



U.S. Energy Information Administration
Office of Energy Statistics
Office of Energy Consumption and Efficiency
Statistics

Supporting Statement for Survey Clearance

Manufacturing Energy Consumption Survey

OMB No. 1905-0169

Background and Proposal

Part A

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Introduction

The information collection proposed in this supporting statement has been reviewed in light of applicable information quality guidelines. It has been determined that the information will be collected, maintained, and used in a manner consistent with the OMB, U.S. Department of Energy (DOE), and the U. S. Energy Information Administration (EIA) information quality guidelines.

Clearance is requested to permit the EIA of the DOE to implement the 2014 Manufacturing Energy Consumption Survey (MECS), Form EIA-846, to collect data on energy consumption and related subjects for the manufacturing sector of the U.S. economy. The MECS will be conducted by the U.S. Department of Commerce's Bureau of the Census, acting as the data collection agent for EIA.

This survey will be fielded in early 2015 to collect data for calendar year 2014. This is the ninth time the MECS will be conducted. Subsequent surveys are expected to be conducted quadrennially. Although responses are mandatory under law, the MECS data will be used for statistical purposes only. All individual responses are strictly confidential and no data that could lead to respondent identification, either directly or indirectly will be released.

Changes for the 2014 MECS

EIA proposes making several changes from the 2010 MECS for use in the 2014 MECS. The first substantial change for the 2014 MECS is collecting data from two more energy sources. In the past, EIA has calculated the amount of petrochemical feedstocks and asphalt that are produced by a refinery and used elsewhere in manufacturing. To obtain more accurate estimates of these two energy sources, EIA proposes collecting additional data about petrochemical feedstocks and asphalt. The data collected about petrochemical feedstocks and asphalt will be largely what the MECS collects about other energy sources; purchases, expenditures, transfers in, produced on-site, used as fuel and nonfuel, and shipments data. Petrochemical feedstocks and asphalt are used in a few industries, so the MECS will collect data about these energy sources from those NAICS codes that use this type of energy; namely, petrochemical manufacturing (NAICS 325110), asphalt paving mixture and block manufacturing (NAICS 324121), and asphalt shingle and coating materials manufacturing (NAICS 324122). Additional response burden will be kept to a minimum because the data collected about petrochemical feedstocks and asphalt will only be collected from the industries listed above.

EIA is working with the Advanced Manufacturing Office (AMO) at DOE to reform the questions in the Energy Management and General Technologies sections on the MECS. The data collected would help EIA and DOE to develop manufacturing energy efficiency improvements. These will be "Yes"/"No" questions that should not greatly increase response burden.

Further, EIA plans to ask iron and steel mills (NAICS 331111) about their use of blast furnaces and electric arc furnaces (EAF) at the establishment. This will help EIA identify whether an iron and steel mill is an integrated or a mini mill, and help determine if all the essential energy data has been collected from the establishment. These will be “Yes”/ “No” questions that should not greatly increase response burden.

EIA proposed in their 60-day *Federal Register* notice (Vol. 79, No. 100, pp. 29756-29757, FR Doc. 2014-12008) published May 23, 2014 that they were considering conducting a biennial cycle starting with the 2014 MECS. However, for budgetary reasons EIA has reconsidered and will now conduct the 2014 MECS as a quadrennial survey.

Besides the changes already discussed, the content of the 2014 MECS will be largely unchanged from the 2010 survey. Most respondents will submit their data electronically in a question/answer format as opposed to the spreadsheet format used in the past. The MECS information products will continue to present industry-by-Census Region level data as well as national data.

Content of the Form EIA-846 “Manufacturing Energy Consumption Survey”

Those manufacturing establishments selected for the 2014 sample will have data collected on basic energy consumption and expenditures, shipments of energy offsite, end use consumption, building characteristics, participation in energy management programs, technologies, and fuel-switching capacity. Like the 2010 MECS program, the 2014 MECS will largely be an Internet-based electronic survey, with a paper form back-up for those that require it. Although manufacturing establishments that have Internet access will have the option either to complete the form using the Internet through Centurion, formerly called Census Taker, the Census Bureau’s internal electronic data collection system, or complete a paper questionnaire, EIA is promoting the Internet as the primary mode of data collection. Because of the design flexibility that the Internet provides, each sample establishment will need to complete only those questions and sections that pertain to it.

Each establishment that does not have Internet access will receive a specific MECS paper form based on the NAICS code in which they are classified.

Petroleum refineries, which used to receive the EIA-846 (B), ship greater quantities of energy sources than any other manufacturing industry. However, the EIA-846 (B) took advantage of common data available from other EIA questionnaires and employed a different concept of energy sources inputs. Specifically, data from the EIA-810, “Monthly Refinery Report” were used to obtain feedstock and offsite-produced fuel usage. Therefore, petroleum refiners will receive a shorter Internet-based electronic questionnaire for the 2014 MECS because EIA will continue to make use of data from other questionnaires.

More information on the content of the various forms can be found in Section A-3a.

A. Justification

1. Legal Authority

The authorization for collecting MECS data is set forth in the Federal Energy Administration Act of 1974, as amended (FEAA, Pub. L. No. 93-275). The mandate for collecting these data is in section 13(b) of the FEAA, 15 U.S.C. 772(b):

All persons owning or operating facilities or business premises who are engaged in any phase of energy supply or major energy consumption shall make available to the [Secretary] such information and periodic reports, records, documents, and other data, relating to the purposes of this Act, including full identification of all data and projections as to source, time, and methodology of development, as the [Secretary] may prescribe by regulation or order as necessary or appropriate for the proper exercise of functions under this Act.

The data that the survey will yield by means of Form EIA-846 will assist the Secretary in carrying out the functions and duties described in section 5(b) of the FEAA, 15 U.S.C. 764(b), which states that the Administrator of the FEA (now the [Secretary] of DOE) shall:

- (1) advise the President and the Congress with respect to the establishment of a comprehensive national energy policy in relation to the energy matters for which the [Secretary] has responsibility, and, in coordination with the Secretary of State, the integration of domestic and foreign policies relating to energy resource management;
- (2) assess the adequacy of energy resources to meet the demand in the immediate and longer range future for all sectors of the economy and the general public,...
- (9) collect, evaluate, assemble, and analyze energy information on reserves, production, demand, and related economic data.

