2014 Manufacturing Energy Consumption Survey

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

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

Form **EIA-846** (mm-dd-yy)

OMB Approval No. xxxx-xxxx

Expires: mm/dd/yyyy

Report Electronically: www.census.gov/ econhelp/mecs

Username:

Password:

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

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. Public reporting burden for this collection of information is estimated to average 9.2 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data, and completing and reviewing the collection of information.

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

Instructions and Frequently Asked Questions can be found at <u>www.census.gov/econhelp/mecs</u>.

Contact Information						
Date (mm-dd-yyyy)	Area Cod	le	Telephone Number	Ext.		
Name of person to co	ontact regarding th	is question	nnaire			
	intact regarding th	is question				
Title of	contact person (abo	ove)				
Addres	ss (number and stree	et)				
City		State	Zip Code	Zip + 4		
				-		
I	E-mail address					

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 <u>especially</u> 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 <u>not</u> consolidate establishments. The reporting boundaries for your establishment should correspond to those used in the Economic Census Manufacturing (EC-M).
 - To resolve any consolidation problems, match the 10-digit identification number, which is located on the Manufacturing Energy Consumption Survey (MECS) questionnaire mailing label, with the first 10-digits of the identification number appearing on the EC-M mailing label.
 - Responses to the MECS questions should be the same activities as those considered when responding to the matching EC-M.
- 4. Report dollar amounts rounded to the nearest dollar (e.g., report \$1,257.59 as \$1,258).
- 5. If you do not maintain book records for particular items, please use carefully prepared estimates.
- 6. Enter zeros in the data columns if the value is zero or none.
- 7. Complete all applicable sections of the questionnaire.
- 8. The sections of this questionnaire are designed so all questions associated with the particular energy source should be completed before going on to the next energy source. Therefore, within each section, the questionnaire should be answered from the top to the bottom of the same column, before moving on to the next energy source (column).
- 9. The energy sources that are preprinted on the questionnaire are considered the most frequently consumed, but they do not represent a complete list of applicable energy sources. If your establishment has energy sources that meet the criteria for reporting, but are not preprinted on the questionnaire, please specify those energy sources in the "Other Energy Sources" section and enter the data there.

Section–Specific Instructions:

Company Information

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

Contact Information

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

Establishment Information

In this section, indicate any changes in the establishment ownership during 2014 and indicate the period covered by this filing, whether the calendar year or other period.

Instructions for Completing Form EIA-846, cont.

Energy Sources (Fuels)

Reporting Criteria

An energy source (fuel) 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:
 - o LPG
 - o Coal coke
 - o Petroleum coke
 - o Breeze
 - o Coke oven gas
 - o Blast furnace gas
 - o Acetylene
 - o Hydrogen
 - o Diesel or distillate fuel oil; and
 - o Residual fuel oil.

If your <u>only</u> means of an energy source during 2014 was a byproduct (or product) of an energy source used as a feedstock (or raw material input) that byproduct energy source should be reported <u>only if it was at least partially consumed onsite as a fuel or shipped offsite</u>. 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 subbitumious
- Lignite

Breeze Coal Coke

Loal 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) Acetylene Hydrogen Wood harvested directly from trees Byproduct Energy Source

- Blast Furnace Gas
- Coke Oven Gas
- Waste Oils and Tars (excluding Coal Tar)
- 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 Energy Source

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 <u>capability</u> of your establishment to use substitute energy sources in place of those actually consumed in 2014. These substitutions are limited to those that could actually have been introduced <u>within 30 days without extensive modifications</u>. 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 2014 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.

Co	nversion Factors Table	
To the right are Btu conversion factors	Energy Source	Conversion Factor(s)
that should be used <u>only</u> if you do not know the actual Btu factor of the fuels	Acetylene	21,600 Btu/pound 1,500 Btu/cubic feet
consumed at your establishment site.	Bagasse	4,081 Btu/pound
	Biomass	5,300 Btu/pound
If your establishment uses more precise	Breeze	19.8 million Btu/short ton
conversion values for your operations, use them in place of the approximations given below. However, please identify	Butane	4.326 million Btu/barrel 0.10300 million Btu/gallon
in the Remarks, the conversion factor(s)	Coal	22.489 million Btu/short ton
used, if different from those listed to	Coal (use for coke plants only)	27.426 million Btu/short ton
the right.	Coal Coke	24.8 million Btu/short ton
	Distillate Fuel Oil	5.825 million Btu/barrel
General Definitions:	Electricity	3,412 Btu/kilowatthour
Btu = British thermal unit(s) One barrel = 42 gallons	Ethane	3.082 million Btu/barrel 0.07338 million Btu/gallon
One short ton = 2,000 pounds Examples of conversion from physical	Hydrogen	61,084 Btu/pound 325.11 Btu/cubic feet 35,600 Btu/gallon
quantities to Btu include:	Industrial Hot Water	140 Btu/pound 7.84 pounds/gallon
• Your establishment consumed 250 cubic feet of hydrogen in 2014.	Isobutane	3.974 million Btu/barrel 0.09462 million Btu/gallon
The Btu equivalent is: (250 cubic feet) x (325.11 Btu/cubic	Liquefied Petroleum Gas (LPG)	3.616 million Btu/barrel 0.08610 million Btu/gallon 4.5 pounds/gallon
foot)	Natural Gas	1.027 million Btu/1,000 cubic feet 10.27 therms/1,000 cubic feet
= 81,277.5 Btu = 0.0813 million Btu	Petroleum Coke	6.024 million Btu/barrel 30.12 million Btu/short ton 5 barrels/short ton
• Your establishment consumed 300 pounds of hydrogen in 2014.	Propane	3.836 million Btu/barrel 0.09133 million Btu/gallon
	Pulping and/or Black Liquor	11 million Btu/short ton
The Btu equivalent is:	Residual Fuel Oil	6.287 million Btu/barrel
(300 pounds) x (61,084 Btu/pound) = 18,325,200 Btu = 18,325 million Btu	Roundwood	21.5 million Btu/cord 17.2 million Btu/short ton 0.014 million Btu/board foot
– 18.525 minion Btu	Sawdust (7% moisture)	8,000 Btu/pound
	Steam	1,200 Btu/pound
	Still, Refinery, and/or Waste Gas	6 million Btu/barrel 1,029 Btu/cubic feet
	Waste Materials (Wastepaper)	7,500 Btu/pound
	Waste Oils and Tars	6 million Btu/barrel
	(Green) Wood Chips (50% moisture)	10 million Btu/short ton
	Wood Waste (50% moisture)	9 million Btu/short ton

	Establishment Infor	mation	
1.	Did ownership of this establishment change during 2014?	"Census Use Only"	□ 1. No
	2017.	00011	□ 2. Yes: Establishment was sold during the year. Complete all sections of this questionnaire for activities that occurred in 2014 prior to the sale.
			□ 3. Yes: Establishment was bought during the year. Complete all sections of this questionnaire for activities that occurred in 2014 after the sale.
2.	What best describes this establishment at the end of 2014?		I. In operation: Skip to question 6.
		00010	 Ceased operation: Answer question 3 then skip to question 6.
			□ 3. Sold or leased to another operator: Skip to question 4.
3.	Enter the date in which your establishment ceased operation.	00013	Enter Date (mm-dd- yyyy)
4.	Enter the date in which your establishment was either sold or leased to another operator.	00014	Enter Date (mm-dd- yyyy)
5.	Enter the following information only if this establishmen during 2014. Name of new owner		-
	00015	-	
	Address 00017	00018	City
	State Zip Code Zip + 4	' \$	Employer Identification Number
	00019 00020 00021 00021	0	0016
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, 2014 to December 31, 2014.	00022	From: (mm-dd-yyyy)
		00023	To: (mm-dd-yyyy)

 7. Enter the total quantity of electricity purchased by and delivered to this establishment during 2014, regardless of when payment was made. 8. Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased electricity reported in question 7. 8. Electricity: Source of Purchase 9. During 2014, where did this establishment's purchased electricity come from? 	Dol.
 8. Enter total expenditures; including an applicable taxes and any delivery, management, transportation, and demand charges, for the purchased electricity reported in question 7. 10062 10062 10062 U.S. Dollars 9. During 2014, where did this establishment's 1. All local utility: Answer 	Dol.
9. During 2014, where did this establishment's	
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. 10015 2. All non-utility: Answ question 10 then skip question 13. 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. 10015 3. Both	o to er
10. Please specify the utility/non-utility provider from whom you purchased your electricity:	
If this establishment purchases from more than one provider, please provide the largest provider.	
11. Enter the quantity of your total purchased electricity that was purchased from a local utility during 2014. 10010 Kilowatthours	
12. Enter the total expenditures of your purchased electricity that was paid to a local utility. 10020 \$Bil. Mil. Thou. 10020 U.S. Dollars	Dol.
Electricity: Transfers In	
 13. Enter the total quantity of electricity transferred in or otherwise received on-site without a direct open market purchase. Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 	

