

Proposed Waste Energy Recovery Registry Rule: Overview



July 2009

Outline

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- Key Elements of the Proposed Rule
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Summary of Proposed Rule

- ❑ Establishes the criteria for including sources or sites in a Registry of Recoverable Waste Energy Sources (Registry), as required under Title IV, Subtitle D of EISA.
- ❑ Establishes the Survey processes by which EPA will collect data and populate the Registry.
- ❑ Would apply to major industrial and large commercial sources as defined in this rulemaking.
- ❑ Would not require the installation of new monitoring equipment, rather it would require only that sources above certain threshold levels that wish to be included in the Registry enter specific already-monitored data points into the Survey, which is a software tool that will calculate the quantity and quality of potentially recoverable waste energy.

Purpose

- ❑ Provide a list of the economically feasible existing waste energy recovery opportunities in the US based on a Survey of major industrial and large commercial sources;
- ❑ Provide state and national totals of the existing waste energy recovery opportunities, as well as the potential criteria pollutant and greenhouse gas emissions reductions that could be achieved with the capture and use of the waste energy recovery opportunities listed in the Registry;
- ❑ Serve as the basis for potential waste energy recovery projects to qualify for financial and regulatory incentives as described in Energy Policy and Conservation Act (EPCA) Sections 373 “Waste Energy Recovery Incentive Grant Program” and 374 “Additional Incentives for Recovery, Use, and Prevention of Industrial Waste Energy,” as added by EISA.

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Title IV Subtitle D of the 2007 Energy Independence and Security Act (EISA)

- ❑ Contains provisions designed to improve energy efficiency by promoting combined heat and power (CHP), waste energy recovery, and district energy systems.
- ❑ Under EPCA Sections 371-374, EPA must:
 - Develop an ongoing survey of all major domestic industrial and large commercial combustion sources (as defined by the Administrator) as well as the sites at which the sources are located, and review each source for the quantity and quality of waste energy produced;
 - Publish a rule that establishes the criteria by which sites that have financial paybacks of five years or less, will be listed in a Registry of Potential Recoverable Waste Energy Projects (the Registry);

Title IV Subtitle D of EISA cont'd

- Under EPCA Sections 371-374, EPA must:
 - Establish the Registry.
 - Registry must include the criteria pollutant and GHG emission savings that may be achieved with recovery of waste energy from all sources listed in the Registry.
 - Provide an annual report to Congress describing lost opportunities for domestic waste heat recovery projects and calculate the quantity of lost energy and emission reductions.
 - Develop a grant program to fund additional efficiency programs in those DOE certified States that have achieved 80 percent or more of the waste heat recovery opportunities. **HR 2454 removes this responsibility from EPA; Similar provision would need to pass Senate for this change to be implemented**

Stakeholder Comments

- ❑ Met with over 100 diverse stakeholders to hear feedback on EISA Title IV, Subtitle D
- ❑ Topics for feedback included:
 - Interest in including CHP in scope of action
 - Interpretation of “primary purpose of making sales of excess electric power”
 - Importance of CBI and minimizing reporting burden
 - Concern over sales of excess power
 - Interest in interpretation of value of waste energy
 - Encourage broad implementation

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Definition of Waste Energy

(A) Exhaust heat or flared gas from any industrial process;

- Examples: high temperature exhaust streams from glass melters, cement kilns, and pipeline compressor turbine drives.

(B) Waste gas or industrial tail gas that would otherwise be flared, incinerated, or vented;

- Examples: chemical and/or refinery off gases with combustible content; anaerobic decomposition gases from food processing wastes; combustible off gases from coke ovens.

(C) A pressure drop in any gas, excluding any pressure drop to a condenser that subsequently vents the resulting heat; and

- Examples: high pressure steam generated in a boiler that is subsequently reduced in pressure before being used in an industrial process or building heating system

(D) Such other forms of waste energy as the Administrator may determine.

- Proposed rule includes potential opportunity for combined heat and power (CHP)
- Examples: paper mills, hospitals, and district energy CHP systems.

Thresholds

- ❑ Uniform thresholds across sectors
- ❑ EPA expects to contact 11,000 facilities within the initial thresholds (e.g. inviting 11,000 facilities to complete the voluntary Survey).
 - Industrial:
 - ❑ Initial threshold – facility with 100 MMBtu/hr fuel use;
 - ❑ Secondary threshold – process stacks with temperature 500° F or greater, flow rates greater than 7,000 to 50,000 scf/min depending on temperature, and minimum operating hours of 4,500 hrs/yr.
 - Commercial:
 - ❑ Initial threshold – site with 1 MW average electric annual demand or 5 MMBtu/hr fuel input;
 - ❑ Secondary threshold – minimum thermal or cooling load of 2.5 MMBtu/hr or 150 Tons, and minimum operating hours of 4,500 hrs/yr.

