

## 2010 Manufacturing Energy Consumption Survey

Sponsored by the Energy Information Administration  
U.S. Department of Energy

Administered and Compiled by the Bureau of the Census  
U.S. Department of Commerce

Form **EIA-846B**  
(11-19-10)

OMB Approval  
No. 1905-0169

Expires: 10/31/2013

**Report  
Electronically:**  
[www.census.gov/  
econhelp/mecs](http://www.census.gov/econhelp/mecs)

Username:

Password:

Reporting  
electronically allows  
you to save your  
work as you go  
through the form and  
could save you time

**INFORMATION COPY  
DO NOT USE TO REPORT**

If you need additional time or have questions about what to report on this questionnaire, please call our processing office at 1-800-528-3049. Return the completed questionnaire in the enclosed envelope. If the envelope has been misplaced, please mail to:

**Bureau Of The Census  
1201 East 10<sup>th</sup> Street  
Jeffersonville, IN 47132-0001**

**Reporting Requirement:** This survey is **mandatory** under the Federal Energy Administrative Act of 1974, Pub. Law No. 93-275, and under Title 3, Subtitle B, of the Omnibus Budget Reconciliation Act of 1986, Pub. Law No. 99-509, as amended by Title 1, Subtitle G, of the Energy Policy Act of 1992, Pub. Law No. 102-486.

Title 18 U.S.C. 1001 makes it a criminal offense for any person knowingly and willingly to make to any Agency or Department of the United States any false, fictitious, or fraudulent statements as to any matter within its jurisdiction. Public reporting burden for this collection of information is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data, and completing and reviewing the collection of information.

Per the Paperwork Reduction Act of 1995, you are not required to respond to any Federally sponsored collection of information unless it displays a valid OMB Approval Number. The valid OMB Approval Number for this information collection (1905-0169) is displayed at the top left of this page.

Instructions and Frequently Asked Questions can be found at [www.census.gov/econhelp/mecs](http://www.census.gov/econhelp/mecs).



## Contact Information

Date (mm-dd-yyyy)

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Area Code

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Telephone

Number

Ext.

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Name of person to contact regarding this questionnaire

Title of contact person (above)

Address (number and street)

City

State

Zip Code

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Zip + 4

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E-mail address

## Refinery Information

Indicate the correct description of this establishment.

**Definition of Refinery:**

• For the purpose of this survey, a refinery is an installation that manufactures finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons and alcohol. Processes used by a refinery include fractional distillation, cracking (both catalytic and hydro cracking), coking, reforming, alkylation, isomerization, polymerization, hydro treating, and sweetening. Products include, but are not limited to, unfinished oils, motor gasoline, aviation gasoline, special naphthas, kerosene, distillate fuel oil, residual fuel oil, lubricating oils, asphalt and road oil, waxes, petroleum coke, still gas, and petrochemical feedstocks.

**Definition of Nonrefinery (Petrochemical):**

- A nonrefinery is an installation that produces substances by the chemical treatment of raw materials derived from petroleum or natural gas. Among the final products are plastics (including synthetic rubbers), synthetic fibers, chemicals, drugs, and detergents. A nonrefinery is also called a petrochemical operation.
- Please check the reporting boundaries of the Economic Census - Manufacturing (EC-M) to determine if your establishment is considered to include an adjacent nonrefinery (petrochemical operation).

Check one box only

18010

1 Establishment consists of **REFINERY operations ONLY**.

- (There may be nonrefinery (petrochemical) operations co-located, but those operations are identified as a separate establishment for purposes of the Economic Census - Manufacturing.)

2 Establishment consists of **both REFINERY and NONREFINERY operations**.

- For this survey questionnaire, report for the entire establishment, including both refinery and nonrefinery operations, unless those are identified as a separate establishment for purpose of the Economic Census - Manufacturing. If nonrefinery is identified as a separate establishment, then the REFINERY operations ONLY button above should be checked.

3 **Neither of the above**

- Call the MECS specialist at 1-800-528-3049 if this establishment is NOT A REFINERY. Please call before continuing the questionnaire.



## *Instructions for Completing Form EIA-846B*

### General Instructions:

1. Individuals most familiar with the plant energy systems and operations, such as engineers, should complete the questionnaire especially for the end use and fuel switching sections.
2. Use the units specified on the questionnaire for reporting all quantities. See the Btu conversion factors on page 6 for a comprehensive list of various energy conversion factors. If your establishment uses more precise conversion values for your operations, use them, and indicate in the "Remarks" at the end of the form, the conversion factor(s) used.
3. Do **not** consolidate establishments. The reporting boundaries for your establishment should correspond to those used in the Economic Census - Manufacturing (EC-M).
  - To resolve any consolidation problems, match the 10-digit identification number, which is located on the Manufacturing Energy Consumption Survey (MECS) questionnaire mailing label, with the first 10-digits of the identification number appearing on the EC-M mailing label.
  - Responses to the MECS questions should be the same activities as those considered when responding to the matching EC-M.
4. Report dollar amounts rounded to the nearest dollar (e.g., report \$1,257.59 as \$1,258).
5. If you do not maintain book records for particular items, please use carefully prepared estimates.
6. Enter zeros in the data columns if the value is zero or none.
7. Complete all applicable sections of the questionnaire.
8. The sections of this questionnaire are designed so all questions associated with the particular energy source should be completed before going on to the next energy source. Therefore, within each section, the questionnaire should be answered from the top to the bottom of the same column, before moving on to the next energy source (column).
9. The energy sources that are preprinted on the questionnaire are considered the most frequently consumed, but they do not represent a complete list of applicable energy sources. If your establishment has energy sources that meet the criteria for reporting, but are not preprinted on the questionnaire, please specify those energy sources in the "Other Energy Sources" section and enter the data there.

### Section-Specific Instructions:

#### **Company Information**

In this section, indicate any changes in the company name, address, or zip code.

#### **Contact Information**

Enter address and other contact information for the person most knowledgeable about completing this questionnaire, and the person whom we should contact if we have any questions concerning this filing.

#### **Establishment Information**

In this section, indicate any changes in the establishment ownership during 2010 and indicate the period covered by this filing, whether the calendar year or other period.



## *Instructions for Completing Form EIA-846B, cont.*

### **Energy Source (Fuels)**

An energy source (fuel) should be reported on this questionnaire if it was consumed as a fuel (that is, for heat, power, or electricity generation). EIA uses other data collection instruments to obtain nonfuel (feedstock) data for petroleum refineries. If your establishment is not a petroleum refinery please call 1-800-528-3049 immediately to speak to a survey representative.

Estimated end-use percent consumption is also collected for selected energy sources. These questions are intended to provide information on the purposes for which the energy are used in the manufacturing sector. More specific instructions for completing these parts are included in the questionnaire.

Data are collected for the following energy sources (fuels):

Electricity

Petroleum-based Energy Sources

- Butane
- Ethane
- Propane
- Mixtures of Butane, Ethane, and Propane
- Other LPG and NGL which includes butylenes, ethylene, and propylene
- Diesel Fuel Oil (excluding off-site highway use)
- Distillate Fuel Oil (e.g., Numbers 1, 2, 4)
- Motor Gasoline (excluding off-site highway use)
- Residual Fuel Oil (e.g., Numbers 5, 6, Navy Special, Bunker C)
- Waste and Byproduct Gases (e.g., flue gas, off gas, plant gas, refinery gas, still gas, vent gas)
- Fluid Catalytic Cracking Unit Coke
- Marketable Petroleum Coke – Unrefined or Green
- Marketable Petroleum Coke – Calcined
- Waste Oils and Tars (excluding Coal Tar)
- Other Petroleum-based Combustion Energy Sources

Natural Gas

Steam (excluding steam generated in an onsite boiler from CHP or other fossil fuel, wood, or combustible source)

Industrial Hot Water

Coal

- Anthracite
- Bituminous and Subbituminous
- Lignite

Breeze

Coal Coke

Hydrogen

Wood Fuel and Wood/Paper Refuse (e.g., scrap, wastepaper, wood pallets, packing materials)

Other Energy Source



## *Instructions for Completing Form EIA-846B, cont.*

### **Energy Sources Reporting Example**

Butane is used as a fuel and as a feedstock to produce butylenes onsite. Report only the portion of the butane that was burned as a fuel.

### **Fuel-Switching Capability**

These questions are intended to measure the short-term capability of your establishment to use substitute energy sources in place of those actually consumed in 2010. These substitutions are limited to those that could actually have been introduced within 30 days without extensive modifications. More specific instructions for completing this section are included in the questionnaire.

### **Energy-Management Activities**

In this section, indicate whether your establishment participated in the listed energy-management activities during 2010 and the source(s) of the financial support to implement the energy-management activity.