	Electricity: Generated	On-Site	ę
14.	Enter the quantity of electricity generated on-site from each of the following:	"Census Use Only"	Kilowatthours
	• Combined Heat and Power (CHP)/Cogeneration Cogeneration is the production of electric energy and another form of useful energy (such as heat or steam) through the sequential use of energy.	10070	
	• Solar Power	10081	
	• Wind Power	10082	
	• Hydropower	10083	
	Geothermal Power	10084	
	• Other (for example, electricity generated by diesel generators)	10090	
	Electricity: Sales and Tran	sfers O	ffsite
15.	Enter the quantity of electricity sold or transferred out of this establishment to utilities during 2014. Include quantities exchanged for the same or any other energy source.	10110	Kilowatthours
	Exclude sales to independent power producers, small power producers, or cogenerators not located at this establishment.		
16.	Enter the quantity of electricity sold or transferred out of this establishment to any non-utilities during 2014.	10120	
	 Include: 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. 		Kilowatthours

Electricity: Estimated End-Use Percent Consumption

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

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

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

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Electricity
• Boiler fuel (includes fuels used for thermal outputs)	10705	%
Direct Uses – Process: direct 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 direct process use: Please specify:	10760	%
Direct Uses – Non-process: direct 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	10800	%
• Other direct non-process use: 10821 Please specify:	10820	%
		TOTAL 100%

	Natural Gas: U	nits						
18.	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								
	Enter the total quantity of natural gas purchased by and delivered to this establishment during 2014, regardless of when payment was made.	30010	Units \$Bil. Mil. Thou. Dol.					
20.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased natural gas reported in question 19.	30020	U.S. Dollars					
	Natural Gas: Source o	f Purch	ase					
21.	During 2014, 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 22 then skip to question 25. 2. All non-utility: Answer question 22 then skip to question 25. 3. Both 					
22. Please specify the utility/non-utility provider from whom you purchased your natural gas:								
	If this establishment purchases from more than 30016 one provider, please provide the largest provider.							
	If this establishment purchases from more than	31010	Units					
23.	Enter the quantity of your total purchased natural gas	31010	Units SBil. Mil. Thou. Dol. U.S. Dollars					

	Natural Gas: Transferred In and	Produc	ed On-site
25.	 Enter the total quantity of natural gas transferred in or otherwise received on-site without a direct open market purchase. Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 	"Census Use Only" 30030	Units
26.	Enter the quantity of natural gas that was both produced on-site during 2014 as output from a captive (onsite) well, and was at least partially consumed on-site (as a fuel or nonfuel).	30040	Units
	Natural Gas: Consur	nption	
27.	Enter the total quantity of natural gas consumed as a fuel at this establishment during 2014. 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 .	nption 30060	Units

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 27 (*please enter as a percentage of total consumption for each end use performed*). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

29. Enter the percentage of total natural gas (from question 27) that this establishment consumed as the following:

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Natural Gas
• Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process	30705	%
• Other boiler fuel (not included above) (includes fuels used for thermal outputs only)	30710	%
Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.		
• Process heating (e.g., kilns, furnaces, ovens, strip heaters)	30720	%
• Process cooling and refrigeration	30730	%
• Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment)	30740	%
• Other direct process use: Please specify: 30761	30760	%
Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).		
• Facility heating, ventilation, and air conditioning	30770	%
• Facility support other than that reported above (e.g., cooking, water heating, office equipment)	30790	%
• On-site transportation, excluding highway usage	30800	%
Conventional electricity generation	30810	%
• Other direct non-process use: 30821 Please specify:	30820	%
		TOTAL 100%

	Diesel or Distill	ate Fi	iel Oil: Total Purchased, Tran	sferred, and Produced
		"Census Use	(28)	(29)
		Only"	Total Diesel Fuel	Total Distillate Fuel
			(exclude off-site highway)	(numbers 1, 2, & 4)
			Ļ	Ļ
30.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Barrels	Barrels
31.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 30.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
32.	Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.	030	Barrels	Barrels
	 Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 			
33.	Enter the quantity of the energy source produced on-site during 2014.	040	Barrels	Barrels

	Diesel o	or Distil	late Fuel Oil: Consumptio	on
		"Census Use Only"	(28)	(29)
		Use Only	Total Diesel Fuel	Total Distillate Fuel
			(exclude off-site highway)	(numbers 1, 2, & 4)
			Ļ	Ļ
34.	Enter the total quantity of the		·	·
	energy source consumed as a fuel at this establishment	060		
	during 2014. Include all uses that were used for the		Barrels	Barrels
	heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use on-site.			
35.	Enter the total quantity of the			
	energy source consumed for any purpose other than fuel	070	Barrels	Describ
	use at this establishment during 2014.		Barrels	Barrels
	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			
	Exclude all off-site dispositions such			
	as sales and transfers to other establishments.			
	Diesel	or Dist	illate Fuel Oil: Shipments	
36.	Enter the quantity of the energy source shipped off-site during 2014.	080		
			Barrels	Barrels
	Diesel or	Distilla	te Fuel Oil: Storage Capa	city
37.	Enter the shell or design storage capacity of all the			
	storage tanks located on-site as of 12/31/10.	090	Barrels	Barrels
			Darreis	Darreis

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

The following questions refer to how this establishment consumed the energy source that was previously reported in question 34 (*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.

38. Enter the percentage of total energy source (question 34 column 1 + question 34 column 2) that this establishment consumed as the following:

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Diesel and Distillate
 Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process 	22705	%
• Other boiler fuel (not included above) (includes fuels used for thermal outputs only)	22710	%
Direct Uses – Process: direct 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 direct process use: Please specify:	22760	%
Direct Uses – Non-process: direct 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	22800	%
Conventional electricity generation	22810	%
• Other direct non-process use: 22822 Please specify:	22820	%

	Residual Fuel Oil: Total Purchased, T	ransfern	red, and Produced
		"Census Use Only"	Residual Fuel Oil (numbers 5, 6, Navy Special and Bunker C)
39.	Enter the total quantity of residual fuel purchased by and delivered to this establishment during 2014, regardless of when payment was made.	21010	Barrels
40.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased residual fuel reported in question 39.	21020	\$Bil. Mil. Thou. Dol. Barrels Image: State of the s
41.	 Enter the total quantity of residual fuel transferred in or otherwise received on-site without a direct open market purchase. Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a 	21030	Barrels
42.	performance service contract). Enter the quantity of residual fuel produced on-site during 2014.	21040	Barrels
	Residual Fuel Oil: Con	nsumpti	ion
43.	Enter the total quantity of residual fuel consumed as a fuel at this establishment during 2014. Include all uses that were used for the heat, power, and electricity generation.	21060	Barrels
44.	Enter the total quantity of residual fuel consumed for any purpose other than fuel use at this establishment during 2014. 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.	21070	Barrels
	Residual Fuel Oil: Si	hipment	ŕs
45.	Enter the quantity of residual fuel shipped off-site during 2014.	21080	Barrels
	Residual Fuel Oil: Stora	ge Cap	acity
46.	Enter the shell or design storage capacity of all the storage tanks located on-site as of 12/31/10.	21090	Barrels

Residual Fuel Oil: Estimated End-Use Percent Consumption

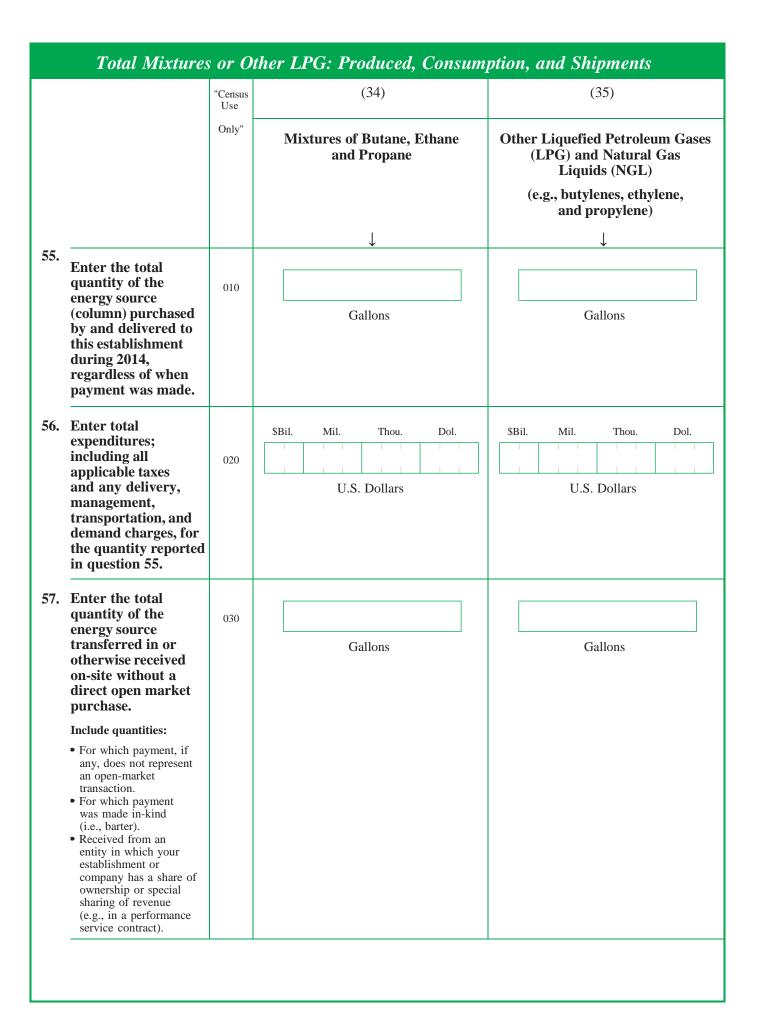
The following questions refer to how this establishment consumed the residual fuel that was previously reported in question 43 (*please enter as a percentage of total consumption for each end use performed*). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

