

Released: February 2021
 Next MECS will be fielded in 2022.

Table 5.6 End Uses of Fuel Consumption, 2018;

Level: National and Regional Data;
 Row: End Uses;
 Column: Energy Sources, including Net Electricity;
 Unit: Trillion Btu.

End Use	Total	Net Electricity(a)	Residual Fuel Oil	Distillate Fuel Oil and Diesel Fuel(b)	Natural Gas(c)	HGL (excluding natural gasoline)(d)	Coal (excluding Coal Coke and Breeze)	Other(e)
Total United States								
TOTAL FUEL CONSUMPTION	14,859	2,591	17	86	6,362	64	432	5,307
Indirect Uses-Boiler Fuel	--	33	11	8	2,570	9	189	--
Conventional Boiler Use	--	33	6	3	823	5	14	--
CHP and/or Cogeneration Process	--	0	5	5	1,746	4	175	--
Direct Uses-Total Process	--	2,040	5	35	3,268	D	243	--
Process Heating	--	272	5	13	2,810	22	178	--
Process Cooling and Refrigeration	--	223	*	*	24	*	3	--
Machine Drive	--	1,313	*	14	171	2	15	--
Electro-Chemical Processes	--	161	--	--	--	--	--	--
Other Process Use	--	71	*	8	263	D	46	--
Direct Uses-Total Nonprocess	--	483	1	43	481	D	1	--
Facility HVAC (f)	--	241	*	2	386	D	*	--
Facility Lighting	--	165	--	--	--	--	--	--
Other Facility Support	--	50	0	*	52	*	*	--
Onsite Transportation	--	14	--	33	3	18	--	--
Conventional Electricity Generation	--	--	*	3	28	*	*	--
Other Nonprocess Use	--	12	*	4	12	1	0	--
End Use Not Reported	5,389	36	*	*	43	3	0	5,307
Northeast Census Region								
TOTAL FUEL CONSUMPTION	1,130	250	4	15	490	9	19	344
Indirect Uses-Boiler Fuel	--	4	2	1	177	1	13	--
Conventional Boiler Use	--	4	1	*	67	1	1	--
CHP and/or Cogeneration Process	--	0	1	1	110	*	12	--
Direct Uses-Total Process	--	180	1	10	242	2	6	--
Process Heating	--	30	1	Q	209	2	5	--
Process Cooling and Refrigeration	--	22	*	*	4	*	0	--
Machine Drive	--	111	*	2	21	*	1	--
Electro-Chemical Processes	--	7	--	--	--	--	--	--
Other Process Use	--	9	*	*	8	*	*	--
Direct Uses-Total Nonprocess	--	60	1	5	68	5	*	--
Facility HVAC (f)	--	29	*	2	58	2	*	--
Facility Lighting	--	20	--	--	--	--	--	--
Other Facility Support	--	7	0	*	4	*	*	--
Onsite Transportation	--	1	--	2	*	3	--	--
Conventional Electricity Generation	--	--	*	*	3	*	0	--
Other Nonprocess Use	--	3	*	*	Q	*	0	--
End Use Not Reported	353	5	0	*	3	*	0	344
Midwest Census Region								
TOTAL FUEL CONSUMPTION	3,907	834	1	21	1,823	18	182	1,029
Indirect Uses-Boiler Fuel	--	12	1	*	641	2	91	--
Conventional Boiler Use	--	12	*	*	266	1	6	--
CHP and/or Cogeneration Process	--	0	*	*	374	1	85	--
Direct Uses-Total Process	--	660	*	10	927	6	91	--
Process Heating	--	99	*	1	821	5	67	--
Process Cooling and Refrigeration	--	70	0	*	9	*	0	--
Machine Drive	--	422	*	5	28	*	5	--
Electro-Chemical Processes	--	49	--	--	--	--	--	--

Other Process Use	--	21	0	Q	69	*	18	--
Direct Uses-Total Nonprocess	--	150	*	10	239	8	*	--
Facility HVAC (f)	--	72	*	*	209	2	*	--
Facility Lighting	--	56	--	--	--	--	--	--
Other Facility Support	--	16	0	*	25	*	*	--
Onsite Transportation	--	6	--	9	1	6	--	--
Conventional Electricity Generation	--	--	0	*	1	*	*	--
Other Nonprocess Use	--	2	*	*	4	*	0	--
End Use Not Reported	1,058	11	0	*	16	2	0	1,029

