

2018 Manufacturing Energy Consumption SurveySponsored by the Energy Information Administration
U.S. Department of EnergyAdministered and Compiled by the Bureau of the Census
U.S. Department of CommerceForm **EIA-846**
(11-05-2018)**Report Electronically:**
<https://portal.census.gov>

Authentication Code:

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

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 10th 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.

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Instructions and Frequently Asked Questions can be found at <https://portal.census.gov>



Instructions for Completing Form EIA-846

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). 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 section, before moving on to the next section.
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 Types Used as Energy" 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 2018 and indicate the period covered by this filing, whether the calendar year or other period.



Instructions for Completing Form EIA-846, cont.

Energy Sources

Reporting Criteria

An energy source should be reported on this questionnaire if:

- the energy source was consumed as a fuel, (that is, for heat, power, or electricity generation); **or**
- the energy source was consumed as a nonfuel (feedstock, raw material input); **or**
- for selected energy sources, the energy source was shipped offsite from this establishment. The energy sources for which you will be asked to supply shipments data are:
 - LPG (Butane, Ethane, Propane, Mixtures, and Other LPG/NGL)
 - Coal coke
 - Petroleum coke (Unrefined, green or calcined)
 - Breeze
 - Coke oven gas
 - Blast furnace gas
 - Acetylene
 - Hydrogen
 - Diesel or distillate fuel oil
 - Residual fuel oil
 - Naptha; and
 - Bitumen.

If your only means of an energy source during 2018 was a byproduct (or product) of an energy source used as a feedstock (or raw material input) that byproduct energy source should be reported only if it was at least partially consumed onsite as a fuel or shipped offsite. If the byproduct (or product) energy source was only itself consumed as a nonfuel (feedstock), it should be excluded.

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
 Natural Gas
 Diesel Fuel Oil (excluding off-site highway use)
 Distillate Fuel Oil (e.g., Numbers 1, 2, 4)
 Residual Fuel Oil (e.g., Numbers 5, 6, Navy Special, Bunker C)
 Liquefied Petroleum Gases (LPG) and Natural Gas Liquids (NGL)

- Butane
- Ethane
- Propane
- Mixtures of Butane, Ethane, and Propane
- Other LPG and NGL which includes butylenes, ethylene, and propylene

Coal

- Anthracite
- Bituminous and Subbituminous
- Lignite

Breeze

Coal Coke

Petroleum Coke

- Marketable Petroleum Coke - Unrefined or Green
- Marketable Petroleum Coke - Calcined



Instructions for Completing Form EIA-846, cont.

Kerosene
 Motor Gasoline (excluding off-site highway use)
 Naphtha and Heavier Gas Oils
 Bitumen
 Acetylene
 Hydrogen
 Wood harvested directly from trees
 Byproduct Energy Source

- Blast Furnace Gas
- Coke Oven Gas
- Waste Oils and Tars (excluding Coal Tar)
- Tire-Derived Fuel (TDF)
- Waste and Byproduct Gases (e.g., flue gas, off gas, plant gas, refinery gas, still gas, vent gas)
- Pulping and Black Liquor
- Agricultural Waste (e.g., bagasse, nut shells, orchard prunings, rice hulls)
- Wood Residues and Byproducts from Mill Processing (e.g., sawdust, shaving, slabs, bark)
- Wood/Paper-related Refuse (e.g., scrap, wastepaper, wood pallets, packing materials)

Steam (excluding steam generated in an onsite boiler from CHP or other fossil fuel, wood, or combustible source)
 Industrial Hot Water
 Other Types Used as Energy

Energy Sources Reporting Examples

Example 1 – Your establishment depended entirely on electricity for heat and power, and no combustible energy sources were consumed. In this instance, complete the "Electricity" section. No data should be entered in any other energy source (fuel) section. Go to the "Fuel-Switching Capability" section and complete the remainder of the questionnaire.

Example 2 – Butane is used as a feedstock to produce butylenes onsite. The butylene is then used as a feedstock to produce butadiene which is shipped offsite. Report the butane used as a feedstock because it is not used as a fuel or shipped offsite. Butylene would not be reported because its only means of supply was as a byproduct and it was only used as a feedstock. Butadiene would not be reported as a shipment because it is not an identified energy source.

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 2018. 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 2018 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 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, such as the conversion factors used for the Green House Gas (GHG) Reporting Rule, use them in place of the approximations given below. However, please identify in the Remarks section (page 63), 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 2018.

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 2018.

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	22.779 million Btu/short ton
Coal (use for coke plants only)	28.673 million Btu/short ton
Coal Coke	24.8 million Btu/short ton
Distillate Fuel Oil	5.773 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	1.039 million Btu/1,000 cubic feet 10.39 therms/1,000 cubic feet
Petroleum Coke	6.126 million Btu/barrel 30.63 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	6.287 million Btu/barrel 1,039 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>1. Did ownership of this establishment change during 2018?</p>	<p>Census Use Only</p> <p>00011</p>	<p><input type="checkbox"/> 1. No</p> <p><input type="checkbox"/> 2. Yes: Establishment was sold during the year. <i>Complete all sections of this questionnaire for activities that occurred in 2018 prior to the sale.</i></p> <p><input type="checkbox"/> 3. Yes: Establishment was bought during the year. <i>Complete all sections of this questionnaire for activities that occurred in 2018 after the sale.</i></p>
<p>2. What best describes this establishment at the end of 2018?</p>	<p>00010</p>	<p><input type="checkbox"/> 1. In operation: Skip to question 6.</p> <p><input type="checkbox"/> 2. Ceased operation: Answer question 3 then skip to question 6.</p> <p><input type="checkbox"/> 3. Sold or leased to another operator: Skip to question 4.</p>
<p>3. Enter the date in which your establishment ceased operation.</p>	<p>00013</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p style="text-align: center;">Enter Date (mm-dd-yyyy)</p>
<p>4. Enter the date in which your establishment was either sold or leased to another operator.</p>	<p>00014</p>	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> <p style="text-align: center;">Enter Date (mm-dd-yyyy)</p>
<p>5. Enter the following information only if this establishment was sold or leased to another operator during 2018.</p>		
<p>Name of new owner or operator</p>		
<p>00015 <input style="width: 100%;" type="text"/></p>		
<p>00017 <input style="width: 100%;" type="text"/></p>	<p>Address</p>	<p>00018 <input style="width: 100%;" type="text"/></p>
<p>00019 <input style="width: 20px;" type="text"/></p>	<p>State</p>	<p>00020 <input style="width: 20px;" type="text"/></p>
<p>00021 <input style="width: 20px;" type="text"/></p>	<p>Zip Code</p>	<p>00022 <input style="width: 20px;" type="text"/></p>
<p>00023 <input style="width: 20px;" type="text"/></p>	<p>Zip + 4</p>	<p>00016 <input style="width: 20px;" type="text"/></p>
<p>Employer Identification Number (9 Digit EIN)</p>		
<p>00016 <input style="width: 20px;" type="text"/> - <input style="width: 20px;" type="text"/></p>		
<p>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, 2018 to December 31, 2018.</p>	<p>00022</p>	<p>From: <input style="width: 100%;" type="text"/></p> <p style="text-align: center;">(mm-dd-yyyy)</p>
	<p>00023</p>	<p>To: <input style="width: 100%;" type="text"/></p> <p style="text-align: center;">(mm-dd-yyyy)</p>

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Electricity: Total Purchased

<p>7. Enter the total quantity of electricity purchased by and delivered to this establishment during 2018, regardless of when payment was made.</p>	Census Use Only 10061	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> Kilowatthours								
<p>8. Enter total expenditures; including all applicable taxes and any delivery, management, and demand charges, for the purchased electricity reported in question 7.</p>	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