47. Enter the percentage of total residual fuel (from question 43) that this establishment consumed as the following:

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Residual Fuel
• Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process	21705	%
• Other boiler fuel (not included above) (includes fuels used for thermal outputs only)	21710	%
Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.		
• Process heating (e.g., kilns, furnaces, ovens, strip heaters)	21720	%
• Process cooling and refrigeration	21730	%
• Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment)	21740	%
• Other direct process use: Please specify:	21760	%
Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).		
• Facility heating, ventilation, and air conditioning	21770	%
• Facility support other than that reported above (e.g., cooking, water heating, office equipment)	21790	%
Conventional electricity generation	21810	%
• Other direct non-process use: 21822 Please specify:	21820	%
		TOTAL 100%

					"Census Use	(.	36)		(37)		(3	8)
					Only"	Bu	tane		Ethane		Proj	pane
							Ļ		\downarrow			Ļ
8.	the pu to 20	e energy rchased this estal 14, regar	otal quant source (co by and del blishment dless of w as made.	lumn) livered during	010	Ga	llons		Gallons		Gal	lons
9.	En	ter total							elivery, m	anagen	ient, trans	portatio
20		B	(36) Butane				(37) chane			P	(38) Propane	
\$E	il.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.	\$Bil.	Mil.	Thou.	Dol.
		U.S.	Dollars			U.S. 1	Dollars			U.S.	Dollars	
					"Census	(.	36)		(37)		(3	8)
					Use Only"	Bu	tane		Ethane		Proj	pane
							Ļ		\downarrow			L
0.	the in on	e energy : or other	otal quant source tra wise receiv nout a dire rchase.	nsferred ved	030	Ga	llons		Gallons		Gal	lons
	 F f F ir R y a sł 	ot represent ransaction. for which pa- h-kind (i.e., deceived fro our establis share of ow having of re	ayment, if an t an open-ma ayment was i	rket nade in which npany has pecial in a								
1.	en	ergy soul	uantity of rce produc ing 2014.		040	Ga			Gallons		Gal	

	LPG (Butar	ie, Et	hane, or Propane)	: Consumption	
		"Census	(36)	(37)	(38)
		Use Only"	Butane	Ethane	Propane
			↓	\downarrow	↓
52.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014.	060	Gallons	Gallons	Gallons
	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.				
53.	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014.	070	Gallons	Gallons	Gallons
	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.				
	LPG (Bu	ıtane,	Ethane, or Propa	ne): Shipments	
54.	Enter the quantity of the energy source shipped off-site during 2014.	080	Gallons	Gallons	Gallons



	Total Mixtures or Othe	er LPG:	Produced, Consumption,	and Shipments
		"Census	(34)	(35)
		Use Only"	Mixtures of Butane, Ethane and Propane	Other Liquefied Petroleum Gases (LPG) and Natural Gas Liquids (NGL) (e.g., butylenes, ethylene, and propylene)
			Ļ	↓
58.	Enter the quantity of the energy source produced on site during 2014	040		·
	on-site during 2014.		Gallons	Gallons
59.	Enter the total quantity of the energy source consumed as a fuel at this establishment	060		
	during 2014. 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.		Gallons	Gallons
60.	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014.	070	Gallons	Gallons
	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.			
61.	Enter the quantity of the energy source shipped off-site	080		
	during 2014.		Gallons	Gallons

Total LPG and NGL: Estimated End-Use Percent Consumption

The following questions refer to how this establishment consumed the energy source that was previously reported in question 52 + 59 (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.

62. Enter the percentage of total energy source (question 52 column 1 + question 52 column 2 + question 52 column 3 + question 59 column 1 + question 59 column 2) that this establishment consumed as the following:

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Total LPG and NGL
• Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process	24705	%
• Other boiler fuel (not included above) (includes fuels used for thermal outputs only)	24710	%

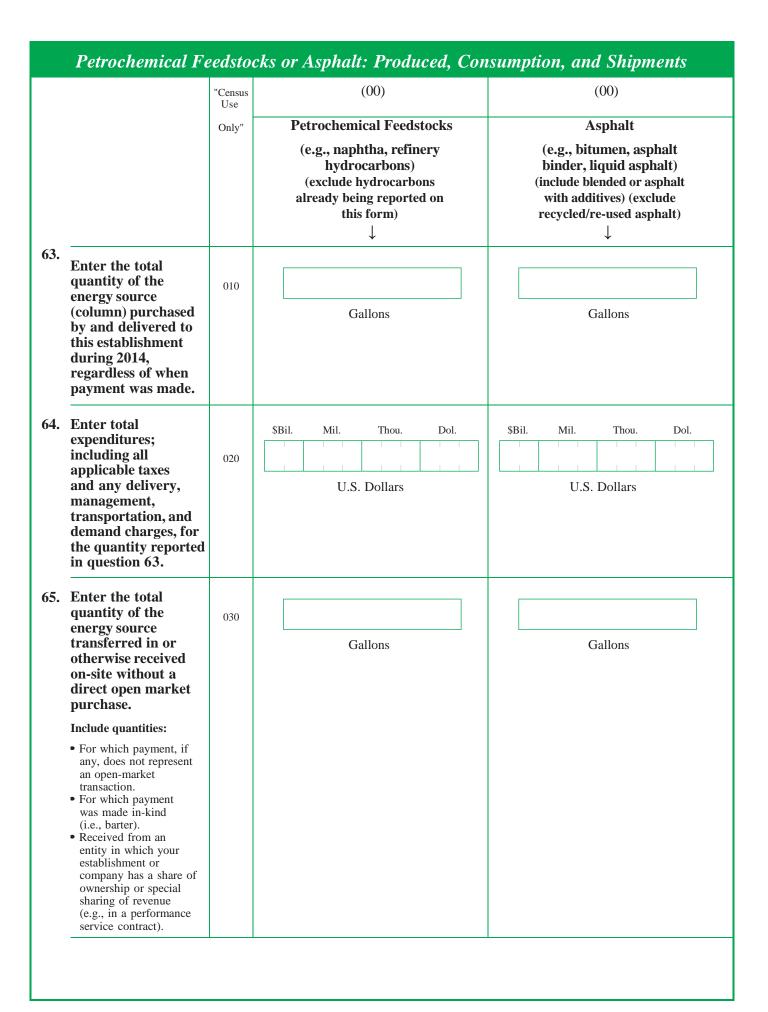
Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.

• Process heating (e.g., kilns, furnaces, ovens, strip heaters)	24720	%
• Process cooling and refrigeration	24730	%
• Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment)	24740	%
• Other direct process use: 24762 Please specify:	24760	%

Direct Uses –	Non-process:	direct non-p	process use	includes	usage for	facility
lighting and sp	pace-condition	ing equipme	nt (HVAC)			

• Facility heating, ventilation, and air conditioning	24770	%
• Facility support other than that reported above (e.g., cooking, water heating, office equipment)	24790	%
• On-site transportation, excluding highway usage	24800	%
Conventional electricity generation	24810	%
• Other direct non-process use: 24822 Please specify:	24820	%

TOTAL 100%



	Petrochemical Feedstocks	s or Asp	ohalt: Produced, Consumpti	on, and Shipments
66.	Enton the quantity of the	"Census Use Only"	(00) Petrochemical Feedstocks (e.g., naphtha, refinery hydrocarbons) (exclude hydrocarbons already being reported on this form) ↓	(00) Asphalt (e.g., bitumen, asphalt binder, liquid asphalt) (include blended or asphalt with additives) (exclude recycled/re- used asphalt) ↓
00.	Enter the quantity of the energy source produced on-site during 2014.	040	Gallons	Gallons
67.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014. 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	Gallons	Gallons
68.	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014. 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	070	Gallons	Gallons
60	sales and transfers to other establishments.			
69.	Enter the quantity of the energy source shipped off-site during 2014.	080	Gallons	Gallons

				"Census Use	(4	40)		(41)		(4	2)
				Only"	Anth	nracite		tuminous Ibbitumin		Lig	nite
0.	Enter the to the energy a purchased to this estal 2014, regar payment wa	source (co by and de plishment dless of w	olumn) livered during	010	Shor	rt tons		• Short tons		Short	t tons
20					reported Bitumi			e livery, m ^{\$Bil.}	C	ent, transp (42) Lignite Thou.	portatio Dol.
	U.S.	Dollars			U.S.	Dollars			U.S	5. Dollars	
				"Census Use Only"		40) nracite ↓		(41) tuminous bbitumin ↓		(4 Lig	
2.	Enter the to the energy s in or othery on-site with market pur Include quant • For which pa not represent transaction. • For which pa in-kind (i.e., • Received fro your establis a share of ow sharing of re performance	source tra wise receive out a direct chase. ities: ayment, if are a open-ma ayment was barter). m an entity hment or con- vnership or so venue (e.g.,	nsferred ved ect open hy, does irket made in which mpany has special in a	030	Sho	rt tons	Short tons			Short tons	
2	Enter the q energy sour			040		rt tons		Short tons		Short	

		"Census Use	(40)	(41)	(42)
		Only"	Anthracite ↓	Bituminous and Subbituminous ↓	Lignite ↓
74.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014.	060	Short tons	Short tons	Short tons
	Include all uses that were used for the heat, power, and electricity generation.				
75.	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014.	070	Short tons	Short tons	Short tons
	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.				

