

**Note:** This form only contains the content and questions for the 2006 MECS. This paper questionnaire does not have all of the appropriate formatting and/or skip patterns that the final version will have because it is being created in tandem with the Internet-based questionnaire.

**Manufacturing Energy Consumption Survey (MECS) Information**

**Company Name**

**Address--Number and Street**

**City**

**State**

**ZIP Code (9  
digits)**

## Section 1: Establishment Information

**1. Did ownership of this establishment change during 2006?**

Census use only

0001  
1

**No** ➔ Go to Question 2.

2  **Yes, Establishment was sold during the year** ➔ complete all sections of this questionnaire for activities that occurred in 2006 prior to the sale.

Go to Question 2.

3  **Yes, Establishment was bought during the year** ➔ complete all sections of the questionnaire for activities that occurred in 2006 after the sale.

Go to Question 2.

**2. Mark the answer which best describes this establishment at the end of 2006:**

0001  
0

1  **a. In operation** ➔ Go to Question 4.

2  **b. Ceased operation** ➔ enter date:  Go to Question 4.  
*mm/dd/yy*

3  **c. Sold or leased TO another operator** ➔ enter date:  Go to Question 3.  
*mm/dd/yy*

If none of the above, go to Question 4.

**3. Enter the following information only if this establishment was sold or leased to another operator during 2006; otherwise, go to Question 4.**

Name of new owner or operator

Employer  
Identification

\_\_\_\_\_

\_\_\_\_\_

<input type="text"/>		<b>Number (EIN) (9 digits)</b> <input type="text"/>
<b>Address--Number and Street</b> <input type="text"/>		
<b>City</b> <input type="text"/>	<b>State</b> <input type="text"/>	<b>ZIP Code (9 digits)</b> <input type="text"/>

4. 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, 2006 to December 31, 2006.

**From:**

*mm/dd/yy*

**To:**

*mm/dd/yy*

## Section 2: MECS Front Page

Please check all of the following that apply if your establishment uses any of these substances as:

- a fuel which includes uses such as for heat, power, electricity generation, and onsite transportation,
- material input or “nonfuel” which includes using substances for their chemical properties rather than for heat content such as lubrication, solvents, etc., or
- a shipment offsite from this establishment

- Electricity**
- Natural Gas**
- Diesel Fuel Oil** (excluding offsite highway usage)
- Distillate Fuel Oil** (e.g., Numbers 1, 2, 4)
- Residual Fuel Oil** (e.g., Numbers 5, 6, Navy Special, Bunker C)
- Propane, Liquefied Petroleum Gas (LPG) and Natural Gas Liquids (NGL)**
  - Butane
  - Ethane
  - Propane
  - Mixtures of Butane, Ethane, and Propane
  - Other LPG and NGL which includes butylenes, ethylene, propylene
- Coal**
- Breeze**
- Coal Coke**
- Petroleum Coke**
- Motor Gasoline** (excluding offsite highway use)
- Acetylene**
- Hydrogen**
- Kerosene**
- Wood Harvested Directly From Trees** (e.g., roundwood, wood chips)
- 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)
  - Agricultural Waste (e.g., bagasse, nut shells, orchard prunings, rice hulls)
  - Pulping and Black Liquor
  - 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)
- Steam**
- Industrial Hot Water**
- Other Energy Source**

<b>Total Purchased Electricity</b>			
1.	<b>Enter the total quantity of electricity purchased by this establishment for 2006.</b>	"Census Use Only" 10061	<input type="text"/> Kilowatt-hours
2.	<b>Enter total expenditures, including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased electricity reported in question 1.</b>	10062	<input type="text"/> U.S. Dollars
<b>Source of Purchased Electricity</b>			
3.	<b>During 2006, where did this establishment's purchased electricity come from?</b>  <b>Local utility</b> means the company in your local area that generates and/or delivers electricity and is legally obligated to provide service to the general public within its franchise area.  The term " <b>non-utility</b> " includes generators of electricity such as independent power producers, small power producers. It also includes brokers, marketers, marketing subsidiaries of utilities, or co-generators not owned by your company.	10011	<input type="checkbox"/> <b>1. All local utility: Answer question 4 then go to #7</b> <input type="checkbox"/> <b>2. All non-utility: Answer question 4 then go to #7</b> <input type="checkbox"/> <b>3. Both: Answer questions 4 – 6 then go to #7</b>
4.	<b>Please specify the utility/non-utility provider from whom you purchased your electricity:</b>  If this establishment purchases from more than one provider, please provide the largest provider.	10012	<input type="text"/>
5.	<b>Enter the quantity of your total purchased electricity that was purchased from a local utility during 2006.</b>	10010	<input type="text"/> Kilowatt-hours
6.	<b>Enter the total expenditures of your purchased electricity that was paid to a local utility.</b>	10020	<input type="text"/> U.S. Dollars
<b>Electricity Transfers</b>			
7.	<b>Enter the total quantity of electricity transferred in or otherwise received onsite without a direct open market purchase.</b>  Include quantities: <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction;</li> <li>• For which payment was made in-kind (i.e., barter);</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	10050	<input type="text"/> Kilowatthours

### Section 3: Electricity

## Section 3: Electricity

### *Electricity Generated Onsite*

8.	Enter the quantity of electricity generated onsite from each of the following:		Kilowatthours
		“Census Use Only”	
	<ul style="list-style-type: none"> <li>• <b>Combined Heat and Power (CHP)/Cogeneration</b></li> </ul>	10070	
	<ul style="list-style-type: none"> <li>• <b>Solar Power</b></li> </ul>	10081	
	<ul style="list-style-type: none"> <li>• <b>Wind Power</b></li> </ul>	10082	
	<ul style="list-style-type: none"> <li>• <b>Hydropower</b></li> </ul>	10083	
	<ul style="list-style-type: none"> <li>• <b>Geothermal Power</b></li> </ul>	10084	
	<ul style="list-style-type: none"> <li>• <b>Other (for example, electricity generated by diesel generators)</b></li> </ul>	10090	

### *Electricity Sales and Transfers Offsite*

9.	<p><b>Enter the quantity of electricity sold or transferred out of this establishment to utilities during 2006.</b></p> <p>Include quantities exchanged for the same or any other energy source.</p> <p>Exclude sales to independent power producers, small power producers, or co-generators not located at this establishment.</p>	10110	<input style="width: 90%; height: 20px;" type="text"/>
10.	<p><b>Enter the quantity of electricity sold or transferred out of this establishment to any non-utilities during 2006.</b></p> <p>Include:</p> <ul style="list-style-type: none"> <li>• Sales to independent power producers, small power producers, brokers, marketers, marketing subsidiaries of utilities, or co-generators not located at this establishment.</li> <li>• Quantities exchanged for the same or any other energy source.</li> </ul>	10120	<input style="width: 90%; height: 20px;" type="text"/>

## 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 1 [Purchases] + Question 7 [Transfers] + Question 8 [Generated] – (Question 9 + 10)[Sales and Transfers Offsite]