Section 5(a) of the FEA Act, 15 U.S.C. 764(a) provides the legal authority for invoking Section 5(b) above, and states:

Subject to the provisions and procedures set forth in this Act, the [Secretary] shall be responsible for such actions as are taken to assure that adequate provision is made to meet the energy needs of the Nation. To that end, he shall make such plans and direct and conduct such programs related to the production, conservation, use, control, distribution, rationing, and allocation of all forms of energy as are appropriate in connection with only those authorities or functions:

- (1) specifically transferred to or vested in him by or pursuant to this Act;...
- (3) otherwise specifically vested in the [Secretary] by the Congress.

Authority for invoking Section 5(a) of the FEA Act, is provided in turn by Section 52 (15 U.S.C. 790a of the FEA Act which states:

“(a) It shall be the duty of the (Director) to establish a National Energy Information System (hereinafter referred to in this Act as the “System”) ... [that] shall contain such information as is required to provide a description of and facilitate analysis of energy supply and consumption within and affecting the United States on the basis of such geographic areas and economic sectors as may be appropriate...

(b) At a minimum, the System shall contain such energy information as is necessary to carry out the Administration’s statistical and forecasting activities, and shall include,... such energy information as is required to define and permit analysis of...

(2) the consumption of mineral fuels, nonmineral energy resources, and electricity by such classes, sectors, and regions as may be appropriate for the purposes of this Act...”

The Department of Energy (DOE) Organization Act of 1977, Public Law 95-91, created the Department of Energy. [42 U.S.C. 7135](#) of this law established the Energy Information Administration (EIA) to carry out a

. . . central, comprehensive, and unified energy data and information program which will collect, evaluate, assemble, analyze, and disseminate data and information which is relevant to energy resource reserves, energy production, demand, and technology, and related economic and statistical information, or which is relevant to the adequacy of energy resources to meet demands in the near and longer term future for the Nation’s economic and social needs.

Section 42 U.S.C. 7135(i) provides specific statutory authority and justification for the Manufacturing Energy Consumption Survey. This section states:

(i) Manufacturers energy consumption survey

(1) The Administrator shall conduct and publish the results of a survey of energy consumption in the manufacturing industries in the United States . . . in a manner designed to protect the confidentiality of individual responses. In conducting the survey, the Administrator shall collect information, including -

- (A) quantity of fuels consumed;
- (B) energy expenditures;
- (C) fuel switching capabilities; and
- (D) use of non-purchased sources of energy, such as solar, wind, biomass, geothermal, waste by-products, and cogeneration.

(2) This subsection does not affect the authority of the Administrator to collect data under section 52 of the Federal Energy Administration Act of 1974 ([15 U.S.C. 790a](#)).

2. Needs For and Uses of the Data

EIA is addressing the requirements of the law with the 2014 Manufacturing Energy Consumption Survey (MECS), Form EIA-846. As with previous cycles, the MECS will also collect data on end-use consumption, energy-management activities, and energy-saving technologies. The 2014 MECS is designed to minimize respondent burden while satisfying both legal requirements and data user needs as completely as possible.

EIA has a series of survey systems in place on energy consumption that address the issues of the demand for energy and the effect of that demand on the Nation's social and economic needs. Three of these systems are now operating--Forms EIA-457 A-G, "Residential Energy Consumption Survey" (OMB Number 1905-0092); Forms EIA-871 A-F, "Commercial Buildings Energy Consumption Survey" (OMB Number 1905-0145); and Form EIA-846, "Manufacturing Energy Consumption Survey" (OMB Number 1905-0169). These surveys span end-use sectors that account for roughly 55 percent of the energy consumption in the United States. Manufacturing operations alone account for approximately one-third of total consumption. The Residential Transportation Energy Consumption Survey, the population of which was estimated to account for 17 percent of energy consumption, was discontinued in 1994.

The MECS, to be conducted for the ninth time in 2014 and every four years subsequently, fulfills multiple needs and requirements for analysis at DOE. It is the only national survey on energy consumption of the manufacturing sector that is both statistically reliable and comprehensive. As a continuation of previous MECS, it will provide data to analysts and policy makers for the purpose of longitudinal analyses. Data obtained from the 2014 MECS will serve as a major input into EIA's National Energy Modeling System industrial models, which, in turn are used to benchmark other government and non-government modeling systems. In addition, it will provide a benchmark of manufacturers' adoption of energy efficiency activities in the form of energy management programs and general-purpose energy efficient technologies. Taken over the years, that measurement of penetration gives an indication of manufacturers' ability to reduce the cost and consumption of energy, and to react to changing circumstances.

The publication of earlier survey results has effectively extended the data series made available by the supplement to the Census Bureau's Annual Survey of Manufactures (ASM), Fuels and Electricity Consumed Supplement, which was discontinued in 1982 due to budget constraints. The wide range of data that the MECS collects and publishes, with known precision, makes it the most reliable and accurate vehicle for providing comprehensive energy statistics covering the manufacturing sector.

Another dimension of MECS data, besides accuracy and reliability, is relevancy. A review, undertaken by EIA before the 2010 MECS questionnaires were revised for 2014, revealed specific

data needs by the users of energy information. This review focused on the needs for data from the manufacturing subsector of industry by DOE, other Federal agencies, and the private sector. That review was built on the following sources:

- An e-mail request to past in-depth users of the MECS, both inside and outside the Department of Energy
- A *Federal Register* notice (Vol. 79, No. 100, pp. 29756-29757, FR Doc. 2014-12008) was published on May 23, 2014 that requested comments on the design and development of the 2014 MECS

Results of this review are discussed in Section A-3b, “Results of Data Needs Review” below.

Energy consumption data from the 2010 MECS have been released electronically on EIA’s Internet Website (<http://www.eia.gov/consumption/manufacturing/data/2010>).¹ MECS data tables are also published in the Annual Energy Review (<http://www.eia.gov/totalenergy/data/annual/index.cfm>).

