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 Next MECS will be fielded in 2023.

Table 10.4 Capability to Switch Residual Fuel Oil to Alternative Energy Sources, 2018;

Level: National Data and Regional Data;
 Row: NAICS Codes
 Column: Energy Sources;
 Unit: Thousand Barrels.

NAICS Code(a)	Subsector and Industry	Residual Fuel Oil		Alternative Energy Sources(b)							
		Total Consumed(c)	Switchable	Not Switchable	Electricity Receipts(d)	Natural Gas	Distillate Fuel Oil	Coal	HGL (excluding natural gasoline)	Coal Coke and Breeze	Other(e)
Total United States											
311	Food	*	*	*	0	*	0	0	0	0	0
3112	Grain and Oilseed Milling	*	*	0	0	*	0	0	0	0	0
311221	Wet Corn Milling	0	0	0	0	0	0	0	0	0	0
31131	Sugar Manufacturing	*	0	*	0	0	0	0	0	0	0
3114	Fruit and Vegetable Preserving and Specialty Food	*	0	*	0	0	0	0	0	0	0
3115	Dairy Product	*	*	*	0	*	0	0	0	0	0
3116	Animal Slaughtering and Processing	*	0	*	0	0	0	0	0	0	0
312	Beverage and Tobacco Products	*	*	*	0	*	0	0	0	0	0
3121	Beverages	*	0	*	0	0	0	0	0	0	0
3122	Tobacco	*	*	0	0	*	0	0	0	0	0
313	Textile Mills	*	*	0	*	*	*	*	*	0	*
314	Textile Product Mills	0	0	0	0	0	0	0	0	0	0
315	Apparel	0	0	0	0	0	0	0	0	0	0
316	Leather and Allied Products	0	0	0	0	0	0	0	0	0	0
321	Wood Products	*	0	*	0	0	0	0	0	0	0
321113	Sawmills	*	0	*	0	0	0	0	0	0	0
3212	Veneer, Plywood, and Engineered Woods	*	0	*	0	0	0	0	0	0	0
321219	Reconstituted Wood Products	*	0	*	0	0	0	0	0	0	0
3219	Other Wood Products	*	0	*	0	0	0	0	0	0	0
322	Paper	1	*	1	0	*	*	0	0	0	*
322110	Pulp Mills	*	*	*	0	0	*	0	0	0	*
322121	Paper Mills, except Newsprint	1	*	1	0	*	0	0	0	0	0
322122	Newsprint Mills	0	0	0	0	0	0	0	0	0	0
322130	Paperboard Mills	*	*	*	0	*	0	0	0	0	0
323	Printing and Related Support	*	*	0	0	*	0	0	0	0	0
324	Petroleum and Coal Products	1	*	*	0	*	*	0	*	0	0
324110	Petroleum Refineries	*	*	*	0	*	0	0	*	0	0
324121	Asphalt Paving Mixture and Block	*	*	*	0	*	*	0	*	0	0
324122	Asphalt Shingle and Coating Materials	0	0	0	0	0	0	0	0	0	0
324191	Petroleum Lubricating Oil and Grease Products	0	0	0	0	0	0	0	0	0	0
324199	Other Petroleum and Coal Products	0	0	0	0	0	0	0	0	0	0
325	Chemicals	*	*	*	0	*	*	0	0	0	0