### **Technologies**

Indicate any of the technologies present in this establishment. Listed technologies include general technologies which may be found in any manufacturing establishment and technologies related to cogeneration.

### **Establishment Size**

This section asks for the number of buildings and total square footage associated with this establishment. See specific instructions in this section for the definition of what should be counted as a building.

### **Remarks**

Please provide any explanations that may be helpful to us in understanding your reported data, including any Btu conversion factors you used if different from those provided in the enclosed table.



## Conversion Factors Table

To the right are Btu conversion factors that should be used only if you do not know the actual Btu factor of the fuels consumed at your establishment site.

If your establishment uses more precise conversion values for your operations, use them in place of the approximations given below. However, please identify in the Remarks, the conversion factor(s) used, if different from those listed to the right.

### General Definitions:

Btu = British thermal unit(s)  
 One barrel = 42 gallons  
 One short ton = 2,000 pounds

Examples of conversion from physical quantities to Btu include:

- Your establishment consumed 250 cubic feet of hydrogen in 2010.

The Btu equivalent is:  
 (250 cubic feet) x (325.11 Btu/cubic foot)

$$= 81,277.5 \text{ Btu}$$

$$= 0.0813 \text{ million Btu}$$

- Your establishment consumed 300 pounds of hydrogen in 2010.

The Btu equivalent is:  
 (300 pounds) x (61,084 Btu/pound)

$$= 18,325,200 \text{ Btu}$$

$$= 18.325 \text{ million Btu}$$

Energy Source	Conversion Factor(s)
Acetylene	21,600 Btu/pound 1,500 Btu/cubic feet
Bagasse	4,081 Btu/pound
Biomass	5,300 Btu/pound
Breeze	19.8 million Btu/short ton
Butane	4.326 million Btu/barrel 0.10300 million Btu/gallon
Coal	22.489 million Btu/short ton
Coal (use for coke plants only)	27.426 million Btu/short ton
Coal Coke	24.8 million Btu/short ton
Distillate Fuel Oil	5.825 million Btu/barrel
Electricity	3,412 Btu/kilowatthour
Ethane	3.082 million Btu/barrel 0.07338 million Btu/gallon
Hydrogen	61,084 Btu/pound 325.11 Btu/cubic feet 35,600 Btu/gallon
Industrial Hot Water	140 Btu/pound 7.84 pounds/gallon
Isobutane	3.974 million Btu/barrel 0.09462 million Btu/gallon
Liquefied Petroleum Gas (LPG)	3.616 million Btu/barrel 0.08610 million Btu/gallon 4.5 pounds/gallon
Natural Gas	1.027 million Btu/1,000 cubic feet 10.27 therms/1,000 cubic feet
Petroleum Coke	6.024 million Btu/barrel 30.12 million Btu/short ton 5 barrels/short ton
Propane	3.836 million Btu/barrel 0.09133 million Btu/gallon
Pulping and/or Black Liquor	11 million Btu/short ton
Residual Fuel Oil	6.287 million Btu/barrel
Roundwood	21.5 million Btu/cord 17.2 million Btu/short ton 0.014 million Btu/board foot
Sawdust (7% moisture)	8,000 Btu/pound
Steam	1,200 Btu/pound
Still, Refinery, and/or Waste Gas	6 million Btu/barrel 1,029 Btu/cubic feet
Waste Materials (Wastepaper)	7,500 Btu/pound
Waste Oils and Tars	6 million Btu/barrel
(Green) Wood Chips (50% moisture)	10 million Btu/short ton
Wood Waste (50% moisture)	9 million Btu/short ton



## Establishment Information

<p><b>1. Did ownership of this establishment change during 2010?</b></p>	<p>"Census Use Only"</p> <p>00011</p>	<p><input type="checkbox"/> <b>1. No</b></p> <p><input type="checkbox"/> <b>2. Yes: Establishment was sold during the year.</b> <i>Complete all sections of this questionnaire for activities that occurred in 2010 prior to the sale.</i></p> <p><input type="checkbox"/> <b>3. Yes: Establishment was bought during the year.</b> <i>Complete all sections of this questionnaire for activities that occurred in 2010 after the sale.</i></p>
<p><b>2. What best describes this establishment at the end of 2010?</b></p>	<p>00010</p>	<p><input type="checkbox"/> <b>1. In operation: Skip to question 6.</b></p> <p><input type="checkbox"/> <b>2. Ceased operation: Answer question 3 then skip to question 6.</b></p> <p><input type="checkbox"/> <b>3. Sold or leased to another operator: Skip to question 4.</b></p>
<p><b>3. Enter the date in which your establishment ceased operation.</b></p>	<p>00013</p>	<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div> <p>Enter Date (mm-dd-yyyy)</p>
<p><b>4. Enter the date in which your establishment was either sold or leased to another operator.</b></p>	<p>00014</p>	<div style="border: 1px solid black; width: 100px; height: 20px; margin: 0 auto;"></div> <p>Enter Date (mm-dd-yyyy)</p>
<p><b>5. Enter the following information only if this establishment was sold or leased to another operator during 2010.</b></p> <p style="text-align: center;">Name of new owner or operator</p> <p>00015 <input style="width: 70%; border: 1px solid black;" type="text"/></p> <p style="text-align: center;">Address <span style="float: right;">City</span></p> <p>00017 <input style="width: 40%; border: 1px solid black;" type="text"/> 00018 <input style="width: 40%; border: 1px solid black;" type="text"/></p> <p style="text-align: center;">State <span style="margin-left: 50px;">Zip Code</span> <span style="margin-left: 50px;">Zip + 4</span> <span style="float: right;">Employer Identification Number (9 Digit EIN)</span></p> <p>00019 <input style="width: 20px; border: 1px solid black;" type="text"/> 00020 <input style="width: 40px; border: 1px solid black;" type="text"/> 00021 <input style="width: 40px; border: 1px solid black;" type="text"/> 00016 <input style="width: 20px; border: 1px solid black;" type="text"/> - <input style="width: 60px; border: 1px solid black;" type="text"/></p>		
<p><b>6. Enter the reporting period for the information reported on this questionnaire. Unless there are special circumstances like those reported above, this reporting period should be from January 1, 2010 to December 31, 2010.</b></p>	<p>00022</p>	<p><b>From:</b> <input style="width: 80px; border: 1px solid black;" type="text"/></p> <p style="text-align: center;">(mm-dd-yyyy)</p>
	<p>00023</p>	<p><b>To:</b> <input style="width: 80px; border: 1px solid black;" type="text"/></p> <p style="text-align: center;">(mm-dd-yyyy)</p>



### Electricity: Total Purchased

<b>7. Enter the total quantity of electricity purchased by and delivered to this establishment during 2010, regardless of when payment was made.</b>	"Census Use Only"  10061	<div style="border: 1px solid black; width: 100%; height: 25px; margin-bottom: 5px;"></div> Kilowatthours								
<b>8. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased electricity reported in question 7.</b>	10062	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">\$Bil.</td> <td style="text-align: center; border-bottom: 1px solid black;">Mil.</td> <td style="text-align: center; border-bottom: 1px solid black;">Thou.</td> <td style="text-align: center; border-bottom: 1px solid black;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.							

### Electricity: Source of Purchase

<b>9. During 2010, where did this establishment's purchased electricity come from?</b>  <p><b>Local utility:</b> the company in your local area that produces and/or delivers electricity and is legally obligated to provide service to the general public within its franchise area.</p> <p><b>Non-utility:</b> includes generators of electricity such as independent power producers or small power producers. It also includes brokers, marketers, marketing subsidiaries of utilities, or cogenerators not owned by your company.</p>	10015	<input type="checkbox"/> <b>1. All local utility: Answer question 10 then skip to question 13.</b>  <input type="checkbox"/> <b>2. All non-utility: Answer question 10 then skip to question 13.</b>  <input type="checkbox"/> <b>3. Both</b>								
<b>10. Please specify the utility/non-utility provider from whom you purchased your electricity:</b>  If this establishment purchases from more than <span style="float: right;">10016</span> <span style="border: 1px solid black; display: inline-block; width: 150px; height: 20px; vertical-align: middle;"></span> one provider, please provide the largest provider.										
<b>11. Enter the quantity of your total purchased electricity that was purchased from a local utility during 2010.</b>	10010	<div style="border: 1px solid black; width: 100%; height: 25px; margin-bottom: 5px;"></div> Kilowatthours								
<b>12. Enter the total expenditures of your purchased electricity that was paid to a local utility.</b>	10020	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; border-bottom: 1px solid black;">\$Bil.</td> <td style="text-align: center; border-bottom: 1px solid black;">Mil.</td> <td style="text-align: center; border-bottom: 1px solid black;">Thou.</td> <td style="text-align: center; border-bottom: 1px solid black;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.							