Updates are in progress for another set of Web products, Manufacturing Energy and Carbon Footprints, which can be found at <http://www1.eere.energy.gov/manufacturing/resources/footprints.html>. Those documents, originally developed in partnership with DOE’s Advanced Manufacturing Office, summarize MECS and other related data for sixteen manufacturing industries that are high consumers of energy. The MECS forms the basis of ongoing estimates for changes in energy intensity and greenhouse gases. The data were used extensively by EIA's Office of Energy Consumption and Efficiency Analysis as input to National Energy Modeling System (NEMS) industrial models.

In addition, MECS aggregate data are submitted regularly to the International Energy Agency as their benchmark for U.S. manufacturing energy consumption. MECS estimates are used routinely in many research projects being conducted by organizations such as the Gas Research Institute, Pacific Northwest National Laboratory, Argonne National Laboratory, Lawrence Berkeley National Laboratory and many others.

Many other uses of the 2014 data are anticipated. As stated previously, the 2014 MECS results will be used as a major input into the EIA National Energy Model System (NEMS) not only to benchmark energy consumption and expenditures, but also to identify current participation in energy management programs and penetration of energy-efficient technologies. The results of the NEMS, as well as the MECS data themselves, are used as input into national energy policy decisions and DOE research and development strategies as well as a broad range of conservation and renewable energy industrial programs. Legislation pending approval in Congress would have the MECS, along with the Annual Survey of Manufactures, act as a determinant for eligibility for rebates for industries that are adversely affected by carbon dioxide emissions policies.

¹ EIA’s recent policy has been to emphasize Internet dissemination over printed publications. Thus, no printed publication of 2010 data has been produced.

3. Technological Considerations

3a. Efforts to Reduce Burden on Respondents

In part due to the Government Paperwork Elimination Act (GPEA) which requires EIA, as of October 21, 2003, to allow establishments the option to submit and maintain information electronically, a major effort was undertaken during the design of the 2002 MECS and carried through by the 2006 and 2010 MECS to aid respondents in completing the questionnaires. That activity included the development of an electronic option for the EIA-846 (C) respondents in the 2002 MECS. Using Microsoft Excel, EIA developed an Excel workbook version that looked very much like the written questionnaire but it had added capabilities to:

- Check price ranges of major energy sources;
- Automatically calculate derived data items that the respondent would normally be required to manually calculate (e.g., total consumption of electricity);
- Automatically copy reported and derived data to later sections of the questionnaire when needed.

Although the Excel version of the EIA-846 (C) had some beneficial capabilities, time and other constraints prevented it from optimal development. Not all desired onsite edits or screeners could be included. One major flaw was that the data from the Excel spreadsheet was not fully integrated with Census data capture routines. As such, after the respondent completed the questionnaire, he/she still had to print out or save the Excel output on a disk. The paper or disk had to be mailed to the same Census address to which the completers of the paper questionnaire were directed. Their responses would then be keyed the same as with the normal paper-and-pencil mode and thus be subject to the same potential for keying errors.

In brief, the results showed that:

- Without any prior marketing or advertising of the Excel version approximately 10 percent of eligible EIA-846(C) respondents completed the questionnaire using this method of collection;
- Where the Excel version automatically calculated the total electricity consumed at the establishment there was about a 9 percent improvement, as measured by analyst correction flags, in the quality of the electronically reported data from that provided by the paper responders; and
- Where the Excel version used price edit checks to verify the amount and price of the natural gas purchased at the establishment, there was approximately a 10 percent improvement, as measured by analyst correction flags, in the quality of the electronically reported data from that provided by the paper responders.

Some respondents of the Excel version of the EIA-846 (C) were contacted by EIA and Census staff during the data editing and review process of the 2002 MECS. All of these respondents indicated that the Excel workbook version was very useful and a good first step, but a more comprehensive electronic data collection method was needed for the MECS in the future. Based upon the analysis of

the 2002 MECS electronic questionnaire versus its paper counterpart along with the positive feedback from the respondents for a more comprehensive electronic reporting method, the 2006 MECS implemented an Internet-based electronic questionnaire using Census Taker, the Census Bureau's internal electronic data collection system. Features of the 2006 MECS electronic questionnaire included:

- All respondents were eligible to use it. Indeed, they were highly encouraged to do so and paper was made available only as a back-up for those establishments that did not have Internet access and those who were reluctant to use the Internet even after several attempts to convince them otherwise;
- Data were encrypted and submitted electronically through a secure Internet connection, thus maintaining data integrity and eliminating the potential for keying errors;
- Industry classification (i.e., NAICS code) was used as a screener to customize the form for the specific respondent. That screening allowed the respondent to focus on the energy sources most relevant to that industry.
- Check boxes or other means were used to give the respondent an opportunity to report in his or her most convenient units. Edit price checks were developed for each of the unit choices.
- The questionnaire was developed and formatted with screen input in mind, using the best available practices.

Due to the ease of electronic filing through Census Taker, approximately 85 percent of respondents who reported data for the 2006 MECS did so using the Internet. The EIA has continued to collect data through the Internet for the 2010 MECS and will continue this practice for the 2014 MECS. Although the name of the Internet data collection system at the Census Bureau has changed to Centurion, the same features that are listed above for the 2006 electronic questionnaire will remain in the 2014 MECS including several systematic improvements. The Internet Data Collection System that respondents will be using to complete the MECS Internet-based questionnaire can be viewed at (<https://bhs.econ.census.gov/bhs/mecs/index.html>).² EIA believes that collecting data through the Internet will lessen the response burden because it is easier to use, faster to complete, and requires fewer edit callbacks than the paper method.

Many of the past changes to the MECS that have increased the quality of response and reduced respondent burden will be retained in the 2014 MECS. These changes include (1) customization of questionnaires for different groups of manufacturers, (2) simplifying and clarifying data items, and (3) eliminating certain data items because of either low probability of occurrence or known duplication with items on other government surveys. Using a sample rather than surveying the entire universe has been a burden-saving measure that has been employed since the 1985 MECS.