325212	Synthetic Rubber	0	0	0	0	0	0	0	0	0	0
325220	Artificial and Synthetic Fibers and Filaments	0	0	0	0	0	0	0	0	0	0
325311	Nitrogenous Fertilizers	0	0	0	0	0	0	0	0	0	0
325312	Phosphatic Fertilizers	0	0	0	0	0	0	0	0	0	0
3254	Pharmaceuticals and Medicines	0	0	0	0	0	0	0	0	0	0
325412	Pharmaceutical Preparation	0	0	0	0	0	0	0	0	0	0
325992	Photographic Film, Paper, Plate, and Chemicals	*	*	0	0	*	0	0	0	0	0
326	Plastics and Rubber Products	0	0	0	0	0	0	0	0	0	0
327	Nonmetallic Mineral Products	0	0	0	0	0	0	0	0	0	0
327120	Clay Building Material and Refractories	0	0	0	0	0	0	0	0	0	0
327211	Flat Glass	0	0	0	0	0	0	0	0	0	0
327212	Other Pressed and Blown Glass and Glassware	0	0	0	0	0	0	0	0	0	0
327213	Glass Containers	0	0	0	0	0	0	0	0	0	0
327215	Glass Products from Purchased Glass	0	0	0	0	0	0	0	0	0	0
327310	Cements	0	0	0	0	0	0	0	0	0	0
327410	Lime	0	0	0	0	0	0	0	0	0	0
327420	Gypsum	0	0	0	0	0	0	0	0	0	0
327993	Mineral Wool	0	0	0	0	0	0	0	0	0	0
331	Primary Metals	0	0	0	0	0	0	0	0	0	0
331110	Iron and Steel Mills and Ferroalloys	0	0	0	0	0	0	0	0	0	0
3312	Steel Products from Purchased Steel	0	0	0	0	0	0	0	0	0	0
3313	Alumina and Aluminum	0	0	0	0	0	0	0	0	0	0
331314	Secondary Smelting and Alloying of Aluminum	0	0	0	0	0	0	0	0	0	0
331315	Aluminum Sheet, Plate and Foils	0	0	0	0	0	0	0	0	0	0
331318	Other Aluminum Rolling, Drawing and Extruding	0	0	0	0	0	0	0	0	0	0
3314	Nonferrous Metals, except Aluminum	0	0	0	0	0	0	0	0	0	0
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	0	0	0	0	0	0	0	0	0	0
3315	Foundries	0	0	0	0	0	0	0	0	0	0
331511	Iron Foundries	0	0	0	0	0	0	0	0	0	0
331523	Nonferrous Metal Die-Casting Foundries	0	0	0	0	0	0	0	0	0	0
331524	Aluminum Foundries, except Die-Casting	0	0	0	0	0	0	0	0	0	0
332	Fabricated Metal Products	0	0	0	0	0	0	0	0	0	0
333	Machinery	*	0	*	0	0	0	0	0	0	0
334	Computer and Electronic Products	*	0	*	0	0	0	0	0	0	0
334413	Semiconductors and Related Devices	*	0	*	0	0	0	0	0	0	0
335	Electrical Equip., Appliances, and Components	0	0	0	0	0	0	0	0	0	0
336	Transportation Equipment	*	0	*	0	0	0	0	0	0	0
336111	Automobiles	0	0	0	0	0	0	0	0	0	0
336112	Light Trucks and Utility Vehicles	0	0	0	0	0	0	0	0	0	0
3364	Aerospace Product and Parts	*	0	*	0	0	0	0	0	0	0
336411	Aircraft	0	0	0	0	0	0	0	0	0	0
337	Furniture and Related Products	0	0	0	0	0	0	0	0	0	0
339	Miscellaneous	0	0	0	0	0	0	0	0	0	0
	Total	1	*	1	0	*	*	0	0	0	0