Coal: Estimated End-Use Percent Consumption

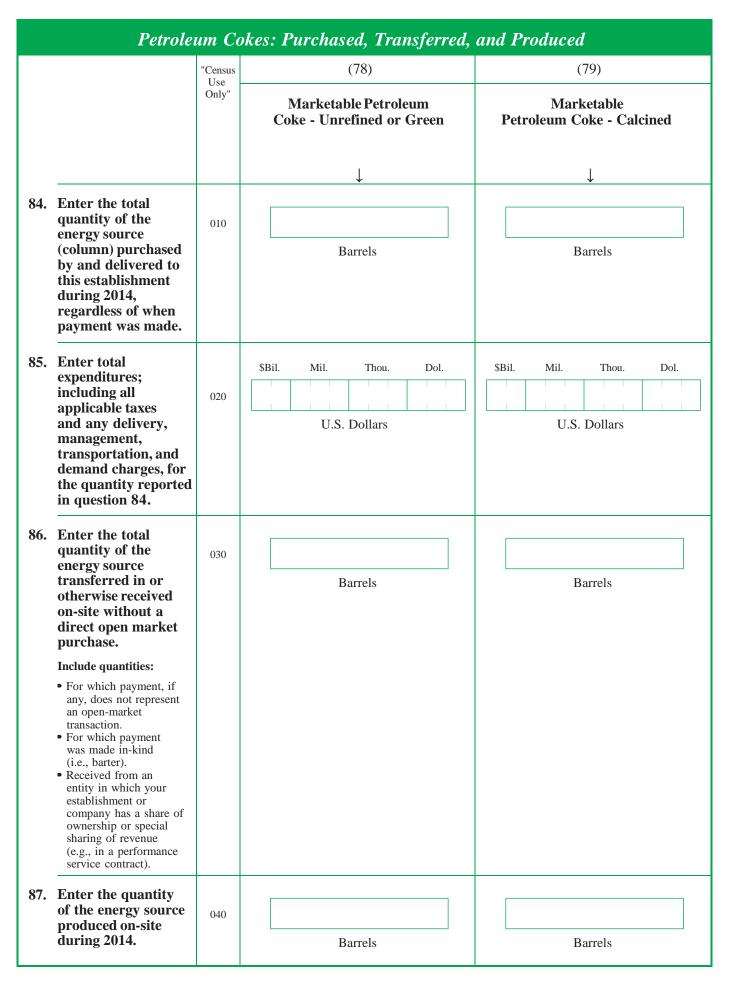
The following questions refer to how this establishment consumed the energy source that was previously reported in question 74 (*please enter as a percentage of total consumption for each end use performed*). A plant engineer or someone who is familiar with energy flows at this establishment should report this data.

76. Enter the percentage of total energy source (question 74 column 1 + question 74 column 2 + question 74 column 3) that this establishment consumed as the following:

Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.	"Census Use Only"	Total Coal (exclude coal coke and breeze)
• Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process	46705	%
• Other boiler fuel (not included above) (includes fuels used for thermal outputs only)	46710	%
Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.		
• Process heating (e.g., kilns, furnaces, ovens, strip heaters)	46720	%
Process cooling and refrigeration	46730	%
• Machine drive (e.g., motors, pumps, etc. associated with manufacturing process equipment)	46740	%
• Other direct process use: Please specify:	46760	%
Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).		
• Facility heating, ventilation, and air conditioning	46770	%
• Facility support other than that reported above (e.g., cooking, water heating, office equipment)	46790	%
Conventional electricity generation	46810	%
• Other direct non-process use: 46821 Please specify:	46820	%

	Breeze or	Coal	Coke: Purchased, Transferred	d, and Produced		
	"Cen Use Onl		(44)	(43)		
			Breeze	Coal Coke		
			\downarrow	\downarrow		
77.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Short tons	Short tons		
78.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 77.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.		
79.	Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.	030	Short tons	Short tons		
	 Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 					
80.	Enter the quantity of the energy source produced on-site during 2014.	040	Short tons	Short tons		

	Breeze or Coal Coke: Consumption					
		"Census	(44)	(43)		
		Use Only"	Breeze	Coal Coke		
			1			
81.	Enter the total quantity of the		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		
010	energy source consumed as a fuel at this establishment	060				
	during 2014.		Short tons	Short tons		
	Include all uses that were used for the heat, power, and electricity generation.					
82.	Enter the total quantity of the					
	energy source consumed for any purpose other than fuel	070				
	use at this establishment during 2014.		Short tons	Short tons		
	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.					
	Ві	eeze or	Coal Coke: Shipments			
83.	3. Enter the quantity of the					
	energy source shipped off-site during 2014.	080				
			Short tons	Short tons		



	Petroleum Cokes: Consumption					
		"Census	(78)	(79)		
		Use Only"	Marketable Petroleum Coke - Unrefined or Green	Marketable Petroleum Coke - Calcined		
			\downarrow	\downarrow		
88.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014.	060	Barrels	Barrels		
	Include all uses that were used for the heat, power, and electricity generation.					
89.	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014. Include all quantities consumed as lubricants, solvents, or as feedstocks,	070	Barrels	Barrels		
	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.					
		etroleu	m Cokes: Shipments			
90.	Enter the quantity of the energy source shipped off-site during 2014.	080	Barrels	Barrels		

	Kerosene or Mo	tor Ga	usoline: Total Purchased, Trai	nsferred, and Produced	
			(27)	(23)	
		Use Only"	Kerosene	Motor Gasoline	
				(exclude off-site highway use)	
91.	Enter the total		· · · · ·	↓	
	quantity of the energy source	010			
	(column) purchased by and delivered to		Barrels	Gallons	
	this establishment during 2014,				
	regardless of when payment was made.				
92.	Enter total		\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.	
	expenditures; including all	020			
	applicable taxes and any delivery,	020	U.S. Dollars	U.S. Dollars	
	management, transportation, and				
	demand charges, for the quantity reported				
	in question 91.				
93.	Enter the total quantity of the	030			
	energy source transferred in or		Barrels	Gallons	
	otherwise received on-site without a				
	direct open market purchase.				
	Include quantities:				
	• For which payment, if any, does not represent an open-market				
	transaction. • For which payment				
	was made in-kind (i.e., barter).Received from an				
	entity in which your establishment or				
	company has a share of ownership or special				
	sharing of revenue (e.g., in a performance service contract).				
94.	Enter the quantity				
	of the energy source produced on-site	040			
during 2014.			Barrels	Gallons	

	Kerosene or Motor Gasoline: Consumption					
		"Census	(27)	(23)		
		Use Only"	Kerosene	Motor Gasoline		
				(exclude off-site highway use)		
			Ļ	↓		
95.	Enter the total quantity of the		· · · · · · · · · · · · · · · · · · ·			
	energy source consumed as a fuel at this establishment	060				
	during 2014. Include all uses that were used for the		Barrels	Gallons		
	heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use on-site.					
96.	Enter the total quantity of the					
	energy source consumed for any purpose other than fuel use at this establishment	070	Barrels	Gallons		
	during 2014.		Darreis	Galois		
	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.					
	Kerosene	or Mot	or Gasoline: Storage Cape	acity		
97.	Enter the shell or design					
	storage capacity of all the storage tanks located on-site	090				
	as of 12/31/14.			Gallons		

		Acety	vlene or Hydrogen: Total Purc	chased
		"Census Use	(64)	(63)
		Only"	Acetylene	Hydrogen
98.			\downarrow	\downarrow
	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.		Cubic Feet	Million Btu
99.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 98.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
100.	Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase.	030	Cubic Feet	Million Btu
	 Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 			
101.	Enter the quantity of the energy source produced on-site during 2014.	040	Cubic Feet	Million Btu
102.	Does the quantity of hydrogen reported in produced on-site above represent the product or byproduct of another energy source consumed on-site?	050		 1. Yes, product or byproduct 2. No