As mentioned above, one of the features of the 2014 MECS Internet-based electronic questionnaire will be the use of the NAICS code to customize the form without prior preparation. This allows the respondents in the refining industry to tailor their form so that it includes only questions relevant to their industry. Thus, Form EIA-846 represents a substantial reduction in burden on the refining

² ? This website is in the process of being connected. Once connected information about the Internet Data Collection System, Centurion, and the MECS Internet-based questionnaire including demonstrations can be viewed on this website. Manufacturing Energy Consumption Survey Supporting Statement, Part A

industry. Furthermore, as EIA already collects similar data on its Form EIA-810 in greater detail for the majority of NAICS 324110 and its operations, the data collected by the EIA-846 represents the minimum possible while still maintaining complete coverage of this important industry. The EIA-846 will continue to collect only fuel consumption for petroleum products. For energy sources that are not petroleum products, the same data will be collected as for other industries. However, for both petroleum and non-petroleum products consumed in refineries, no feedstock data will be collected.

3b. Results of Data Needs Review

EIA sent out an email to frequent users of the MECS data on April 29, 2013. The email solicited suggestions for improvements for the 2014 MECS from these frequent users. As a result of the email, further contact was made and is described below.

On May 7, 2013, EIA staff spoke by teleconference to several representatives of Energetics Inc. who frequently use MECS data. The main topic of discussion during this teleconference was the need for a more frequent data collection period. EIA addressed this concern by proposing to consider the possibility of changing the collection frequency from a quadrennial to biennial cycle at some point in time for future collections. The Energetics staff also asked if there was a way to enhance the collection of the MECS end-use estimates. EIA acknowledged the request but indicated that enhancing the end-use estimates would put an undue hardship on the MECS respondents.

On May 9, 2013, EIA staff attended a meeting with several representatives of the Department of Energy's Advanced Manufacturing Office (AMO) who frequently use MECS data. The AMO staff currently receives MECS tables with establishment size breakouts of small, medium, and large. EIA will continue to provide AMO with this type of breakout in the future. The AMO staff thought it would be beneficial to update several questions in the MECS energy management section. EIA and the AMO staff have worked together to update questions in the MECS energy management section. Furthermore, a discussion occurred during this meeting about having a biennial MECS. The AMO staff mentioned that the Department of Energy's Quarterly Technology Review document states several times the importance of frequent and quality data.

On June 5, 2013, EIA staff attended a meeting with several representatives of the Bureau of Economic Analysis (BEA) who frequently use MECS data. The EIA and BEA staff discussed how a biennial cycle would be beneficial to BEA. The BEA staff agreed that increasing the collection time frame would benefit BEA's annual GDP-by-industry estimates and assist with their overall goal to accurately measure the economy. The participants also discussed BEA's versus EIA's level of NAICS detail. As discussed, BEA needs a more in-depth level of NAICS detail for their benchmarking and processing, whereas the MECS does not have the same level of NAICS detail primarily because of survey cost and sample size.

4. Efforts to Identify Duplication

EIA has carefully examined several Federal government survey instruments to ascertain to what extent they overlap the Form EIA-846. These instruments are: Form EIA-3, Quarterly Coal Consumption and Quality Report, Manufacturing Plants; Form EIA-810, Monthly Refinery Report; Form EIA-820, Annual Refinery Report; FERC-1, Annual Report of Major Electric Utilities, Licensees, and Others; EIA-923, Power Plant Operations Report; the Environmental Protection Agency Rule (40 CFR Part 98), Mandatory Reporting of Greenhouse Gases; and Bureau of the Census Form MA-1000, Annual Survey of Manufactures and Economic Census - Manufacturing. The inadequacies of these data as a substitute for the MECS are discussed below.

The Inadequacies of Similar Data

Each of the energy data systems mentioned earlier (Forms EIA-3, EIA-810, EIA-820, FERC-1, EIA-923, Rule (40 CFR Part 98), and MA-10000) was established to collect a specific set of data for specific, narrowly defined purposes. It is precisely the specificity of these data collections that makes their data products both unsuitable to the purposes of the MECS and impractical to modify to substitute for a MECS.

a. Quarterly Coal Consumption and Quality Report, Manufacturing Plants (EIA-3) (OMB No. 1905-0167)

This survey provides data on consumption of coal only on a limited number of establishments. It collects information only from manufacturing establishments that are known to consume coal for purposes other than coke production. The list of such establishments contains only about 825 of the 293,000 manufacturing establishments in the United States, restricted to those that consumed 1,000 or more tons in the previous year. There are no data on inputs, dispositions, and consumption for energy sources other than coal. Nor are there data that MECS requires: cogeneration of electricity, uses of energy sources as feedstocks, end-use estimates, or establishment characteristics. There are some differences between the two systems in what establishments populate the manufacturing sector.

The EIA-5 has been discontinued; however, the data collected on Form EIA-5 in Schedules II, III, and IV will be collected on Form EIA-3. These data include a balance sheet on supply statistics on input and output of coal and coke for the small universe of coking plants (estimated at 19), including (1) statistics on the consumption and disposition of the raw materials used to produce coke and (2) statistics on the production and disposition of coke. It does not provide data on the use of coke by customers. Nor does it include data on inputs of other energy sources, inventory, use of feedstocks, cogeneration of electricity, or inputs and dispositions of energy sources other than coke.

b. Monthly and Annual Refinery Reports (EIA-810 and EIA-820) (OMB No. 1905-0165)

These reports are considered together because they are complementary systems that cover the same population. From the universe of approximately 200 refineries and blenders in the United States, these reports collect data on inputs of crude oil and other unfinished products, outputs of petroleum products, and on-site consumption of energy by that universe. Refineries constitute a small but significant segment of the manufacturing industries. In addition, the two systems are designed to

collect data for refining and blending operations only. In cases where the establishment houses a refinery that also contains separate petrochemical processing (not unusual), the data are supposed to exclude the petrochemical activities. Thus, these refinery data systems do not provide comprehensive coverage of the energy sources of refining establishments. The MECS, on the other hand, will obtain energy data on the entire establishment.