Information in Registry

- Proposing to include the following information for each site in the Registry:
 - Site name, address, NAICS code;
 - Site contact person name, title, address, phone number, email address;
 - The total waste energy recovery potential at the site; and
 - Date the listing was posted in the Registry.

Information in Registry cont'd

- Per EPCA Section 372(d)(2), EPA is also proposing to include in the Registry, nationally and by state:
 - Total quantities of potentially recoverable waste energy from sources at the sites in the Registry
 - Total quantities of criteria pollutant (NO_x, SO_x) and greenhouse gas (GHG) emissions savings that might be achieved with recovery of the waste energy from all sources and sites listed in the Registry.

Survey Mechanism

- ❑ Clear feedback from industry and trade associations that CBI is large concern – greatly affects survey response rate.
- ❑ Proposed rule utilizes Waste Energy Survey Tool (WEST). Electronic tool that serves as Survey - the respondent downloads WEST to their computer.
 - All calculations will be made on their computer
 - Only summary information (by waste energy type and aggregate) and facility contact information will be sent to EPA.
 - All detailed facility data will remain on the respondent computer, thereby likely eliminating CBI concerns.

Survey Mechanism cont'd

Information included in the final summary report:

- (1) General site information** (e.g. site name, address, contact person, NAICS code)
- (2) Source description** (e.g., glass furnace, process flare);
- (3) Quantitative estimates for each source:**
 - ❑ The CO₂ emissions reduction potential (tons/year),
 - ❑ The criteria pollutant reduction potential (NO_x and SO_x tons/yr)
 - ❑ For waste heat sources, the waste heat to power recovery potential (MW)
 - ❑ For waste gas sources, the waste gas to power recovery potential (MW)
 - ❑ For pressure drop sources, the pressure drop to power recovery potential (MW)
 - ❑ For CHP potential, the CHP potential (MW) based on sizing to thermal (heating and/or cooling) load

Five-year Payback

- ❑ EPA is proposing to use WEST to determine if the site has economically feasible potential energy recovery project/s based on the 5 year financial payback requirement.
- ❑ WEST will include algorithms for estimating simple paybacks for waste energy recovery projects based on the site and source information requested of each site in the Survey.
- ❑ Simple payback for a waste energy recovery project would be calculated by dividing the total installed cost of the project by the projected annual savings of the project.

Primary Purpose

- ❑ EISA requires EPA to include criteria on “standards to ensure that projects proposed for inclusion in the Registry are not developed or used for the primary purpose of making sales of excess electric power under the regulatory provisions of this part.” (primary purpose)
- ❑ Criteria needed that meets the intent of EISA (identify economically-viable projects) and within the ‘primary purpose’ text of EISA.

Primary Purpose cont'd

Proposed rule – Potential project must meet one of the following primary purpose criteria:

- ❑ At least 50 percent of the aggregated annual energy output of the site is to be used for industrial or commercial purposes, and not sold to an electric utility (“the 50 percent threshold”); or
- ❑ The site is located in a State where the appropriate regulatory authority has made a state-wide determination under EPCA Section 374 not to implement the regulatory sale of excess power provisions in EPCA Section 374. This waiver of the 50 percent threshold is applicable until the state regulatory authority reverses or removes its decision; or
- ❑ The owner or operator of the site submits a joint petition with the local electric utility that serves the site to the Director of the Office of Atmospheric Programs of the EPA, requesting that the 50 percent threshold be waived.

Frequency of Survey and Registry Updates

- ❑ WEST submissions received within 60 days of WEST being released included in initial launch of Registry.
- ❑ Additional WEST submissions accepted on a rolling basis.
- ❑ Third-party developers acting jointly with owners and operators can submit WEST results to EPA.
- ❑ WEST and Registry will be updated on an as-needed basis. EPA intends to assess every three years relevant market conditions, technology status and applicable incentives, and make WEST adjustments as appropriate.

Detailed Quantitative Information

- ❑ EPCA Section 372(c)(3)(B): The owner or operator of a source at a site may elect to have detailed quantitative information (DQI) concerning the site not made public; DQI shall be made available to the applicable State energy office and utility requested to support recovery of waste energy from the source or site pursuant to the incentives provided under EPCA Section 374.
- ❑ EPA does not consider the information included in the Registry DQI.
- ❑ The remaining WEST outputs are important for EPA to determine whether the site has met the criteria for inclusion in the Registry; however, their posting in the Registry is not crucial to the Registry's operation.
- ❑ For simplicity, EPA proposes to treat the remaining Survey outputs as DQI.
- ❑ EPA will not post DQI in the Registry

Summary

- ❑ July 23, 2009: Proposed rule published in the Federal Register (www.regulations.gov) under Docket ID No. EPA-HQ-OAR-2008-0201
- ❑ 60-day public comment period: Sept 21, 2009
- ❑ To submit written comments:
www.regulations.gov
- ❑ Additional information:
www.epa.gov/wasteenergyregistry