Midwest Census Region

3313	Alumina and Aluminum	0	0	0	0	0	0	0	0	0
331314	Secondary Smelting and Alloying of Aluminum	0	0	0	0	0	0	0	0	0
331315	Aluminum Sheet, Plate and Foils	0	0	0	0	0	0	0	0	0
331318	Other Aluminum Rolling, Drawing and Extruding	0	0	0	0	0	0	0	0	0
3314	Nonferrous Metals, except Aluminum	0	0	0	0	0	0	0	0	0
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	0	0	0	0	0	0	0	0	0
3315	Foundries	0	0	0	0	0	0	0	0	0
331511	Iron Foundries	0	0	0	0	0	0	0	0	0
331523	Nonferrous Metal Die-Casting Foundries	0	0	0	0	0	0	0	0	0
331524	Aluminum Foundries, except Die-Casting	0	0	0	0	0	0	0	0	0
332	Fabricated Metal Products	0	0	0	0	0	0	0	0	0
333	Machinery	0	0	0	0	0	0	0	0	0
334	Computer and Electronic Products	0	0	0	0	0	0	0	0	0
334413	Semiconductors and Related Devices	0	0	0	0	0	0	0	0	0
335	Electrical Equip., Appliances, and Components	0	0	0	0	0	0	0	0	0
336	Transportation Equipment	0	0	0	0	0	0	0	0	0
336111	Automobiles	0	0	0	0	0	0	0	0	0
336112	Light Trucks and Utility Vehicles	0	0	0	0	0	0	0	0	0
3364	Aerospace Product and Parts	0	0	0	0	0	0	0	0	0
336411	Aircraft	0	0	0	0	0	0	0	0	0
337	Furniture and Related Products	0	0	0	0	0	0	0	0	0
339	Miscellaneous	0	0	0	0	0	0	0	0	0
	Total	1	*	1	0	0	*	0	*	0

Economic Characteristic (f)

**Value of Shipments and Receipts
(million dollars)**

Under 20	*	*	*	0	*	*	0	*	0	0
20-49	*	*	*	*	*	*	0	*	0	0
50-99	*	*	*	0	*	*	*	0	0	*
100-249	*	*	*	0	*	*	0	0	0	0
250-499	1	*	1	0	*	0	0	0	0	*
500 and Over	1	*	1	0	*	0	0	0	0	0
Total	3	*	3	*	*	*	*	*	0	*

Employment Size

Under 50	*	*	*	0	*	*	0	*	0	0
50-99	*	*	*	0	*	0	0	0	0	0
100-249	*	*	*	*	*	*	0	*	0	0
250-499	1	*	1	0	*	*	*	0	0	*
500-999	1	*	1	0	*	0	0	0	0	*
1000 and Over	*	*	*	0	*	0	0	0	0	0
Total	3	*	3	*	*	*	*	*	0	*

(a) The Bureau of the Census classifies establishments using the 2017 North American Industry Classification System (NAICS).

(b) *Alternative Energy Sources* consist of those energy sources that could have been substituted for residual fuel oil during 2018. The quantities are expressed in thousands of barrels, and therefore represent the quantity of residual fuel oil that could have been displaced by the given alternative type of energy.

(c) *Total Consumed* represents those quantities (Total Inputs) of residual fuel oil that were ascertained switchable or not switchable, plus an additional quantity for which the switching status was not ascertained.

(d) *Electricity Receipts* represents those quantities of electricity generated off the manufacturing establishment site and available at the site for consumption. It includes those quantities for which payment was made, quantities transferred in, quantities purchased and paid for by a central purchasing entity, and quantities for which payment was made in kind. It does not include electricity generated onsite. *Electricity Receipts* has not been adjusted to account for any quantities that might have been resold or transferred out. The estimates include those quantities that were ascertained switchable or not switchable, plus an additional quantity for which the switching status was not ascertained.

(e) *Other* includes all other types of energy not already identified that respondents indicated could have been consumed in place of residual fuel oil.

(f) *Value of Shipments and Receipts* and *Employment Size* categories were supplied by the Bureau of the Census.

* Estimate less than 0.5.

D=Withheld to avoid disclosing data for individual establishments.

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

NA=Not available.

Notes: Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Office of Energy Demand and Integrated Statistics, Form EIA-846, *2018 Manufacturing Energy Consumption Survey*, and the Bureau of the Census, data files for the *2018 Annual Survey of Manufactures*.

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) and (Approval ID: CBDRB-FY21-312).