### Electricity: Transfers In

<b>13. Enter the total quantity of electricity transferred in or otherwise received on-site without a direct open market purchase.</b>  <b>Include quantities:</b> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	10050	<div style="border: 1px solid black; width: 100%; height: 25px; margin-bottom: 5px;"></div> Kilowatthours
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### *Electricity: Generated On-Site*

	"Census Use Only"	
<b>14. Enter the quantity of electricity generated on-site from each of the following:</b> <ul style="list-style-type: none"> <li>• <b>Combined Heat and Power (CHP)/Cogeneration</b> <i>Cogeneration is the production of electric energy and another form of useful energy (such as heat or steam) through the sequential use of energy.</i></li> </ul>	10070	Kilowatthours <input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Solar Power</b></li> </ul>	10081	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Wind Power</b></li> </ul>	10082	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Hydropower</b></li> </ul>	10083	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Geothermal Power</b></li> </ul>	10084	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Other (for example, electricity generated by diesel generators)</b></li> </ul>	10090	<input style="width: 100%; height: 20px;" type="text"/>

### *Electricity: Sales and Transfers Offsite*

<b>15. Enter the quantity of electricity sold or transferred out of this establishment to utilities during 2010.</b> Include quantities exchanged for the same or any other energy source. Exclude sales to independent power producers, small power producers, or cogenerators not located at this establishment.	10110	<input style="width: 100%; height: 20px;" type="text"/> Kilowatthours
<b>16. Enter the quantity of electricity sold or transferred out of this establishment to any non-utilities during 2010.</b>  <b>Include:</b> <ul style="list-style-type: none"> <li>• Sales to independent power producers, small power producers, brokers, marketers, marketing subsidiaries of utilities, or cogenerators not located at this establishment.</li> <li>• Quantities exchanged for the same or any other energy source.</li> </ul>	10120	<input style="width: 100%; height: 20px;" type="text"/> Kilowatthours



## Electricity: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the electricity that was previously reported (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

*Total Consumption = Question 7 [Purchases] + Question 13 [Transfers] + Question 14 [Generated] - (Question 15 + 16) [Sales and Transfers Offsite]*

### 17. Enter the percentage of total electricity that this establishment consumed for the following:

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

	"Census Use Only"	Electricity
<ul style="list-style-type: none"> <li>• <b>Boiler fuel</b> (includes fuels used for thermal outputs)</li> </ul>	10705	<input type="text"/> %

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

<ul style="list-style-type: none"> <li>• <b>Process heating</b> (e.g., kilns, furnaces, ovens, strip heaters)</li> </ul>	10720	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Process cooling and refrigeration</b></li> </ul>	10730	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Machine drive</b> (e.g., motors, pumps, etc. associated with manufacturing process equipment)</li> </ul>	10740	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Electrochemical processes</b> (e.g., reduction process)</li> </ul>	10750	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Other direct process use:</b> Please specify: 10761 <input type="text"/></li> </ul>	10760	<input type="text"/> %

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

<ul style="list-style-type: none"> <li>• <b>Facility heating, ventilation, and air conditioning</b></li> </ul>	10770	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Facility lighting</b></li> </ul>	10780	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Facility support other than that reported above</b> (e.g., cooking, water heating, office equipment)</li> </ul>	10790	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>On-site transportation, excluding highway usage</b></li> </ul>	10800	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Other direct non-process use:</b> Please specify: 10821 <input type="text"/></li> </ul>	10820	<input type="text"/> %

**TOTAL 100%**



## Petroleum-based Energy Sources

**For questions 18 through 38, enter the quantity consumed on-site during 2010 as a fuel for the production of heat, steam, power, or the generation of electricity for all petroleum-based energy sources (fuel) listed below.**

Exclude quantities of energy sources that were used as material inputs to your refining process or otherwise used as a non-fuel.

Include all process uses such as process heating, process cooling, and machine drive and all nonprocess uses such as facility heating, ventilation, and air conditioning.

Include fuel consumed by vehicles intended primarily for use on-site, e.g., forklifts, intra-plant shuttles, loaders and other materials-handling equipment operated solely within boundaries of the establishment size.

Energy Source ↓	"Census Use Only"	Quantity Consumed as a Fuel ↓
<b>18. Butane as Liquefied Petroleum Gas (LPG) or Natural Gas Liquids (NGL).</b>	36060	<input type="text"/> Gallons
<b>19. Ethane as Liquefied Petroleum Gas (LPG) or Natural Gas Liquids (NGL).</b>	37060	<input type="text"/> Gallons
<b>20. Propane as Liquefied Petroleum Gas (LPG) or Natural Gas Liquids (NGL).</b>	38060	<input type="text"/> Gallons
<b>21. Mixtures of ethane, butane, and propane.</b>	34060	<input type="text"/> Gallons
<b>22. Other liquefied petroleum gases (LPG) and natural gas liquids (NGL) (e.g., butylenes, ethylene, propylene).</b>	35060	<input type="text"/> Gallons
<b>23. Total liquefied petroleum gases (LPG) and natural gas liquids (NGL).</b> Sum the quantities reported for questions 18 through 22.	24060	<input type="text"/> Gallons



## Total LPG and NGL: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the energy source that was previously reported in question 23 (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

**24. Enter the percentage of total Liquefied Petroleum Gas (LPG) and Natural Gas Liquids (NGL) (from question 23) establishment consumed as the following:**

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

"Census  
Use Only"

**Total LPG and  
NGL**

- **Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process**

24705

%

- **Other boiler fuel (not included above)** (includes fuels used for thermal outputs only)

24710

%

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

- **Process heating** (e.g., kilns, furnaces, ovens, strip heaters)

24720

%

- **Process cooling and refrigeration**

24730

%

- **Machine drive** (e.g., motors, pumps, etc. associated with manufacturing process equipment)

24740

%

- **Other direct process use:**

Please specify:

24762

24760

%

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

- **Facility heating, ventilation, and air conditioning**

24770

%

- **Facility support other than that reported above** (e.g., cooking, water heating, office equipment)

24790

%

- **On-site transportation, excluding highway usage**

24800

%

- **Conventional electricity generation**

24810

%

- **Other direct non-process use:**

Please specify:

24822

24820

%

**TOTAL 100%**



***Petroleum-based Energy Sources Cont.***

Energy Source ↓	"Census Use Only"	Quantity Consumed as a Fuel ↓
<b>25. Diesel fuel, excluding offsite highway usage.</b>	28060	<input type="text"/> Barrels
<b>26. Distillate fuel oil (numbers 1, 2 and 4 fuel oil).</b>	29060	<input type="text"/> Barrels
<b>27. Total diesel fuel and distillate fuel oil.</b> Sum the quantities in questions 25 and 26.	22060	<input type="text"/> Barrels



## Diesel or Distillate Fuel Oil: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the energy source that was previously reported in question 27 (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

28. Enter the percentage of the total Diesel and Distillate Fuel Oil (from question 27) that this establishment consumed as the following:

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

	"Census Use Only"	Diesel and Distillate
<ul style="list-style-type: none"> <li>• <b>Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process</b></li> </ul>	22705	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Other boiler fuel (not included above)</b> (includes fuels used for thermal outputs only)</li> </ul>	22710	<input type="text"/> %

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

<ul style="list-style-type: none"> <li>• <b>Process heating</b> (e.g., kilns, furnaces, ovens, strip heaters)</li> </ul>	22720	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Process cooling and refrigeration</b></li> </ul>	22730	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Machine drive</b> (e.g., motors, pumps, etc. associated with manufacturing process equipment)</li> </ul>	22740	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Other direct process use:</b> Please specify: <input type="text"/> 22762</li> </ul>	22760	<input type="text"/> %

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

<ul style="list-style-type: none"> <li>• <b>Facility heating, ventilation, and air conditioning</b></li> </ul>	22770	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Facility support other than that reported above</b> (e.g., cooking, water heating, office equipment)</li> </ul>	22790	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>On-site transportation, excluding highway usage</b></li> </ul>	22800	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Conventional electricity generation</b></li> </ul>	22810	<input type="text"/> %
<ul style="list-style-type: none"> <li>• <b>Other direct non-process use:</b> Please specify: <input type="text"/> 22822</li> </ul>	22820	<input type="text"/> %

**TOTAL 100%**



*Petroleum-based Energy Sources Cont.*

<b>Energy Source</b> ↓	"Census Use Only"	<b>Quantity Consumed as a Fuel</b> ↓
<b>29. Motor gasoline, excluding offsite highway usage.</b>	23060	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Gallons
<b>30. Residual fuel oil (numbers 5, 6, Navy Special, and Bunker C).</b>	21060	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels



## Residual Fuel Oil: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the residual fuel that was previously reported in question 30 (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

31. Enter the percentage of total residual fuel (from question 30) that this establishment consumed as the following:

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

"Census  
Use Only"

**Residual Fuel**

• **Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process**

21705

%

• **Other boiler fuel (not included above)** (includes fuels used for thermal outputs only)

21710

%

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

• **Process heating** (e.g., kilns, furnaces, ovens, strip heaters)

21720

%

• **Process cooling and refrigeration**

21730

%

• **Machine drive** (e.g., motors, pumps, etc. associated with manufacturing process equipment)

21740

%

• **Other direct process use:**

Please specify:

21762

21760

%

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

• **Facility heating, ventilation, and air conditioning**

21770

%

• **Facility support other than that reported above** (e.g., cooking, water heating, office equipment)

21790

%

• **Conventional electricity generation**

21810

%

• **Other direct non-process use:**

Please specify:

21822

21820

%

**TOTAL 100%**





### *Petroleum-based Energy Sources Cont.*

Energy Source ↓	"Census Use Only"	Quantity Consumed as a Fuel ↓
32. Waste and byproduct gases (e.g., refinery gas, off gas, vent gas, plant gas, still gas).	62060	<input type="text"/> Million Btu
33. Fluid catalytic cracking unit coke.	77060	<input type="text"/> Barrels
34. Marketable petroleum coke – unrefined or green.	78060	<input type="text"/> Barrels
35. Marketable petroleum coke – calcined.	79060	<input type="text"/> Barrels
36. Waste oils and tars, excluding coal tar.	71060	<input type="text"/> Barrels
37. Other petroleum-based combustible energy source not specified above:	95060	<input type="text"/> Units
Please specify: <span style="margin-left: 20px;">95980</span> <input style="width: 200px; height: 20px;" type="text"/>	95990	<input type="text"/> Specify Units
38. Other petroleum-based combustible energy source not specified above:	96060	<input type="text"/> Units
Please specify: <span style="margin-left: 20px;">96980</span> <input style="width: 200px; height: 20px;" type="text"/>	96990	<input type="text"/> Specify Units



### Natural Gas: Units

39. Please indicate the units for the quantity that will be reported below.

**\*\* Please use this unit for reporting the remainder of the Natural Gas quantity questions.**

"Census  
Use Only"

31111

1. Therms
2. Decatherms (Dth)
3. 1,000 Cubic Feet (Mcf)
4. 100 Cubic Feet (Ccf)
5. Million British Thermal Units (MMBtu)

### Natural Gas: Total Purchased

40. Enter the total quantity of natural gas purchased by and delivered to this establishment during 2010, regardless of when payment was made.

30010

Units

41. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased natural gas reported in question 40.

30020

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

### Natural Gas: Source of Purchase

42. During 2010, where did this establishment's purchased natural gas come from?

**Local utility:** the company in your local area that produces and/or delivers natural gas and is legally obligated to provide service to the general public within its franchise area.

**Non-utility:** include independent producers, brokers, marketers, and any marketing subsidiaries of utilities.

30015

1. All local utility: Answer question 43 then skip to question 46.
2. All non-utility: Answer question 43 then skip to question 46.
3. Both

43. Please specify the utility/non-utility provider from whom you purchased your natural gas:

If this establishment purchases from more than one provider, please provide the largest provider.

30016

44. Enter the quantity of your total purchased natural gas that was purchased from a local utility during 2010.

31010

Units

45. Enter the total expenditures of your purchased natural gas that was paid to a local utility.

31020

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars



### *Natural Gas: Transferred In and Produced On-site*

<p><b>46. Enter the total quantity of natural gas transferred in or otherwise received on-site without a direct open market purchase.</b></p> <p><b>Include quantities:</b></p> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	<p>"Census Use Only"</p> <p>30030</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p style="text-align: center;">Units</p>
<p><b>47. Enter the quantity of natural gas that was both produced on-site during 2010 as output from a captive (onsite) well, and was at least partially consumed on-site (as a fuel or nonfuel).</b></p>	<p>30040</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p style="text-align: center;">Units</p>

### *Natural Gas: Consumption*

<p><b>48. Enter the total quantity of natural gas consumed as a fuel at this establishment during 2010.</b></p> <p>Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use <b>on-site</b>.</p>	<p>30060</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p style="text-align: center;">Units</p>
--	--------------	--



## Natural Gas: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the natural gas that was previously reported in question 48 (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

49. Enter the percentage of total natural gas (from question 48) that this establishment consumed as the following:

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

"Census  
Use Only"

**Natural Gas**

• **Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process**

30705

%

• **Other boiler fuel (not included above)** (includes fuels used for thermal outputs only)

30710

%

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

• **Process heating** (e.g., kilns, furnaces, ovens, strip heaters)

30720

%

• **Process cooling and refrigeration**

30730

%

• **Machine drive** (e.g., motors, pumps, etc. associated with manufacturing process equipment)

30740

%

• **Other direct process use:**

Please specify:

30761

30760

%

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

• **Facility heating, ventilation, and air conditioning**

30770

%

• **Facility support other than that reported above** (e.g., cooking, water heating, office equipment)

30790

%

• **On-site transportation, excluding highway usage**

30800

%

• **Conventional electricity generation**

30810

%

• **Other direct non-process use:**

Please specify:

30821

30820

%

**TOTAL 100%**



### Steam or Industrial Hot Water: Total Purchased

	"Census Use Only"	(11)	(12)																
		Steam ↓	Industrial Hot Water ↓																
<b>50. Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2010, regardless of when payment was made.</b>	061	<div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div> Million Btu	<div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div> Million Btu																
<b>51. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 50.</b>	062	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$Bil.</td> <td style="text-align: center;">Mil.</td> <td style="text-align: center;">Thou.</td> <td style="text-align: center;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.					<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$Bil.</td> <td style="text-align: center;">Mil.</td> <td style="text-align: center;">Thou.</td> <td style="text-align: center;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.																
\$Bil.	Mil.	Thou.	Dol.																

### Steam, Industrial Hot Water: Purchased from Local Utility and Non-Utility Sources

<b>52. During 2010, where did this establishment's purchased steam come from?</b>  Local utility means the company in your local area that produces and/or delivers steam and is legally obligated to provide service to the general public within its franchise area.  The term "non-utility" includes generator of steam such as independent power producers, small power producers, brokers, marketers, marketing subsidiaries of utilities, or cogenerator not owned by your company.	015	<input type="checkbox"/> <b>1. All local utility: Answer question 53 then skip to question 56.</b>  <input type="checkbox"/> <b>2. All non-utility: Answer question 53 then skip to question 56.</b>  <input type="checkbox"/> <b>3. Both</b>									
<b>53. Please specify the utility/non-utility provider from whom you purchased your steam:</b>  If this establishment purchases from more than one provider, please provide the largest provider.	016	<div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div>									
<b>54. Enter the quantity of your total purchased steam that was purchased from a local utility during 2010.</b>	010	<div style="border: 1px solid black; width: 150px; height: 25px; margin: 0 auto;"></div> Million Btu									
<b>55. Enter the total expenditures of your purchased steam that came from a local utility.</b>	020	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$Bil.</td> <td style="text-align: center;">Mil.</td> <td style="text-align: center;">Thou.</td> <td style="text-align: center;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> <td style="border: 1px solid black; width: 40px; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.					
\$Bil.	Mil.	Thou.	Dol.								