<p>9. During 2018, where did this establishment's purchased electricity come from?</p> <p>Local utility: 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>Non-utility: 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"/> 1. All local utility: Answer question 10 then skip to question 13. <input type="checkbox"/> 2. All non-utility: Answer question 10 then skip to question 13. <input type="checkbox"/> 3. Both								
<p>10. Please specify the utility/non-utility provider from whom you purchased your electricity:</p> <p>If this establishment purchases from more than one provider, please provide the largest provider.</p>	10016	<div style="border: 1px solid black; width: 100%; height: 20px;"></div>								
<p>11. Enter the quantity of your total purchased electricity that was purchased from a local utility during 2018.</p>	10010	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> Kilowatthours								
<p>12. Enter the total expenditures of your purchased electricity that was paid to a local utility.</p>	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

<p>13. Excluding the quantity reported in question 7, did this establishment receive any additional electricity from another establishment that was not purchased?</p>	10052	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No, skip to question 15.
<p>14. How much of this additional electricity was received from the other establishment?</p>	10050	<div style="border: 1px solid black; width: 100%; height: 20px; margin-bottom: 5px;"></div> Kilowatthours



Electricity: Generated On-Site

	Census Use Only	
15. Enter the quantity of electricity generated on-site from each of the following:		Kilowatthours
<ul style="list-style-type: none"> • Combined Heat and Power (CHP)/Cogeneration <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> 	10070	<input type="text"/>
<ul style="list-style-type: none"> • Solar Power 	10081	<input type="text"/>
<ul style="list-style-type: none"> • Wind Power 	10082	<input type="text"/>
<ul style="list-style-type: none"> • Hydropower 	10083	<input type="text"/>
<ul style="list-style-type: none"> • Geothermal Power 	10084	<input type="text"/>
<ul style="list-style-type: none"> • Other (for example, electricity generated by diesel generators) 	10090	<input type="text"/>
16. Does your establishment's generators together have a total nameplate capacity of less than one megawatt?	10053	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No <input type="checkbox"/> 3. Don't know

Electricity: Sales and Transfers Offsite

17. Enter the quantity of electricity sold or transferred out of this establishment to utilities during 2018. 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 type="text"/> Kilowatthours
18. Enter the quantity of electricity sold or transferred out of this establishment to any non-utilities during 2018. Include: <ul style="list-style-type: none"> • Sales to independent power producers, small power producers, brokers, marketers, marketing subsidiaries of utilities, or cogenerators not located at this establishment. • Quantities exchanged for the same or any other energy source. 	10120	<input 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 14 [Transfers] + Question 15 [Generated] - (Question 17 + 18) [Sales and Transfers Offsite]

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

Boilers: Boiler use includes the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.

- **Boiler fuel** (includes fuels used for thermal outputs)

Census
Use Only

Electricity

10705

%

Process: Process use includes usage in motors, ovens, kilns, and strip heaters.

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

10720

%

- **Process cooling and refrigeration**

10730

%

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

10740

%

- **Electrochemical processes** (e.g., reduction process)

10750

%

- **Other process use:**

Please specify:

10761

10760

%

Non-process: Non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).

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

10770

%

- **Facility lighting**

10780

%

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

10790

%

- **On-site transportation, excluding highway usage** (e.g., forklifts)

10800

%

- **Other non-process use:**

Please specify:

10821

10820

%

TOTAL 100%



Natural Gas: Units

20. 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

21. Enter the total quantity of natural gas purchased by and delivered to this establishment during 2018, regardless of when payment was made.

30010

Units

22. Enter total expenditures; including all applicable taxes and any delivery, management, and demand charges, for the purchased natural gas reported in question 21.

30020

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Natural Gas: Source of Purchase

23. During 2018, 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 24 then skip to question 27.
2. All non-utility: Answer question 24 then skip to question 27.
3. Both

24. 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

25. Enter the quantity of your total purchased natural gas that was purchased from a local utility during 2018.

31010

Units

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

31020

\$Bil. Mil. Thou. Dol.

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U.S. Dollars



Natural Gas: Transferred In and Produced On-site

<p>27. Excluding the quantity reported in question 21, did this establishment receive any additional natural gas from another establishment that was not purchased?</p>	<p>Census Use Only 30031</p>	<p><input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No, skip to question 29.</p>
<p>28. How much of this additional natural gas was received from the other establishment.</p>	<p>30030</p>	<p><input style="width: 100%; height: 20px;" type="text"/> Units</p>
<p>29. Enter the quantity of natural gas that was both produced on-site during 2018 as output from a captive (onsite) well, and was at least partially consumed on-site (as a fuel or nonfuel).</p>	<p>30040</p>	<p><input style="width: 100%; height: 20px;" type="text"/> Units</p>

Natural Gas: Consumption

<p>30. Enter the total quantity of natural gas consumed as a fuel at this establishment during 2018.</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 on-site.</p>	<p>30060</p>	<p><input style="width: 100%; height: 20px;" type="text"/> Units</p>
<p>31. Enter the total quantity of natural gas consumed for any purpose other than fuel use at this establishment during 2018.</p> <p>Include all quantities consumed as lubricants, solvents, or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose.</p> <p>Exclude all off-site dispositions such as sales and transfers to other establishments.</p>	<p>30070</p>	<p><input style="width: 100%; height: 20px;" type="text"/> 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 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.

32. Enter the percentage of total natural gas (from question 30) that this establishment consumed as the following:

<i>Boilers: boiler use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.</i>	Census Use Only	Natural Gas
<ul style="list-style-type: none"> • Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process 	30705	<input type="text"/> %
<ul style="list-style-type: none"> • Other boiler fuel (not included above) (includes fuels used for thermal outputs only) 	30710	<input type="text"/> %
<i>Process: process use includes usage in motors, ovens, kilns, and strip heaters.</i>		
<ul style="list-style-type: none"> • Process heating (e.g., kilns, furnaces, ovens, strip heaters) 	30720	<input type="text"/> %
<ul style="list-style-type: none"> • Process cooling and refrigeration 	30730	<input type="text"/> %
<ul style="list-style-type: none"> • Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment) 	30740	<input type="text"/> %
<ul style="list-style-type: none"> • Other process use: Please specify: 30761 <input style="width: 200px;" type="text"/> 	30760	<input type="text"/> %
<i>Non-process: non-process use includes usage for facility lighting and space-conditioning equipment (HVAC)</i>		
<ul style="list-style-type: none"> • Facility heating, ventilation, and air conditioning 	30770	<input type="text"/> %
<ul style="list-style-type: none"> • Facility support other than that reported above (e.g., cooking, water heating, office equipment) 	30790	<input type="text"/> %
<ul style="list-style-type: none"> • On-site transportation, excluding highway usage (e.g., forklifts) 	30800	<input type="text"/> %
<ul style="list-style-type: none"> • Conventional electricity generation 	30810	<input type="text"/> %
<ul style="list-style-type: none"> • Other non-process use: Please specify: 30821 <input style="width: 200px;" type="text"/> 	30820	<input type="text"/> %

TOTAL 100%



Diesel and Distillate Fuel Oil

33. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

34. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 33.

020 Diesel (exclude off-site highway use) (28)

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Distillate (numbers 1, 2, & 4) (29)

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

35. Excluding the quantity reported in question 33, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 36. Otherwise, skip to question 37.)

031 Diesel (exclude off-site highway use) (28)

Yes

No

Distillate (numbers 1, 2, & 4) (29)

Yes

No

36. How much of this additional material was received from the other establishment?

030 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

37. Enter the quantity produced on-site during 2018.

040 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

38. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

39. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments.

070 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels



Diesel and Distillate Fuel Oil**40. Enter the quantity shipped off-site during 2018.**

080 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

41. Enter the shell or design storage capacity of all the storage tanks located on-site as of 12/31/2018.

090 Diesel (exclude off-site highway use) (28)

Barrels

Distillate (numbers 1, 2, & 4) (29)

Barrels

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

The following questions refer to how this establishment consumed diesel and/or distillate fuel oil that was previously reported in question 38 (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.