Acetylene or Hydrogen: Consumption					
		"Census Use Only"	(64)	(63)	
			Acetylene	Hydrogen	
			Ţ	L	
	er the total quantity of the		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
fue	energy source consumed as a fuel at this establishment	060			
	ing 2014. Ide all uses that were used for the		Cubic Feet	Million Btu	
Also	, power, and electricity generation. , include fuel consumed by cles intended primarily for use ite.				
	ter the total quantity of the			[]	
any	rgy source consumed for purpose other than fuel at this establishment	070	Cubic Feet	Million Btu	
dur	ring 2014.		Cubic Peer	Winton Dtu	
lubri raw for p	ade all quantities consumed as icants, solvents, or as feedstocks, materials, additives, or ingredients products manufactured by this plishment, or any other nonfuel				
Excl as sa	ude all off-site dispositions such ales and transfers to other blishments.				
	Ace	tylene o	or Hydrogen: Shipments		
	ter the quantity of the				
	rgy source shipped off-site ing 2014.	080			
			Cubic Feet	Million Btu	

N	Vood Harvested Directly from Trees: Total Pure	chased,	Transferred, and Produced
		"Census Use Only"	
106.	Enter the total quantity of wood harvested directly from trees purchased by and delivered to this establishment during 2014, for fuel uses only, regardless of when payment was made.	83010	Million Btu
107.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 106.	83020	\$Bil. Mil. Thou. Dol. Barrels U.S. Dollars
108.	 Enter the total quantity of wood harvested directly from trees transferred in or otherwise received on-site without a direct open market purchase. Enclude quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 	83030	Million Btu
109.	Enter the quantity of wood harvested directly from trees produced on-site during 2014.	83040	Million Btu
		Tresser	Consumption
	Wood Harvested Directly From	Trees:	
110.	Enter the total quantity of wood harvested directly From Enter the total quantity of wood harvested directly from trees consumed as a fuel at this establishment during 2014. Include all uses that were used for the heat, power, and electricity generation.	83060	Million Btu

	Blast Furnace Ga	s or C	loke Oven Gas: Purchased, Tr	ansferred, and Produced
		"Census Use	(60)	(61)
		Only"	Blast Furnace	Coke Oven Gas
			↓	↓
111.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Million Btu	Million Btu
112.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 111.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
113.	Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase. Include quantities:	030	Million Btu	Million Btu
	 For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 			
114.	Enter the quantity of the energy source produced on-site during 2014.	040	Million Btu	Million Btu

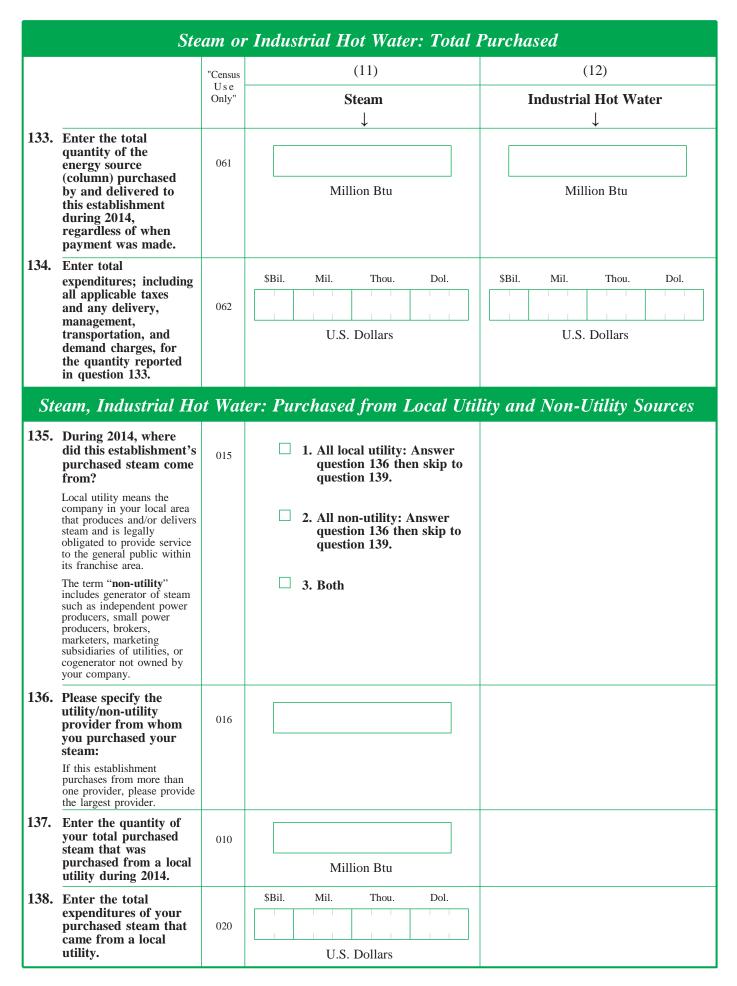
	Blast Furnad	ce Gas o	or Coke Oven Gas: Consi	umption
		"Census	(60)	(61)
		Use Only"	Blast Furnace	Coke Oven Gas
			Ļ	Ļ
115.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014. Include all uses that were used for the heat, power, and electricity generation.	060	Million Btu	Million Btu
	Blast Furne	ace Gas	or Coke Oven Gas: Ship	ments
116.	Enter the quantity of the energy source shipped off-site during 2014.	080	Million Btu	Million Btu

W	aste Oils and Tars,	or Wa	ste Byproduct Gases: Purchased	l, Transferred, and Produced
		"Census Use	(71)	(62)
		Only"	Waste Oils and Tars	Waste and Byproduct Gases
			(excluding Coal Tar)	(e.g., refinery gas, off gas, vent gas, plant gas, still gas)
			\downarrow	\downarrow
117.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Million Btu	Million Btu
118.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 117.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
119.	Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase. Include quantities:	030	Million Btu	Million Btu
	 For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 			
120.	Enter the quantity of the energy source produced on-site during 2014.	040	Million Btu	Million Btu

	Waste Oils and Tars, or Waste Byproduct Gases: Consumption					
		"Census Use Only"	(71)	(62)		
		Use Only"	Waste Oils and Tars	Waste and Byproduct Gases		
			(excluding Coal Tar)	(e.g., refinery gas, off gas, vent gas, plant gas, still gas)		
			↓	\downarrow		
	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014.	060	Million Btu	Million Btu		
	Include all uses that were used for the heat, power, and electricity generation.					
	Enter the total quantity of the energy source consumed for any purpose other than fuel use at this establishment during 2014. 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.	070	Million Btu	Million Btu		
	Exclude all off-site dispositions such as sales and transfers to other establishments.					

	Pulping Black Liqu	or or	Agricultural Waste: Purchased,	Transferred, and Produced
		"Census	(73)	(90)
		Use Only"	Pulping Black Liquor	Agricultural Waste
				(e.g., bagasse, rice hulls, nut shells, orchard prunings)
			\downarrow	↓
123.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Million Btu	Million Btu
124.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 116.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.
125.	 Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase. Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 	030	Million Btu	Million Btu
126.	Enter the quantity of the energy source produced on-site during 2014.	040	Million Btu	Million Btu
	Pulping	Blac	k Liquor or Agricultural Wast	e: Consumption
127.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014. Include all uses that were used for the heat, power, and electricity generation.	060	Million Btu	Million Btu

	Wood Residues and Byproducts from Mill Processing or Wood / Paper-Related Refuse: Purchased, Transferred, and Produced						
		"Census	(84)	(72)			
		Use Only"	Wood Residues and Byproducts from Mill Processing (e.g., sawdust, shavings, slabs, bark)	Wood / Paper-Related Refuse (e.g., scrap, wastepaper, wood pallets, packing materials)			
128.	Enter the total quantity of the energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	↓ Million Btu	↓ Million Btu			
129.	Enter total expenditures; including all applicable taxes and any delivery, management, transportation, and demand charges, for the quantity reported in question 128.	020	\$Bil. Mil. Thou. Dol.	\$Bil. Mil. Thou. Dol.			
130.	 Enter the total quantity of the energy source transferred in or otherwise received on-site without a direct open market purchase. Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 	030	Million Btu	Million Btu			
131.	Enter the quantity of the energy source produced on-site during 2014.	040	Million Btu	Million Btu			
Woo	d Residues and Bypro	ducts j	from Mill Processing or Wood / Pa	per-Related Refuse: Consumption			
132.	Enter the total quantity of the energy source consumed as a fuel at this establishment during 2014. Include all uses that were used for the heat, power, and electricity generation.	060	Million Btu	Million Btu			



	Steam or Industrial Hot Water: Transfers						
		"Census	(11)	(12)			
		Use Only"	Steam	Industrial Hot Water			
			\downarrow	\downarrow			
139.	Enter the total quantity of the						
	energy source transferred in or otherwise received on-site	050					
	without a direct open market purchase.		Million Btu	Million Btu			
	Include quantities:						
	 For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 						
	Steam or In	dustria	l Hot Water: Generated O	n-site			
140.	Enter the quantity of the energy source generated on-site from each of the following:		Million Btu	Million Btu			
	• Solar Power	081					
	• Wind Power	082					
	• Hydropower	083					
	Geothermal Power	084					
	Steam or Industr	rial Hot	Water: Sales and Transf	ers Off-site			
141.	Enter the quantity of the energy source transferred out of this establishment during 2014. Include quantities exchanged for the same or any other energy source.	110	Million Btu	Million Btu			
	Exclude sales to independent power producers, small power producers, or cogenerators not located at this establishment.						