Enter the percentage of total electricity that this establishment consumed for the following:			
11.	<i>Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.</i>	“Census Use Only”	
	<ul style="list-style-type: none"> <li>• <b>Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process.</b></li> </ul>	10705	%
12.	<i>Direct Uses – Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.</i>		
	<ul style="list-style-type: none"> <li>• <b>Process Heating</b></li> </ul>	10720	%
	<ul style="list-style-type: none"> <li>• <b>Process cooling and refrigeration</b></li> </ul>	10730	%
	<ul style="list-style-type: none"> <li>• <b>Machine drive</b></li> </ul>	10740	%
	<ul style="list-style-type: none"> <li>• <b>Electro-chemical processes</b></li> </ul>	10750	%
	<ul style="list-style-type: none"> <li>• <b>Other Direct Process Use, Please specify</b></li> </ul> <div style="display: flex; align-items: center;"> <span style="margin-right: 10px;">10761</span> <input style="width: 200px; height: 15px; border: 1px solid black;" type="text"/> </div>	10760	%
13.	<i>Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).</i>		
	<ul style="list-style-type: none"> <li>• <b>Facility heating, ventilation, and air conditioning</b></li> </ul>	10770	%
	<ul style="list-style-type: none"> <li>• <b>Facility lighting</b></li> </ul>	10780	%
	<ul style="list-style-type: none"> <li>• <b>Facility support other than that reported above (e.g.: cooking, water heating, office equipment)</b></li> </ul>	10790	%
	<ul style="list-style-type: none"> <li>• <b>Onsite transportation, excluding highway usage</b></li> </ul>	10800	%
	<ul style="list-style-type: none"> <li>• <b>Any other direct non-process use, Please specify:</b></li> </ul> <div style="display: flex; align-items: center;"> <span style="margin-right: 10px;">10821</span> <input style="width: 200px; height: 15px; border: 1px solid black;" type="text"/> </div>	10820	%



**Section 3: Electricity  
Section 4: Natural Gas**

***Natural Gas: Total Purchased***

1.	<b>Enter the total quantity of natural gas purchased for 2006.</b>	"Census Use Only"  30010	<input type="text"/>
1a.	<b>Please indicate the units for the quantity reported in question 1.</b>  <b>** Please use this unit when reporting the remainder of the Natural Gas questions.</b>	*****  *****	<input type="checkbox"/> 1. Therms <input type="checkbox"/> 2. Decatherms (Dth) <input type="checkbox"/> 3. 1,000 Cubic Feet (mcf) <input type="checkbox"/> 4. 100 Cubic Feet (ccf) <input type="checkbox"/> 5. Million British Thermal Units (MMBTU) <input type="checkbox"/> 6. Other: Please Specify _____
2.	<b>Enter total expenditures, including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased natural gas reported in question 1.</b>	30020	<input type="text"/> \$ U.S. Dollars

***Source of Purchased Natural Gas***

3.	<b>During 2006, where did this establishment's purchased natural gas come from?</b>  <b>Local utility</b> 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.  <b>Non-utility</b> includes independent producers, brokers, marketers, and any marketing subsidiaries of utilities.	31010	<input type="checkbox"/> 1. All local utility: Answer question 4 then go to #7 <input type="checkbox"/> 2. All non-utility: Answer question 4 then go to #7 <input type="checkbox"/> 3. Both: Answer questions 4 & 6 then go to #7
4.	<b>Please specify the utility/non-utility provider from whom you purchased your natural gas:</b> If this establishment purchases from more than one provider, please provide the largest provider. ***** <input type="text"/>		
5.	<b>Enter the quantity of your total purchased natural gas that was purchased from a local utility during 2006.</b>	31010	<input type="text"/>
6.	<b>Enter the total expenditures of your purchased natural gas that was paid to a local utility.</b>	31020	<input type="text"/> \$ U.S. Dollars

### *Natural Gas: Transferred and Produced*

7.	<p><b>Enter the total quantity of transferred natural gas in or otherwise received onsite without a direct open market purchase.</b></p> <p>Include quantities:</p> <ul style="list-style-type: none"> <li>• For which payment, if any, does not represent an open-market transaction;</li> <li>• For which payment was made in-kind (i.e., barter);</li> <li>• Received from an entity in which your establishment or company has a share of ownership or special sharing of revenue (e.g., in a performance service contract).</li> </ul>	<p>“Census Use Only”</p> <p>30030</p>	<input style="width: 100%; height: 20px;" type="text"/>
8.	<p><b>Enter the quantity of natural gas that was both produced onsite in 2006 as output from a captive (onsite) well, and was at least partially consumed onsite (as a fuel or nonfuel).</b></p>	<p>30040</p>	<input style="width: 100%; height: 20px;" type="text"/>

### *Natural Gas: Consumption*

9.	<p><b>Enter the total quantity of natural gas consumed as a fuel at this establishment in 2006.</b></p> <p>Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.</p>	<p>30060</p>	<input style="width: 100%; height: 20px;" type="text"/>
10.	<p><b>Enter the total quantity of natural gas consumed for any purpose other than fuel use at this establishment in 2006.</b></p> <p>Include all quantities consumed as lubricants, solvents, or as feedstocks, raw materials, additives, or ingredients for products manufactured by this establishment.</p> <p>Exclude all offsite dispositions such as sales and transfers to other establishments.</p>	<p>30070</p>	<input style="width: 100%; height: 20px;" type="text"/>

## Natural Gas: Estimated End-Use Percent Consumption

The following questions refer to the fuel consumption of natural gas for this establishment that was previously reported in question 9 (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.

Enter the percentage of total natural gas that this establishment consumed as the following:

11.	<i>Indirect Uses – Boilers: indirect use is the transformation of energy to another usable energy source, as in a boiler, gas turbine, or combustion turbine.</i>	“Census Use Only”	
	<ul style="list-style-type: none"> <li>• <b>Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process</b></li> </ul>	30705	%
	<ul style="list-style-type: none"> <li>• <b>Other boiler fuel (not included above)</b></li> </ul>	30710	%
12.	<i>Direct Uses- Process: direct process use includes usage in motors, ovens, kilns, and strip heaters.</i>		
	<ul style="list-style-type: none"> <li>• <b>Process heating</b></li> </ul>	30720	%
	<ul style="list-style-type: none"> <li>• <b>Process cooling and refrigeration</b></li> </ul>	30730	%
	<ul style="list-style-type: none"> <li>• <b>Machine drive</b></li> </ul>	30740	%
	<ul style="list-style-type: none"> <li>• <b>Other direct process use, please specify</b> 10761 <input style="width: 200px; height: 15px;" type="text"/></li> </ul>	30760	%
13.	<i>Direct Uses – Non-process: direct non-process use includes usage for facility lighting and space-conditioning equipment (HVAC).</i>		
	<ul style="list-style-type: none"> <li>• <b>Facility heating, ventilation, and air conditioning</b></li> </ul>	30770	%
	<ul style="list-style-type: none"> <li>• <b>Facility support other than that reported above (e.g.: cooking, water heating, office equipment)</b></li> </ul>	30790	%
	<ul style="list-style-type: none"> <li>• <b>Onsite transportation, excluding highway usage</b></li> </ul>	30800	%
	<ul style="list-style-type: none"> <li>• <b>Conventional electricity generation</b></li> </ul>	30810	%
	<ul style="list-style-type: none"> <li>• <b>Other direct non-process use, please specify</b> 10821 <input style="width: 200px; height: 15px;" type="text"/></li> </ul>	30820	%
			<b>TOTAL 100%</b>

**Section 5: Diesel Fuel – excluding offsite highway usage, Section 6: Distillate Fuel Oil #1, 2, 4, and Section 7: Residual Fuel Oil #5, 6, Navy Special, and Bunker C**

1. Enter the **total quantity** of “(diesel, distillate, or residual fuel)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made?  
\_\_\_\_\_ (Barrels)
2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
3. Enter the total quantity of transferred “(diesel, distillate, or residual fuel)” in or otherwise received onsite 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.)

