

SUPPORTING STATEMENT FOR FORM EIA-846
MANUFACTURING ENERGY CONSUMPTION SURVEY
(OMB No. 1905-0169)

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, DOE, and EIA information quality guidelines.

Clearance is requested to permit the Energy Information Administration (EIA) of the U.S. Department of Energy (DOE) to implement the revised 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 Census Bureau, acting as the data-collection agent for EIA.

This survey will be fielded in February 2007 to collect data for calendar year 2006. This is the seventh time the MECS will be conducted. Subsequent surveys are expected to be conducted quadrennially. Although response is 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 2006 MECS

EIA proposes a few changes since the 2002 MECS, the last such survey conducted:

- The first substantial change for the 2006 MECS is collecting the data primarily through the Internet instead of through a paper and pencil method. This change is being enacted, in part, because of 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. EIA anticipates that this electronic method will save time and money in the submission and processing of the data. The Internet Data Collection System that respondents will be using to complete the MECS Internet-based questionnaire can be viewed at (<http://scribe.census.gov>).¹ There will still be an option for those manufacturing establishments who do not have Internet access to complete the 2006 survey using the standard paper method.

¹ Information about Census Taker including demonstrations can be viewed on this website. Examples of the MECS Internet-based electronic questionnaire screen shots have been included in the OMB package because a user id and password are needed to view the questionnaire online.

- The persisting energy price volatility since the 2002 survey has prompted EIA to not only continue to collect fuel-switching data for the 2006 survey, but to expand it with a few more questions. EIA plans to ask about the limitations that would make fuel switching impractical. This reporting would help EIA better understand what factors, if any, play a role in the capability of a manufacturing establishment to fuel-switch. EIA is also planning to add a question to obtain data about what price differences among fuels would likely trigger a switch.
- EIA is working with the Office of Energy Efficiency and Renewable Energy (EERE) at DOE to enhance the questions in the Energy Management and General Technologies sections on the MECS. These questions plan to target energy efficiency activities at the manufacturing establishment. 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.
- It was noted during the 2002 MECS data editing that many respondents incorrectly converted their reported natural gas quantities to the requested units. To reduce the potential for this error occurring in the 2006 data and alleviate the respondents of the burden of having to convert their reported natural gas quantities to the proper units, the 2006 MECS is adding a question that will ask the respondents for the units of their reported natural gas quantities.
- Over the past several survey cycles, in part due to the deregulation of the electricity and natural gas markets, the MECS data has identified a shift in the mix of suppliers from whom establishments purchase their energy. Prior to deregulation, utilities supplied most of the electricity and natural gas to the establishments. Now, more often than not, a marketer or other non-utility provider supplies the establishments with their purchased energy. However, the editing process in the 2002 MECS revealed that some respondents cannot discern the difference between a utility and its marketing affiliate. Therefore, EIA is adding a new question to the electricity and natural gas sections for the 2006 MECS. The question will ask respondents to specify their primary utility/non-utility provider. Adding this question will help analysts to correct the errors in the data while decreasing the number of respondent callbacks. EIA will not share or publish the data from this question. The information provided from this question will only be used by sworn Census agents as a data quality check.
- The 2006 MECS will discontinue the collection of the onsite electricity generation ownership questions. These questions did not produce any usable information in the 2002 survey.
- EIA plans to eliminate the steam and industrial hot water questions asked in the 2002 survey except for purchases, generation from renewable energy sources, and sales and transfers offsite, which will still be collected for the 2006 survey. The deleted steam and industrial hot water questions did not yield any useable information in the 2002 survey. The remaining questions are needed to provide complete, non-duplicative estimates of total energy consumption from all sources in manufacturing.