Other Energy Sourc	es: Ta	otal Purchased, 2	Transferred, and Pr	oduced
	"Census Use	(91)	(93)	(95)
	Only"	Other	Other	Other
		\downarrow	\downarrow	\downarrow
142. 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.	980	Energy source	Energy source	Energy source
*Do not include: oxygen, carbon dioxide, nitrogen, argon, or helium.	981	Units	Units	Units
143. Enter the total quantity of the other energy source (column) purchased by and delivered to this establishment during 2014, regardless of when payment was made.	010	Units	Units	Units
144. Enter total expenditures; incluand demand charges, for the o (91)		y reported in question (93)		(95)
020 Other		Other		Other
\$Bil. Mil. Thou. Dol.	\$Bil.	Mil. Thou.	Dol. \$Bil. Mil.	Thou. Dol.
U.S. Dollars		U.S. Dollars	U.	S. Dollars
145. Enter the total quantity of the other energy source transferred in or otherwise received on-site without a direct open market purchase.	030	Units	Units	Units
 Include quantities: For which payment, if any, does not represent an open-market transaction. For which payment was made in-kind (i.e., barter). Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract). 				
146. Enter the quantity of the other energy source produced on-site during 2014.	040	Units	Units	Units

	Other Energy Source: Consumption					
		"Census Use	(91)	(93)	(95)	
		Only"	Other	Other	Other	
			\downarrow	Ļ	\downarrow	
147.	Does the quantity reported in produced on-site represent the product or byproduct of another energy source consumed on-site?	050	 1. Yes, product or byproduct 2. No 	 1. Yes, product or byproduct 2. No 	 1. Yes, product or byproduct 2. No 	
148.	Enter the total quantity of the other energy source consumed as a fuel at this establishment during 2014.	060	Units	Units	Units	
	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.					
149.	Enter the total quantity of the other energy source consumed for any purpose other than fuel use at this establishment during 2014.	070	Units	Units	Units	
	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.					

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 2014, 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 2014.

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

	Fuel Switching Cap	ability	y: Electricity, Natu	iral Gas, and Toto	il Coal
	next four questions are designed you have already filled out to rec				sections of the form
150.	Referring back to the Electricity Please enter the quantity of report				
151.	Referring back to the Electricity Please enter the quantity of repo				
152.	Add lines from question 150 at (question 150 + question 151). Enter		tal in the box.	10503	
153.	Referring back to the Natural Ga page 12. Please enter the quantit consumed. Enter the figure in th	y of rep		30503	
154.	Referring back to the Coal section Please add the quantity of any re- and subbituminous and lignite co- the box.	eported	46503		
		"Census Use	(10)	(30)	(46)
		Only"	Total Electricity Received	Total Natural Gas	Total ALL Coal
			Transfers + purchase		(excluding Coal Coke & Breeze)
			\downarrow	\downarrow	\downarrow
155.	Enter the total quantity of the energy source (column) you reported as consumed during 2014.	500	Kilowatthours	Units	Short tons
	Copy this figure from the above worksheet questions.		Enter figure from question 152.	Enter figure from question 153.	Enter figure from question 154.
156.	Is the total quantity reported in question 155 greater than zero?	501	 1. Yes 2. No: Skip to question 155, 	 1. Yes 2. No: Skip to question 155, 	 1. Yes 2. No: Skip to next section.
157.	Enter the amount of the total quantity you reported in question 148 that could NOT have been replaced within 30 days by another energy source during 2014. 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	next column.	units	Short tons

	Fuel Switching Cap	ability	y: Electricity, Natu	ıral Gas, and Tota	ıl Coal
		"Census Use	(10)	(30)	(46)
		Only"	Total Electricity Received	Total Natural Gas	Total ALL Coal
			Transfers + purchase		(excluding Coal Coke & Breeze)
			\downarrow	\downarrow	\downarrow
158.	Is the total quantity in question 157 equal to zero?	511	1. Yes: Skip to question 160.	1. Yes: Skip to question 160.	1. Yes: Skip to question 160.
			□ 2. No	□ 2. No	□ 2. No
159.	Referring to the quantity show unswitchable.	vn in qı	uestion 157, please che	ck all the reasons that	a made this quantity
	The boilers, heaters, or other fuel-consuming equipment are NOT <u>capable</u> of using another fuel for at least part of the operations during the year.	526	□ 1	□ 1	□ 1
	Switching to the usable alternatives would adversely affect the products.	528	□ 1	□ 1	□ 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	□ 1	□ 1	□ 1
	Environmental restrictions related to air quality limit the amount of the physically usable alternative fuel that could be used instead.	534	□ 1	□ 1	□ 1
	A long-term contract is in- place that requires the purchase of certain amounts of this fuel in any case.	536	□ 1	1	□ 1
	Storage of usable alternative fuels is not available due to potential environmental impact of storage tanks.	537	□ 1	□ 1	□ 1
	Other	999	□ 1	□ 1	□ 1
	Please specify other:	998			

Fuel Switching Capability: Electricity, Natural Gas, and Total Coal							
		"Census Use	(10)	(30)	(46)		
		Only"	Total Electricity Received	Total Natural Gas	Total ALL Coal		
			Transfers + purchase		(excluding Coal Coke & Breeze)		
			\downarrow	\downarrow	\downarrow		
160.	Enter the results of subtracting the quantity reported in question 157 from the quantity reported in question 155.	520	Kilowatthours	Units	Short tons		
	This represents the total quantity of energy consumption that could have been replaced in 30 days by one or more alternative energy sources in 2014.						
	Note: the sum of the quantities in question 162 through 169 should equal or exceed this quantity.						
161.	Is the total quantity reported in question 160 greater than zero?	521	□ 1. Yes	□ 1. Yes	□ 1. Yes		
	2010.		2. No: Skip to next column.	□ 2. No: Skip to next column.	□ 2. No: Skip to next section.		
162.	Of the quantity switchable in question 160 what is the maximum amount that could have been replaced by <u>electricity</u> ?	530		Units	Short tons		
163.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>total coal</u> , excluding coal coke and <u>breeze?</u>	670	Kilowatthours	Units			
164.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>total coal coke</u> <u>and breeze. excluding coal</u> ?	690	Kilowatthours	Units			
165.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>natural gas</u> ?	570	Kilowatthours		Short tons		

	Fuel Switching Capability: Electricity, Natural Gas, and Total Coal							
		"Census Use	(10)	(30)	(46)			
		Only"	Total Electricity Received	Total Natural Gas	Total ALL Coal			
			Transfers + purchase		(excluding Coal Coke & Breeze)			
			\downarrow	\downarrow	\downarrow			
166.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>total diesel fuel</u> and distillate fuel oil?	590	Kilowatthours	Units	Short tons			
167.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>liquefied</u> <u>petroleum gas (LPG)</u> ?	610	Kilowatthours	Units	Short tons			
168.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by <u>residual fuel oil</u> ?	630	Kilowatthours	Units	Short tons			
169.	Of the quantity reported as switchable in question 160 what is the maximum amount that could have been replaced by any other energy source not already asked about?	650	Kilowatthours	Units	Short tons			
	Please Specify:	990						

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 2014 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	(10)	(30)	(46)
	Use Only"	Total Electricity Received	Total Natural Gas	Total ALL Coal
	622	Transfers + purchase		(excluding Coal Cok & Breeze)
		\downarrow	\downarrow	\downarrow
		Check one for	each energy source (col	umn) reported
Would not switch regardless price difference.	of	□ 1	□ 1	□ 1
Would switch at price differe 10 percent.	nce 1-	□ 2	□ 2	□ 2
Would switch at price differe 25 percent.	nce 11-	□ 3	3	□ 3
Would switch at price differe 50 percent.	nce 26-	□ 4	□ 4	□ 4
Would switch at price differe over 50 percent.	Vould switch at price difference ver 50 percent.		□ 5	□ 5
Reasonable estimates cannot provided.	be	6	□ 6	□ 6
Would switch to the more expensive substitute if price premium were reasonable.		7	7	□ 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 2014, 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 2014.