Enter **total quantity**\_\_\_\_\_ (Barrels)

4. During 2006, did this establishment produce any “(diesel, distillate, or residual fuel)” onsite?
  - o Yes
    - Enter the **quantity** \_\_\_\_\_ (Barrels)
  - o No
5. During 2006, did this establishment consume “(diesel, distillate, or residual fuel)” as any of the following check all that apply:
  - Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(diesel, distillate, or residual fuel)” consumed as a fuel \_\_\_\_\_ (Barrels)
  - Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Please check how you consumed your material input. (Check all that apply)
      - Feedstock / Raw materials or additive
      - Lubricant

**Section 5: Diesel Fuel – excluding offsite highway usage, Section 6: Distillate Fuel Oil #1, 2, 4, and Section 7: Residual Fuel Oil #5, 6, Navy Special, and Bunker C**

- Solvent
- Onsite vehicles
- Back-up generators
- Other—Please specify \_\_\_\_\_
  - Enter the **quantity** of “(diesel, distillate, or residual fuel)” consumed as a material input \_\_\_\_\_ (Barrels)

6. During 2006, did this establishment ship any “(diesel, distillate, or residual fuel)” offsite to ANY other establishment?

- Yes
  - Enter the **quantity** \_\_\_\_\_ (Barrels)
- No

7. Enter the shell or design storage capacity of all the storage tanks located onsite as of 12/31/06 for this energy source: \_\_\_\_\_ (Barrels)

**The following questions refer to how this establishment consumed the diesel and distillate and/or residual fuel that was reported above (please enter as a percentage of total consumption for each end use performed).**

**Please enter whole numbers. All end use must add to 100%.**

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

- **Enter the percentage of total Diesel and Distillate fuel that this establishment consumed as the following:**

- a) Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process  %
- b) Other boiler fuel (not included above)  %

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

**Section 5: Diesel Fuel – excluding offsite highway usage, Section 6: Distillate Fuel Oil #1, 2, 4, and Section 7: Residual Fuel Oil #5, 6, Navy Special, and Bunker C**

- **Enter the percentage of total Diesel and Distillate fuel that this establishment consumed as the following:**

- a) Process heating %
- b) Process cooling and refrigeration %
- c) Machine drive %
- d) Any other direct process use %
  - Please specify direct process use:  
\_\_\_\_\_

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

- **Enter the percentage of total Diesel and Distillate fuel that this establishment consumed for the following:**

- a) Facility heating, ventilation, and air conditioning %
- b) Facility support other than that reported above (e.g.: cooking, water heating, office equipment) %
- c) Onsite transportation, excluding highway usage %
- d) Conventional electricity generation %
- e) Any other direct non-process use %
  - Please specify direct non-process use: \_\_\_\_\_

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

- **Enter the percentage of total Residual Fuel that this establishment consumed as the following:**

**Section 5: Diesel Fuel – excluding offsite highway usage, Section 6: Distillate Fuel Oil #1, 2, 4, and Section 7: Residual Fuel Oil #5, 6, Navy Special, and Bunker C**

- a) Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process %
- b) Other boiler fuel (not included above) %

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

- **Enter the percentage of total Residual Fuel that this establishment consumed as the following:**

- a) Process heating
- b) Process cooling and refrigeration
- c) Machine drive
- d) Any other direct process use
  - Please specify direct process use:

	%
--	---

	%
--	---

	%
--	---

	%
--	---

\_\_\_\_\_

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

- **Enter the percentage of total Residual Fuel that this establishment consumed for the following:**

- a) Facility heating, ventilation, and air conditioning
- b) Facility support other than that reported above (e.g.: cooking, water heating, office equipment)
- c) Conventional electricity generation
- d) Any other direct non-process use
  - Please specify direct non-process use:

	%
--	---

	%
--	---

	%
--	---

	%
--	---

\_\_\_\_\_

### **Section 8: Butane, Ethane, and Propane**

Please check all the types of LPG and NGL consumed at your establishment:

- Butane**
- Ethane**
- Propane**
- Mixtures of Butane, Ethane, and Propane**
- Other LPG and NGL** (e.g., ethylene, propylene, butylenes)
- This establishment does not consume LPG or NGL as a material input or for fuel.**

1. Enter the **total quantity** of “(LPG or NGL selected above)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made?  
\_\_\_\_\_ (gallons)

2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_

3. Enter the total quantity of transferred “(LPG or NGL selected above)” in or otherwise received onsite 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.)

Enter **total quantity**\_\_\_\_\_ (gallons)

5. During 2006, did this establishment produce any “(LPG or NGL selected above)” onsite?

Yes

- Enter the **quantity** \_\_\_\_\_ (gallons)

No



## Section 8: Butane, Ethane, and Propane

6. During 2006, did this establishment consume “(LPG or NGL selected above)” as any of the following check all that apply:
- Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(LPG or NGL selected above)” consumed as a fuel \_\_\_\_\_ (gallons)
  - Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Please check how you consumed your material input. (Check all that apply)
      - Feedstock / Raw materials or additive
      - Onsite vehicles including forklifts
      - Other—Please specify \_\_\_\_\_
        - Enter the **quantity** of “(LPG or NGL selected above)” consumed as a material input \_\_\_\_\_ (gallons)
7. During 2006, did this establishment ship any “(LPG or NGL selected above)” offsite to ANY other establishment?
- Yes
    - Enter the **quantity** \_\_\_\_\_ (gallons)
  - No

## Section 9: LPG Mixtures and Other LPG and NGL

1. Enter the **total quantity** of “(LPG Mixtures or Other LPG and NGL)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made?  
\_\_\_\_\_ (gallons)

2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_

3. Enter the total quantity of transferred “(LPG Mixtures or Other LPG and NGL)” in or otherwise received onsite 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.)

Enter **total quantity** \_\_\_\_\_ (gallons)

4. During 2006, did this establishment produce any “(LPG Mixtures or Other LPG and NGL)” onsite?

Yes

- Enter the **quantity** \_\_\_\_\_ (gallons)

No

5. During 2006, did this establishment consume “(LPG Mixtures or Other LPG and NGL)” as any of the following check all that apply:

Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.

- Enter the **quantity** of “(LPG Mixtures or Other LPG and NGL)” consumed as a fuel \_\_\_\_\_ (gallons)

Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.

- Please check how you consumed your material input. (Check all that apply)

Feedstock / Raw materials or additive

Onsite vehicles including forklifts

Other—Please specify \_\_\_\_\_

## Section 9: LPG Mixtures and Other LPG and NGL

- Enter the **quantity** of “(LPG Mixtures or Other LPG and NGL)” consumed as a material input \_\_\_\_\_ (gallons)

6. During 2006, did this establishment ship any “(LPG Mixtures or Other LPG and NGL)” offsite to ANY other establishment?

Yes

- Enter the **quantity** \_\_\_\_\_ (gallons)

No

**Section 8: Butane, Ethane, and Propane, and Section 9: LPG Mixtures and Other LPG and NGL**

The following questions refer to how this establishment consumed the Total LPG or NGL that was reported above (*please enter as a percentage of total consumption for each end use performed*).

Please enter whole numbers. All end use must add to 100%.

End use is the sum of all your fuel use of Butane, Ethane, Propane, or mixtures of butane, ethane, and propane, or other LPG and NGL you reported.