South Census Region

TOTAL FUEL CONSUMPTION	7,897	1,143	8	32	3,358	20	141	3,194
Indirect Uses-Boiler Fuel	--	12	7	5	1,485	4	52	--
Conventional Boiler Use	--	12	4	1	372	2	3	--
CHP and/or Cogeneration Process	--	0	4	3	1,113	2	49	--
Direct Uses-Total Process	--	925	1	9	1,725	D	89	--
Process Heating	--	115	1	3	1,437	5	71	--
Process Cooling and Refrigeration	--	93	0	*	11	*	*	--
Machine Drive	--	607	*	4	104	1	8	--
Electro-Chemical Processes	--	84	--	--	--	--	--	--
Other Process Use	--	26	*	1	174	D	10	--
Direct Uses-Total Nonprocess	--	190	0	19	126	D	*	--
Facility HVAC (f)	--	101	0	*	84	D	*	--
Facility Lighting	--	60	--	--	--	--	--	--
Other Facility Support	--	21	0	*	17	*	0	--
Onsite Transportation	--	5	--	15	2	6	--	--
Conventional Electricity Generation	--	--	0	*	19	*	0	--
Other Nonprocess Use	--	4	0	3	4	*	0	--
End Use Not Reported	3,233	16	*	*	22	1	0	3,194

West Census Region

TOTAL FUEL CONSUMPTION	1,925	365	4	18	691	17	90	739
Indirect Uses-Boiler Fuel	--	4	1	2	266	2	33	--
Conventional Boiler Use	--	4	*	1	118	1	4	--
CHP and/or Cogeneration Process	--	0	1	1	149	*	29	--
Direct Uses-Total Process	--	275	3	7	374	12	57	--
Process Heating	--	28	3	2	343	10	35	--
Process Cooling and Refrigeration	--	38	0	*	2	*	2	--
Machine Drive	--	174	0	3	17	Q	1	--
Electro-Chemical Processes	--	21	--	--	--	--	--	--
Other Process Use	--	15	0	Q	12	*	Q	--
Direct Uses-Total Nonprocess	--	82	*	10	48	3	0	--
Facility HVAC (f)	--	41	0	*	36	*	0	--
Facility Lighting	--	30	--	--	--	--	--	--
Other Facility Support	--	6	0	*	6	*	0	--
Onsite Transportation	--	2	--	6	*	3	--	--
Conventional Electricity Generation	--	--	*	3	4	*	0	--
Other Nonprocess Use	--	Q	0	Q	2	*	0	--
End Use Not Reported	746	4	0	*	2	*	0	739

(a) *Net Electricity* is obtained by summing purchases, transfers in, and generation from noncombustible renewable resources, minus quantities sold and transferred out. It does not include electricity inputs from onsite cogeneration or generation from combustible fuels because that energy has already been included as generating fuel (for example, coal).

(b) *Distillate Fuel Oil* includes Nos. 1, 2, and 4 fuel oils and Nos. 1, 2, and 4 diesel fuels.

(c) *Natural Gas* includes natural gas obtained from utilities, local distribution companies, and any other supplier(s), such as independent gas producers, gas brokers, marketers, and any marketing subsidiaries of utilities.

(d) *Hydrocarbon Gas Liquids (HGL)* include ethane, ethylene, propane, propylene, normal butane, butylene, ethane-propane mixtures, propane-butane mixtures, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw Natural Gas Liquids (NGL).

(e) *Other* includes net steam (the sum of purchases, generation from renewables, and net transfers), and other energy that respondents indicated was used to produce heat and power.

(f) Facility Heating, Ventilation, and Air Conditioning (*Facility HVAC*) excludes steam and hot water.

* Estimate less than 0.5.

D=Withheld to avoid disclosing data for individual establishments.

Q=Withheld because Relative Standard Error (RSE) is greater than 50 percent.

NA=Not available.

-- Estimation is not applicable.

S=Negative value.

Notes: Totals may not equal sum of components because of independent rounding. The estimates presented in this table are for the total consumption of energy (formerly total inputs of energy) for the production of heat, power, and electricity generation, regardless of where the energy was produced. Specifically, the estimates include the quantities of energy that were originally produced offsite and purchased by or transferred to the establishment, plus those that were produced onsite from other energy or input materials not classified as energy, or were extracted from captive (onsite) mines or wells. Allocations to specific end uses are made on the basis of reasonable approximations by respondents.

Source: U.S. Energy Information Administration, Office of Energy Demand and Integrated Statistics, Form EIA-846, *2018 Manufacturing Energy Consumption Survey*.

The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied (Approval ID: CBDRB-FY20-260).

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RSE Table 5.6 Relative Standard Errors for Table 5.6;

Unit: Percents.