325311	Nitrogenous Fertilizers	X	X	X	X	X	X	X	X	X	X
325312	Phosphatic Fertilizers	X	X	X	X	X	X	X	X	X	X
3254	Pharmaceuticals and Medicines	X	X	X	X	X	X	X	X	X	X
325412	Pharmaceutical Preparation	X	X	X	X	X	X	X	X	X	X
325992	Photographic Film, Paper, Plate, and Chemicals	0.0	0.0	X	X	0.0	X	X	X	X	X
326	Plastics and Rubber Products	X	X	X	X	X	X	X	X	X	X
327	Nonmetallic Mineral Products	X	X	X	X	X	X	X	X	X	X
327120	Clay Building Material and Refractories	X	X	X	X	X	X	X	X	X	X
327211	Flat Glass	X	X	X	X	X	X	X	X	X	X
327212	Other Pressed and Blown Glass and Glassware	X	X	X	X	X	X	X	X	X	X
327213	Glass Containers	X	X	X	X	X	X	X	X	X	X
327215	Glass Products from Purchased Glass	X	X	X	X	X	X	X	X	X	X
327310	Cements	X	X	X	X	X	X	X	X	X	X
327410	Lime	X	X	X	X	X	X	X	X	X	X
327420	Gypsum	X	X	X	X	X	X	X	X	X	X
327993	Mineral Wool	X	X	X	X	X	X	X	X	X	X
331	Primary Metals	X	X	X	X	X	X	X	X	X	X
331110	Iron and Steel Mills and Ferroalloys	X	X	X	X	X	X	X	X	X	X
3312	Steel Products from Purchased Steel	X	X	X	X	X	X	X	X	X	X
3313	Alumina and Aluminum	X	X	X	X	X	X	X	X	X	X
331314	Secondary Smelting and Alloying of Aluminum	X	X	X	X	X	X	X	X	X	X
331315	Aluminum Sheet, Plate and Foils	X	X	X	X	X	X	X	X	X	X
331318	Other Aluminum Rolling, Drawing and Extruding	X	X	X	X	X	X	X	X	X	X
3314	Nonferrous Metals, except Aluminum	X	X	X	X	X	X	X	X	X	X
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	X	X	X	X	X	X	X	X	X	X
3315	Foundries	X	X	X	X	X	X	X	X	X	X
331511	Iron Foundries	X	X	X	X	X	X	X	X	X	X
331523	Nonferrous Metal Die-Casting Foundries	X	X	X	X	X	X	X	X	X	X
331524	Aluminum Foundries, except Die-Casting	X	X	X	X	X	X	X	X	X	X
332	Fabricated Metal Products	X	X	X	X	X	X	X	X	X	X
333	Machinery	99.0	X	99.0	X	X	X	X	X	X	X
334	Computer and Electronic Products	0.0	X	0.0	X	X	X	X	X	X	X
334413	Semiconductors and Related Devices	0.0	X	0.0	X	X	X	X	X	X	X
335	Electrical Equip., Appliances, and Components	X	X	X	X	X	X	X	X	X	X
336	Transportation Equipment	60.3	X	60.3	X	X	X	X	X	X	X
336111	Automobiles	X	X	X	X	X	X	X	X	X	X
336112	Light Trucks and Utility Vehicles	X	X	X	X	X	X	X	X	X	X
3364	Aerospace Product and Parts	0.0	X	0.0	X	X	X	X	X	X	X
336411	Aircraft	X	X	X	X	X	X	X	X	X	X
337	Furniture and Related Products	X	X	X	X	X	X	X	X	X	X
339	Miscellaneous	X	X	X	X	X	X	X	X	X	X
	Total	5.3	1.6	5.7	X	2.2	0.0	X	X	X	X