### *Steam or Industrial Hot Water: Transfers*

	"Census Use Only"	(11)	(12)
		<b>Steam</b> ↓	<b>Industrial Hot Water</b> ↓
<b>56. Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.</b>  <b>Include quantities:</b> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	050	<input style="width: 100%; height: 20px;" type="text"/> Million Btu	<input style="width: 100%; height: 20px;" type="text"/> Million Btu

### *Steam or Industrial Hot Water: Generated On-site*

		Million Btu	Million Btu
<b>57. Enter the quantity of steam or industrial hot water generated on-site from each of the following:</b>			
<ul style="list-style-type: none"> <li>• <b>Solar Power</b></li> </ul>	081	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Wind Power</b></li> </ul>	082	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Hydropower</b></li> </ul>	083	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
<ul style="list-style-type: none"> <li>• <b>Geothermal Power</b></li> </ul>	084	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

### *Steam or Industrial Hot Water: Sales and Transfers Off-site*

		Million Btu	Million Btu
<b>58. Enter the quantity of the energy source transferred out of this establishment during 2010.</b>  Include quantities exchanged for the same or any other energy source.  Exclude sales to independent power producers, small power producers, or cogenerators not located at this establishment.	110	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>



### Coal: Purchased, Transferred, and Produced

	"Census Use Only"	(40)	(41)	(42)
		<b>Anthracite</b> ↓	<b>Bituminous and Subbituminous</b> ↓	<b>Lignite</b> ↓
<b>59. Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2010, regardless of when payment was made.</b>	010	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons

**60. Enter the total expenditures; including all applicable taxes and delivery, management, transportation, and demand charges, for the quantity reported in question 59.**

020	(40)				(41)				(42)			
	<b>Anthracite</b>				<b>Bituminous and Subbituminous</b>				<b>Lignite</b>			
	\$Bil.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.
	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>	<input style="width: 25px; height: 20px;" type="text"/>
	U.S. Dollars				U.S. Dollars				U.S. Dollars			

	"Census Use Only"	(40)	(41)	(42)
		<b>Anthracite</b> ↓	<b>Bituminous and Subbituminous</b> ↓	<b>Lignite</b> ↓
<b>61. Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.</b>  <b>Include quantities:</b> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	030	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons
<b>62. Enter the quantity of the energy source produced on-site during 2010.</b>	040	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons

### Coal: Consumption

<b>63. Enter the total quantity of the energy source consumed as a fuel at this establishment during 2010.</b>  Include all uses that were used for the heat, power, and electricity generation.	060	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons	<input style="width: 100px; height: 30px;" type="text"/> Short tons
--	-----	--	--	--



## Coal: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the energy source that was previously reported in question 63 (please enter as a percentage of total consumption for each end use performed). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

64. Enter the percentage of total energy source (question 63 column 1 + question 63 column 2 + question 63 column 3) that this establishment consumed as the following:

*Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.*

• **Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process**

"Census  
Use Only"

**Total Coal  
(exclude coal coke  
and breeze)**

46705

%

• **Other boiler fuel (not included above)** (includes fuels used for thermal outputs only)

46710

%

*Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.*

• **Process heating** (e.g., kilns, furnaces, ovens, strip heaters)

46720

%

• **Process cooling and refrigeration**

46730

%

• **Machine drive** (e.g., motors, pumps, etc. associated with manufacturing process equipment)

46740

%

• **Other direct process use:**

Please specify:

46761

46760

%

*Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).*

• **Facility heating, ventilation, and air conditioning**

46770

%

• **Facility support other than that reported above** (e.g., cooking, water heating, office equipment)

46790

%

• **Conventional electricity generation**

46810

%

• **Other direct non-process use:**

Please specify:

46821

46820

%

**TOTAL 100%**





## Breeze or Coal Coke: Purchased, Transferred, and Produced

	"Census Use Only"	(44)	(43)																
		<b>Breeze</b>	<b>Coal Coke</b>																
		↓	↓																
<b>65. Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2010, regardless of when payment was made.</b>	010	<input style="width: 100%; height: 20px;" type="text"/> Short tons	<input style="width: 100%; height: 20px;" type="text"/> Short tons																
<b>66. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 65.</b>	020	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$Bil.</td> <td style="text-align: center;">Mil.</td> <td style="text-align: center;">Thou.</td> <td style="text-align: center;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.					<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">\$Bil.</td> <td style="text-align: center;">Mil.</td> <td style="text-align: center;">Thou.</td> <td style="text-align: center;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> <td style="border: 1px solid black; width: 25px; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.																
\$Bil.	Mil.	Thou.	Dol.																
<b>67. Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.</b>  <b>Include quantities:</b> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	030	<input style="width: 100%; height: 20px;" type="text"/> Short tons	<input style="width: 100%; height: 20px;" type="text"/> Short tons																
<b>68. Enter the quantity of the energy source produced on-site during 2010.</b>	040	<input style="width: 100%; height: 20px;" type="text"/> Short tons	<input style="width: 100%; height: 20px;" type="text"/> Short tons																



***Breeze or Coal Coke: Consumption***

	"Census Use Only"	(44)	(43)
		<b>Breeze</b>	<b>Coal Coke</b>
		↓	↓
<p><b>69. Enter the total quantity of the energy source consumed as a fuel at this establishment during 2010.</b></p> <p>Include all uses that were used for the heat, power, and electricity generation.</p>	060	<input data-bbox="734 491 1086 554" type="text"/> Short tons	<input data-bbox="1125 491 1477 554" type="text"/> Short tons



### Hydrogen or Wood Fuel Wood / Paper Refuse: Purchase, Transfer, Produce, and Consumption

	"Census Use Only"	(63)	(72)																
		<b>Hydrogen</b>  ↓	<b>Wood Fuel Wood / Paper Refuse</b>  ↓																
<b>70.</b> Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2010, regardless of when payment was made.	010	<input style="width: 100%; height: 20px;" type="text"/> Million Btu	<input style="width: 100%; height: 20px;" type="text"/> Million Btu																
<b>71.</b> Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 70.	020	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; font-size: small;">\$Bil.</td> <td style="text-align: center; font-size: small;">Mil.</td> <td style="text-align: center; font-size: small;">Thou.</td> <td style="text-align: center; font-size: small;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.					<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; font-size: small;">\$Bil.</td> <td style="text-align: center; font-size: small;">Mil.</td> <td style="text-align: center; font-size: small;">Thou.</td> <td style="text-align: center; font-size: small;">Dol.</td> </tr> <tr> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> <td style="border: 1px solid black; width: 25%; height: 20px;"></td> </tr> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.																
\$Bil.	Mil.	Thou.	Dol.																
<b>72.</b> Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase. <b>Include quantities:</b>  <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	030	<input style="width: 100%; height: 20px;" type="text"/> Million Btu	<input style="width: 100%; height: 20px;" type="text"/> Million Btu																
<b>73.</b> Enter the quantity of the energy source produced on-site during 2010.	040	<input style="width: 100%; height: 20px;" type="text"/> Million Btu	<input style="width: 100%; height: 20px;" type="text"/> Million Btu																
<b>74.</b> Enter the total quantity of the energy source consumed as a fuel at this establishment during 2010.  Include all uses that were used for the heat, power, and electricity generation.	060	<input style="width: 100%; height: 20px;" type="text"/> Million Btu	<input style="width: 100%; height: 20px;" type="text"/> Million Btu																



### Other Energy Sources: Total Purchased, Transferred, and Produced

	"Census Use Only"	(97)	(98)	(99)
		<b>Other</b> ↓	<b>Other</b> ↓	<b>Other</b> ↓
<b>75. Specify the name and units (e.g., gallons, million Btu, cubic feet, etc.) of any energy source purchased or consumed in this establishment that has not been previously asked.</b>  *Do not include: oxygen, carbon dioxide, nitrogen, argon, or helium.	980	<input style="width: 100%; height: 20px;" type="text"/> Energy source	<input style="width: 100%; height: 20px;" type="text"/> Energy source	<input style="width: 100%; height: 20px;" type="text"/> Energy source
	981	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units
<b>76. Enter the total quantity of the other energy source (column) purchased by and delivered to this establishment during 2010, regardless of when payment was made.</b>	010	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units
<b>77. Enter total expenditures; including all applicable taxes and delivery, management, transportation, and demand charges, for the quantity reported in question 76.</b>				
020		(97) <b>Other</b>	(98) <b>Other</b>	(99) <b>Other</b>
		\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
		<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
		U.S. Dollars	U.S. Dollars	U.S. Dollars
<b>78. Enter the total quantity of the other energy source transferred in or otherwise received on-site without a direct open market purchase.</b>  <b>Include quantities:</b> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction.</li> <li>• For which payment was made in-kind (i.e., barter).</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	030	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units
	<b>79. Enter the quantity of the other energy source produced on-site during 2010.</b>	040	<input style="width: 100%; height: 20px;" type="text"/> Units	<input style="width: 100%; height: 20px;" type="text"/> Units



### Other Energy Source: Consumption

	"Census Use Only"	(97)	(98)	(99)
		<b>Other</b> ↓	<b>Other</b> ↓	<b>Other</b> ↓
<b>80. Does the quantity reported in produced on-site represent the product or byproduct of another energy source consumed on-site?</b>	050	<input type="checkbox"/> 1. Yes, product or byproduct  <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes, product or byproduct  <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes, product or byproduct  <input type="checkbox"/> 2. No
<b>81. Enter the total quantity of the other energy source consumed as a fuel at this establishment during 2010.</b>  Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use on-site.	060	<input style="width: 100px; height: 20px;" type="text"/> Units	<input style="width: 100px; height: 20px;" type="text"/> Units	<input style="width: 100px; height: 20px;" type="text"/> Units



## *Fuel Switching Capability: Electricity, Natural Gas, and Total Coal*

- Capability to use substitute energy sources means that this establishment's combustors (for example, boilers, furnaces, ovens, blast furnaces) had the equipment, either in place or available for installation in 2010, so that substitutions could actually have been introduced within 30 days without extensive modifications.
- Include switching capability that could have resulted from the use of redundant and/or standby combustors, and from combustors that were already equipped to fire alternative fuels.
- In addition to the capability of your equipment, when formulating your estimates:
  - Make sure to consider both the equipment limitations of your boilers, heaters, and combustors and any other practical reasons when determining the availability of supply during 2010.