- Much of the 2002 MECS late- and non-response was due to having the wrong establishment contact during collection. To attain a higher response rate, EIA plans to have an early pre-mailing so that we can identify the individuals who will be responsible for completing the 2006 survey.
- EIA intends to draw the 2006 sample earlier in the cycle to achieve a high use rate of the Internet-based electronic questionnaire.
- The sample size for the 2006 survey is expected to remain at approximately 15,500 establishments. The hope is to preserve a sample size similar to the 2002 survey that will reduce sampling error and provide data of quality appropriate to the intended uses. To do that, greater emphasis was placed on obtaining good national industry estimates while regional by industry breakouts were deemphasized. In addition, EIA and Census instituted design elements to reduce the sampling error of certain fuels. Most of the more detailed industries broken out in the 2002 MECS will be retained. There will be some more breakouts in the broader categories of Food (NAICS 311) and Transportation Equipment (NAICS 336).

Content of the Form EIA-846

Those manufacturing establishments selected for the 2006 MECS sample will have data collected on basic energy consumption and expenditure, shipments of energy offsite, end-use, building characteristics, participation in energy management programs, technologies, and fuel-switching capacity. One of the main differences in the 2006 MECS from years past will be the collection method. The 2006 MECS will largely be an Internet-based electronic survey, with a paper form back-up for those that require it. Manufacturing establishments that have internet access will have the option either to complete the form using the Internet through Census Taker, or to download the PDF's of the various sections off of the U.S Census Bureau's Business Help Site. Because of the flexibility that the Internet provides each sample establishment will need to complete only those questions and sections that pertain to it.

The establishments that do not have Internet access will receive a specific MECS paper form based on the NAICS code in which they are classified. Some of these establishments will receive a shortened form EIA-846, which will collect the same data as the other Internet-based electronic methods.

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. Therefore, petroleum refiners will receive a shorter Internet-based electronic questionnaire for the 2006 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.

As the authority for invoking 5(b) above, section 5(a) of the FEAA, 15 U.S.C. 764(a), 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 FEAA in turn is conferred by Section 205 of the Department of Energy Organization Act, 15 U.S.C. 7135, as amended, which 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 nonpurchased sources of energy, such as solar, wind, biomass, geothermal, waste by-products, and cogeneration.

2. Needs For and Uses of the Data

EIA is addressing the requirements of the law with the 2006 Manufacturing Energy Consumption Survey (MECS), Form EIA-846. The MECS will also collect as before data on end-use consumption, energy-management activities, and energy-saving technologies. The 2006 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, has been discontinued as of 1994.

The MECS, to be conducted for the seventh time in 2007 and every four years subsequently, fulfills multiple needs and requirements for analysis at DOE. It is the only 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 analysis. Data obtained from the 2006 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 2002 MECS questionnaires were revised for 2006, 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. 71, No. 105, pp. 31174-31176, FR E6-8496, dated June 1, 2006) that requested comments on the design and development of the 2006 MECS

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

Energy consumption data from the 2002 MECS have been released electronically on EIA's Internet Website (<http://www.eia.doe.gov/emeu/mecs/contents.html>).² A summary of the major findings of the 2002 MECS entitled, "Energy Use in Manufacturing: 1998 to 2002," can be found at http://www.eia.doe.gov/emeu/mecs/special_topics/energy_use_manufacturing/energyuse98_02/98energyuse02.html. Updates are in progress for another set of Web products, the Industry Analysis Briefs, which can be found at <http://www.eia.doe.gov/emeu/mecs/iab98/index.html>. Those documents, developed in partnership with DOE's Office of Industrial Technologies, summarize MECS and other related data for each of seven 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 Integrated Analysis and Forecasting as input to NEMS industrial models. EIA's Coal, Nuclear, Electric and Alternate Fuels Office used data on consumption of wood and renewable generation in their publication "Renewable Energy Annual" (latest edition published for 2004). 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 2006 data are anticipated. As stated previously, the 2006 MECS results will be used as a major input into the 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

² EIA's recent policy has been to emphasize Internet dissemination over printed publications. Thus, no printed publication of 2002 data has been produced.

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.