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

- **Enter the percentage of total LPG and NGL that this establishment consumed as the following:**

c) Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process %

d) Other boiler fuel (not included above) %

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

- **Enter the percentage of total LPG and NGL that this establishment consumed as the following:**

e) Process heating %

f) Process cooling and refrigeration %

g) Machine drive %

h) Any other direct process use %

- Please specify direct process use:

\_\_\_\_\_

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

- **Enter the percentage of total LPG and NGL that this establishment consumed for the following:**

**Section 8: Butane, Ethane, and Propane, and Section 9: LPG Mixtures and Other LPG and NGL**

- a) Facility heating, ventilation, and air conditioning  %
- b) Facility support other than that reported above (e.g.: cooking, water heating, office equipment)  %
- c) Onsite transportation, excluding highway usage  %
- d) Conventional electricity generation  %
- e) Any other direct non-process use  %
- Please specify direct non-process use: \_\_\_\_\_

**Section 10: Coal: Anthracite, Bituminous and Sub-bituminous Coal, and Lignite**

1. Enter the **total quantity** of “(specific coal type)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made? \_\_\_\_\_ (Short Tons)
  
2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
  
3. Enter the total quantity of transferred “(specific coal type)” in or otherwise received onsite 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.)
 Enter **total quantity**\_\_\_\_\_ (Short Tons)
  
4. During 2006, did this establishment produce any “(specific coal type)” onsite?
  - Yes
    - Enter the **quantity** \_\_\_\_\_ (Short Tons)
  - No
  
5. During 2006, did this establishment consume “(specific coal type)” as any of the following check all that apply:
  - Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(specific coal type)” consumed as a fuel \_\_\_\_\_ (Short Tons)
  
  - Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Please check how you consumed your material input. (Check all that apply)
      - Feedstock / Raw materials or additive
      - Electricity generators
      - Other—Please specify \_\_\_\_\_
        - Enter the **quantity** of “(specific coal type)” consumed as a material input \_\_\_\_\_ (Short Tons)

## Section 10: Coal: Anthracite, Bituminous and Sub-bituminous Coal, and Lignite

The following questions refer to how this establishment consumed the coal that was reported above (please enter as a percentage of total consumption for each end use performed).

Please enter whole numbers. All end use must add to 100%.

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

- Enter the percentage of total Coal that this establishment consumed as the following:

- a) Boiler fuel in a Combined Heat and Power (CHP) and/or cogeneration process  %
- b) Other boiler fuel (not included above)  %

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

- Enter the percentage of total Coal that this establishment consumed as the following:

- a) Process heating  %
- b) Process cooling and refrigeration  %
- c) Machine drive  %
- d) Any other direct process use  %
  - Please specify direct process use:  
\_\_\_\_\_

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

- Enter the percentage of total Coal that this establishment consumed for the following:

- a) Facility heating, ventilation, and air conditioning  %

**Section 10: Coal: Anthracite, Bituminous and Sub-bituminous Coal, and Lignite**

- b) Facility support other than that reported above (e.g.: cooking, water heating, office equipment)  %
- c) Onsite transportation, excluding highway usage  %
- d) Conventional electricity generation  %
- e) Any other direct non-process use  %
  - Please specify direct non-process use: \_\_\_\_\_

### **Section 11: Breeze and Section 12: Coal Coke**

1. Enter the **total quantity** of “(breeze or coal coke)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made? \_\_\_\_\_ (Short Tons)
2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
3. Enter the total quantity of transferred “(breeze or coal coke)” in or otherwise received onsite 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.)

Enter **total quantity** \_\_\_\_\_ (Short Tons)

4. During 2006, did this establishment produce any “(breeze or coal coke)” onsite?

Yes

- Enter the **quantity** \_\_\_\_\_ (Short Tons)

No

5. During 2006, did this establishment consume “(breeze or coal coke)” as any of the following check all that apply:

Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.

- Enter the **quantity** of “(breeze or coal coke)” consumed as a fuel \_\_\_\_\_ (Short Tons)

Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.

- Please check how you consumed your material input. (Check all that apply)

Feedstock / Raw materials or additive

Blast Furnace, boiler and/or Kiln

Other—Please specify \_\_\_\_\_

- Enter the **quantity** of “(breeze or coal coke)” consumed as a material input \_\_\_\_\_ (Short Tons)

### **Section 13: Petroleum Cokes: Fluid Catalytic Cracking Unit Coke, Marketable Petroleum Coke – Unrefined or Green, and Marketable Petroleum Coke – Calcined**

1. Enter the **total quantity** of “(petroleum coke type)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made: \_\_\_\_\_ (Barrels)

2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$ \_\_\_\_\_

3. Enter the total quantity of transferred “(petroleum coke type)” in or otherwise received onsite without a direct open market purchase during 2006:

- 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 (i.e., in a performance service contract).

Enter **total quantity** \_\_\_\_\_ (Barrels)

4. During 2006, did this establishment produce any “(petroleum coke type)” onsite?

Yes

- Enter the **quantity** \_\_\_\_\_ (Barrels)

No

5. During 2006, did this establishment consume any “(petroleum coke type)” as any of the following check all that apply:

- Fuel → Include all process uses such as process heating, process cooling, and machine drive and all non-process uses such as facility heating, ventilation, and air conditioning. Also, include fuel consumed by vehicles intended primarily for use onsite.

- Enter the **quantity** of “(petroleum coke type)” consumed as fuel \_\_\_\_\_ (Barrels)

- Material Input → Include all quantities consumed as lubricants, solvents, raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.

- Enter the **quantity** of “(petroleum coke type)” consumed as a material input \_\_\_\_\_ (Barrels)

6. During 2006, did this establishment ship any “(petroleum coke type)” offsite to ANY other establishment?

Yes

- Enter the **quantity** \_\_\_\_\_ (Barrels)

No

### **Section 14: Kerosene and Section 15: Motor Gasoline (excluding offsite highway usage)**

1. Enter the **total quantity** of “(kerosene or motor gasoline)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made? \_\_\_\_\_ (barrels or gallons)

2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$ \_\_\_\_\_

3. Enter the total quantity of transferred “(kerosene or motor gasoline)” in or otherwise received onsite 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.)

Enter **total quantity** \_\_\_\_\_ (barrels or gallons)

4. During 2006, did this establishment produce any “(kerosene or motor gasoline)” onsite?
- o Yes
    - Enter the **quantity** \_\_\_\_\_ (barrels or gallons)
  - o No

5. During 2006, did this establishment consume “(kerosene or motor gasoline)” as any of the following check all that apply:

- Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
  - Enter the **quantity** of “(kerosene or motor gasoline)” consumed as a fuel \_\_\_\_\_ (barrels or gallons)
- Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
  - Please check how you consumed your material input. (Check all that apply)
    - Feedstock / Raw Materials or additive
    - Onsite vehicles
    - Onsite Generators
    - Other—
      - o Please specify \_\_\_\_\_

**Section 14: Kerosene and Section 15: Motor Gasoline (excluding offsite highway usage)**

- Enter the **quantity** of “(kerosene or motor gasoline)” consumed as a material input \_\_\_\_\_ (barrels or gallons)

**(Only for Motor Gasoline)**

6. Enter the shell or design storage capacity of all the storage tanks located onsite as of 12/31/06 for this energy source: \_\_\_\_\_ (gallons)

## Section 16: Acetylene and Section 17: Hydrogen

1. Enter the **total quantity** of “(acetylene or hydrogen)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made: \_\_\_\_\_ (Cubic Feet or Million Btu)
2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
3. Enter the total quantity of transferred “(acetylene or hydrogen)” in or otherwise received onsite without a direct open market purchase during 2006:
  - 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 (i.e., in a performance service contract).