42. Enter the percentage of total diesel and distillate (question 38, Diesel + question 38, Distillate) that this establishment consumed as the following:

Boilers: boiler 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

**Diesel and
Distillate**

22705

%

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

22710

%

Process: process use includes usage in motors, ovens, kilns, and strip heaters.

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

22720

%

• **Process cooling and refrigeration**

22730

%

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

22740

%

• **Other process use:**

Please specify:

22762

22760

%

Non-process: non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).

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

22770

%

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

22790

%

• **On-site transportation, excluding highway usage** (e.g., forklifts)

22800

%

• **Conventional electricity generation**

22810

%

• **Other non-process use:**

Please specify:

22822

22820

%

TOTAL 100%



Residual Fuel Oil: Total Purchased, Transferred, and Produced

	Census Use Only	Residual Fuel Oil (numbers 5, 6, Navy Special and Bunker C) ↓								
43. Enter the total quantity of residual fuel purchased by and delivered to this establishment during 2018, regardless of when payment was made.	21010	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels								
44. Enter total expenditures; including all applicable taxes and fees for the purchased residual fuel reported in question 43.	21020	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%; text-align: center;">\$Bil.</th> <th style="width: 25%; text-align: center;">Mil.</th> <th style="width: 25%; text-align: center;">Thou.</th> <th style="width: 25%; text-align: center;">Dol.</th> </tr> </thead> <tbody> <tr> <td style="border: 1px solid black; height: 20px;"></td> </tr> </tbody> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.							
45. Excluding the quantity reported in question 43, did this establishment receive any additional residual fuel oil from another establishment that was not purchased?	21031	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No, skip to question 47.								
46. How much of this additional residual fuel oil was received from the other establishment?	21030	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels								
47. Enter the quantity of residual fuel produced on-site during 2018.	21040	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels								

Residual Fuel Oil: Consumption, Shipments, and Storage Capacity

48. Enter the total quantity of residual fuel consumed as a fuel at this establishment during 2018. <small>Include all uses that were used for the heat, power, and electricity generation.</small>	21060	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels
49. Enter the total quantity of residual fuel consumed for any purpose other than fuel use at this establishment during 2018. <small>Include all quantities consumed as lubricants, solvents, or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments.</small>	21070	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels
50. Enter the quantity of residual fuel shipped off-site during 2018.	21080	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Barrels
51. Enter the shell or design storage capacity of all the storage tanks located on-site as of 12/31/18.	21090	<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 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.

52. Enter the percentage of total residual fuel (from question 48) that this establishment consumed as the following:

Boilers: boiler 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

Residual Fuel

21705

%

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

21710

%

Process: 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 process use:**

Please specify:

21762

21760

%

Non-process: 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 non-process use:**

Please specify:

21822

21820

%

TOTAL 100%



Butane, Ethane, and Propane

53. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons

54. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 53.

020 Butane (36)	Ethane (37)	Propane (38)
\$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

55. Excluding the quantity reported in question 53, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 56. Otherwise, skip to question 57.)

031 Butane (36)	Ethane (37)	Propane (38)
<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> No	<input type="checkbox"/> No	<input type="checkbox"/> No

56. How much of this additional material was received from the other establishment?

030 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons

57. Enter the quantity produced on-site during 2018.

040 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons

58. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons

59. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments

070 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons

60. Enter the quantity shipped off-site during 2018.

080 Butane (36)	Ethane (37)	Propane (38)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Gallons	Gallons	Gallons



Total Mixtures and Other LPG

61. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Mixtures of Butane,
Ethane and Propane (34)**

Gallons

**Other Liquefied Petroleum Gases (LPG)
and Natural Gas Liquids (NGL)**
(e.g., butylene, ethylene, and propylene) (35)

Gallons

62. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 61.

020 **Mixtures of Butane,
Ethane and Propane (34)**

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Other LPGs and NGLs (35)

\$Bil. Mil. Thou. Dol.

--	--	--	--

U.S. Dollars

63. Excluding the quantity reported in question 61, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 64. Otherwise, skip to question 65.)

031 **Mixtures of Butane,
Ethane and Propane (34)**

- Yes
 No

Other LPGs and NGLs (35)

- Yes
 No

64. How much of this additional material was received from the other establishment?

030 **Mixtures of Butane,
Ethane and Propane (34)**

Gallons

Other LPGs and NGLs (35)

Gallons

65. Enter the quantity produced on-site during 2018.

040 **Mixtures of Butane,
Ethane and Propane (34)**

Gallons

Other LPGs and NGLs (35)

Gallons

66. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Mixtures of Butane,
Ethane and Propane (34)**

Gallons

Other LPGs and NGLs (35)

Gallons



Total Mixtures and Other LPG

67. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. **Exclude** all off-site dispositions such as sales and transfers to other establishments.

070

**Mixtures of Butane,
Ethane and Propane (34)**

Gallons

Other LPGs and NGLs (35)

Gallons

68. Enter the quantity shipped off-site during 2018.

080

**Mixtures of Butane,
Ethane and Propane (34)**

Gallons

Other LPGs and NGLs (35)

Gallons

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Total LPG and NGL: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the Total LPG and NGL that was previously reported in questions 58 + 66 (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.

69. Enter the percentage of Total LPG and NGL (question 58, Butane + question 58, Ethane + question 58, Propane + question 66, Mixtures + question 66, Other LPGs/NGLs) that this establishment consumed as the following:

Boilers: boiler 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
<ul style="list-style-type: none"> Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process 	24705	<input type="text"/> %
<ul style="list-style-type: none"> Other boiler fuel (not included above) (includes fuels used for thermal outputs only) 	24710	<input type="text"/> %
<i>Process: process use includes usage in motors, ovens, kilns, and strip heaters.</i>		
<ul style="list-style-type: none"> Process heating (e.g., kilns, furnaces, ovens, strip heaters) 	24720	<input type="text"/> %
<ul style="list-style-type: none"> Process cooling and refrigeration 	24730	<input type="text"/> %
<ul style="list-style-type: none"> Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment) 	24740	<input type="text"/> %
<ul style="list-style-type: none"> Other direct process use: Please specify: <input type="text"/> 24762 	24760	<input type="text"/> %
<i>Non-process: non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).</i>		
<ul style="list-style-type: none"> Facility heating, ventilation, and air conditioning 	24770	<input type="text"/> %
<ul style="list-style-type: none"> Facility support other than that reported above (e.g., cooking, water heating, office equipment) 	24790	<input type="text"/> %
<ul style="list-style-type: none"> On-site transportation, excluding highway usage (e.g., forklifts) 	24800	<input type="text"/> %
<ul style="list-style-type: none"> Conventional electricity generation 	24810	<input type="text"/> %
<ul style="list-style-type: none"> Other direct non-process use: Please specify: <input type="text"/> 24822 	24820	<input type="text"/> %

TOTAL 100%



Coal

70. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Short tons	Short tons	Short tons

71. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 70.

020 Anthracite (40)				Bituminous and Subbituminous (41)				Lignite (42)			
\$Bil.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.
<input style="width: 100%; height: 20px;" type="text"/>											
U.S. Dollars				U.S. Dollars				U.S. Dollars			

72. Excluding the quantity reported in question 70, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 73. Otherwise, skip to question 74.)

031 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input type="checkbox"/> Yes	<input type="checkbox"/> Yes	<input type="checkbox"/> Yes
<input type="checkbox"/> No	<input checked="" type="checkbox"/> No	<input type="checkbox"/> No

73. How much of this additional material was received from the other establishment?

030 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Short tons	Short tons	Short tons

74. Enter the quantity produced on-site during 2018.

040 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Short tons	Short tons	Short tons

75. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Short tons	Short tons	Short tons

76. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018. Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments.

070 Anthracite (40)	Bituminous and Subbituminous (41)	Lignite (42)
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>
Short tons	Short tons	Short tons



Coal: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the coal that was previously reported in question 75 (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.