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 new major effort was undertaken during the design of the 2002 MECS and carried through by the 2006 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 normally the respondent would be required to do (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 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 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, work has started for the 2006 MECS Internet-based electronic questionnaire using Census Taker, the Census Bureau's internal electronic data collection system. Intended features of the 2006 MECS electronic questionnaire include:

- All respondents will be eligible to use it. Indeed, they will be highly encouraged to do so and paper will be made available only as a back-up for those establishments that do not have Internet access and those who are reluctant to use the Internet even after several attempts to convince them otherwise;
- Data will be 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) will be used as a screener to customize the form for the specific respondent. That screening will allow the respondent to focus only in on the energy sources most relevant to that industry.
- Check boxes or other means will be used to give the respondent an opportunity to report in his or her most convenient units. Edit price checks will be developed for each of the unit choices.
- The questionnaire will be developed and formatted with screen input in mind, using the best available practices.
- As the electronic version will be customized to the type of establishment, respondents in smaller establishments will be more likely to respond, as they will not be put off by the apparent size of the written version. Essentially, the many sections of the written questionnaire that would not apply would never be seen by the respondent.

The Internet Data Collection System that respondents will be using to complete the MECS Internet-based questionnaire can be viewed at (<http://scribe.census.gov>).³ EIA believes that collecting data through the Internet will lessen the response burden because it will be easier to use and faster to complete the questionnaire than the traditional 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 2006 MECS. These changes include (1) customization of questionnaires for different groups of manufactures, (2) simplifying and clarifying certain 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.

³ Information about Census Taker including demonstrations can be viewed on this website. Examples of the MECS Internet-based electronic questionnaire screen shots have been included in the OMB package because a user id and password are needed to view the questionnaire online.

As mentioned above, one of the features of the 2006 MECS Internet-based electronic questionnaire will be the use of the NAICS code as a screener to customize the form without prior preparation. This instantaneous screening will allow the respondents in the refining industry to tailor a form that is most relevant to their industry; thus, form EIA-846 represents a substantial reduction in burden on the refining industry. As EIA already collects similar data on Form EIA-810 in greater detail for the majority of NAICS 324110 and its operations, the data collected by the EIA-846 will be 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 and DOE's Office of Industrial Technologies (OIT) have worked in partnership to enhance both their programs. An important outcome of this collaboration has been reforming the questions in the Energy Management and General Technologies sections on the MECS. These questions plan to target energy efficiency activities at the manufacturing establishment. The data collected would help EIA and DOE to develop manufacturing energy-efficiency improvement measurements in their respective programs. Some of the questions will be used to benchmark DOE tools designed to identify energy-efficiency opportunities. These will be "Yes"/ "No" questions that should not greatly increase response burden.

EIA sent out an email to frequent users of the MECS data on January 30, 2006. The email mentioned projects that were currently being worked on for the 2006 MECS such as the Internet-based electronic questionnaire, enhancements to the fuel switching and energy management sections, but also solicited suggestions for other improvements from these frequent users. As a result of the email, further contact was made and is described below.

On March 10, 2006, EIA staff had a conference call with a representative of Argonne National Laboratory (ANL) who has used MECS data frequently and has commissioned studies that employ the MECS microdata. After agreeing to work more closely together to better validate MECS data, we discussed whether the MECS covers non-open market fuel purchases such as performance contracts or an establishment paying another to burn their waste. The MECS considers these non-open market purchases as transfers because the purchases are typically not fair market value. However, partly based upon this conversation, EIA clarified the definition of a transfer in the 2006 MECS.

On March 15, 2006, EIA staff met with a representative of Pacific Northwest National Laboratory (PNL) who regularly uses MECS data. We discussed the changes to the 2006 MECS as outlined in the email. The representative from PNL was satisfied with those changes and made no other suggested improvements.