Prior to fielding the 1985 MECS, EIA explored the possibility of modifying the Annual Refinery Report, Form EIA-820, to collect MECS data. To explore this possibility, discussions were held with the American Petroleum Institute (API) before the 1985 MECS was conducted. API pointed out that since the Form EIA-820 is an ongoing data collection that is well understood at the refineries, modifying it to incorporate all of the data to be collected for a periodic MECS would cause confusion and increase the burden on respondents. Spokesmen for API said that it would be preferable to conduct the two surveys separately rather than combine them. EIA will continue to manage burden by using the Form EIA-810 data to arrive at an estimate of the nonfuel energy consumed in the refining process. The refineries' data on fuel consumption, however, must be obtained via the MECS because MECS fuel-switching and end-use estimates are calculated based on the MECS data on fuel consumption.

In the 1985 MECS, the EIA developed an approach that attempted to combine refinery-level data from the Form EIA-820 with establishment-level data from the MECS. Because of matching difficulties and reporting discrepancies, that procedure met with only limited success and resulted in a substantial delay in the publication of the reports. This approach was abandoned in 1988 and succeeding rounds of MECS. However, as described in A-3 of this submission, the EIA-810 data will be used in aggregate form to supplement the MECS data and reduce respondent burden.

c. Annual Report of Major Electric Utilities, Licensees and Others (FERC-1) (OMB No. 1902-0021)

The Federal Energy Regulatory Commission (FERC), on Form FERC-1, Annual Report of Major Electric Utilities, Licensees, and others collects financial information from privately owned utilities. Data gathered via FERC-1 include quantity and value of electricity purchases and transfers from "other non-utility sources." Because these sources are listed by name but not categorized, industrial sources are included with other sources and not always readily identifiable.

The survey of utilities develops information on how much electricity is produced and consumed in the non-utility sector. Moreover, the survey does not address the topics of energy sources or processes by which electricity is produced in the manufacturing sector. The MECS must obtain information from manufacturers about the extent of industrial self-generation of electricity, and sales and transfers to utilities on a nationwide basis. MECS data will provide complete information for electric-power analysis and modeling efforts.

d. Power Plant Operations Report (EIA-923) (OMB No. 1905-0129)

This survey collects monthly cost and quality of fossil fuels delivered to unregulated entities (EIA-923) and regulated entities with a total fossil fueled nameplate generating capacity of 50 megawatts or

greater. Although some intersection with MECS respondents is expected, there would be great difficulty in determining exact matches. Further, the EIA-923 is designed to collect fuels that enter the generating plant only and not for the entire establishment as is the MECS.

Also, the EIA-923 survey collects data on air and water quality from steam-electric plants. Information collected on this form is used to derive emission estimates and includes fuel consumption, electricity generation and useful thermal output. The EIA-923 respondents include all regulated and unregulated electric power plants in the United States. Respondents report electric power generation, energy source consumption, end of reporting period fossil fuel stocks, and useful thermal output from cogenerators. Although MECS establishments can be expected to be a subset of the facilities that provide data for these surveys, the MECS requires information for all aspects of consumption in manufacturing plants, not just for electric generation systems. Second, the MECS would collect useful thermal output from boilers not necessarily associated with electric generation. Also, it is often difficult to match generators identified separately on EIA electric generation forms with MECS manufacturing plants as identified by boundaries and classification associated with the Economic Census - Manufacturing, the MECS frame. Therefore, the surveys may differ as to which generating facilities are associated with particular establishments or more generally, the manufacturing sector. Finally, MECS respondents must have at hand electricity generation data to complete the section on categorizing end-use energy.

e. Mandatory Reporting of Greenhouse Gases Rule (40 CFR Parts 86, 87, 89, 90, 94, 98, 1033, 1039, 1042, 1045, 1048, 1051, 1054, 1065) (OMB No. 2060-0629)

The rule requires reporting of greenhouse gas (GHG) emissions from large sources and suppliers in the United States; these would be facilities emitting 25,000 metric tons or more of GHG emissions per year. It is not entirely clear at this point the exact extent of the duplication with MECS. These facilities are required to collect combustion-unit level and fuel type data; however they do not have to report these data in 2014. The reporting requirements for these entities may change for the reporting year 2014 and beyond. These data are used to calculate the facility-wide GHG emissions that are submitted to the EPA.

Although the mandatory reporting of greenhouse gases rule has some overlap with the MECS it is small, necessary, and hard to know in advance which establishments or facilities might overlap. First, the EPA reporting requirement is annual whereas the MECS is collected every four years. The second difference is definitional in the level of reporting. The MECS is an establishment survey; however, according to the rule, the level of reporting for EPA is at the facility level. "Facilities" may or may not align exactly with the Census/MECS definition of the "establishment". Also, as mentioned above, the rule requires only the largest and most energy/carbon-intensive facilities to report their emissions presumably excluding all others. The MECS is a sample survey that includes small, medium, and large U.S. manufacturing establishments (although the smallest establishments are excluded from MECS).

As both the MECS and the EPA rule would have respondents assemble and collect energy consumption data albeit for different purposes, there would likely be some duplication for some subsets of the manufacturing population. However, this duplication is necessary for the MECS to

fulfill its mission of providing not only energy consumption data, but also energy expenditures, prices, end-use consumption and fuel-switching data. All of these data sets contribute not only to determining manufacturing's use of energy but also adds to the understanding of carbon dioxide emissions.

f. Annual Survey of Manufactures (MA-1000) (OMB No. 0607-0449)

The Census Bureau's Annual Survey of Manufactures (ASM) is primarily an economic survey and produces information on such characteristics as employment, payroll, value of shipments, capital expenditures, and value added by manufacturing. As such, the ASM collects limited energy data. The relationship of the ASM's energy data to the MECS program is discussed below.

- Cost of Fuels--The ASM collects data on total costs for all purchased fuels. The MECS, on the other hand, collects data on the cost for each separate fuel.
- Cost and Quantity of Purchased Electricity--The MECS collects purchases and transfers separately, including expenditures for purchases. The ASM collects data on electricity purchases and expenditures, but it does not collect any data pertaining to electricity transfers into the establishment.
- Generated Electricity--The ASM collects data on total quantity of electricity generated on site. The MECS divides generated electricity into that produced by cogeneration, renewable energy sources, and conventional generation. The sum of these three items should equal the total ASM estimate of generated electricity for an establishment.
- Electricity Sold or Transferred--The ASM collects data on total electricity sold or transferred to other establishments. The MECS also collects and publishes these data separately.