Enter **total quantity** \_\_\_\_\_ (Cubic Feet or Million Btu)

4. During 2006, did this establishment produce any “(acetylene or hydrogen)” onsite?
- Yes
    - Enter the **quantity** \_\_\_\_\_ (Cubic Feet or Million Btu)
  - No
5. During 2006, did this establishment consume any “(acetylene or hydrogen)” as any of the following check all that apply:
- Fuel → Include all process uses such as process heating, process cooling, and machine drive and all non-process uses such as facility heating, ventilation, and air conditioning. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(acetylene or hydrogen)” consumed as fuel \_\_\_\_\_ (Cubic Feet or Million Btu)
  - Material Input → Include all quantities consumed as lubricants, solvents, raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Please check how you consumed your “(acetylene or hydrogen)” material input. (Check all that apply)
      - Feedstock / Raw Materials or additive
      - Use in torches (**for acetylene only**)
      - Onsite vehicles (**for hydrogen only**)
      - Other—Please specify \_\_\_\_\_

### Section 16: Acetylene and Section 17: Hydrogen

- Enter the **quantity** of “(acetylene or hydrogen)” consumed as a material input \_\_\_\_\_ (Cubic Feet or Million Btu)
6. During 2006, did this establishment ship any “(acetylene or hydrogen)” offsite to ANY other establishment?
- Yes
    - Enter the **quantity** \_\_\_\_\_ (Cubic Feet or Million Btu)
  - No

#### (Only for Hydrogen)

7. Does the quantity reported in produced onsite represent the product or byproduct of another energy source consumed onsite?
- Yes, product or byproduct
  - No

### **Section 18: Wood Harvested Directly from Trees (e.g. roundwood, wood chips)**

1. Enter the **total quantity** of Wood Harvested Directly from Trees purchased by, and delivered to this establishment in 2006 **for fuel uses only**, regardless of when payment was made? \_\_\_\_\_ (Million Btu)
2. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
3. Enter the total quantity of transferred Wood Harvested Directly from Trees in or otherwise received onsite 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.)

Enter **total quantity** \_\_\_\_\_ (Million Btu)

4. During 2006, did this establishment produce any Wood Harvested Directly from Trees onsite?
  - Yes
    - Enter the **quantity** \_\_\_\_\_ (Million Btu)
  - No
  
5. Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
  - Enter the **quantity** of Wood Harvested Directly from Trees consumed as a fuel \_\_\_\_\_ (Million Btu)

## Section 19: Byproducts

Please check all the types of Byproduct Energy Sources consumed at your establishment:

- Blast Furnace Gas**
- Coke Oven Gas**
- Pulping Black Liquor**
- 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)**
- Agricultural Waste (e.g. bagasse, nut shells, orchard prunings, rice hulls)**
- 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)**
- Other** Please specify \_\_\_\_\_

1. How did you receive your “(byproduct selected above)” in 2006?
  - Produced Onsite
  - Purchased
  - Transferred In

2. Enter the **total quantity** of “(byproduct selected above)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made? \_\_\_\_\_  
(Million Btu)
3. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$\_\_\_\_\_
4. Enter the total quantity of transferred “(byproduct selected above)” in or otherwise received onsite 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.)

Enter **total quantity**\_\_\_\_\_ (Million Btu)
5. During 2006, did this establishment produce any “(byproduct selected above)” onsite?
  - Yes
    - Enter the **quantity** \_\_\_\_\_ (Million Btu)
  - No

### Section 19: Byproducts

6. During 2006, did this establishment consume “(byproduct selected above)” as any of the following check all that apply:
  - Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(byproduct selected above)” consumed as a fuel \_\_\_\_\_ (Million Btu)
  - (Only need this question for Waste Oils and Tars, and Waste and Byproduct Gases)**
  - Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Please check how you consumed your material input. (Check all that apply)
      - Feedstock / Raw materials or additive
      - Other—Please specify \_\_\_\_\_
        - Enter the **quantity** of “(byproduct selected above)” consumed as a material input \_\_\_\_\_ (Million Btu)



**(Only for Blast Furnace Gas, Coke Oven Gas)**

7. During 2006, did this establishment ship any “(blast furnace coke oven gas)” offsite to ANY other establishment?
- Yes
    - Enter the **quantity** \_\_\_\_\_ (Million Btu)
  - No

**Section 20: Steam and Section 21: Industrial Hot Water**

1. Enter the total quantity of “(steam or industrial hot water)” purchased for 2006  
\_\_\_\_\_ (Million Btu)
2. Enter total expenditures, including all applicable taxes and any delivery, management, transportation, and demand charges, for the purchased “fill from checkboxes” reported above: \$\_\_\_\_\_

**(The following question is just for Steam)**

3. During 2006, did this establishment purchase steam from either:
- Local utility → The Company in your local area that produces and/or delivers steam and is legally obligated to provide service to the general public within its franchise area.
  - Non-utility sources → Include generators of steam such as independent power producer, small power producers, brokers, marketers, marketing subsidiaries of utilities, or co-generators not owned by your company.
  - Both
    - Enter the **quantity** of your total purchased steam, “(from question 1),” that came from a local utility \_\_\_\_\_ (Million Btu)

- Enter the **total expenditures** of your purchased steam, “(from question 2),” that came from a local utility \$\_\_\_\_\_
4. Enter the total quantity of transferred “(steam or industrial hot water)” in or otherwise received onsite without a direct open market purchase.
- o 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)
- Enter **total quantity** \_\_\_\_\_ (Million Btu)
5. Did this establishment generate any “(steam or industrial hot water)” in 2006?
- o Yes
    - Enter the quantity of “(steam or industrial hot water)” generated onsite from each of the following:
      - a) Solar Power \_\_\_\_\_ (Million Btu)
      - b) Wind Power \_\_\_\_\_ (Million Btu)
      - c) Hydropower \_\_\_\_\_ (Million Btu)
      - d) Geothermal Power \_\_\_\_\_ (Million Btu)
  - o No

### **Section 20: Steam and Section 21: Industrial Hot Water**

6. Did this establishment sell or transfer out any “(steam or industrial hot water)” to utilities or non-utilities in 2006?
- o Yes
    - Enter the total quantity of “(steam or industrial hot water)” transferred out of this establishment in 2006 \_\_\_\_\_ (Million Btu)
  - o No

## Section 22: Other Fuel Source

1. Did you consume any of the following in 2006?
  - Oxygen
  - Carbon Dioxide
  - Nitrogen
  - Argon
  - Helium
  - Other → if this is checked move to number 2
  
2. Specify the name of any energy source purchased or consumed in this establishment that has not been previously asked.
  - \_\_\_\_\_ Energy Source
  - \_\_\_\_\_ Units reported in (example gallons, million BTU, cubic feet, etc.)
  
3. Enter the **total quantity** of “(energy source)” purchased by, and delivered to this establishment in 2006, regardless of when payment was made? \_\_\_\_\_  
(Units)
  
4. Enter **total expenditures**, including taxes and delivery charges for the quantity reported above: \$ \_\_\_\_\_

5. Enter the total quantity of transferred “(energy source)” in or otherwise received onsite 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.)