77. Enter the percentage of total coal (question 75, Anthracite + question 75, Bituminous/Subbituminous + question 75, Lignite) that this establishment consumed as the following:

<i>Boilers: boiler use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.</i>	Census Use Only	Total Coal (exclude coal coke and breeze)
<ul style="list-style-type: none"> • Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process 	46705	<input type="text"/> %
<ul style="list-style-type: none"> • Other boiler fuel (not included above) (includes fuels used for thermal outputs only) 	46710	<input type="text"/> %
<i>Process: process use includes usage in motors, ovens, kilns, and strip heaters.</i>		
<ul style="list-style-type: none"> • Process heating (e.g., kilns, furnaces, ovens, strip heaters) 	46720	<input type="text"/> %
<ul style="list-style-type: none"> • Process cooling and refrigeration 	46730	<input type="text"/> %
<ul style="list-style-type: none"> • Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment) 	46740	<input type="text"/> %
<ul style="list-style-type: none"> • Other direct process use: Please specify: 46761 <input style="width: 200px;" type="text"/> 	46760	<input type="text"/> %
<i>Non-process: non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).</i>		
<ul style="list-style-type: none"> • Facility heating, ventilation, and air conditioning 	46770	<input type="text"/> %
<ul style="list-style-type: none"> • Facility support other than that reported above (e.g., cooking, water heating, office equipment) 	46790	<input type="text"/> %
<ul style="list-style-type: none"> • Conventional electricity generation 	46810	<input type="text"/> %
<ul style="list-style-type: none"> • Other direct non-process use: Please specify: 46821 <input style="width: 200px;" type="text"/> 	46820	<input type="text"/> %

TOTAL 100%



Breeze and Coal Coke

78. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons

79. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 78.

020 **Breeze (44)**

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

Coal Coke (43)

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

80. Excluding the quantity reported in question 78, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 81. Otherwise, skip to question 82.)

031 **Breeze (44)**

Yes

No

Coal Coke (43)

Yes

No

81. How much of this additional material was received from the other establishment?

030 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons

82. Enter the quantity produced on-site during 2018.

040 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons

83. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons

84. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments

070 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons

85. Enter the quantity shipped off-site during 2018.

080 **Breeze (44)**

Short tons

Coal Coke (43)

Short tons



Petroleum Cokes

86. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Marketable Petroleum Coke -
Unrefined or Green (78)**

Barrels

**Marketable Petroleum Coke -
Calcined (79)**

Barrels

87. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 86.

020 **Unrefined or Green (78)**

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Calcined (79)

\$Bil. Mil. Thou. Dol.

--	--	--	--

U.S. Dollars

88. Excluding the quantity reported in question 86, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 89. Otherwise, skip to question 90.)

031 **Unrefined or Green (78)**

Yes

No

Calcined (79)

Yes

No

89. How much of this additional material was received from the other establishment?

030 **Unrefined or Green (78)**

Barrels

Calcined (79)

Barrels

90. Enter the quantity produced on-site during 2018.

040 **Unrefined or Green (78)**

Barrels

Calcined (79)

Barrels

91. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Unrefined or Green (78)**

Barrels

Calcined (79)

Barrels

92. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments

070 **Unrefined or Green (78)**

Barrels

Calcined (79)

Barrels

93. Enter the quantity shipped off-site during 2018.

080 **Unrefined or Green (78)**

Barrels

Calcined (79)

Barrels



Kerosene and Motor Gasoline

94. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Kerosene (27)**

Barrels

Motor Gasoline (exclude off-site highway use) (23)

Gallons

95. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 94.

020 **Kerosene (27)**

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Motor Gasoline (exclude off-site highway use) (23)

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

96. Excluding the quantity reported in question 94, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 97. Otherwise, skip to question 98.)

031 **Kerosene (27)**

Yes

No

Motor Gasoline (23)

Yes

No

97. How much of this additional material was received from the other establishment?

030 **Kerosene (27)**

Barrels

Motor Gasoline (exclude off-site highway use) (23)

Gallons

98. Enter the quantity produced on-site during 2018.

040 **Kerosene (27)**

Barrels

Motor Gasoline (exclude off-site highway use) (23)

Gallons

99. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Kerosene (27)**

Barrels

Motor Gasoline (exclude off-site highway use) (23)

Gallons

100. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. Exclude all off-site dispositions such as sales and transfers to other establishments

070 **Kerosene (27)**

Barrels

Motor Gasoline (exclude off-site highway use) (23)

Gallons

101. Enter the shell or design storage capacity of all the storage tanks located on-site as of 12/31/2018.

090

Motor Gasoline (exclude off-site highway use) (23)

Gallons



Naphtha and Heavier gas oils used for Petrochemical Feedstocks or Bitumen

Naphtha (boiling point below 401F) and heavier gas oils (boiling point above 401F) used as a petrochemical feedstock in the production of other materials should be included in the appropriate boxes in this section. Other oils, including waste oils, that are not used as a petrochemical feedstock should be included elsewhere in the questionnaire.

Bitumen is a material that comes from an oil refinery. Other names for bitumen include asphalt binder, liquid asphalt, and asphalt cement. In reporting your bitumen in the appropriate boxes in this section, please only include that material which most likely comes from an oil refinery.

102. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 Naphtha and Heavier Gas Oils
used for Petrochemical Feedstocks (75)

Short tons

Bitumen (67)

Short tons

103. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 102.

020 Naphtha and Heavier Gas Oils (75)
\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Bitumen (67)
\$Bil. Mil. Thou. Dol.

--	--	--	--

U.S. Dollars

104. Excluding the quantity reported in question 102, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 105. Otherwise, skip to question 106.)

031 Naphtha and Heavier Gas Oils (75)

Yes

No

Bitumen (67)

Yes

No

105. How much of this additional material was received from the other establishment?

030 Naphtha and Heavier Gas Oils (75)

Short tons

Bitumen (67)

Short tons

106. Enter the quantity produced on-site during 2018.

040 Naphtha and Heavier Gas Oils (75)

Short tons

Bitumen (67)

Short tons

107. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 Naphtha and Heavier Gas Oils (75)

Short tons

Bitumen (67)

Short tons



Naphtha and Heavier gas oils used for Petrochemical Feedstocks or Bitumen

108. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. **Exclude** all off-site dispositions such as sales and transfers to other establishments.

070 **Naphtha and Heavier Gas Oils (75)**

Short tons

Bitumen (67)

Short tons

109. Enter the quantity shipped off-site during 2018.

080 **Naphtha and Heavier Gas Oils (75)**

Short tons

Bitumen (67)

Short tons

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Acetylene and Hydrogen

110. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 Acetylene (64)

Cubic Feet

Hydrogen (63)

Million Btu

111. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 110.

020 Acetylene (64)

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

Hydrogen (63)

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

112. Excluding the quantity reported in question 110, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 113. Otherwise, skip to question 114.)

031 Acetylene (64)

Yes

No

Hydrogen (63)

Yes

No

113. How much of this additional material was received from the other establishment?

030 Acetylene (64)

Cubic Feet

Hydrogen (63)

Million Btu

114. Enter the quantity produced on-site during 2018.

040 Acetylene (64)

Cubic Feet

Hydrogen (63)

Million Btu

115. Does the quantity of hydrogen reported in produced on-site above represent the product or byproduct of another energy source consumed on-site?

Hydrogen (63050)

Yes, product or byproduct

No

116. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 Acetylene (64)

Cubic Feet

Hydrogen (63)

Million Btu



*Acetylene and Hydrogen***117. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.**

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. **Exclude** all off-site dispositions such as sales and transfers to other establishments.