End Use	Total	Net Electricity(a)	Residual Fuel Oil	Distillate Fuel Oil and Diesel Fuel(b)	Natural Gas(c)	HGL (excluding natural gasoline)(d)	Coal (excluding Coal Coke and Breeze)	Other(e)
Total United States								
TOTAL FUEL CONSUMPTION	0.7	1.8	2.5	7.9	0.9	3.9	3.3	0.8
Indirect Uses-Boiler Fuel	--	4.4	0.7	7.0	1.0	9.2	0.2	--
Conventional Boiler Use	--	4.4	1.3	17.8	1.7	12.1	1.8	--
CHP and/or Cogeneration Process	--	X	0.2	4.2	1.2	14.0	0.1	--
Direct Uses-Total Process	--	1.5	6.3	16.3	1.3	D	5.9	--
Process Heating	--	2.6	6.3	29.1	1.4	6.7	0.2	--
Process Cooling and Refrigeration	--	4.7	0.0	8.5	4.8	20.0	4.9	--
Machine Drive	--	1.8	72.5	14.9	3.4	40.8	0.0	--
Electro-Chemical Processes	--	2.6	--	--	--	--	--	--
Other Process Use	--	5.1	90.0	46.3	3.3	D	31.0	--
Direct Uses-Total Nonprocess	--	4.0	30.1	6.5	3.3	D	17.7	--
Facility HVAC (f)	--	4.0	7.4	29.2	3.9	D	27.6	--
Facility Lighting	--	5.6	--	--	--	--	--	--
Other Facility Support	--	2.9	X	49.1	6.2	19.2	0.0	--
Onsite Transportation	--	5.0	--	6.3	13.4	4.6	--	--
Conventional Electricity Generation	--	--	0.0	23.8	1.3	46.3	0.0	--
Other Nonprocess Use	--	19.7	61.2	24.7	12.1	15.0	X	--
End Use Not Reported	0.8	13.1	0.0	12.7	8.5	21.8	X	0.8
Northeast Census Region								
TOTAL FUEL CONSUMPTION	2.6	5.2	5.3	28.8	4.0	8.7	0.3	1.4
Indirect Uses-Boiler Fuel	--	9.9	0.3	14.9	3.9	12.9	0.1	--
Conventional Boiler Use	--	9.9	0.0	7.1	5.5	9.0	0.0	--
CHP and/or Cogeneration Process	--	X	0.8	23.1	5.3	47.6	0.1	--
Direct Uses-Total Process	--	5.7	0.8	38.6	6.4	16.2	0.1	--
Process Heating	--	8.5	0.8	51.0	7.3	17.8	0.1	--
Process Cooling and Refrigeration	--	16.0	0.0	52.1	10.1	63.9	X	--
Machine Drive	--	5.3	0.0	25.2	3.7	38.5	0.0	--
Electro-Chemical Processes	--	2.5	--	--	--	--	--	--
Other Process Use	--	20.3	50.9	13.1	18.5	40.8	0.0	--
Direct Uses-Total Nonprocess	--	5.4	31.6	19.1	5.8	11.8	68.0	--
Facility HVAC (f)	--	5.8	7.4	38.4	5.8	19.3	70.9	--
Facility Lighting	--	5.9	--	--	--	--	--	--
Other Facility Support	--	8.9	X	85.8	11.1	30.9	0.0	--
Onsite Transportation	--	10.2	--	12.1	35.1	15.6	--	--
Conventional Electricity Generation	--	--	0.0	40.6	0.9	62.3	X	--
Other Nonprocess Use	--	43.7	61.5	43.3	58.3	42.9	X	--
End Use Not Reported	1.5	40.9	X	88.8	29.1	22.2	X	1.4
Midwest Census Region								
TOTAL FUEL CONSUMPTION	1.4	2.5	29.3	20.0	2.2	7.0	0.3	1.4
Indirect Uses-Boiler Fuel	--	10.5	13.5	31.8	2.3	14.1	0.3	--
Conventional Boiler Use	--	10.5	24.0	7.7	2.7	18.9	0.0	--
CHP and/or Cogeneration Process	--	X	0.3	39.0	3.6	21.2	0.3	--
Direct Uses-Total Process	--	2.5	73.8	37.6	3.2	9.6	0.3	--
Process Heating	--	5.9	74.2	12.4	3.5	10.4	0.4	--
Process Cooling and Refrigeration	--	4.1	X	12.6	7.5	24.2	X	--
Machine Drive	--	3.0	89.7	26.5	10.1	13.8	0.0	--
Electro-Chemical Processes	--	8.3	--	--	--	--	--	--
Other Process Use	--	10.9	X	73.8	5.9	20.8	0.0	--
Direct Uses-Total Nonprocess	--	3.8	11.1	15.1	5.5	8.4	0.0	--

Facility HVAC (f)	--	3.7	72.9	38.8	6.2	25.2	0.0	--
Facility Lighting	--	4.9	--	--	--	--	--	--
Other Facility Support	--	5.1	X	25.1	6.0	29.5	0.0	--
Onsite Transportation	--	8.6	--	16.5	7.4	7.5	--	--
Conventional Electricity Generation	--	--	X	14.2	16.6	23.7	0.0	--
Other Nonprocess Use	--	13.7	8.7	25.9	7.0	50.2	X	--
End Use Not Reported	1.4	30.0	X	0.0	8.1	37.8	X	1.4