Thus, although there is some overlap between the two surveys, the MECS in general provides more comprehensive data needed for energy policy and program management than the ASM. This overlap is desirable, however, from the point of view of increasing the reliability of the MECS. As described in Section B-3, the Census Bureau will conduct the MECS using a sample selected from the Economic Census - Manufacturing (ECM) mail frame. Editing procedures will be developed for the MECS responses that will compare the total of the disaggregated quantities on the EIA-846 with the corresponding totals reported on the MA-1000. This will provide a check on respondents' errors. This was indeed the case for the previous MECS years, where both respondent and editing errors were identified using ASM data. Furthermore, it is desirable to have some minimal overlap between the two questionnaires for control purposes to improve the reliability of the MECS. This greater control would decrease non-sampling error and reduce overall respondent burden.

g. Economic Census – Manufacturing (MA-1000, plus industry supplements) (OMB No. 0607-0899)

The Economic Census - Manufacturing (ECM) is conducted by the Census Bureau in place of the ASM for years ending in the digit "2" and the digit "7" (e.g., 2002 and 2007). The ECM, like the ASM, collects primarily economic data. Prior to 1997, the ECM was called the Census of Manufactures (CM). In the 1992 CM, The Bureau of the Census collected the same energy-related data as described above for the ASM. In the absence of the MECS, Census Bureau would also have collected data on the consumption of purchased fuels, by type, used for heat and power without the

benefit of related energy data items to improve the editing and quality that MECS provides. These data parallel those that have been and will be collected by the MECS. In the interests of minimizing burden and duplication, the Census Bureau has not collected these data since the 1982 CM.

The ECM also collects data about material inputs. Some of those data items correspond to nonfuel or feedstock use of energy sources which are also collected by the MECS. In fact, that overlap was helpful for editing purposes in the 2002 MECS. However, the MECS is currently on a four-year cycle while the ECM is conducted every five years so in most years a one-to-one comparison is not possible. Further, not all MECS feedstock data are duplicated by the ECM, nor does the ECM collect the data for all applicable industries as does the MECS.

5. Reduction of the Burden on Small Businesses or Other Small Entities

Because the MECS spans the entire manufacturing sector, small establishments will be included in the sample frame out of necessity. However, the current version of the MECS form is designed to minimize the complexity of reporting, which will help the small establishments. As mentioned above in Section A-3a, by using the Internet-based electronic questionnaire, those establishments are able to customize their form and only see the data items relevant to them. This is a significant time savings over the written questionnaire. A paper version of Form EIA-846 will be made available only as a back-up for those establishments that do not have Internet access or who choose not to use it for other reasons. The paper version will organize the energy sources according to groups of similar types and frequency of use, but will not have all of the burden reduction capabilities of the Internet-based questionnaire. Therefore, all respondents will be eligible and highly encouraged to use the Internet-based electronic questionnaire.

Overall, the role of the small establishment in the survey will be relatively minor. Under EIA's arrangement with the Census Bureau to serve as the data-collection agent for this survey, the MECS will be a sample of 15,500 manufacturing establishments selected from the Economic Census - Manufacturing (ECM) mail file and supplemented by Social Security Administration lists of new establishments. Prior to the 1994 survey, past MECS have sub-sampled from the ASM. By sampling directly from the ECM rather than sub-sampling from the ASM, the overlap of small establishment in the MECS and ASM samples is significantly reduced. The ASM sample contains approximately 50,000 establishments selected from the ECM, supplemented by Social Security Administration lists of new establishments, which reduces coverage error within the current sampling frame.

Establishments with fewer than approximately five employees (the actual number varies with NAICS classification) are considered administrative records establishments and are excluded from the MECS population and therefore the sample. Other establishments (i.e., those having approximately 5 to 250 employees) are sampled with probabilities ranging from 0.005 to 1.000. In the MECS sampling strategy, the sampled proportion of establishments that employ 100 to 250 is greater than the sampled proportion of establishments with fewer than 100 employees. Moreover, the sampling of establishments with fewer than 50 employees is expected to be very light. The MECS sample will be selected to maximize the efficiency of the survey for estimating energy consumption.

Establishments with fewer than 50 employees consume less than four percent of total purchased fuels and, in general, do not have the wide variability of consumption of the larger establishments. Therefore, the proportion of smaller establishments selected for the MECS is designed to be quite low. However, small establishments are eligible, which allows the sample to represent the population of manufacturing establishments, excluding those with five or fewer employees.

6. Results of Collecting Data Less Frequently

The MECS had a statutory requirement to be a biennial survey and was a triennial survey, providing data for 1985, 1988, 1991, and 1994, before switching to a quadrennial schedule because of budget considerations. The current statutory requirement is for the MECS to be a quadrennial survey with the option to conduct the survey more frequently. The MECS will continue conducting the survey on a quadrennial basis.

The manufacturing sector is constantly evolving, in part, because of technological advancements. The increased monitoring of manufacturing energy demand is essential in keeping pace with the changing manufacturing trends. Major shifts in energy demand, especially in the manufacturing sector, are tied to both profitability and expenditures for capital equipment--and both require medium- to long-term planning processes. The proposed four-year cycle is necessary for depicting manufacturing trends. If the collection period were to be extended past a quadrennial cycle, EIA would be less able to monitor these major shifts in manufacturing energy demand accurately.

7. Special Circumstances

There are no special circumstances that would require the MECS data collection to be conducted in a manner inconsistent with the guidelines in 5 CFR 1320.5.

8. Summary of Consultations Outside the Agency

This will be the ninth time the MECS will be conducted. EIA has conducted extensive consultations prior to clearance of the 2014 MECS. They include:

- An e-mail request to past in-depth users of the MECS, both inside and outside the Department of Energy; and
- The publication of and responding to a 60-day *Federal Register* notice (Vol. 79, No. 100, pp. 29756-29757, FR Doc. 2014-12008) published May 23, 2014.

The first of these two activities was described in detail in Section A-3b. The 60-day *Federal Register* notice proposed a few changes for the 2014 MECS.