070 **Acetylene (64)**

Cubic Feet

Hydrogen (63)

Million Btu

118. Enter the quantity shipped off-site during 2018.080 **Acetylene (64)**

Cubic Feet

Hydrogen (63)

Million Btu

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Wood Harvested Directly from Trees

<p>119. Enter the total quantity of wood harvested directly from trees purchased by and delivered to this establishment during 2018, for fuel uses only, regardless of when payment was made.</p>	<p>Census Use Only 83010</p>	<p style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Btu </p>
<p>120. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 119.</p>	<p>83020</p>	<p style="text-align: center;"> \$Bil. Mil. Thou. Dol. <input style="width: 150px; height: 20px;" type="text"/> U.S. Dollars </p>
<p>121. Excluding the quantity reported in question 119, did this establishment receive any additional material from another establishment that was not purchased?</p>	<p>83031</p>	<p style="text-align: center;"> <input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No, skip to question 123. </p>
<p>122. How much of this additional material was received from the other establishment?</p>	<p>83030</p>	<p style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Btu </p>
<p>123. Enter the quantity of wood harvested directly from trees produced on-site during 2018.</p>	<p>83040</p>	<p style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Btu </p>
<p>124. Enter the total quantity of wood harvested directly from trees consumed as a fuel at this establishment during 2018. Include all uses that were used for the heat, power, and electricity generation.</p>	<p>83060</p>	<p style="text-align: center;"> <input style="width: 150px; height: 20px;" type="text"/> Million Btu </p>

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Blast Furnace Gas and Coke Oven Gas

Please answer the next two questions only if your establishment is classified in NAICS 331110 (Iron and Steel Mills and Ferroalloy Manufacturing). Otherwise, skip to question 127.

125. Did this establishment produce any blast furnace or coke oven gases in 2018?

Yes (60001)

No

126. Was an electric arc furnace used at this establishment in 2018?

Yes (60002)

No

127. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Blast Furnace (60)**

Million Btu

Coke Oven Gas (61)

Million Btu

128. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 127.

020 **Blast Furnace (60)**

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

Coke Oven Gas (61)

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

129. Excluding the quantity reported in question 127, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 130. Otherwise, skip to question 131.)

031 **Blast Furnace (60)**

Yes

No

Coke Oven Gas (61)

Yes

No

130. How much of this additional material was received from the other establishment?

030 **Blast Furnace (60)**

Million Btu

Coke Oven Gas (61)

Million Btu

131. Enter the quantity produced on-site during 2018.

040 **Blast Furnace (60)**

Million Btu

Coke Oven Gas (61)

Million Btu



Blast Furnace Gas and Coke Oven Gas**132. Enter the total quantity consumed as a fuel at this establishment during 2018.**

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 **Blast Furnace (60)**

Million Btu

Coke Oven Gas (61)

Million Btu

133. Enter the quantity shipped off-site during 2018.080 **Blast Furnace (60)**

Million Btu

Coke Oven Gas (61)

Million Btu

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Waste Oils and Tars, and Waste Byproduct Gases

134. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Waste Oils and Tars
(excluding Coal Tar) (71)**

Million Btu

**Waste and Byproduct Gases(e.g., refinery gas,
off gas, vent gas, plan gas, still gas) (62)**

Million Btu

135. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 134.

020 **Waste Oils and Tars (71)**

\$Bil. Mil. Thou. Dol.

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U.S. Dollars

Waste and Byproduct Gases (62)

\$Bil. Mil. Thou. Dol.

--	--	--	--

U.S. Dollars

136. Excluding the quantity reported in question 134, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 137. Otherwise, skip to question 138.)

031 **Waste Oils and Tars (71)**

Yes

No

Waste and Byproduct Gases (62)

Yes

No

137. How much of this additional material was received from the other establishment?

030 **Waste Oils and Tars (71)**

Million Btu

Waste and Byproduct Gases (62)

Million Btu

138. Enter the quantity produced on-site during 2018.

040 **Waste Oils and Tars (71)**

Million Btu

Waste and Byproduct Gases (62)

Million Btu

139. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Waste Oils and Tars (71)**

Million Btu

Waste and Byproduct Gases (62)

Million Btu

140. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. **Exclude** all off-site dispositions such as sales and transfers to other establishments.

070 **Waste Oils and Tars (71)**

Million Btu

Waste and Byproduct Gases (62)

Million Btu



Tire-Derived Fuel (TDF)

	Census Use Only	Tire-Derived Fuel (TDF) ↓								
141. Enter the total quantity of tire-derived fuel purchased by and delivered to this establishment during 2018, regardless of when payment was made.	65010	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Short Tons								
142. Enter total expenditures; including all applicable taxes and fees for the purchased tire-derived fuel reported in question 141.	65020	<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 25%; text-align: center;">\$Bil.</th> <th style="width: 25%; text-align: center;">Mil.</th> <th style="width: 25%; text-align: center;">Thou.</th> <th style="width: 25%; text-align: center;">Dol.</th> </tr> </thead> <tbody> <tr> <td style="border: 1px solid black; text-align: center;"> </td> </tr> </tbody> </table> U.S. Dollars	\$Bil.	Mil.	Thou.	Dol.				
\$Bil.	Mil.	Thou.	Dol.							
143. Excluding the quantity reported in question 141, did this establishment receive any additional tire-derived fuel from another establishment that was not purchased?	65031	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No, skip to question 145.								
144. How much of this additional tire-derived fuel was received from the other establishment.	65030	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Short Tons								
145. Enter the quantity of tire-derived fuel produced on-site during 2018.	65040	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Short Tons								
146. Does the quantity of tire-derived fuel reported in question 145 represent the product or byproduct of another energy source consumed on-site?	65050	<input type="checkbox"/> 1. Yes, product or byproduct <input type="checkbox"/> 2. No								
147. Enter the total quantity of tire-derived fuel consumed as a fuel at this establishment during 2018. <small>Include all uses that were used for the heat, power, and electricity generation.</small>	65060	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> Short Tons								



Pulping Black Liquor and Agricultural Waste

148. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Pulping Black Liquor (73)**

Million Btu

Agricultural Waste (e.g., bagasse, rice hulls, nut shells, orchard prunings) (90)

Million Btu

149. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 148.

020 **Pulping Black Liquor (73)**

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

Agricultural Waste (90)

\$Bil.	Mil.	Thou.	Dol.

U.S. Dollars

150. Excluding the quantity reported in question 148, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 151. Otherwise, skip to question 152.)

031 **Pulping Black Liquor (73)**

Yes

No

Agricultural Waste (90)

Yes

No

151. How much of this additional material was received from the other establishment?

030 **Pulping Black Liquor (73)**

Million Btu

Agricultural Waste (90)

Million Btu

152. Enter the quantity produced on-site during 2018.

040 **Pulping Black Liquor (73)**

Million Btu

Agricultural Waste (90)

Million Btu

153. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Pulping Black Liquor (73)**

Million Btu

Agricultural Waste (90)

Million Btu



Wood Residues and Byproducts from Mill Processing or Wood / Paper-Related Refuse

154. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010 **Wood Residues and Byproducts
from Mill Processing
(e.g., sawdust, shavings, slabs, bark) (84)**

Million Btu

**Wood / Paper-Related Refuse
(e.g., scrap, wastepaper, wood pallets,
packing materials) (72)**

Million Btu

155. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 154.

020 **Wood Residues and Byproducts
from Mill Processing (84)**

\$Bil. Mil. Thou. Dol.

--	--	--	--	--	--	--	--	--	--

U.S. Dollars

Wood / Paper-Related Refuse (72)

\$Bil. Mil. Thou. Dol.

--	--	--	--	--	--	--	--	--	--

U.S. Dollars

156. Excluding the quantity reported in question 154, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 157. Otherwise, skip to question 158.)