Enter **total quantity** \_\_\_\_\_ (Units)

6. During 2006, did this establishment produce any “(energy source)” onsite?
- Yes
    - Enter the **quantity** \_\_\_\_\_ (Units)
  - No

## Section 22: Other Fuel Source

7. Does the quantity reported in produced onsite represent the product or byproduct of another energy source consumed onsite?
  - Yes, product or byproduct
  - No
8. During 2006, did this establishment consume “(energy source)” as any of the following check all that apply:
  - Fuel → Include all uses that were used for the heat, power, and electricity generation. Also, include fuel consumed by vehicles intended primarily for use onsite.
    - Enter the **quantity** of “(energy source)” consumed as a fuel \_\_\_\_\_ (Units)
  - Material Input → Include all quantities consumed as raw materials, feedstocks, additives, or ingredients for products manufactured by this establishment, or any other nonfuel purposes.
    - Enter the **quantity** of “(energy source)” consumed as a material input \_\_\_\_\_ (Units)

## Section 23: Fuel Switching

1. Enter the quantity of “(current fuel consumed)”-- <<In electronic, already entered>>?	_____
<b>2. Consider ONLY the physical limitations<sup>1</sup> of your boilers, heaters, and combustors, enter the amount of the total quantity reported in question 2 that could NOT be replaced within 30 days by another energy source in 2006 considering the physical limitations of your boilers, combustors, and heating equipment.</b>	_____
3. Enter the result of subtracting the quantity reported in question 2 from the quantity reported in question 1. (Or in Electronic: “The quantity shown (to the right?) is the result of subtracting the quantity shown in #2 from the quantity shown in #1)?	_____
4. Now consider the amount of “(current fuel)” shown in #3 above that could not be switched because of “practical reasons” and enter the quantity to the right. “Practical reasons” include <ul style="list-style-type: none"> <li>• There is no ready supply of an alternative energy source.</li> <li>• Environmental restrictions limit the amount of an alternative fuel that could be used instead.</li> <li>• A long-term contract in-place that requires the purchase of certain amounts of “(current fuel)” in any case.</li> <li>• Storage of alternative fuels is not available due to potential environmental impact of storage tanks.</li> </ul>	_____
5. Enter the result of subtracting the quantity reported in question 4 from the quantity reported in question 3. (Or in Electronic: “The quantity shown (to the right?) is the result of subtracting the quantity you entered in #4 from the quantity shown in #3).	_____
If the quantity in #5 is greater than zero, than please answer questions 6 through 13.	
6. Of the quantity switchable reported in question 5, what is the maximum amount that could have been replaced by “(alternative fuel)”?	_____

<sup>1</sup> “Physical limitations” means (1) the boilers, heaters, or other fuel-consuming equipment are not capable of using anything other than natural gas for at least part of the operations, or (2) Although the boilers, heaters, or combustors would allow using another fuel, doing so would adversely affect a product. (Example: altering the pigment in a paint-drying application.)

<p>&lt;&lt;Questions 7 to 12 similar to 6, asking about switching into other alternative fuels&gt;&gt;</p>	
<p>13. Regardless of whether or not your establishment actually switched from “(current fuel)” during 2006 or did so because of a less expensive substitute, is there a lowest percentage of price difference of the less expensive substitute that would cause your establishment to switch from this fuel? (If you have more than one possible alternative to using “(current fuel)”, choose the fuel that would be your most preferred alternative.)</p> <p>The formula for percentage of price difference is:</p> $\text{Percentage of Price Difference} = \frac{(PC - PA)}{PC} \times 100\%$ <p>Where PC= Price per British thermal unit of current fuel  PA=Price per British thermal unit of alternative fuel</p> <ol style="list-style-type: none"> <li>Would not switch regardless of price difference</li> <li>Would switch at price difference 1-10 percent</li> <li>Would switch at price difference 11-25 percent</li> <li>Would switch at price difference 26-50 percent</li> <li>Would switch at price difference over 50 percent</li> <li>Reasonable estimates cannot be provided</li> <li>Would switch to the more expensive substitute if price premium were reasonable.</li> </ol>	

**Section 24: Energy-Management Activities**

**For questions 1 through 5:**

**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, 2006 and December 31, 2006.**

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

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

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

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

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

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

	Type of Energy-Management Assistance	Participate?	Source of Assistance (check all that apply)					
			In-house	Utility/Energy Supplier	Product or Service Provider	Federal Program	State or Local Program	Don't Know
1.	<b>Energy Audit or Assessment</b>	Yes → No						
2.	<b>Technical Assistance</b> (e.g., consultation, demonstrations, engineering design or analysis)	Yes → No						
3.	<b>Technical Information</b> (e.g., software, reference material)	Yes → No						
4.	<b>Training</b> (e.g., workshops, seminars, presentations)	Yes → No						
5.	<b>Financial Assistance</b> (e.g., loans, tax credits, rebates, subsidies)	Yes → No						
6.	<b>Electricity Load Control</b>	Yes → No						
7.	<b>Power factor correction or improvement</b>	Yes → No						
8.	<b>Equipment installation or retrofit for the <u>primary purpose of using a different energy source</u></b> (e.g. electrification)  Exclude modifications made primarily for energy efficiency; those should be included in	Yes → No						



	Questions 12 through 18.							
9.	<b>Standby generation program</b>	Yes → No						
10.	<b>Special rate schedule</b> (e.g., interruptible or time-of-use)	Yes → No						
11.	<b>Interval metering needed to manage energy use for programs such as real-time pricing</b>	Yes → No						

**For Questions 12 through 18:**

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, 2006 and December 31, 2006. For any activity for which you marked “yes” please mark the source (s) of financial support for the activity. Please use the sources defined above question 1.

	System	Installed Equipment or Retrofit?	Source of Assistance (check all that apply)					Don't Know
			In-house	Utility/ Energy Supplier	Product or Service Provider	Federal Program	State or Local Program	
12.	<b>Steam production/system</b> (e.g., boilers, burners, insulation, piping)	Yes → No						
13.	<b>Compressed air systems</b> (e.g., compressors, sizing, leak reduction)	Yes → No						
14.	<b>Direct/indirect process heating</b>	Yes → No						
15.	<b>Direct process cooling, refrigeration</b>	Yes → No						
16.	<b>Direct machine drive</b> (e.g., adjustable-speed drives, motors, pumps, fans)	Yes → No						
17.	<b>Facility heating, ventilation, and air conditioning</b>	Yes → No						

18.	<b>Facility lighting</b>	Yes → No						
<b>For Questions 13 through 25: Please mark only one answer for each energy-management question.</b>								
19.	Does this establishment have an energy manager? (i.e., a person whose major function is to direct or plan energy strategies relating to energy use and energy-efficient technology within the establishment)						Yes No	
20.	Does your establishment set goals for improving energy efficiency?						Yes No	
21.	Describe how energy efficiency projects at your establishment compare to other investments:			Energy efficiency projects have a higher priority or preference than other investments Energy efficiency projects are evaluated in the same way as other investments Energy efficiency projects have a lower priority or preference than other investments				
22.	Does your establishment measure and monitor how much steam is used to produce a unit of product? (i.e. lbs of steam needed per unit of product produced)						Yes No Not Applicable	
23.	Does your establishment have dedicated staff that performs insulation inspections to monitor and maintain the condition of steam system insulation?						Yes No Not Applicable	
24.	Does your establishment have a formal steam system maintenance program that includes the following activities:	a. At least annual testing of all steam traps				Yes No Not Applicable		
		b. Maintaining a steam trap database				Yes No Not Applicable		
		c. At least annual inspections and repairs of steam leaks				Yes No Not Applicable		
25.	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 Not Applicable	
26.	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 Not Applicable	
27.	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 Not Applicable		
		b. Cleaning of heat transfer surfaces to avoid build up of soot, scale, or other material.				Yes No Not Applicable		
		c. Inspecting, calibrating, and adjusting temperature/pressure sensors, controllers, valve operators, etc.				Yes No Not Applicable		
28.	Do you keep an inventory of all motors in your establishment?						Yes No Not Applicable	
29.	Have you conducted a plant-wide study to identify the major energy consuming pump systems in your establishment?						Yes No	