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-5, Quarterly Coal Consumption and Quality Report, Coke Plants; Form EIA-810, Monthly Refinery Report; Form EIA-820, Annual Refinery Report; FERC-1, Annual Report of Major Electric Utilities, Licensees, and Others; Forms FERC-423 and EIA-423, Monthly Cost and Quality of Fuels for Electric Plants Report (Regulated and Non-Regulated); Form EIA-767, Steam-Electric Plant Operation and Design Report; Form EIA-906, Power Plant Report; and Bureau of the Census Form MA-10000, 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-5, EIA-810, EIA-820, FERC-1, EIA-423, EIA-767, EIA-906, 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 system provides data on consumption of coal only. Its information is collected only from manufacturing establishments that are known to consume coal for purposes other than coke production. The list of such establishments contains about 825 of the 300,000-plus manufacturing establishments in the United States. It includes establishments 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 on the following: 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.

- b. Quarterly Coal Consumption and Quality Report, Coke Plants (EIA-5) (OMB No. 1905-0167)

This system produces balance statistics on input and output for the small universe of coking plants (estimated at 24), 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.

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

These reports are considered together because they are complementary systems in that they 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 also contains separate petrochemical processing (not unusual), the data are supposed to exclude the petrochemical activities. Thus, these refinery data systems are not designed to comprehensively cover 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. Discussions were held with the American Petroleum Institute (API) before the 1985 MECS was conducted to explore this possibility. 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 triennially for a MECS would cause confusion and an increase in 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 use 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, will have to be obtained via the MECS, because the fuel-switching and end-use estimates in the MECS are calculated on the basis of 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 has been abandoned for MECS years from 1988 and succeeding years, including the 2006 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.

d. Monthly Cost and Quality of Fuels for Electric Plants Report (EIA-423 and FERC-423) (OMB No.1905-0129)

These systems collect monthly cost and quality of fossil fuels delivered to unregulated entities (EIA-423) and regulated entities (FERC-423) 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-423 is designed to collect fuels that enter the generating plant only and not for the entire establishment as is the MECS.

e. Steam-Electric Plant Operation and Design Report (EIA-767) (OMB No. 1905-0129) and Power Plant Report (EIA-906) (OMB No. 1905-0129)

The EIA-767 system 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-906 collects information from all regulated and unregulated electric power plants in the United States. Data collected on this form include 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 collected by these systems, the MECS is collecting 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. 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 systems 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.

f. 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 are 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 will obtain information from manufacturers about the extent of industrial self-generation of electricity, and sales and transfers to utilities on a nationwide basis. These data will provide needed information for electric-power analysis and modeling efforts.

g. Annual Survey of Manufactures (MA-10000) (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. Furthermore, the ASM collects limited energy data. The relationship of the ASM energy data to the MECS 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 in 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 minimal overlap between the two surveys, the MECS in general provides more comprehensive data 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-10000. 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.

h. Economic Census – Manufacturing (MA-10000, 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" or 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, Census collected the same energy-related data as described above for the ASM. In the absence of the MECS, Census would also have collected data on the consumption of purchased fuels, by type, used for heat and power. 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 4-year cycle while the ECM is conducted every 5 years so that most years there are no one-to-one comparison possible. Further, not all MECS feedstock data is 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 necessarily be included in the sample frame. However, the current version of the MECS form was 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 would be able to customize their form and only see the necessary 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 sample 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 subsampled from the ASM. By sampling directly from the ECM rather than subsampling 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.

Establishments with fewer than approximately five employees (the actual number varies with NAICS classification) are considered administrative records by the Census Bureau and 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. Due to 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 expected to be quite low. However, small establishments are eligible to be surveyed for the MECS sample, 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 is now a quadrennial survey, as noted in the introduction and in the section on reducing burden (Section A-3). The MECS began as a triennial survey, providing data for 1985, 1988, 1991, and 1994, before switching to a quadrennial schedule because of budget considerations.

Because business cycles are changing over time, increased monitoring of energy demand correlates with the changing business cycles. 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 industrial trends. If the cycle were to be extended, EIA would be less able to monitor major shifts in 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 seventh time the MECS will be conducted. EIA has conducted extensive consultations prior to clearance of the 2006 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 Federal Register notice (Vol. 71, No. 105, pp. 31174-31176, FR E6-8496) published June 1, 2006.