EIA received an email response from an in-depth user of the MECS, Mr. Jimmy D. Kumana of Kumana & Associates. Mr. Kumana's email strongly supports the continued collection of the MECS data, particularly increasing the frequency of the collection, stating, "The MECS data is what everyone relies on as the most authoritative and reliable data base there is on US energy consumption data," and "It would help the general public greatly...to have more frequent updates to the MECS data." Mr. Kumana uses the MECS data to follow energy trends, benchmarking, and evaluating his clients' potential for energy efficiency improvements. Mr. Kumana's clients are both foreign and domestic, and put a great deal of faith in the MECS data. EIA replied to Mr. Kumana's email stating our appreciation of his support and indicating our intention to have a biennial MECS starting in 2014 pending our budget. The idea was proposed and EIA management decided to continue conducting a quadrennial MECS at this time, but was open to the idea of considering the idea of a biennial collection in the future.

The first response to the 60-day *Federal Register* notice was from the Senior Director of Energy and Environmental Policy at the American Forest & Paper Association (AF&PA). The Senior Director sent an email to EIA asking several questions about how the burden hours stated in the 60-day *Federal Register* notice were calculated. EIA responded to the Senior Director with an email answering his questions and thanking him.

Another response to the 60-day *Federal Register* notice was from the Chief Statistician of the Bureau of Economic Analysis (BEA). BEA affirmed that it "strongly supports" the continued collection of data on the MECS. It stated that MECS data are crucial to key components of BEA's economic statistics. Those MECS data include expenditures for electricity, natural gas, steam, fuel oil and other energy sources. The data are used as input for the annual input/output accounts. A copy of the letter sent by the Chief Statistician of the Bureau of Economic Analysis is included in the supplemental documents. EIA responded to the Chief Statistician with an email thanking him and BEA for their continued support.

Three responses came on the final day of the 60-day *Federal Register* notice and all three were from associations: American Forest & Paper Association (AF&PA), Council of Industrial Boiler Owners (CIBO), and the American Chemistry Council (ACC). The response from AF&PA came from their Senior Director of Energy and Environmental Policy. The response outlined the concern of the AF&PA regarding the overall response burden estimate and potential for a biennial survey cycle. EIA responded with a formal letter to AF&PA. The letter from EIA outlined the rationale for the overall response burden estimate as well as indicated the 2014 MECS would continue as a quadrennial survey. EIA also thanked the Senior Director of Energy and Environmental Policy at AF&PA for his comments. Copies of both the AF&PA response to the 60-day *Federal Register* notice and the reply to AF&PA from EIA are included in the supplemental documents.

The second of the three responses to the 60-day *Federal Register* notice came from the President of CIBO. In the response the President of CIBO expressed similar concerns as AF&PA in regards to the overall response burden and potential for conducting a biennial survey. Further, CIBO communicated unease about the potential burden added from government agencies not using the same conversion factors and questions about petrochemical feedstocks being added to the questionnaire. CIBO also

suggested some wording changes to the questionnaire in their response. EIA replied with a formal letter to CIBO. The reply from EIA, similar to the AF&PA response, summarized the reasoning for the overall response burden estimate as well as denoted the 2014 MECS would continue as a quadrennial survey. Also, in the reply EIA justified the minimal extra burden for the addition of the petrochemical feedstock questions. Based upon the recommendations from CIBO, EIA adjusted the instructions for the conversion factors to include the use of the GHG Reporting Rule factors as well as eliminated the use of the words “direct” and “indirect” in the end use sections of the questionnaire. Further, EIA will clarify where to report the quantities of fuel used for non-CHP electricity generation. EIA thanked the President of CIBO for his comments. Copies of both the CIBO response to the 60-day *Federal Register* notice and the reply to CIBO from EIA are included in the supplemental documents.

The third response to the 60-day *Federal Register* notice came from the Senior Director of Regulatory and Technical Affairs at ACC. In the response the Senior Director at ACC cited a similar concern as both AF&PA and CIBO in regards to the potential for conducting a biennial survey. The response from ACC referenced the CIBO response because both associations share many members. EIA responded with a formal letter to ACC; the same formal letter that was sent to CIBO because their response was reference by ACC. The reply from EIA summarized the reasoning for the overall response burden estimate as well as denoted the 2014 MECS would continue as a quadrennial survey. Also, in the reply EIA justified the minimal extra burden for the addition of the petrochemical feedstock questions. Based upon the recommendations from ACC, EIA adjusted the instructions for the conversion factors to include the use of the GHG Reporting Rule factors as well as eliminated the use of the words “direct” and “indirect” in the end use sections of the questionnaire. Further, EIA will clarify where to report the quantities of fuel used for non-CHP electricity generation. EIA thanked the Senior Director of Regulatory and Technical Affairs at ACC for his comments. Copies of both the ACC response to the 60-day *Federal Register* notice and the reply to ACC from EIA are included in the supplemental documents.

A supplemental CIBO response to EIA’s reply letter dated September 17, 2014 came from the President of CIBO. In the supplemental response CIBO thanked EIA for their response and wanted to clarify a point made about the response burden. EIA acknowledged the supplemental response from CIBO in an email indicating the supplemental letter would be included as a part of the official supporting statement. In the email, EIA also reiterated that efforts have been and will continue to be made to reduce response burden as much as possible. Copies of both the CIBO supplemental response and the reply email to CIBO from EIA are included in the supplemental documents.

The 30-day *Federal Register* notice (Vol. 79, No. 207, pp. 63915-63916, FR Doc. 2014-25460) was published on October 27, 2014 announcing the submission of this information collection request to OMB.

9. Remuneration

There are no plans to provide any payments or gifts to respondents.

10. Provisions for Confidentiality of Information

The MECS will be conducted by the Special Reimbursement Survey Branch within the Economic Reimbursable Division of the Census Bureau, as EIA's collection agent. The survey, authorized by the data-collection mandate of DOE, will be conducted according to the confidentiality provisions of the Census Bureau as specified in 13 U.S.C. § 9. This law requires, (1) the information furnished under the provisions of this title may not be used for any purpose other than the statistical purposes for which it is supplied; (2) the agency to protect the identifiability of the reported information; and (3) restricts access to the information to sworn officers and employees of the Census Bureau.

