative Information (DQI)

If initial minimum thresholds are not met (i.e., 1 MW average electric demand or 5 MMBtu/hr fuel for commercial, and 100 MMBtu/hr fuel use for industrial), the user would be given the option to end the survey at this point, or to move on to the individual waste energy categories.

WEST Implementation option - Section A could end with a series of questions that would direct the user to the applicable follow-on sections:

- Does your site have individual furnace/process and/or flare stacks that have an exit temperature of greater than 500° F? (If yes, the survey would jump to Section B, if no, the survey would go to the next question)
- Does your site have process off streams with combustible energy content? (If yes, the survey would jump to Section C, if no, the survey would go to the next question)
- Does your site have a steam boiler or boilers? (If yes, the survey would jump to Section D, if no, the survey would jump to Section E (it is assumed all respondents that pass site thresholds will be asked to complete Section E – CHP)

B. “Exhaust heat or flared gas” - Information on heat recovery opportunities from high temperature stacks. Examples of such sources would include high temperature exhaust streams from glass melters, cement kilns, or pipeline compressor turbine drives.

1. How many individual furnace/process/equipment stack or flare stacks at your site are greater than 500 ° F:
2. How many of these have an average gas flow greater than 7,000 scf/min (or 500,000 scf/hr):
3. How many of these operate at least 4,500 hours per year:

If 1, 2 and 3 not met, user will be sent to Section C

Complete the following for each exhaust furnace/process/equipment stack or flare stack with an exhaust temperature greater than 500 ° F, average stack flow of 7,000 scf/min or above, and minimum operating hours of 4,500 hrs/yr.

1. Temperature (F):
2. Average stack gas flow (specify units: scf/min, scf/hr, cf/min, cf/hr, lbs/hr):
Temperature will determine specific minimum flow requirements; if not met, user will be sent to next stack or Section C.

If exhaust temperature is known, but stack flow is not, available heat could be estimated based on the following (replaces question 2 above):

- 2-a. Source fuel input (MMBtu/hr or MMBtu/yr):
- 2-b. Is source furnace/process/combustion equipment step or flare:
- 2-c. If furnace/process/combustion equipment, what is the thermal efficiency (%):

3. Annual operating hours for source:
4. Source description (e.g., glass furnace, process flare) *:
5. Is source a continuous or batch process:

6. Is there emissions control equipment in the stack:

If so, what type:

Is stack temperature specified before or after control equipment?:

7. Was the source in operation or commence construction prior to December 19, 2007?

For each waste heat source, WEST will screen and calculate a quantitative estimate of:

1. Waste heat to power recovery potential (MW) *
2. CO₂ emissions reduction potential (tons/year) *
3. Criteria pollutant reduction potential (tons/yr) *
4. Does the potential project have a five year payback or less (yes/no) *
5. Does the potential project meet the primary purpose criteria (yes/no) *
6. If a new source, does the potential project meet the 60% efficiency test (yes/no) *

For the site, WEST will indicate:

Does the site have a waste heat recovery opportunity that passes all screening criteria (yes/no) *

Waste heat recovery information that will be submitted to EPA and published in the public waste energy registry

** Waste heat recovery information that will be submitted to EPA and can be designated by the respondent as Detailed Quantitative Information (DQI)*

C. “Waste gas or industrial tail gas that would otherwise be flared, incinerated or vented” - Information on energy recovery opportunities from process off streams with significant combustible energy content. Examples of such sources would include chemical and/or refinery off-gases, anaerobic decomposition gases from food processing wastes, or combustible off-gases from coke ovens.

1. Are there any process off streams with combustible energy content at the site:

If 1 not met, user will be sent to Section D

2. Average gas flow (specify units: scf/min, scf/hr, cf/min, cf/hr, lbs/hr or other):

Minimum and maximum stack gas flow (optional):

3. Gas stream combustible energy content (specify units: Btu/scf, or other):

Flow and Btu content will determine minimum threshold, if not met, user will be sent to Section D.