The first of these two activities was described in detail in Section A-3b. The Federal Register notice described the following proposed changes:

- Collecting the 2006 MECS data primarily through the Internet instead of through a paper and pencil method;
- Expanding the fuel-switching questions to include the limitations that would make it impractical to switch, and the price differences that would likely trigger a switch;
- Reform the questions in the Energy Management and General Technologies sections to better target energy efficiency activities at the manufacturing establishment;
- Deletion of the questions aimed at quantifying changes in onsite electricity generation ownership; and
- Elimination of the steam and industrial hot water questions that were added in 2002. Questions about purchases, generation from renewable energy sources, and sales and transfers offsite will still be asked.

The only response to the 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 enclosed in the supplemental documents.

[The Federal Register notice \(Vol. 71 No. 165 page 50405\) was published on August 25, 2006 announcing the submission of this information collection request to OMB.](#)

9. Remuneration

There are no plans to provide any payment or gift to respondents.

10. Provisions for Confidentiality of Information

The MECS will be conducted by the Manufacturing and Construction 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 Title 13, Section 9, of the U.S. Code. Under this law, responses to the MECS are confidential; only sworn Census employees will have access to the data. 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

The amendments to the energy-management questions and additional questions in the electricity, natural gas, and fuel-switching sections should not significantly increase the average response burden as compared to the 2002 MECS. The energy-management section will be “Yes”/ “No” questions that will not greatly increase response burden. Any extra burden from the additional questions will be offset by the deletion of the ownership of onsite electricity generation, steam, and industrial hot water questions. The average burden will be comparable to that of 2002.

The sample size will not significantly change from the 2002 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	11,889	9	107,001
NAICS code 324110	180	8	1,440
321, 322, 324 (except for NAICS code 324110), 325, and NAICS code 331111	3,431	10	34,310

All NAICS codes	15,500	9.21	142,751
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If all 15,500 establishments completed the survey as indicated above, the total burden would be 142,751 hours. Because the MECS is a quadrennial survey, the average annual reporting burden would be approximately 35,688 hours. Given that EIA can only request a 3-year approval, the burden prorated over the three-year period averages 47,584 hours.

The annual cost to the respondents is estimated to be \$2,712,288 (47,584 annual burden hours multiplied by \$57.00 per burden hour).

An average cost per hour of \$57 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 2006 MECS is estimated to be \$3,628,000. Because this survey is conducted on a 4-year cycle, the annualized cost to the Government will be approximately \$907,000. Of the \$3,628,000, over half (\$2,200,000), is for the reimbursable agreement with the U.S. Census Bureau for selecting the sample, and collecting and processing the data. The remaining \$1,428,000 is to cover EIA staff time, which is estimated at 3 FTE per year (12 FTE total), at an average cost of \$119,000 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, nonresponse follow-up, nonresponse 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

The total burden hours for the 2002 MECS, without regard to frequency of the collection, was estimated to be 142,820 hours. As stated in Item 12 above, the 2006 MECS burden without regard to frequency is 142,751 hours. The slight decrease was due to a shift in the number of establishments reporting in one NAICS code versus another.

The prior three-year approval was for an estimated burden 47,607 hours. The average annual burden for this approval would be 47,584 hours. This is a negligible program change reduction in burden of 23 hours annually.

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.doe.gov/emeu/mecs/contents.html>.

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 2002 MECS release. The primary electronic output for the 2006 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 2006 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 2006 MECS and changes from the 2002 will be produced along with other special topic analytical reports to be determined.

Data collection for the MECS is scheduled to begin in late February 2007. Responses are expected no later than October 2007. (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 2008. The analysis and publication of summary reports are scheduled for September 2008 through August 2009.

In tabular form, the expected schedule for the 2006 MECS is:

Activity	Expected Date of Completion
Begin Data Collection	Late February 2007
End Data Collection	October 2007
Final Data Set Compiled	May 2008
Summary Tabulations	August 2008
Publication of Analysis	September 2008 through August 2009

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.