		Not Applicable
30.	Does your establishment have staff or equipment dedicated to detecting and controlling compressed air system leaks?	Yes No Not Applicable
31.	Does your establishment track the amount of energy spent in compressed air systems?	Yes No Not Applicable

## Section 25: Technologies

Census  
use only

**265. Were any of the following technologies in use at your establishment anytime during 2006?**

**a. Computer control of building-wide environment**

14010

1  Yes

2  No

3  Don't Know

(e.g., space-heating equipment, cooling equipment, lights)

- b. Computer control of processes or major energy-using equipment** 14020
- 1  Yes      2  No      3  Don't Know
- (e.g., boilers, furnaces, conveyors used in the manufacturing process)
- c. 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
- 266. Were any of the following technologies associated with cogeneration in use at your establishment anytime during 2006?**
- 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-temperature processes** 14046
- 1  Yes      2  No      3  Don't Know

## Section 26: Establishment Size

Census use  
only

**267. How many buildings were on this establishment site as of December 31, 2006?**

17010

Number of  
Buildings

Buildings include:

1) structures enclosed by walls extending from the foundation to the roof,

17020

1 Don't Know

2) parking garages, even if not totally enclosed by walls and a roof, or

3) structures erected on pillars to elevate the first fully enclosed level.

Excluded as buildings are:

- 1) structures (other than the exceptions noted above) that are not totally enclosed by walls and a roof,
- 2) mobile homes and trailers, even if they house manufacturing activity,
- 3) structures not ordinarily intended to be entered by humans, such as storage tanks, or
- 4) nonbuildings that consume energy (such as pumps and construction sites).

**268. What was the approximate total enclosed square footage of the buildings located on this establishment site as of December 31, 2006?**

13010

Total Square  
Feet

Include in this estimate all the area enclosed by the exterior walls of a building, such as indoor parking facilities, basements, hallways, lobbies, stairways, and elevator shafts.

13011

1 Don't Know

## Section 27: Contact Information

**270. Name of person to contact regarding this questionnaire**

**Date (m**

**271. Title of contact person above**

**272. Telephone:      Area Code                      Number                      Extension**

**273. Address--Number and Street**

274.

City

State

ZIP C  
dig

275.

Internet or E-mail address, if available

19010

**Thank you for completing this questionnaire!**

**Please save or print this questionnaire for your records.**

**Why have a MECS?**

The Manufacturing Energy Consumption Survey (MECS) collects data on energy consumption and usage patterns for the manufacturing sector of the U.S. economy. The information will be used to publish aggregate statistics on the following: consumption of energy for fuel and nonfuel uses, energy characteristics of establishments in the manufacturing sector, energy consumption by end use, technologies currently in use by U.S. manufacturers, energy prices, electricity generation onsite, and participation in energy-management activities. This information will be used by the U.S. Department of Energy (DOE) to implement policy plans effectively.

**What is a manufacturing establishment?**

The reporting unit for the Manufacturing Energy Consumption Survey (MECS) is the manufacturing establishment. A manufacturing establishment is an economic unit at a single physical location, for the mechanical or chemical transformation of materials or substances into new products.

An establishment is not necessarily identical to a business concern or firm, either of which may consist of one or more establishments. A company may consist of one or more establishments that are engaged in separate or distinct activities. These establishments may be situated at one location and separated physically as well as economically.

Manufacturing operations are generally conducted in facilities described as plants, factories, or mills, characteristically using power-driven machines and materials-handling equipment. Manufacturing also includes such activities as the assembly of components of manufactured products and the blending of materials such as lubricating oil, plastics, resins, or liquors.

**What should I report for?**

If this establishment has previously completed the Annual Survey of Manufacturers (ASM), Form MA-10000, conducted by the U.S. Census Bureau, then the reporting boundaries for the MECS should correspond to those used for the ASM. Each reporting unit should be treated as a separate establishment ONLY if that was the determination made for the ASM. Do not consolidate ASM establishments for reporting on the MECS.

If this establishment has never completed an ASM, report for all activities that occur at this physical location, in accordance with the reporting boundaries as defined by the Census of Manufactures (CM) and as reported in the 1997 CM.

**What is NAICS?**

For 1997 and subsequent reports, the North American Industry Classification System (NAICS) will replace the Standard Industrial Classification (SIC) system currently used by federal statistical agencies. NAICS is unique in that its conceptual framework is based on production processes. Therefore, economic units that have similar production processes are classified in the same industry.

**What is the reporting period?**

The period covered by this report for most establishments is calendar year 2006 (January 1 through December 31, 2006). The exception will be for those establishments whose ownership



or operation changed during 2006. Indicate the reporting period covered in Section 1: Establishment Information.

**Do I have to fill out this questionnaire?**

**Yes.** This survey is **mandatory** under the Federal Energy Administration 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. Response is required by law from establishments included in the MECS sample and receiving the MECS questionnaire. Failure to respond may result in criminal fines, civil penalties, and other sanctions as provided by law.

**Are these data confidential?**

**Yes.** Under Section 9 of Title 13, U.S. Code, your report to the Census Bureau is confidential. It may be seen only by sworn Census Bureau employees and may be used only for statistical purposes. The law also provides that copies retained in your files are immune from legal process.

**What if I have questions?**

If you have any questions about what to report on this questionnaire, please call the Census Bureau at 1-800-528-3049.

**How long will this questionnaire take?**

Public reporting burden for this collection of information is estimated to average nine hours per response, including the time of reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Energy Information Administration, Statistics and Methods Group, EI-70, Washington, D.C. 20585-0670; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

**What if I need more time to complete the questionnaire?**

The questionnaire should be returned no later than the due date specified on the front. If you need additional time, please call our processing office at 1-800-528-3049.

**General Instructions**

1. Use the units specified on the questionnaire for reporting all quantities. See page 4 for a list of Btu conversion factors. If your establishment uses more precise conversion values for your operations, use them, and indicate in Section 22: Remarks, the conversion factor(s) used.
2. **Do not consolidate establishments.** The reporting boundaries for your establishment should correspond to those used in the Annual Survey of Manufactures and/or the Census of Manufactures.

To resolve any consolidation problems, match the 11-digit Census File Number (CFN), which is located on the MECS questionnaire mailing label, with the CFN appearing on the ASM mailing label. Responses to MECS questions should include the same activities as those considered when responding to the matching ASM.

3. The energy sources (Sections 2 - 16) and end uses (Sections 17-18) sections of this questionnaire are designed so that all questions associated with the particular energy source within a section should be completed before going on to the next energy source. Therefore, within these sections, the questionnaire should be answered from the top of one column to the bottom of the same column, before going on to the next energy source (column).

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 zeroes in the data columns if the value is zero or none.
7. Complete all applicable sections of the questionnaire.

8. The energy sources which are preprinted on the survey 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 Section 16 and enter the data there. (See Reporting Criteria, next column under Sections 2 through 16).

9. The following definitions for units are used throughout the questionnaire:

Btu = British thermal unit(s)

One barrel = 42 gallons

One short ton = 2,000 pounds

### **Section 1: Establishment Information**

In this section, indicate any changes in the establishment ownership during 2006 and indicate the period covered by this filing, whether the calendar year or other period.