Equipment limitations include:

- The boilers, heaters, or other fuel-consuming equipment are not capable of using anything other than specify fuel for at least part of the operations.
- Although the boilers, heaters, or combustors would allow using another fuel, doing so would adversely affect a product. (e.g., altering the pigment in a paint-drying application).

Practical reasons include:

- There is no ready supply of an alternative energy source.
- Environmental restrictions related to air quality limit the amount of the physically usable alternative fuel that could be used instead.
- A long-term contract in-place that requires the purchase of certain amounts of the energy source in any case.
- Storage of alternative fuels is not available due to potential environmental impact of storage tanks.
- Do not limit your estimated capability by differences in relative prices of energy sources.
- This section is intended to measure your capability to switch, not whether you would switch if you could.
- When estimating your capability to substitute other fuels for electricity receipts, please consider the fuels that could be used to generate electricity onsite, as well as those that could be directly substituted in combustors.
- If records of fuel-switching capability are not regularly maintained, reasonable approximations are acceptable.
- Enter a zero if the fuel could not be switched for the specific energy source.
- Please proceed through this section column-by-column.



## Fuel Switching Capability: Electricity, Natural Gas, and Total Coal

The next four questions are designed as a worksheet. You will need to refer back to some sections of the form that you have already filled out to record the figures you have reported.

<b>82.</b> Referring back to the Electricity section, question 7 page 8. Please enter the quantity of reported purchased electricity.	[ ]
<b>83.</b> Referring back to the Electricity section, question 13 page 8. Please enter the quantity of reported transferred electricity.	[ ]
<b>84. Add lines from question 82 and 83</b> (question 82 + question 83). Enter the total in the box.	10503 [ ]
<b>85.</b> Referring back to the Natural Gas section, question 48 page 19. Please enter the quantity of reported natural gas consumed. Enter the figure in the box.	30503 [ ]
<b>86.</b> Referring back to the Coal section, question 63 page 23. Please add the quantity of any reported anthracite, bituminous and subbituminous and lignite consumed. Enter the total in the box.	46503 [ ]

	"Census Use Only"	(10)	(30)	(46)
		<b>Total Electricity Received</b> Transfers + purchase ↓	<b>Total Natural Gas</b> ↓	<b>Total ALL Coal</b> (excluding Coal Coke & Breeze) ↓
<b>87. Enter the total quantity of the energy source (column) you reported as consumed during 2010.</b>  Copy this figure from the above worksheet questions.	500	[ ] Kilowatthours  Enter figure from question 84.	[ ] Units  Enter figure from question 85.	[ ] Short tons  Enter figure from question 86.
<b>88. Is the total quantity reported in question 87 greater than zero?</b>	501	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 87, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 87, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to next section.
<b>89. Enter the amount of the total quantity you reported in question 87 that could NOT have been replaced within 30 days by another energy source during 2010.</b>  Consider both the equipment limitations of your boilers, heaters, and combustors and any other practical reason.  Do not consider differences in energy prices when estimating the amount.	510	[ ] Kilowatthours	[ ] Units	[ ] Short tons



### Fuel Switching Capability: Electricity, Natural Gas, and Total Coal

	"Census Use Only"	(10)	(30)	(46)
		<b>Total Electricity Received</b> Transfers + purchase ↓	<b>Total Natural Gas</b> ↓	<b>Total ALL Coal</b> (excluding Coal Coke & Breeze) ↓
<b>90. Is the total quantity in question 89 equal to zero?</b>	511	<input type="checkbox"/> 1. Yes: Skip to question 92. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 92. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 92. <input type="checkbox"/> 2. No
<b>91. Referring to the quantity shown in question 89, please check all the reasons that made this quantity unswitchable.</b>				
The boilers, heaters, or other fuel-consuming equipment are NOT capable of using another fuel for at least part of the operations during the year.	526	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Switching to the usable alternatives would adversely affect the products.	528	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Although the heating equipment could use another fuel, there was no readily available supply of it during at least part of the year.	533	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Environmental restrictions related to air quality limit the amount of the physically usable alternative fuel that could be used instead.	534	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
A long-term contract is in-place that requires the purchase of certain amounts of this fuel in any case.	536	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Storage of usable alternative fuels is not available due to potential environmental impact of storage tanks.	537	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Other	999	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Please specify other:	998	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>





## Fuel Switching Capability: Electricity, Natural Gas, and Total Coal

	"Census Use Only"	(10)	(30)	(46)
		<b>Total Electricity Received</b> Transfers + purchase ↓	<b>Total Natural Gas</b> ↓	<b>Total ALL Coal</b> (excluding Coal Coke & Breeze) ↓
<p><b>92. Enter the results of subtracting the quantity reported in question 89 from the quantity reported in question 87.</b></p> <p>This represents the total quantity of energy consumption that could have been replaced in 30 days by one or more alternative energy sources in 2010.</p> <p>Note: the sum of the quantities in question 94 through 101 should equal or exceed this quantity.</p>	520	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
<p><b>93. Is the total quantity reported in question 92 greater than zero?</b></p>	521	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to next section.
<p><b>94. Of the quantity switchable in question 92 what is the maximum amount that could have been replaced by <u>electricity</u>?</b></p>	530		<input type="text"/> Units	<input type="text"/> Short tons
<p><b>95. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>total coal, excluding coal coke and breeze</u>?</b></p>	670	<input type="text"/> Kilowatthours	<input type="text"/> Units	
<p><b>96. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>total coal coke and breeze, excluding coal</u>?</b></p>	690	<input type="text"/> Kilowatthours	<input type="text"/> Units	
<p><b>97. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>natural gas</u>?</b></p>	570	<input type="text"/> Kilowatthours		<input type="text"/> Short tons



### Fuel Switching Capability: Electricity, Natural Gas, and Total Coal

	"Census Use Only"	(10)	(30)	(46)
		<b>Total Electricity Received</b> Transfers + purchase ↓	<b>Total Natural Gas</b> ↓	<b>Total ALL Coal</b> (excluding Coal Coke & Breeze) ↓
98. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>total diesel fuel and distillate fuel oil</u> ?	590	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
99. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>liquefied petroleum gas (LPG)</u> ?	610	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
100. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by <u>residual fuel oil</u> ?	630	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
101. Of the quantity reported as switchable in question 92 what is the maximum amount that could have been replaced by any other energy source not already asked about?	650	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
Please Specify:	990	<input type="text"/>	<input type="text"/>	<input type="text"/>



## Fuel Switching Capability: Electricity, Natural Gas, and Total Coal

What is the lowest percentage of price difference of the less expensive substitute that would cause your establishment to switch from this fuel, regardless of whether or not your establishment actually switched energy sources during 2010 or did so because of a less expensive substitute? (If you have more than one possible alternative for the energy source, choose the fuel that would be your most preferred alternative.)

The formula for percentage of price difference is:

- Percent of Price Difference =  $((PC-PA)/PC) * 100\%$
- Where PC = Price per British thermal unit of current fuel
- PA = Price per British thermal unit of alternative fuel

	"Census Use Only"  622	(10)	(30)	(46)
		<b>Total Electricity Received</b>	<b>Total Natural Gas</b>	<b>Total ALL Coal</b>
		<b>Transfers + purchase</b>		<b>(excluding Coal Coke &amp; Breeze)</b>
		↓	↓	↓
<b>Check one for each energy source (column) reported</b>				
<b>102. Would not switch regardless of price difference.</b>		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<b>Would switch at price difference 1-10 percent.</b>		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
<b>Would switch at price difference 11-25 percent.</b>		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<b>Would switch at price difference 26-50 percent.</b>		<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
<b>Would switch at price difference over 50 percent.</b>		<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
<b>Reasonable estimates cannot be provided.</b>		<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
<b>Would switch to the more expensive substitute if price premium were reasonable.</b>		<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7



## *Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual*

- Capability to use substitute energy sources means that this establishment's combustors (for example, boilers, furnaces, ovens, blast furnaces) had the equipment, either in place or available for installation in 2010, so that substitutions could actually have been introduced within 30 days without extensive modifications.
- Include switching capability that could have resulted from the use of redundant and/or standby combustors, and from combustors that were already equipped to fire alternative fuels.
- In addition to the capability of your equipment, when formulating your estimates:
  - Make sure to consider both the equipment limitations of your boilers, heaters, and combustors and any other practical reasons when determining the availability of supply during 2010.