031 **Wood Residues and Byproducts
from Mill Processing (84)**

Yes

No

Wood / Paper-Related Refuse (72)

Yes

No

157. How much of this additional material was received from the other establishment?

030 **Wood Residues and Byproducts
from Mill Processing (84)**

Million Btu

Wood / Paper-Related Refuse (72)

Million Btu

158. Enter the quantity produced on-site during 2018.

040 **Wood Residues and Byproducts
from Mill Processing (84)**

Million Btu

Wood / Paper-Related Refuse (72)

Million Btu

159. Enter the total quantity consumed as a fuel at this establishment during 2018.

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 **Wood Residues and Byproducts
from Mill Processing (84)**

Million Btu

Wood / Paper-Related Refuse (72)

Million Btu



Steam and Industrial Hot Water

160. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

061 **Steam (11)**

Million Btu

Industrial Hot Water (12)

Million Btu

161. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 160.

062 **Steam (11)**

\$Bil. Mil. Thou. Dol.

--	--	--	--	--	--

U.S. Dollars

Industrial Hot Water (12)

\$Bil. Mil. Thou. Dol.

--	--	--	--	--	--

U.S. Dollars

162. During 2018, where did this establishment's purchased steam come from? (Select one)

Local utility: 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.

Non-utility: 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.

1. All local utility: Answer question 163 then skip to question 166.

2. All non-utility: Answer question 163 then skip to question 166.

3. Both (11015)

163. Please specify the utility/non-utility provider from whom you purchased your steam:

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

Steam (11016)

164. Enter the quantity of your total purchased steam that was purchased from a local utility during 2018.

Steam (11010)

Million Btu

165. Enter the total expenditures of your purchased steam that was paid to a local utility.

Steam (11020)

\$Bil. Mil. Thou. Dol.

--	--	--	--	--	--

U.S. Dollars

166. Excluding the quantity reported in question 160, did this establishment receive any additional material from another establishment that was not purchased? (If you answer "Yes" to any of the alternatives below, please answer question 167. Otherwise, skip to question 168.)

051 **Steam (11)** **Yes** **No****Industrial Hot Water (12)** **Yes** **No**

Steam and Industrial Hot Water

167. How much of this additional material was received from the other establishment?

050

Steam (11)**Industrial Hot Water (12)**

Million Btu

Million Btu

168. Enter the quantity of steam or hot water generated on-site from each of the following:
• **Solar Power (081)****Steam (11)**
Million Btu**Industrial Hot Water (12)**
Million Btu

• **Wind Power (082)**

• **Hydropower (083)**

• **Geothermal Power (084)**

169. Enter the quantity sold or transferred out of this establishment during 2018.

Include quantities exchanged for the same or any other material.

Exclude sales to independent power producers, small power producers, or cogenerators not located at this establishment.

110

Steam (11)**Industrial Hot Water (12)**

Million Btu

Million Btu

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Other Types Used as Energy

170. 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.

* Do not include: oxygen, carbon dioxide, nitrogen, argon, or helium.

980			
	Type (91)	Type (93)	Type (95)
981			
	Units (91)	Units (93)	Units (95)

171. Enter the total quantity purchased by and delivered to this establishment during 2018, regardless of when payment was made.

010			
	Units (91)	Units (93)	Units (95)

172. Enter total expenditures; including all applicable taxes and fees for the quantity reported in question 171.

020			
\$Bil.	Mil.	Thou.	Dol.

Other Types Used as Energy

177. Enter the total quantity consumed as a fuel at this establishment during 2018.

Include all uses for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use on-site.

060

Units (91)

Units (93)

Units (95)

178. Enter the total quantity consumed for any purpose other than fuel use at this establishment during 2018.

Include all quantities consumed as lubricants, solvents or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purpose. **Exclude** all off-site dispositions such as sales and transfers to other establishments.

070

Units (91)

Units (93)

Units (95)

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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 2018, 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 2018.

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.
- You will be asked to provide your not switchable amount first, then the switchable.
- 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 set of 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.

179. Refer back to the Electricity section, question 7 page 8. Please enter the quantity of reported purchased electricity.

180. Refer back to the Electricity section, question 14 page 8. Please enter the quantity of reported transferred electricity.

181. Add lines from question 179 and 180 (question 179 + question 180). Enter the total in the box.

10503

182. Refer back to the Natural Gas section, question 30 page 12. Please enter the quantity of reported natural gas consumed. Enter the figure in the box.

30503

183. Refer back to the Coal section, question 75 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) Total Electricity Received Purchases + transfers ↓	(30) Total Natural Gas ↓	(46) Total ALL Coal (excluding Coal Coke & Breeze) ↓
184. Enter the total quantity of fuel (column) you reported as consumed during 2018. Copy this figure from the above worksheet questions.	500	<input type="text"/> Kilowatthours Enter figure from question 181.	<input type="text"/> Units Enter figure from question 182.	<input type="text"/> Short tons Enter figure from question 183.
185. Is the total quantity reported in question 184 greater than zero?	501	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 184, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 184, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 200, page 50.
186. Enter the amount of the total quantity you reported in question 184 that could NOT have been replaced within 30 days by another fuel during 2018. 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 type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons



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

	Census Use Only	(10)	(30)	(46)
		Total Electricity Received Purchases + transfers ↓	Total Natural Gas ↓	Total ALL Coal (excluding Coal Coke & Breeze) ↓
187. Is the total quantity in question 186 equal to zero?	511	<input type="checkbox"/> 1. Yes: Skip to question 189. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 189. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 189. <input type="checkbox"/> 2. No
188. Referring to the quantity shown in question 186, please check all the reasons that made this quantity unswitchable.				
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"/>	<input type="checkbox"/>	<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 type="text"/>	<input type="text"/>	<input type="text"/>



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

	Census Use Only	(10)	(30)	(46)
		Total Electricity Received Purchases + transfers ↓	Total Natural Gas ↓	Total ALL Coal (excluding Coal Coke & Breeze) ↓
<p>189. Enter the results of subtracting the quantity reported in question 186 from the quantity reported in question 184.</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 2018.</p> <p>Note: the sum of the quantities in question 191 through 198 should equal or exceed this quantity.</p>	520	<input type="text"/> Kilowatthours	<input type="text"/> Units	<input type="text"/> Short tons
<p>190. Is the total quantity reported in question 189 greater than zero?</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 question 200, page 50.
<p>191. Of the quantity switchable in question 189 what is the maximum amount that could have been replaced by <u>electricity</u>?</p>	530		<input type="text"/> Units	<input type="text"/> Short tons
<p>192. Of the quantity reported as switchable in question 189 what is the maximum amount that could have been replaced by <u>total coal, excluding coal coke and breeze</u>?</p>	670	<input type="text"/> Kilowatthours	<input type="text"/> Units	
<p>193. Of the quantity reported as switchable in question 189 what is the maximum amount that could have been replaced by <u>total coal coke and breeze, excluding coal</u>?</p>	690	<input type="text"/> Kilowatthours	<input type="text"/> Units	
<p>194. Of the quantity reported as switchable in question 189 what is the maximum amount that could have been replaced by <u>natural gas</u>?</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)
		Total Electricity Received Transfers + purchase ↓	Total Natural Gas ↓	Total ALL Coal (excluding Coal Coke & Breeze) ↓
195. Of the quantity reported as switchable in question 189 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
196. Of the quantity reported as switchable in question 189 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
197. Of the quantity reported as switchable in question 189 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
198. Of the quantity reported as switchable in question 189 what is the maximum amount that could have been replaced by <u>any other energy source not already asked about</u>?	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 2018 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	(10)	(30)	(46)
		Total Electricity Received Transfers + purchase ↓	Total Natural Gas ↓	Total ALL Coal (excluding Coal Coke & Breeze) ↓
	622			
Check one for each energy source (column) reported				
199. Would not switch regardless of price difference.		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Would switch at price difference 1-10 percent.		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Would switch at price difference 11-25 percent.		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Would switch at price difference 26-50 percent.		<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Would switch at price difference over 50 percent.		<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
Reasonable estimates cannot be provided.		<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
Would switch to the more expensive substitute if price premium were reasonable.		<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 2018, 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 2018.