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

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

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

171.	Referring back to the LPG section Please add the quantity of report propane consumed.					
172.	Referring back to the LPG section Please add the quantity of report LPG &NGL consumed.					
173.	Add lines from question 171 at (question 171 + question 172). Enter		tal in the box.	24503		
174.	Referring back to the Diesel and question 34 page 15. Please add diesel and distillate fuel consum- the box.	the rep	orted quantity of	22503		
175.	Referring back to the Residual F page 17. Please enter the reporte consumed. Enter the figure in th	d quan		21503		
		"Census Use	(24)	(22)	(21)	
		Only"	Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil	
			Ļ	Ļ	Ļ	
176.	Enter the total quantity of the energy source (column) you reported as consumed during 2014	500	Gallons	Barrels	Barrels	
	during 2014. Copy this figure from the above worksheet questions.		Enter figure from question 173.	Enter figure from question 174.	Enter figure from question 175.	
177.	Is the total quantity reported in question 176 greater than zero?	501	 1. Yes 2. No: Skip to question 176, next column. 	 1. Yes 2. No: Skip to question 176, next column. 	 1. Yes 2. No: Skip to next section. 	
178.	Enter the amount of the total quantity you reported in question 176 that could NOT have been replaced within 30 days by another energy source during 2014. 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	Gallons	Barrels	Barrels	

Fuel Switching Capability: Total LPG & NGL, Diesel & Distillate and Residual "Census (24)(22)(21)Use Only" **Total LPG & Total Diesel Fuel Residual Fuel Oil** NGL & Distillate **Fuel Oil** ↓ Ţ Ţ 179. Is the total quantity in □ 1. Yes: Skip to □ 1. Yes: Skip to □ 1. Yes: Skip to question 178 equal to zero? 511 question 181. question 181. question 181. 2. No 2. No 2. No 180. Referring to the quantity shown in question 178, please check all the reasons that made this quantity unswitchable. The boilers, heaters, or other fuel-consuming equipment are NOT capable of using \square 1 1 1 526 another fuel for at least part of the operations during the year. Switching to the usable alternatives would adversely \Box 1 \Box 1 \Box 1 528 affect the products. Although the heating equipment could use another fuel, there was no readily 533 \Box 1 \square 1 \Box 1 available supply of it during at least part of the year. **Environmental restrictions** related to air quality limit the amount of the physically 1 1 1 534 usable alternative fuel that could be used instead. A long-term contract is inplace that requires the \Box 1 1 \Box 1 536 purchase of certain amounts of this fuel in any case. Storage of usable alternative fuels is not available due to 1 1 537 1 potential environmental impact of storage tanks. \Box 1 1 \Box 1 Other 999 Please specify other: 998

1	Fuel Switching Capability	: Tota	ul LPG & NGL, D	iesel & Distillate d	and Residual
		"Census Use	(24)	(22)	(21)
		Only"	Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
			\downarrow	\downarrow	\downarrow
181.	Enter the results of subtracting the quantity reported in question 178 from the quantity reported in question 176.	520	Gallons	Barrels	Barrels
	This represents the total quantity of energy consumption that could have been replaced in 30 days by one or more alternative energy sources in 2014.				
	Note: the sum of the quantities in question 183 through 190 should equal or exceed this quantity.				
182.	Is the total quantity reported in question 181 greater than zero?	521	☐ 1. Yes	☐ 1. Yes	☐ 1. Yes
			2. No: Skip to next column.	□ 2. No: Skip to next column.	2. No: Skip to next section.
183.	Of the quantity switchable in question 181 what is the maximum amount that could have been replaced by <u>electricity</u> ?	530	Gallons	Barrels	Barrels
184.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>total coal.</u> excluding coal coke and breeze?	670	Gallons	Barrels	Barrels
185.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>total coal coke</u> <u>and breeze. excluding coal</u> ?	690	Gallons	Barrels	Barrels
186.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>natural gas</u> ?	570	Gallons	Barrels	Barrels

I	Fuel Switching Capability	: Tota	ul LPG & NGL, D	iesel & Distillate d	and Residual
		"Census Use	(24)	(22)	(21)
		Only" Total LPG & NGL		Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
			\downarrow	Ļ	\downarrow
187.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>total diesel fuel</u> <u>and distillate fuel oil</u> ?	590	Gallons		Barrels
188.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>liquefied</u> <u>petroleum gas (LPG)</u> ?	610		Barrels	Barrels
189.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by <u>residual fuel oil</u> ?	630	Gallons	Barrels	
190.	Of the quantity reported as switchable in question 181 what is the maximum amount that could have been replaced by any other energy source not already asked about?	650	Gallons	Barrels	Barrels
	Please Specify:	990			

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 2014 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	(24)	(22)	(21)
		Only"	Total LPG & NGL	Total Diesel Fuel & Distillate Fuel Oil	Residual Fuel Oil
		622	Ļ	Ļ	Ļ
			Check one for	each energy source (col	umn) reported
191.	. Would not switch regardless of price difference.		□ 1	□ 1	□ 1
	Would switch at price difference 1- 10 percent.		2	□ 2	□ 2
	Would switch at price differen 25 percent.	ce 11-	□ 3	□ 3	□ 3
	Would switch at price differen 50 percent.	ice 26-	□ 4	□ 4	□ 4
	Would switch at price differen over 50 percent.	ice	□ 5	□ 5	□ 5
	Reasonable estimates cannot b provided.	e	6	□ 6	□ 6
	Would switch to the more expensive substitute if price premium were reasonable.		□ 7	□ 7	□ 7

Energy-Management Activities

For questions 192 through 196:

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, 2014 and December 31, 2014.

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.

			Sour	ce of Assistance (check all that apply)			
	Type of Energy-Management Assistance	Participate?	In-house	Utility/ Energy Supplier	Product or Service Provider	Federal Program	State or Local Program
		(13)	(15)	(16)	(17)	(18)	(19)
192.	Energy audit or assessment	1 ☐ Yes → 2 ☐ No (060)	3	4	7	8	9
193.	Technical assistance (e.g., consultation, demonstrations, engineering design or analysis)	$\begin{array}{c c} 1 & \Box & Yes \rightarrow \\ 2 & \Box & No (070) \end{array}$	3	4	7	8	9
194.	Technical information (e.g., software, reference material)	1 ☐ Yes → 2 ☐ No (072)	3	4	7	8	9
195.	Training (e.g., workshops, seminars, presentations)	1 ☐ Yes → 2 ☐ No (074)	3	4	7	8	9
196.	Financial assistance (e.g., loans, tax credits, rebates, subsidies)	$\begin{array}{c c} 1 & \Box & Yes \rightarrow \\ 2 & \Box & No & (076) \end{array}$	3	4	7	8	9

	Energy-Management Activities							
	For Questions 197 through 206: 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, 2014 and December 31, 2014. 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 192.							
			Sour	ce of Assis	tance (check	s all that ap	oply)	
	System	Installed Equipment or Retrofit?	In-house	Utility/ Energy Supplier	Product or Service Provider	Federal Program	State or Local Program	
		(13)	(15)	(16)	(17)	(18)	(19)	
197.	Steam systems (e.g., boilers, burners, insulation, piping, steam traps)	$\begin{array}{c c} 1 & \Box & Yes \rightarrow \\ 2 & \Box & No (120) \end{array}$	3	4	7	8	9	
198.	Compressed air systems (e.g., compressor controls, drain traps, leak management, compressor or treatment equipment replacement)?	$1 \square Yes \rightarrow$ $2 \square No (450)$	3	4	7	8	9	
199.	Process heating systems (e.g., insulation repair, burner controls, furnace repair, refractory replacement)	$1 \qquad Yes \rightarrow$ $2 \qquad No (140)$	3	4	7	8	9	
200.	Process cooling and refrigeration systems (e.g., insulation repair, use of free cooling, implementation of VSDs, refrigerant pressure balancing)	$\begin{array}{c c} 1 & \Box & Yes \rightarrow \\ 2 & \Box & No & (160) \end{array}$	3	4	7	8	9	
201.	Pumping systems (e.g., adjustable speed drives, impeller trimming, leak repair, repair/replace seals, pump load staging)?	$1 \qquad \square \text{ Yes} \rightarrow$ $2 \qquad \square \text{ No} (180)$	3	4	7	8	9	
202.	Fan systems (e.g., replace belts, adjustable speed drives, bearing replacement and lubrication, upgrade to higher efficiency motor, fan load staging)?	$1 \qquad \square \text{ Yes} \rightarrow$ $2 \qquad \square \text{ No} (180)$	3	4	7	8	9	
203.	Other process motor driven systems (e.g., belts replaced, replacement with higher efficiency motor, shaft re- alignment, motor downsizing)?	$1 \qquad \square \text{ Yes} \rightarrow$ $2 \qquad \square \text{ No} (180)$	3	4	7	8	9	
204.	Computing systems (e.g., increasing server operating temperatures, consolidating applications and server closets, power management, use of free cooling)	$1 \qquad \square \text{ Yes} \rightarrow$ $2 \qquad \square \text{ No} (180)$	3	4	7	8	9	