### **Section 2: MECS Front Page**

In this section, indicate the energy sources used at the establishment during 2006.

### **Sections 3 through 22: Energy Sources (Fuels)**

#### Reporting Criteria

An energy source should be reported on this questionnaire if:

1. the energy source was consumed as a fuel, (that is, for heat, power, or electricity generation)
- or**
2. the energy source was consumed as a nonfuel (feedstock, raw material input), **or**
3. the energy source was shipped offsite from this establishment site.

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

**Section 3: Electricity**

**Section 4: Natural Gas**

**Section 5: Diesel Fuel Oil**

**Section 6: Distillate Fuel Oil**

**Section 7: Residual Fuel Oil**

**Section 8: Butane, Ethane, and Propane**

**Section 9: Mixtures of LPG and NGL**

**Section 10: Coal**

**Section 11: Breeze**

**Section 12: Coal Coke**

**Section 13: Petroleum Cokes**

**Section 14: Kerosene**

**Section 15: Motor Gasoline**

**Section 16: Acetylene**

**Section 17: Hydrogen**

**Section 18: Wood Harvested Directly from Trees**

**Section 19: Byproduct Energy Sources**

**Section 20: Steam**

**Section 21: Industrial Hot Water**

**Section 22: Other Energy Sources**

**NOTE** - In making additional entries, the preprinted entry "Waste and Byproduct Gases" (Section 7, column 3) includes all waste gas streams (for example, refinery gas, fuel gas, vent gas, plant gas, off gas, still gas, and other waste gases) produced onsite, except hydrogen.

## **Energy Sources, cont.**

To reduce the reporting burden and eliminate unnecessary correspondence, special instructions have been developed for the reporting of byproduct (or product) energy sources. If your **only** means of supply of an energy source during 2006 was as a byproduct (or product) of an energy source used as a feedstock (or raw material input) to any of your manufacturing processes, that byproduct energy source should be reported **only if it was at least partially consumed onsite as a fuel**. If the byproduct (or product) energy source was not consumed as a fuel, it should be excluded.

## **Energy Sources Reporting Examples**

**Example 1** - Your establishment depended entirely on electricity for heat and power, no combustible energy sources were consumed. In this instance, complete Section 2: Electricity. No data should be entered in Sections 3 through 16. Go to Section 17 and complete the remainder of the questionnaire.

**Example 2** - Bituminous coal is received onsite and converted into coke which is then shipped offsite. Complete Section 10, column 2 for the coal. Complete Section 11, column 2 for the coal coke. Report the quantity of bituminous coal consumed as a feedstock in question 104, report the quantity of coke produced onsite in question 111, check the “Yes” box in question 112, and report the quantity of coke shipped offsite in question 115.

**Example 3** - Butane is used as a feedstock to produce butylene onsite. The butylene is then used as a feedstock to produce butadiene which is shipped offsite. Report the butane used as a feedstock in Section 5, column 1, question 53 because it is not used as a fuel or shipped offsite. Butadiene would not be reported in question 54, because it is not an identified energy source.

### **Section 23:**

#### **Fuel Switching**

This section of the questionnaire is intended to provide information on the capability for establishments to switch fuels to an alternative source.

Section 23 covers Electricity, Total Natural Gas and Total Coal, Total LPG and NGL, Total Diesel Fuel and Distillate Fuel Oil, and Residual Fuel Oil.

See specific instructions for completing these sections at the beginning of each section.

### **Section 24: Energy-Management Activities**

In this section, indicate whether your establishment participated in the listed energy-management activities during 2006, and for selected activities, indicate the amount of the energy-management activity costs paid for by the establishment.

### **Section 25: Technologies**

Indicate any of the technologies present in this establishment. Listed technologies include general technologies which may be found in any manufacturing establishment, technologies related to cogeneration, and specific technologies for particular NAICS codes.

**Section 26: Establishment Size**

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

**Section 27: 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.

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

If your establishment uses more precise conversion values for your operations, use them in place of the approximations given below. However, please identify in Section 22: Remarks (page 55), the conversion factor(s) used, if different from those listed below.

<b>Energy Source</b>	<b>Conversion Factor(s)</b>
<b>Acetylene</b>	<b>21,600 Btu/pound 1,500 Btu/cubic foot</b>
<b>Bagasse</b>	<b>4,081 Btu/pound</b>
<b>Biomass</b>	<b>5,300 Btu/pound</b>
<b>Breeze</b>	<b>19.8 million Btu/short ton</b>
<b>Butane</b>	<b>4.326 million Btu/barrel 0.10300 million Btu/gallon</b>
<b>Coal Coke</b>	<b>24.8 million Btu/short ton</b>
<b>Distillate Fuel Oil</b>	<b>5.825 million Btu/barrel</b>
<b>Ethane</b>	<b>3.082 million Btu/barrel 0.07338 million Btu/gallon</b>
<b>Hydrogen</b>	<b>61,084 Btu/pound 325.11 Btu/cubic foot 35,600 Btu/gallon</b>

<b>Energy Source</b>	<b>Conversion Factor(s)</b>
<b>Industrial Hot Water</b>	<b>140 Btu/pound 7.84 pounds/gallon</b>
<b>Isobutane</b>	<b>3.974 million Btu/barrel 0.09462 million Btu/gallon</b>
<b>Liquefied Petroleum Gas (LPG)</b>	<b>3.616 million Btu/barrel 0.08610 million Btu/gallon 4.5 pounds/gallon</b>
<b>Natural Gas</b>	<b>1.027 million Btu/1,000 cubic feet 10.27 therms/1,000 cubic feet</b>
<b>Petroleum Coke</b>	<b>6.024 million Btu/barrel 30.12 million Btu/short ton 5 barrels/short ton</b>
<b>Propane</b>	<b>3.836 million Btu/barrel 0.09133 million Btu/gallon</b>

<b>Energy Source</b>	<b>Conversion Factor(s)</b>
<b>Pulping Liquor or Black Liquor</b>	<b>11 million Btu/short ton</b>
<b>Residual Fuel Oil</b>	<b>6.287 million Btu/barrel</b>
<b>Roundwood</b>	<b>21.5 million Btu/cord 17.2 million Btu/short ton 0.014 million Btu/board foot</b>
<b>Sawdust (7% Moisture)</b>	<b>8,000 Btu/pound</b>
<b>Steam</b>	<b>1,200 Btu/pound</b>
<b>Still Gas or Waste Gas or Refinery Gas</b>	<b>6 million Btu/barrel 1,029 Btu/cubic foot</b>
<b>Waste Materials (Wastepaper)</b>	<b>7,500 Btu/pound</b>
<b>Waste Oils and Tars</b>	<b>6 million Btu/barrel</b>
<b>(Green) Wood Chips (50% Moisture)</b>	<b>10 million Btu/short ton</b>
<b>Wood Waste (50% Moisture)</b>	<b>9 million Btu/short ton</b>

**Other Definitions:**

**Btu = British thermal unit(s)**

**One barrel = 42 gallons**

**One short ton = 2,000 pounds**

Examples of conversion from physical quantities to Btu include:

□ Your establishment consumed 250 cubic feet of hydrogen in 2006.

The Btu equivalent is:

250 cu. ft. X 325.11 Btu per cubic foot

=81,277.50 Btu  
=0.0813 million Btu

□ Your establishment consumed 300 pounds of hydrogen in 2006.

The Btu equivalent is:

300 pounds X 61,084 Btu per pound  
=18,325,200 Btu  
=18.325 million



# **2006 Manufacturing Energy Consumption Survey (MECS)**