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.
- You will be asked to provide your not switchable amount first, then the switchable.
- 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 set of 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.

200. Refer back to the LPG section, question 58 page 19. Please add the quantity of reported butane, ethane, and propane consumed.	<div style="border: 1px solid black; height: 25px; width: 100%;"></div>
201. Refer back to the LPG section, question 66 page 20. Please add the quantity of reported mixtures and other LPG & NGL consumed.	<div style="border: 1px solid black; height: 25px; width: 100%;"></div>
202. Add lines from question 200 and 201 (question 200 + question 201). Enter the total in the box.	24503 <div style="border: 1px solid black; height: 25px; width: 100%;"></div>
203. Refer back to the Diesel and Distillate Fuel section, question 38 page 14. Please add the reported quantity of diesel and distillate fuel consumed. Enter the figure in the box.	22503 <div style="border: 1px solid black; height: 25px; width: 100%;"></div>
204. Refer back to the Residual Fuel section, question 48 page 17. Please enter the reported quantity of residual fuel consumed. Enter the figure in the box.	21503 <div style="border: 1px solid black; height: 25px; width: 100%;"></div>

	Census Use Only	(24) Total LPG & NGL	(22) Total Diesel Fuel & Distillate Fuel Oil	(21) Residual Fuel Oil
		↓	↓	↓
205. Enter the total quantity of fuel (column) you reported as consumed during 2018. Copy this figure from the above worksheet questions.	500	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Gallons Enter figure from question 202.	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Barrels Enter figure from question 203.	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Barrels Enter figure from question 204.
206. Is the total quantity reported in question 205 greater than zero?	501	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 205, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 205, next column.	<input type="checkbox"/> 1. Yes <input type="checkbox"/> 2. No: Skip to question 221, page 55.
207. Enter the amount of the total quantity you reported in question 205 that could NOT have been replaced within 30 days by another fuel during 2018. 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	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Gallons	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Barrels	<div style="border: 1px solid black; height: 25px; width: 100%;"></div> Barrels



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

	Census Use Only	(24)	(22)	(21)
		Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
		↓	↓	↓
208. Is the total quantity in question 207 equal to zero?	511	<input type="checkbox"/> 1. Yes: Skip to question 210. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 210. <input type="checkbox"/> 2. No	<input type="checkbox"/> 1. Yes: Skip to question 210. <input type="checkbox"/> 2. No
209. Referring to the quantity shown in question 207, please check all the reasons that made this quantity unswitchable.				
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"/>	<input type="checkbox"/>	<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: Total LPG & NGL, Diesel & Distillate and Residual

	Census Use Only	(24)	(22)	(21)
		Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
		↓	↓	↓
<p>210. Enter the results of subtracting the quantity reported in question 207 from the quantity reported in question 205.</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 2018.</p> <p>Note: the sum of the quantities in question 212 through 219 should equal or exceed this quantity.</p>	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
<p>211. Is the total quantity reported in question 210 greater than zero?</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 question 221, page 55.
<p>212. Of the quantity switchable in question 210 what is the maximum amount that could have been replaced by <u>electricity</u>?</p>	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
<p>213. Of the quantity reported as switchable in question 210 what is the maximum amount that could have been replaced by <u>total coal, excluding coal coke and breeze</u>?</p>	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
<p>214. Of the quantity reported as switchable in question 210 what is the maximum amount that could have been replaced by <u>total coal coke and breeze, excluding coal</u>?</p>	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
<p>215. Of the quantity reported as switchable in question 210 what is the maximum amount that could have been replaced by <u>natural gas</u>?</p>	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)
		Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
		↓	↓	↓
216. Of the quantity reported as switchable in question 210 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
217. Of the quantity reported as switchable in question 210 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
218. Of the quantity reported as switchable in question 210 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	
219. Of the quantity reported as switchable in question 210 what is the maximum amount that could have been replaced by <u>any other energy source not already asked about</u>?	650	<input type="text"/> Gallons	<input type="text"/> Barrels	<input type="text"/> Barrels
Please Specify:	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 2018 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)
		Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
	622	↓	↓	↓
(Check one for each energy source (column) reported)				
220. Would not switch regardless of price difference.		<input type="checkbox"/> 1	<input type="checkbox"/> 1	<input type="checkbox"/> 1
Would switch at price difference 1-10 percent.		<input type="checkbox"/> 2	<input type="checkbox"/> 2	<input type="checkbox"/> 2
Would switch at price difference 11-25 percent.		<input type="checkbox"/> 3	<input type="checkbox"/> 3	<input type="checkbox"/> 3
Would switch at price difference 26-50 percent.		<input type="checkbox"/> 4	<input type="checkbox"/> 4	<input type="checkbox"/> 4
Would switch at price difference over 50 percent.		<input type="checkbox"/> 5	<input type="checkbox"/> 5	<input type="checkbox"/> 5
Reasonable estimates cannot be provided.		<input type="checkbox"/> 6	<input type="checkbox"/> 6	<input type="checkbox"/> 6
Would switch to the more expensive substitute if price premium were reasonable.		<input type="checkbox"/> 7	<input type="checkbox"/> 7	<input type="checkbox"/> 7



Energy-Management Activities

For questions 221 through 225:

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, 2018 and December 31, 2018.

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)
221. Energy audit or assessment	1 <input type="checkbox"/> Yes →	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
	2 <input type="checkbox"/> No (060)					
222. Technical assistance (e.g., consultation, demonstrations, engineering design or analysis)	1 <input type="checkbox"/> Yes →	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
	2 <input type="checkbox"/> No (070)					
223. Technical information (e.g., software, reference material)	1 <input type="checkbox"/> Yes →	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
	2 <input type="checkbox"/> No (072)					
224. Training (e.g., workshops, seminars, presentations)	1 <input type="checkbox"/> Yes →	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
	2 <input type="checkbox"/> No (074)					
225. Financial assistance (e.g., loans, tax credits, rebates, subsidies)	1 <input type="checkbox"/> Yes →	3 <input type="checkbox"/>	4 <input type="checkbox"/>	7 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>
	2 <input type="checkbox"/> No (076)					



Energy-Management Activities

For Questions 226 through 232:

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, 2018 and December 31, 2018. 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 221.

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)
226. Steam systems (e.g., boilers, burners, insulation, piping, steam traps)	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"/>
227. Compressed air systems (e.g., compressor controls, drain traps, leak management, compressor or treatment equipment replacement)	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"/>
228. Process heating systems (e.g., insulation repair, burner controls, furnace repair, refractory replacement)	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"/>
229. Process cooling and refrigeration systems (e.g., insulation repair, use of free cooling, implementation of VSDs, refrigerant pressure balancing)	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"/>
230. Machine drive (e.g., variable speed drives, ramp speeds, 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"/>
231. Facility HVAC system (e.g., check filters, belts, duct maintenance, setback controls, equipment replacement and upgrade.)	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"/>
232. Facility lighting (e.g., occupancy controls, daylight harvesting, efficient lamp upgrade)	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 233 through 254:

These questions are intended to assess the awareness and implementation of energy management activities at your establishment. Please answer the following questions with respect to any activities implemented between January 1, 2018 and December 31, 2018.