South Census Region

TOTAL FUEL CONSUMPTION	0.8	2.0	1.0	6.6	1.0	6.1	0.2	1.2
Indirect Uses-Boiler Fuel	--	4.1	0.1	3.4	1.2	18.3	0.5	--
Conventional Boiler Use	--	4.1	0.1	9.1	2.6	31.8	8.1	--
CHP and/or Cogeneration Process	--	X	0.3	3.2	1.4	21.2	0.0	--
Direct Uses-Total Process	--	1.9	8.0	15.4	1.3	D	0.2	--
Process Heating	--	2.7	5.7	28.7	1.3	10.0	0.2	--
Process Cooling and Refrigeration	--	4.5	X	0.1	8.3	25.1	67.5	--
Machine Drive	--	2.4	97.3	20.4	2.9	30.7	0.0	--
Electro-Chemical Processes	--	0.9	--	--	--	--	--	--
Other Process Use	--	4.1	91.0	36.7	3.9	D	0.0	--
Direct Uses-Total Nonprocess	--	3.6	X	8.6	5.6	D	58.6	--
Facility HVAC (f)	--	3.9	X	47.7	7.4	D	58.6	--
Facility Lighting	--	4.3	--	--	--	--	--	--
Other Facility Support	--	5.1	X	3.6	16.0	35.3	X	--
Onsite Transportation	--	9.3	--	7.0	22.9	7.8	--	--
Conventional Electricity Generation	--	--	X	15.9	1.7	1.0	X	--
Other Nonprocess Use	--	11.1	X	31.7	5.0	16.8	X	--
End Use Not Reported	1.2	15.8	0.0	0.1	15.4	27.7	X	1.2

West Census Region

TOTAL FUEL CONSUMPTION	2.9	9.8	7.0	14.0	3.2	9.8	15.8	0.7
Indirect Uses-Boiler Fuel	--	6.3	0.0	29.6	3.1	8.6	0.0	--
Conventional Boiler Use	--	6.3	0.0	45.2	5.7	2.0	0.0	--
CHP and/or Cogeneration Process	--	X	0.0	6.4	3.4	31.4	0.0	--
Direct Uses-Total Process	--	7.2	9.5	25.6	3.5	13.4	25.0	--
Process Heating	--	3.8	9.5	8.9	3.5	12.5	0.5	--
Process Cooling and Refrigeration	--	22.2	X	30.0	10.8	15.6	0.0	--
Machine Drive	--	7.3	X	46.7	23.8	68.4	0.0	--
Electro-Chemical Processes	--	1.6	--	--	--	--	--	--
Other Process Use	--	12.3	X	59.9	24.0	28.0	79.2	--
Direct Uses-Total Nonprocess	--	20.9	0.0	15.3	9.7	9.2	X	--
Facility HVAC (f)	--	21.0	X	48.9	12.7	20.5	X	--
Facility Lighting	--	28.7	--	--	--	--	--	--
Other Facility Support	--	5.5	X	30.7	10.1	21.0	X	--
Onsite Transportation	--	8.5	--	15.2	7.6	10.4	--	--
Conventional Electricity Generation	--	--	0.0	30.1	0.1	74.3	X	--
Other Nonprocess Use	--	51.1	X	75.1	16.2	52.6	X	--
End Use Not Reported	0.7	20.4	X	0.0	12.4	40.1	X	0.7

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(b) *Distillate Fuel Oil* includes Nos. 1, 2, and 4 fuel oils and Nos. 1, 2, and 4 diesel fuels.

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(e) *Other* includes net steam (the sum of purchases, generation from renewables, and net transfers), and other energy that respondents indicated was used to produce heat and power.

(f) Facility Heating, Ventilation, and Air Conditioning (*Facility HVAC*) excludes steam and hot water.

* Estimate less than 0.5.

D=Withheld to avoid disclosing data for individual establishments.

Q=Withheld because Relative Standard Error (RSE) is greater than 50 percent.

X=Not defined because RSE corresponds to a data table value of zero.

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Estimation is not applicable.

-- Estimation is not applicable.

S=Negative value.

Notes: Totals may not equal sum of components because of independent rounding. The estimates presented in this table are for the total consumption of energy (formerly total inputs of energy) for the production of heat, power, and electricity generation, regardless of where the energy was produced. Specifically, the estimates include the quantities of energy that were originally produced offsite and purchased by or transferred to the establishment, plus those that were produced onsite from other energy or input materials not classified as energy, or were extracted from captive (onsite) mines or wells. Allocations to specific end uses are made on the basis of reasonable approximations by respondents.

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