			Sour	ce of Assist	tance (check	all that ap	ply)
	System	Installed Equipment or Retrofit?	In-house	Utility/ Energy Supplier	Product or Service Provider	Federal Program	State or Local Program
		(13)	(15)	(16)	(17)	(18)	(19)
205.	Facility HVAC system (e.g., check filters, belts, duct maintenance, setback controls, equipment replacement and upgrade)	$1 \square Yes \rightarrow$ $2 \square No (200)$	3	4	7	8	9
206.	Facility lighting (e.g., occupancy controls, daylight harvesting, efficient lamp upgrade)	$\begin{array}{c c} 1 & \Box & Yes \rightarrow \\ 2 & \Box & No (220) \end{array}$	3	4	7	8	9

	Energy-Management Activities							
For	For Questions 207 through 224:							
of e	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, 2014 and December 31, 2014.							
207.	Which statement best describes this establishment's management decision making							
	a. \Box Energy use and consumption evaluated over its total life cycle							
	b. Energy use and consumption is increasingly becoming a higher priority for the company	(xxxxx)						
	c. An Management from time to time has supported projects to improve energy use and consumption							
	d. Energy use and consumption are rarely a part of management decision making							
208.	Is establishment management aware of programs (i.e., public or utility) dedicated to improving energy use and consumption? (Check all that apply)							
	a. Superior Energy Performance	(xxxxx)						
	b. Detter Buildings, Better Plants							
	c. ENERGY STAR							
	d. \Box State/regional industrial energy program(s)							
	e. Utility strategic energy management program(s)							
209.	Is the establishment aware of ISO 50001?	1 Yes						
		2 No (xxxxx)						
210.	(If yes to 209) Is the establishment implementing ISO 50001?	1 🗌 Yes						
		2 🗌 No (xxxxx)						
211.	(If yes to 209 and no to 210) Is the establishment planning to implement ISO 50001?	1 🗆 Yes						
	150 50001?	2 🗆 No (xxxxx)						
		3 Don't Know						
212.	Does the establishment consider energy efficiency in procurement specification?	1 🗌 Yes						
		2 🗌 No (xxxxx)						
		3 Don't Know						

213.	Does the establishment have an energy consumption baseline for comparing energy consumption in future years?	 Yes No (13470) Don't Know
214.	Does the establishment set goals for improving energy use and consumption?	 1 Yes 2 No (13470) 3 Don't Know
215.	If yes to question 214, are these goals quantitative (e.g., 10% improvement)?	 Yes No (13470) Don't Know
216.	If yes to question 214, which of the following policies influenced energy use/consumption goals set for this establishment (check all that apply): a. Legal requrements	(xxxxx)
	 b. b. Voluntary programs c. c. Corporate policy d. Customer requirements 	(*****)
217.	Does the establishment develop key performance indicators and metrics relative to energy (metrics that can be track to better understand changes over time in energy consumption)?	1 Yes 2 No (xxxxx) 3 Don't Know
218.	Does management at this establishment assign a representative(s) to be responsible for energy management?	1 Yes 2 No (xxxxx) 3 Don't Know
219.	If yes to question 218, 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)?	
	1. \Box <25%	(xxxxx)
	 4. □ 75%-99% 5. □ 100% 	

220.	Does the or suppli- a.		ablishment have submetering (meter neter)? Electric	ring	beyo	nd the main utility, revenu	e (xxxxx)
	b. [b. 🗆 Natural Gas					
	с.		Other				
221.		Does the establishment have a methodology and criteria for prioritizing improvements to energy use/consumption?				 Yes No (xxxxx) Don't Know 	
222.	Between Jan 1,2014 and December 31, 2014, has the establishment conducted an audit on any energy system to identify potential energy saving opportunities?				1 \Box Yes2 \Box No(xxxxx)3 \Box Don't Know		
223.	If yes, w	hich	systems (check all that apply)?				
	a. [Pumping systems	g.		Computing systems	(xxxxx)
	b. [Compressed air systems	h.		Facility HVAC	
	c. [Process heating systems	i.		Facility lighting	
	d. [Steam systems	j.		Other direct machine drives	
	e. [☐ Fan systems k. ☐ Plant wide					
	f. [Process cooling and refrigeration systems	к.			
224.	payback	r capital investment projects, what is the establishment's maximum simple yback (time period in years typically calculated as implementation cost divided annual cost savings) that is currently allowed?			(xxxx)		
	1. [1 year				
	2.		1-2 years				
	3. [2-3 years				
	4. [3-4 years				
	5. [>4 years				
	6.		Have no such requirement				
	7. [Do no know				

	Energy-Management Activities					
225.	Does your establishment measure oxygen and carbon dioxide (or combustible) levels in boiler and other fuel fired heating equipment flue gasses to "tune" the burners?	 Yes No (13476) Don't Know 				
226.	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?	 Yes No (13477) Don't Know 				
227.	Does your establishment's process heating system maintenance program include the following activities?a. Furnace inspections to seal openings and repair cracks and damaged insulation in furnace walls, doors, etc.	 Yes No (13478) Don't Know 				
	b. Cleaning of heat transfer surfaces to avoid build up of soot, scale, or other material.	 Yes No (13479) Don't Know 				
	c. Inspecting, calibrating, and adjusting temperature/pressure sensors, controllers, valve operators, etc.	 Yes No (13480) Don't Know 				
228.	Do you keep an inventory of all motors in your establishment?	 Yes No (13481) Don't Know 				
229.	Does your establishment have staff or equipment dedicated to detecting and controlling compressed air system leaks?	 Yes No (13483) Don't Know 				
230.	Does your establishment track the amount of energy spent in compressed air systems?	 Yes No (13484) Don't Know 				

213.	Does the establishment have an energy consumption baseline for comparing energy consumption in future years?	 Yes No (13470) Don't Know 	
214.	Does the establishment set goals for improving energy use and consumption?	 Yes No (13470) Don't Know 	
215.	If yes to question 214, are these goals quantitative (e.g., 10% improvement)?	1 Yes 2 No (13470) 3 Don't Know	
216.	If yes to question 214, which of the following policies influenced energy use/consumption goals set for this establishment (check all that apply): e. Legal requrements		
	f. \Box Voluntary programs	(xxxxx)	
	 g. Corporate policy h. Customer requirements 		
217.	Does the establishment develop key performance indicators and metrics relative to energy (metrics that can be track to better understand changes over time in energy consumption)?	1 Yes 2 No (xxxxx) 3 Don't Know	
218.	Does management at this establishment assign a representative(s) to be responsible for energy management?	1 Yes 2 No (xxxxx) 3 Don't Know	
219.	If yes to question 218, 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)?		
	6. □ <25%	(xxxxx)	
	 8. □ 50%-74% 9. □ 75%-99% 		
	10 . 🗌 100%		

Energy Technologies							
231.		ere any of the following technologies in use at your establishment ytime during 2014?	''Census Use Only''				
	a.	Computer control of building-wide environment (e.g., space-heating equipment, cooling equipment, lights).	14010	 1 Yes 2 No 3 Don't know 			
	b. c.	Computer control of processes or major energy-using equipment (e.g., boilers, furnaces, conveyors used in the manufacturing process).	14020	1 Yes 2 No 3 Don't know			
		Waste heat recovery.	14030	1 Yes 2 No 3 Don't know			
	d.	Adjustable-speed motors.	14040	1 Yes 2 No 3 Don't know			
	e.	Oxy-fuel firing.	14950	□ 1 Yes □ 2 No □ 3 Don't know			
232.		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)?		 1 Yes 2 No 3 Don't know 			
233.		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)?		 1 Yes 2 No 3 Don't know 			

		Energy Technologies		
234.		ere any of the following technologies associated with cogeneration use at your establishment anytime during 2014?	"Census Use Only"	
	a.	Steam turbines supplied by either conventional or fluidized bed boilers.	14042	 1 Yes 2 No 3 Don't know
	b.	Conventional combustion turbines with heat recovery.	14043	 1 Yes 2 No 3 Don't know
	c.	Combined-cycle combustion turbines.	14044	 1 Yes 2 No 3 Don't know
	d.	Internal combustion engines with heat recovery.	14045	 1 Yes 2 No 3 Don't know
	e.	Steam turbines supplied by heat recovered from high-temperatures processes.	14046	 1 Yes 2 No 3 Don't know
		Establishment Size		
235.	Dee Bui roof erec Exc not mar such	w many buildings were on this establishment site as of cember 31, 2014? Idings include: structures enclosed by walls extending from the foundation to the f, parking garages, even if not totally enclosed by walls and a roof, or structures eted on pillars to elevate the first fully enclosed level. Huded buildings are: structures (other than the exceptions noted above) that are totally enclosed by walls and a roof, mobile homes and trailers, even if they house building activity, structures not ordinarily intended to be entered by humans, in as storage tanks, or non-buildings that consume energy (such as pumps and structions sites).	"Census Use Only" 17010	Number of Buildings
236.	the	nat was the approximate total enclosed square footage of buildings located on this establishment site as of cember 31, 2014?	13010	Total square feet

Remarks

237. 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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