	Census Use Only	
<p>233. Which statement best describes this establishment's management decision-making process. (Choose one)</p> <p>1. Energy use and consumption is increasingly becoming a higher priority for the company</p> <p>2. Management from time to time has supported projects to improve use and consumption</p> <p>3. Energy use and consumption are rarely a part of management decision making</p>	13561	<p>1 <input type="checkbox"/></p> <p>2 <input type="checkbox"/></p> <p>3 <input type="checkbox"/></p>
<p>234. Is establishment management aware of programs (i.e., public or utility) dedicated to improving energy use and consumption? (Check all that apply)</p> <p>1. Superior Energy Performance</p> <p>2. Better Buildings, Better Plants</p> <p>3. ENERGY STAR</p> <p>4. Other - Specify ¹³⁰¹⁶ <input style="width: 200px; height: 20px;" type="text"/></p> <p>5. None of the above</p>	13561 13562 13563 13564 13565	<p>1 <input type="checkbox"/></p> <p>2 <input type="checkbox"/></p> <p>3 <input type="checkbox"/></p> <p>4 <input type="checkbox"/></p> <p>5 <input type="checkbox"/></p>
<p>235. Is this establishment aware of ISO 50001?</p>	13503	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No, Skip to question 237</p>
<p>236. Is this establishment implementing ISO 50001?</p>	13504	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p>
<p>237. Is energy efficiency a part of this establishment's purchasing decision?</p>	13506	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p>238. Does this establishment have an energy use baseline for comparing energy use in future years?</p>	13507	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Don't Know</p>



Energy-Management Activities

<p>239. Does this establishment set goals for improving energy use?</p>	<p>Census Use Only 13508</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No, Skip to question 242</p> <p>3 <input type="checkbox"/> Don't Know, Skip to question 242</p>
<p>240. Are these goals quantitative (e.g., 10% improvement)?</p>	<p>13509</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No</p> <p>3 <input type="checkbox"/> Don't Know</p>
<p>241. Which of the following policies influenced energy usage goals set for this establishment (check all that apply):</p>	<p>13566 13567 13568 13569 13570</p>	<p>1 <input type="checkbox"/> Legal requirement</p> <p>2 <input checked="" type="checkbox"/> Voluntary programs</p> <p>3 <input type="checkbox"/> Corporate policy</p> <p>4 <input type="checkbox"/> Customer requirements</p> <p>5 <input type="checkbox"/> Government incentives</p>
<p>242. Does management at this establishment assign a representative(s) to be responsible for energy management?</p>	<p>13512</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No, Skip to question 244</p> <p>3 <input type="checkbox"/> Don't Know, Skip to question 244</p>
<p>243. What percentage of the designated representative(s) job responsibilities are related to managing energy (if more than one person responsible, use average across all persons)?</p>	<p>13513</p>	<p>1 <input type="checkbox"/> < 25%</p> <p>2 <input type="checkbox"/> 25% - 49%</p> <p>3 <input type="checkbox"/> 50% - 74%</p> <p>4 <input type="checkbox"/> >75%</p>
<p>244. Does this establishment have submetering (metering beyond the main utility, revenue or supplier meter)?</p>	<p>13514</p>	<p>1 <input type="checkbox"/> Yes</p> <p>2 <input type="checkbox"/> No, Skip to question 246</p>
<p>245. For which energy source(s) does this establishment use submetering?</p>	<p>13515 13580 13581 13017</p>	<p>1 <input type="checkbox"/> Electric</p> <p>2 <input type="checkbox"/> Natural Gas</p> <p>3 <input type="checkbox"/> Other - Specify ↴</p> <div style="border: 1px solid black; width: 100px; height: 20px; margin-top: 5px;"></div>



Energy-Management Activities

	Census Use Only	
246. Between January 1, 2018 and December 31, 2018, has the establishment conducted an audit on any energy system to identify potential energy saving opportunities?	13518	1 <input type="checkbox"/> Yes
		2 <input type="checkbox"/> No, Skip to question 248
		3 <input type="checkbox"/> Don't Know, Skip to question 248
247. Which systems (check all that apply)?	13571	1 <input type="checkbox"/> Compressed air systems
	13572	2 <input type="checkbox"/> Process heating systems
	13573	3 <input type="checkbox"/> Steam systems
	13574	4 <input type="checkbox"/> Process cooling and refrigeration systems
	13575	5 <input checked="" type="checkbox"/> Computing systems
	13576	6 <input type="checkbox"/> Facility HVAC
	13577	7 <input type="checkbox"/> Facility lighting
	13578	8 <input type="checkbox"/> Machine drives (e.g., motors, pumps, fans)
	13579	9 <input type="checkbox"/> Plant wide
248. For capital investment projects, what is the establishment's maximum simple payback (time period in years typically calculated as implementation cost divided by annual cost savings) that is currently allowed?	13520	1 <input type="checkbox"/> < 1 year
		2 <input type="checkbox"/> 1-2 years
		3 <input type="checkbox"/> 2-3 years
		4 <input type="checkbox"/> 3-4 years
		5 <input type="checkbox"/> > 4 years
		6 <input type="checkbox"/> Have no such requirement
		7 <input type="checkbox"/> Do not know



Energy-Management Activities

	Census Use Only	
<p>249. Does your establishment measure oxygen and carbon dioxide (or combustible) levels in boiler and other fuel fired heating equipment flue gases to “tune” the burners?</p>	13476	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>250. 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>	13477	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>251. 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>	13478	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>b. Cleaning of heat transfer surfaces to avoid build up of soot, scale, or other material.</p>	13479	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>c. Inspecting, calibrating, and adjusting temperature/pressure sensors, controllers, valve operators, etc.</p>	13480	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>252. Do you keep an inventory of all motors in your establishment?</p>	13481	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>253. Does your establishment have staff or equipment dedicated to detecting and controlling compressed air system leaks?</p>	13483	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know
<p>254. Does your establishment track the amount of energy spent in compressed air systems?</p>	13484	1 <input type="checkbox"/> Yes 2 <input type="checkbox"/> No 3 <input type="checkbox"/> Don't Know



Energy Technologies

	Census Use Only	
<p>255. Were any of the following technologies in use at your establishment anytime during 2018?</p> <p>a. Computer control of building-wide environment (e.g., space-heating equipment, cooling equipment, lights).</p>	14010	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>b. Computer control of processes or major energy-using equipment (e.g., boilers, furnaces, conveyors used in the manufacturing process).</p>	14020	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>c. Waste heat recovery.</p>	14030	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>d. Adjustable-speed motors.</p>	14040	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>e. Oxy-fuel firing.</p>	14950	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>256. Does your establishment have procedures in place to temporarily reduce electricity consumption in times of critical grid conditions (i.e., when the electric utility has indicated a need to reduce electric demand)?</p>	13516	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>257. Are there controls in place to automate any procedures for reducing electricity demand in times of critical grid conditions (i.e., when the electric utility has indicated a need to reduce demand)?</p>	13517	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know



Energy Technologies

	Census Use Only	
<p>258. Were any of the following technologies associated with cogeneration in use at your establishment anytime during 2018?</p> <p>a. Steam turbines supplied by either conventional or fluidized bed boilers.</p>	14042	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>b. Conventional combustion turbines with heat recovery.</p>	14043	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>c. Combined-cycle combustion turbines.</p>	14044	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>d. Internal combustion engines with heat recovery.</p>	14045	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>e. Steam turbines supplied by heat recovered from high-temperatures processes.</p>	14046	<input type="checkbox"/> 1 Yes <input type="checkbox"/> 2 No <input type="checkbox"/> 3 Don't know
<p>259. How many buildings were on this establishment site as of December 31, 2018?</p> <p>Buildings include: 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.</p> <p>Excluded buildings are: 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).</p>	17010	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p style="text-align: center;">Number of Buildings</p>
<p>260. What was the approximate total enclosed square footage of the buildings located on this establishment site as of December 31, 2018?</p>	13010	<div style="border: 1px solid black; height: 20px; width: 100%;"></div> <p style="text-align: center;">Total square feet</p>



Remarks

261. 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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Thank You – Your Response is Important

Accurate and timely statistical information could not be produced without your continued cooperation and goodwill. Thank you.

We estimate that it will take 9.2 hours to complete this form. This includes time to read instructions, develop or assemble materials, conduct tests, organize and review the information, and maintain and report the information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Energy Information Administration, Office of Survey Development and Statistical Integration, EI-21, Forrestal, 1000 Independence Ave., SW, Washington, DC 20585; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

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