The respondents will be informed of both the confidentiality provisions and the mandatory nature of the survey on the first page of the questionnaire, in the instructions and in a cover letter cosigned by the Administrator of the EIA and the Director of the Census Bureau.

11. Justification for Sensitive Questions

No sensitive questions will be asked on Form EIA-846.

12. Burden Estimates

EIA proposed in their 60-day *Federal Register* notice (Vol. 79, No. 100, pp. 29756-29757, FR 2014-12008) published May 23, 2014 that they were considering conducting a biennial cycle starting with the 2014 MECS. However, for budgetary reasons EIA has reconsidered and will now conduct the 2014 MECS as a quadrennial survey. This will reduce the burden hours from what was proposed in the 60-day *Federal Register* notice (Vol. 79, No. 100, pp. 29756-29757, FR 2014-12008) published May 23, 2014. Therefore the average burden will be comparable to that of 2010, the last survey conducted.

The sample size will not significantly change from the 2010 MECS sample. A breakdown for total respondent burden is shown below. The numbers of respondents completing the form in the following table are estimates.

Establishments whose first 3 digits of their North American Industry Classification System (NAICS) code are	Number of Respondents (Establishments)	Burden per Response (Hours)	Total Burden (Hours)
311, 312, 313, 314, 315, 316, 323, 326, 327, 331 (except for NAICS code 331111), 332, 333, 334, 335, 336, 337, or 339	11,910	9	107,190

NAICS code 324110	140	8	1,120
321, 322, 324 (except for NAICS code 324110), 325, and NAICS code 331111	3,450	10	34,500
All NAICS codes	15,500	9.21355 ³	142,810

If all 15,500 establishments completed the survey as indicated above, the total burden would be 142,810 hours. Because the MECS is a quadrennial survey, the average annual reporting burden would be approximately 35,703 hours. Given that EIA can only request a three-year approval, the burden prorated over the three-year period averages 47,603 hours.

The annual cost to the respondents is estimated to be \$3,300,316 (47,603 annual burden hours multiplied by \$69.33 per burden hour).

An average cost per hour of \$69.33 is used because that is the average loaded (salary plus benefits) cost for an EIA employee. EIA assumes that the survey respondent workforce completing surveys for EIA is comparable with the EIA workforce.

13. Additional Annual Cost to Respondents

There is no additional capital, start-up or operations and maintenance cost associated with this collection other than costs mentioned in Item 12 above for the burden.

14. Annualized Cost to the Federal Government

The cost to the Government for the 2014 MECS is estimated to be \$5,326,890. Because this survey is conducted on a four-year cycle, the annualized cost to the Government will be approximately \$1,331,723. Of the \$5,326,890, over two-thirds (\$3,646,890), is for the reimbursable agreement with the U.S. Census Bureau for selecting the sample, and collecting and processing the data. The remaining \$1,680,000 is to cover EIA staff time, which is estimated at 3 FTE per year (12 FTE total), at an average cost of \$140,000 per FTE. EIA staff costs cover: 1) user needs; 2) revising the survey questionnaire; 3) consulting with the Census Bureau on sample design, data collection, non-response follow-up, non-response adjustments, data processing, parameter and variance estimation, production of tables and survey documentation; 4) analyzing data; and 5) preparing data reports and special analyses.

15. Changes in Burden

³ This will be rounded and listed as 9.2 hours of burden on the form.

The total burden hours for the 2010 MECS, without regard to frequency of the collection, was estimated to be 142,751 hours. As stated in Item 12 above, the 2014 MECS burden without regard to frequency is 142,810 hours. The burden hours slightly changed for the 2014 survey because establishments in Asphalt Shingle and Coating Materials Manufacturing (NAICS 324122) were added to the sample.

The prior three-year approval was for an estimated burden 47,584 hours. The average annual burden for this approval would be 47,603 hours, showing a small increase from the 2010 survey.

16. Schedule for Collecting and Publishing Data

The results of the MECS will be released electronically by EIA on the EIA Website <http://www.eia.gov/consumption/manufacturing/index.cfm>.

All tables in the publication will be prepared by the Census Bureau in accordance with EIA's directions. All tables will be reviewed by the Census Bureau for conformity to their disclosure standards. These standards are established to protect the confidentiality of individual respondents as required by Title 13, Section 9, of the U.S. Code.

Release of the data will generally parallel the 2010 MECS release. The primary electronic output for the 2014 survey will contain tables covering consumption of energy sources by 3-digit and selected 4 and 6-digit North American Industry Classification System (NAICS) codes; by Census Regions; by levels of values of shipments; and by levels of total employment. Consumption estimates are of four types: total primary consumption; consumption for heat, power, and generation of electricity; consumption for non-fuel (e.g. feedstock) use; and consumption of received energy sources for the purpose of heat, power, and generation of electricity. Additionally, there will be tables covering

- onsite generation
- purchases, expenditures, and average prices for energy sources
- selected operating ratios
- consumption by end-use
- participation in energy management programs
- number and square-footage of onsite buildings
- general energy-saving and cogeneration technologies and
- fuel-switching capability.

The 2014 MECS release will continue the practice of presenting estimates of generalized relative standard errors (RSE) for each table estimate.

A website report reviewing the results of the 2014 MECS and changes from the 2010 will be produced along with other special topic analytical reports to be determined.

Data collection for the 2014 MECS is scheduled to begin in January 2015. Responses are expected no later than September 2015. (See Section B-3 for follow-up procedures.) The final data set (including final edits and linking with the ASM file) and the summary tabulations are expected to be ready by August 2016. The analysis and publication of summary reports are scheduled for December 2016 through March 2017.

In tabular form, the expected schedule for the 2014 MECS is:

Activity	Expected Date of Completion
Begin Data Collection	January 2015
End Data Collection	September 2015
Final Data Set Compiled	July 2016
Summary Tabulations	August 2016
Publication of Analysis	December 2016 through March 2017

17. Approval to Not Display Expiration Date

The expiration date will be displayed on the form.

18. Certification Statement

There will be no exceptions to the “Certification for Paperwork Reduction Act Submissions,” of OMB Form 83-I.