4. Annual operating hours for source:

If below 4,500 hours, user will be sent to next stack or section C

5. Source description (e.g., coke oven, digester) *:

6. Is source a continuous or batch process:

7. Is there existing pollution control equipment in place:

If so, what type:

Is flow and Btu content specified before or after control equipment?:

8. Was the source in operation or under construction prior to December 19, 2007?

For each combustible source, WEST will screen and calculate a quantitative estimate of:

1. Waste gas to power recovery potential (MW) *
2. CO₂ emissions reduction potential (tons/year) *
3. Criteria pollutant reduction potential (tons/yr) *
4. Does the potential project have a five year payback or less (yes/no) *
5. Does the potential project meet the primary purpose criteria (yes/no) *
6. If a new source, does the potential project meet the 60% efficiency test (yes/no) *

For the site, WEST will indicate:

Does the site have a waste gas or industrial tail gas recovery opportunity that passes all screening criteria (yes/no) *

Waste gas recovery information that will be submitted to EPA and published in the public waste energy registry

* *Waste gas recovery information that will be submitted to EPA and can be designated by the respondent as Detailed Quantitative Information (DQI)*

D. “Recoverable pressure drop” - Information on energy recovery opportunities from high pressure process streams that are reduced to lower pressure without any existing recovery. A primary example of such sources would include high pressure steam from a boiler that is reduced in pressure reduction valves to a lower pressure for process and/or heating use.

1. Are there steam boilers at the site:

If 1 not met, user will be sent to Section E

2. What are the average outlet steam conditions of the boiler(s) (psig and temperature):

3. What are the average steam conditions required at the process or for heating (psig and temperature):

4. Is there an existing backpressure or extraction steam turbine generator in place:

5. Average steam flow (specify units: lbs/hr, lbs/yr, Btu/hr, Btu/yr):

6. Annual operating hours for steam system:

7. Was the unit in operation or under construction prior to December 19, 2007?

For each pressure drop source, WEST will screen and calculate a quantitative estimate of:

1. Pressure drop to power recovery potential (MW) *

2. CO₂ emissions reduction potential (tons/year) *

3. Criteria pollutant reduction potential (tons/yr) *

4. Does the potential project have a five year payback or less (yes/no) *

5. Does the potential project meet the primary purpose criteria (yes/no) *

For the site, WEST will indicate:

Does the site have a pressure drop recovery opportunity that passes all screening criteria (yes/no) *

Pressure drop recovery information that will be submitted to EPA and published in the public waste energy registry

** Pressure drop recovery information that will be submitted to EPA and can be designated by the respondent as Detailed Quantitative Information (DQI)*

E. “Combined Heat and Power” - Information on opportunities for on-site generation with heat recovery for site/process heating and/or cooling.

1. Average process or heating steam demand at site (specify units such as lb/hr, lbs/yr):
2. Average process or heating steam conditions (psig, temperature):
3. Annual hours of steam demand

Commercial applications may not know actual steam or hot water demand. In those cases, the survey will ask:

- 3-a. What is annual space heating load (Btu/yr, or Btu/month), or what is annual space heating fuel use (MMBtu/yr, therms/yr)
- 3-b. What is annual hot water load (Btu/yr, or Btu/month), or what is annual hot water fuel use (MMBtu/yr, therms/yr)
4. Average process or heating hot water demand at site (specify unit such as lbs/hr, gallons/hr, Btu/hr, Btu/yr):
5. Average process hot water temperature (F):
6. Annual hours of hot water demand:
7. Is there a central cooling/refrigeration supply:
8. Average cooling/refrigeration demand (specify units such as tons/hr):
9. Annual hours of cooling/refrigeration:

WEST will screen and calculate a quantitative estimate of:

1. CHP potential based on thermal (heating and/or cooling) load (MW) *
2. CO₂ emissions reduction potential (tons/year) *
3. Criteria pollutant reduction potential (tons/yr) *
4. Does the potential project have a five year payback or less (yes/no) *
5. Does the potential project meet the primary purpose criteria (yes/no) *

For the site, WEST will indicate:

Does the site have a Combined Heat and Power opportunity that passes all screening criteria (yes/no)*

CHP potential information that will be submitted to EPA and published in the public waste energy registry

* *CHP potential information that will be submitted to EPA and can be designated by the respondent as Detailed Quantitative Information (DQI)*