Equipment limitations include:

- The boilers, heaters, or other fuel-consuming equipment are not capable of using anything other than specify fuel for at least part of the operations.
- Although the boilers, heaters, or combustors would allow using another fuel, doing so would adversely affect a product. (e.g. altering the pigment in a paint-drying application).

Practical reasons include:

- There is no ready supply of an alternative energy source.
- Environmental restrictions related to air quality limit the amount of the physically usable alternative fuel that could be used instead.
- A long-term contract in-place that requires the purchase of certain amounts of the energy source in any case.
- Storage of alternative fuels is not available due to potential environmental impact of storage tanks.

- Do not limit your estimated capability by differences in relative prices of energy sources.

- This section is intended to measure your capability to switch, not whether you would switch if you could.
- When estimating your capability to substitute other fuels for electricity receipts, please consider the fuels that could be used to generate electricity onsite, as well as those that could be directly substituted in combustors.
- If records of fuel-switching capability are not regularly maintained, reasonable approximations are acceptable.
- Enter a zero if the fuel could not be switched for the specific energy source.
- Please proceed through this section column-by-column.



## Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual

The next three questions are designed as a worksheet. You will need to refer back to some sections of the form that you have already filled out to record the figures you have reported.

<b>103.</b> Referring back to the Petroleum-based Energy Sources section, question 23 page 11. Please enter the reported quantity of LPG & NGL. Enter the figure in the box.	24503	<input style="width: 90%;" type="text"/>
<b>104.</b> Referring back to the Petroleum-based Energy Sources section, question 27 page 13. Please enter the reported quantity of diesel and distillate fuel consumed. Enter the figure in the box.	22503	<input style="width: 90%;" type="text"/>
<b>105.</b> Referring back to the Petroleum-based Energy Sources section, question 30 page 15. Please enter the reported quantity of residual fuel consumed. Enter the figure in the box.	21503	<input style="width: 90%;" type="text"/>

	"Census Use Only"	(24)	(22)	(21)
		<b>Total LPG &amp; NGL</b>	<b>Total Diesel Fuel &amp; Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>
		↓	↓	↓
<b>106. Enter the total quantity of the energy source (column) you reported as consumed during 2010.</b>  Copy this figure from the above worksheet questions.	500	<input style="width: 90%;" type="text"/> Gallons <b>Enter figure from question 103.</b>	<input style="width: 90%;" type="text"/> Barrels <b>Enter figure from question 104.</b>	<input style="width: 90%;" type="text"/> Barrels <b>Enter figure from question 105.</b>
<b>107. Is the total quantity reported in question 106 greater than zero?</b>	501	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 106, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 106, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to next section.
<b>108. Enter the amount of the total quantity you reported in question 106 that could NOT have been replaced within 30 days by another energy source during 2010.</b>  Consider both the equipment limitations of your boilers, heaters, and combustors and any other practical reason.  Do not consider differences in energy prices when estimating the amount.	510	<input style="width: 90%;" type="text"/> Gallons	<input style="width: 90%;" type="text"/> Barrels	<input style="width: 90%;" type="text"/> Barrels



### Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual

	"Census Use Only"	(24)	(22)	(21)
		<b>Total LPG &amp; NGL</b>	<b>Total Diesel Fuel &amp; Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>
		↓	↓	↓
<b>109. Is the total quantity in question 108 equal to zero?</b>	511	<input type="checkbox"/> 1. Yes: Skip to question 111. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 111. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 111. <input type="checkbox"/> 2. No
<b>110. Referring to the quantity shown in question 108, please check all the reasons that made this quantity unswitchable.</b>				
The boilers, heaters, or other fuel-consuming equipment are NOT capable of using another fuel for at least part of the operations during the year.	526	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Switching to the usable alternatives would adversely affect the products.	528	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Although the heating equipment could use another fuel, there was no readily available supply of it during at least part of the year.	533	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Environmental restrictions related to air quality limit the amount of the physically usable alternative fuel that could be used instead.	534	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
A long-term contract is in-place that requires the purchase of certain amounts of this fuel in any case.	536	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Storage of usable alternative fuels is not available due to potential environmental impact of storage tanks.	537	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<b>Other</b>	999	<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<b>Please specify other:</b>	998	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>	<input style="width: 100px; height: 20px;" type="text"/>



### Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual

	"Census Use Only"	(24)	(22)	(21)
		<b>Total LPG &amp; NGL</b>	<b>Total Diesel Fuel &amp; Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>
		↓	↓	↓
<b>111. Enter the results of subtracting the quantity reported in question 108 from the quantity reported in question 106.</b>  This represents the total quantity of energy consumption that could have been replaced in 30 days by one or more alternative energy sources in 2010.  Note: the sum of the quantities in question 113 through 120 should equal or exceed this quantity.	520	<input style="width: 100px; height: 20px;" type="text"/> Gallons	<input style="width: 100px; height: 20px;" type="text"/> Barrels	<input style="width: 100px; height: 20px;" type="text"/> Barrels
<b>112. Is the total quantity reported in question 111 greater than zero?</b>	521	<input type="checkbox"/> 1. Yes  <input type="checkbox"/> 2. No: Skip to next column.	<input type="checkbox"/> 1. Yes  <input type="checkbox"/> 2. No: Skip to next column.	<input type="checkbox"/> 1. Yes  <input type="checkbox"/> 2. No: Skip to next section.
<b>113. Of the quantity switchable in question 111 what is the maximum amount that could have been replaced by electricity?</b>	530	<input style="width: 100px; height: 20px;" type="text"/> Gallons	<input style="width: 100px; height: 20px;" type="text"/> Barrels	<input style="width: 100px; height: 20px;" type="text"/> Barrels
<b>114. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>total coal, excluding coal coke and breeze</u>?</b>	670	<input style="width: 100px; height: 20px;" type="text"/> Gallons	<input style="width: 100px; height: 20px;" type="text"/> Barrels	<input style="width: 100px; height: 20px;" type="text"/> Barrels
<b>115. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>total coal coke and breeze, excluding coal</u>?</b>	690	<input style="width: 100px; height: 20px;" type="text"/> Gallons	<input style="width: 100px; height: 20px;" type="text"/> Barrels	<input style="width: 100px; height: 20px;" type="text"/> Barrels
<b>116. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>natural gas</u>?</b>	570	<input style="width: 100px; height: 20px;" type="text"/> Gallons	<input style="width: 100px; height: 20px;" type="text"/> Barrels	<input style="width: 100px; height: 20px;" type="text"/> Barrels



### Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual

	"Census Use Only"	(24)	(22)	(21)
		<b>Total LPG &amp; NGL</b>	<b>Total Diesel Fuel &amp; Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>
		↓	↓	↓
117. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>total diesel fuel and distillate fuel oil</u> ?	590	<input type="text"/> Gallons		<input type="text"/> Barrels
118. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>liquefied petroleum gas (LPG)</u> ?	610		<input type="text"/> Barrels	<input type="text"/> Barrels
119. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by <u>residual fuel oil</u> ?	630	<input type="text"/> Gallons	<input type="text"/> Barrels	
120. Of the quantity reported as switchable in question 111 what is the maximum amount that could have been replaced by any other energy source not already asked about?	650	<input type="text"/> Gallons	<input type="text"/> Barrels	<input type="text"/> Barrels
<b>Please Specify:</b>	990	<input type="text"/>	<input type="text"/>	<input type="text"/>





## Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual

What is the lowest percentage of price difference of the less expensive substitute that would cause your establishment to switch from this fuel, regardless of whether or not your establishment actually switched energy sources during 2010 or did so because of a less expensive substitute? (If you have more than one possible alternative for the energy source, choose the fuel that would be your most preferred alternative.)

The formula for percentage of price difference is:

- Percent of Price Difference =  $((PC-PA)/PC) * 100\%$
- Where PC = Price per British thermal unit of current fuel
- PA = Price per British thermal unit of alternative fuel

	"Census Use Only"	(24)	(22)	(21)
		<b>Total LPG &amp; NGL</b>	<b>Total Diesel Fuel &amp; Distillate Fuel Oil</b>	<b>Residual Fuel Oil</b>
	622	↓	↓	↓
<b>Check one for each energy source (column) reported</b>				
<b>121. Would not switch regardless of price difference.</b>		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
<b>Would switch at price difference 1-10 percent.</b>		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
<b>Would switch at price difference 11-25 percent.</b>		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
<b>Would switch at price difference 26-50 percent.</b>		<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
<b>Would switch at price difference over 50 percent.</b>		<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
<b>Reasonable estimates cannot be provided.</b>		<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
<b>Would switch to the more expensive substitute if price premium were reasonable.</b>		<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7



## Energy-Management Activities

For questions 122 through 132:

Indicate with a “yes” or a “no” under the “Participate?” column whether your establishment participated in or used the specified type of energy-management assistance between January 1, 2010 and December 31, 2010.