Midwest Census Region

311	Food	5.7	48.4	5.7	X	48.4	X	X	X	X	X
3112	Grain and Oilseed Milling	48.4	48.4	X	X	48.4	X	X	X	X	X

331315	Aluminum Sheet, Plate and Foils	X	X	X	X	X	X	X	X	X	X
331318	Other Aluminum Rolling, Drawing and Extruding	X	X	X	X	X	X	X	X	X	X
3314	Nonferrous Metals, except Aluminum	X	X	X	X	X	X	X	X	X	X
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	X	X	X	X	X	X	X	X	X	X
3315	Foundries	X	X	X	X	X	X	X	X	X	X
331511	Iron Foundries	X	X	X	X	X	X	X	X	X	X
331523	Nonferrous Metal Die-Casting Foundries	X	X	X	X	X	X	X	X	X	X
331524	Aluminum Foundries, except Die-Casting	X	X	X	X	X	X	X	X	X	X
332	Fabricated Metal Products	X	X	X	X	X	X	X	X	X	X
333	Machinery	X	X	X	X	X	X	X	X	X	X
334	Computer and Electronic Products	X	X	X	X	X	X	X	X	X	X
334413	Semiconductors and Related Devices	X	X	X	X	X	X	X	X	X	X
335	Electrical Equip., Appliances, and Components	X	X	X	X	X	X	X	X	X	X
336	Transportation Equipment	X	X	X	X	X	X	X	X	X	X
336111	Automobiles	X	X	X	X	X	X	X	X	X	X
336112	Light Trucks and Utility Vehicles	X	X	X	X	X	X	X	X	X	X
3364	Aerospace Product and Parts	X	X	X	X	X	X	X	X	X	X
336411	Aircraft	X	X	X	X	X	X	X	X	X	X
337	Furniture and Related Products	X	X	X	X	X	X	X	X	X	X
339	Miscellaneous	X	X	X	X	X	X	X	X	X	X
	Total	7.0	0.0	7.3	X	X	0.0	X	0.0	X	X

Economic Characteristic (f)

Value of Shipments and Receipts (million dollars)

Under 20	31.9	20.6	43.3	X	20.8	20.6	X	20.8	X	X
20-49	1.9	3.9	0.0	88.0	33.1	13.1	X	5.7	X	X
50-99	47.7	5.5	96.4	X	0.0	82.3	82.3	X	X	82.3
100-249	11.8	2.6	12.8	X	2.8	0.0	X	X	X	X
250-499	1.2	0.4	1.3	X	2.0	X	X	X	X	0.0
500 and Over	2.1	72.4	2.1	X	72.4	X	X	X	X	X
Total	2.5	6.4	2.6	88.0	11.4	14.4	82.3	12.3	X	1.1

Employment Size

Under 50	23.5	10.6	37.8	X	20.5	16.3	X	12.4	X	X
50-99	0.0	0.0	0.0	X	0.0	X	X	X	X	X
100-249	24.5	16.0	26.3	88.0	20.1	21.8	X	88.0	X	X
250-499	0.1	1.0	0.0	X	0.0	82.3	82.3	X	X	82.3
500-999	0.9	3.1	1.0	X	30.8	X	X	X	X	0.0
1000 and Over	8.1	72.4	8.1	X	72.4	X	X	X	X	X
Total	2.5	6.4	2.6	88.0	11.4	14.4	82.3	12.3	X	1.1

(a) The Bureau of the Census classifies establishments using the 2017 North American Industry Classification System (NAICS).

(b) *Alternative Energy Sources* consist of those energy sources that could have been substituted for residual fuel oil during 2018. The quantities are expressed in thousands of barrels, and therefore represent the quantity of residual fuel oil that could have been displaced by the given alternative type of energy.

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(e) *Other* includes all other types of energy not already identified that respondents indicated could have been consumed in place of residual fuel oil.

(f) *Value of Shipments and Receipts* and *Employment Size* categories were supplied by the Bureau of the Census.

* Estimate less than 0.5.

D=Withheld to avoid disclosing data for individual establishments.

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

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

NA=Not available.

Notes: Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration, Office of Energy Demand and Integrated Statistics, Form EIA-846, *2018 Manufacturing Energy Consumption Survey*, and the Bureau of the Census, data files for the *2018 Annual Survey of Manufactures*.

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