For any assistance for which you marked “yes”, please mark the source(s) of assistance.

“In-house” means your establishment or company provided the energy-management assistance.

“Utility/Energy Supplier” refers to either your electricity, natural gas, or other energy supplier/provider.

“Product or Service Provider” includes any other third party product or service provider/supplier such as an equipment vendor, energy service company, or maintenance service company.

“Federal Program” includes assistance provided by federal government programs or agencies such as the Department of Energy (DOE), the Environmental Protection Agency (EPA), and the National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP).

“State or Local Program” includes all assistance provided by a state, city, or county government program or agency.

Type of Energy-Management Assistance	Participate?  (13)	Source of Assistance (check all that apply)				
		In-house  (15)	Utility/ Energy Supplier  (16)	Product or Service Provider  (17)	Federal Program  (18)	State or Local Program  (19)
<b>122. Energy audit or assessment</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (060)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>123. Technical assistance</b> (e.g., consultation, demonstrations, engineering design or analysis)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (070)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>124. Technical information</b> (e.g., software, reference material)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (072)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>125. Training</b> (e.g., workshops, seminars, presentations)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (074)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>126. Financial assistance</b> (e.g., loans, tax credits, rebates, subsidies)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (076)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>127. Electricity load control</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (080)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>128. Power factor correction or improvement</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (380)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>129. Equipment installation or retrofit for the primary purpose of using a different energy source</b> (e.g., electrification) <small>Exclude modifications made primarily for energy efficiency; those should be included in questions 133 – 139.</small>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (240)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>



## Energy-Management Activities

Type of Energy-Management Assistance	Participate?  (13)	Source of Assistance (check all that apply)				
		In-house  (15)	Utility/ Energy Supplier  (16)	Product or Service Provider  (17)	Federal Program  (18)	State or Local Program  (19)
<b>130. Standby generation program</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (260)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>131. Special rate schedule</b> (e.g., interruptible or time-of-use)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (100)		4 <input type="checkbox"/>	7 <input type="checkbox"/>		
<b>132. Interval metering needed to manage energy use for programs such as real-time pricing</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (250)		4 <input type="checkbox"/>	7 <input type="checkbox"/>		

### For Questions 133 through 139:

Indicate with a “yes” or a “no” under the “Installed Equipment or Retrofit?” column whether your establishment installed equipment or any retrofits for the primary purpose of improving energy efficiency for the indicated system between January 1, 2010 and December 31, 2010. For any activity for which you marked “yes” please mark the source(s) of financial support for the activity. Please use sources defined above question 122.

System	Installed Equipment or Retrofit?  (13)	Source of Assistance (check all that apply)				
		In-house  (15)	Utility/ Energy Supplier  (16)	Product or Service Provider  (17)	Federal Program  (18)	State or Local Program  (19)
<b>133. Steam production/system</b> (e.g., boilers, burners, insulation, piping)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (120)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>134. Compressed air systems</b> (e.g., compressors, sizing, leak reduction)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (450)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>135. Direct/indirect process heating</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (140)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>136. Direct process cooling, refrigeration</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (160)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>137. Direct machine drive</b> (e.g., adjustable speed drives, motors, pumps, fans)	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (180)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>138. Facility heating, ventilation, and air conditioning</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (200)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
<b>139. Facility lighting</b>	1 <input type="checkbox"/> Yes → 2 <input type="checkbox"/> No (220)	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>



## Energy-Management Activities

**For Questions 140 through 151: Please mark only one answer for each energy-management question.**

<p><b>140.</b> Does this establishment have an energy manager? (i.e., a person whose major function is to direct or plan energy strategies relating to energy use and energy-efficient technology within the establishment)</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13460)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>141.</b> Does your establishment set goals for improving energy efficiency?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13470)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>142.</b> Does your establishment measure and monitor how much steam is used to produce a unit of product? (i.e., lbs of steam needed per unit of product produced)</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13471)</p> <p>3 <input type="checkbox"/> Don't Know</p> <p>4 <input type="checkbox"/> No Steam Used</p>
<p><b>143.</b> Does your establishment have dedicated staff that performs insulation inspections to monitor and maintain the condition of steam system insulation?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13472)</p> <p>3 <input type="checkbox"/> Don't Know</p> <p>4 <input type="checkbox"/> No Steam Used</p>
<p><b>144.</b> Does your establishment have a formal steam system maintenance program that includes the following activities:</p> <p>a. At least annual testing of all steam traps</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13473)</p> <p>3 <input type="checkbox"/> Don't Know</p> <p>4 <input type="checkbox"/> No Steam Used</p>
<p>b. Maintaining a steam trap database</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13474)</p> <p>3 <input type="checkbox"/> Don't Know</p> <p>4 <input type="checkbox"/> No Steam Used</p>
<p>c. At least annual inspections and repairs of steam leaks</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13475)</p> <p>3 <input type="checkbox"/> Don't Know</p> <p>4 <input type="checkbox"/> No Steam Used</p>



## Energy-Management Activities

<p><b>145.</b> Does your establishment measure oxygen and carbon dioxide (or combustible) levels in boiler and other fuel fired heating equipment flue gasses to “tune” the burners?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13476)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>146.</b> Does your establishment use the flue gases from fuel fired heating equipment to preheat combustion air, preheat charge equipment/material, or provide heat for other processes in your establishment?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13477)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>147.</b> Does your establishment's process heating system maintenance program include the following activities?</p> <p>a. Furnace inspections to seal openings and repair cracks and damaged insulation in furnace walls, doors, etc.</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13478)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p>b. Cleaning of heat transfer surfaces to avoid build up of soot, scale, or other material.</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13479)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p>c. Inspecting, calibrating, and adjusting temperature/pressure sensors, controllers, valve operators, etc.</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13480)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>148.</b> Do you keep an inventory of all motors in your establishment?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13481)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>149.</b> Have you conducted a plant-wide study to identify the major energy consuming pump systems in your establishment?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13482)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>150.</b> Does your establishment have staff or equipment dedicated to detecting and controlling compressed air system leaks?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13483)</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p><b>151.</b> Does your establishment track the amount of energy spent in compressed air systems?</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No (13484)</p> <p>3 <input type="checkbox"/> Don't Know</p>



## Energy Technologies

152. Were any of the following technologies in use at your establishment anytime during 2010?	"Census Use Only"	
a. Computer control of building-wide environment (e.g., space-heating equipment, cooling equipment, lights).	14010	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
b. Computer control of processes or major energy-using equipment (e.g., boilers, furnaces, conveyors used in the manufacturing process).	14020	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
c. Waste heat recovery.	14030	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
d. Adjustable-speed motors.	14040	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
e. Oxy-fuel firing.	14950	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know



### Energy Technologies

<b>153. Were any of the following technologies associated with cogeneration in use at your establishment anytime during 2010?</b>	"Census Use Only"	
<b>a. Steam turbines supplied by either conventional or fluidized bed boilers.</b>	14042	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<b>b. Conventional combustion turbines with heat recovery.</b>	14043	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<b>c. Combined-cycle combustion turbines.</b>	14044	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<b>d. Internal combustion engines with heat recovery.</b>	14045	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<b>e. Steam turbines supplied by heat recovered from high-temperatures processes.</b>	14046	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know

### Establishment Size

<b>154. How many buildings were on this establishment site as of December 31, 2010?</b>  <b>Buildings include:</b> structures enclosed by walls extending from the foundation to the roof, parking garages, even if not totally enclosed by walls and a roof, or structures erected on pillars to elevate the first fully enclosed level.  <b>Excluded buildings are:</b> structures (other than the exceptions noted above) that are not totally enclosed by walls and a roof, mobile homes and trailers, even if they house manufacturing activity, structures not ordinarily intended to be entered by humans, such as storage tanks, or non-buildings that consume energy (such as pumps and constructions sites).	"Census Use Only"  17010	<input style="width: 100%; height: 20px;" type="text"/> <b>Number of Buildings</b>
<b>155. What was the approximate total enclosed square footage of the buildings located on this establishment site as of December 31, 2010?</b>	13010	<input style="width: 100%; height: 20px;" type="text"/> <b>Total square feet</b>



**Remarks**

**156. Please use this space for any explanations that may be essential in understanding your reported data. If additional space is needed, attach a separate sheet, including the 10-digit Survey ID located on the mailing label on the front of this questionnaire.**

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