

Released: September 2021  
 Next MECS will be fielded in 2023.

**Table 10.23 Reasons that Made HGL (excluding natural gasoline) Unswitchable, 2018;**

Level: National Data;  
 Row: NAICS Codes;  
 Column: Reasons that Made Quantity Unswitchable;  
 Unit: Thousand Barrels.

		Non Switchable Amount Attributed to:										
NAICS Code(a)	Subsector and Industry	Total Amount of HGL (excluding natural gasoline) Consumed as Fuel	Total Amount of Unswitchable HGL (excluding natural gasoline) Fuel Use	Equipment is Not Capable of Using Another Fuel	Switching Adversely Affects the Products	Unavailable Alternative Fuel Supply	Environmental Restrictions(b)	Long-Term Contract in Place(c)	Unavailable Storage for Alternative Fuels(d)	Another Reason	Combinations of Cols. F, G, H, I, J, and K	Don't Know/ Didn't Answer
<b>Total United States</b>												
311	Food	2	1	1	*	*	*	*	*	*	*	*
3112	Grain and Oilseed Milling	*	*	*	*	*	0	0	0	*	*	*
311221	Wet Corn Milling	*	*	*	*	0	0	0	0	*	0	*
31131	Sugar Manufacturing	*	*	*	0	0	*	*	0	*	0	*
3114	Fruit and Vegetable Preserving and Specialty Food	*	*	*	*	0	*	*	*	*	*	*
3115	Dairy Product	*	*	*	0	*	0	0	0	*	*	*
3116	Animal Slaughtering and Processing	*	*	*	*	*	*	*	0	*	0	*
312	Beverage and Tobacco Products	*	*	*	*	*	*	*	0	*	*	*
3121	Beverages	*	*	*	*	*	*	*	0	*	*	*
3122	Tobacco	*	*	*	0	*	0	0	0	*	0	*
313	Textile Mills	*	*	*	*	*	0	*	0	*	0	*
314	Textile Product Mills	*	*	*	*	0	0	0	0	*	*	*
315	Apparel	*	*	*	0	0	0	0	0	*	0	*
316	Leather and Allied Products	*	*	*	0	0	0	0	0	*	0	*
321	Wood Products	1	1	1	*	*	*	*	*	*	*	*
321113	Sawmills	*	*	*	*	*	0	*	*	*	*	*
3212	Veneer, Plywood, and Engineered Woods	*	*	*	*	*	*	*	0	*	*	*
321219	Reconstituted Wood Products	*	*	*	0	0	0	0	0	*	0	*
3219	Other Wood Products	*	*	*	*	*	*	0	*	*	*	*
322	Paper	1	1	*	*	*	0	*	0	*	*	*
322110	Pulp Mills	*	*	*	0	0	0	*	0	0	0	*
322121	Paper Mills, except Newsprint	*	*	*	0	*	0	0	0	*	*	*
322122	Newsprint Mills	*	*	*	0	0	0	0	0	*	0	0
322130	Paperboard Mills	*	*	*	*	0	0	0	0	*	0	*
323	Printing and Related Support	*	*	*	*	*	0	0	*	*	0	*
324	Petroleum and Coal Products	5	3	1	*	*	*	*	*	1	*	1
324110	Petroleum Refineries	4	3	*	*	*	0	0	*	1	*	1
324121	Asphalt Paving Mixture and Block	1	1	*	*	*	*	0	*	*	*	*
324122	Asphalt Shingle and Coating Materials	*	*	*	0	0	0	*	0	*	*	*
324191	Petroleum Lubricating Oil and Grease Products	*	*	*	*	*	0	*	0	*	0	*
324199	Other Petroleum and Coal Products	*	*	*	0	0	0	0	*	*	0	*
325	Chemicals	2	2	1	*	*	*	*	*	*	*	1
325110	Petrochemicals	*	*	*	0	*	0	0	0	*	0	*
325120	Industrial Gases	*	*	*	0	0	0	0	0	0	0	*
325180	Other Basic Inorganic Chemicals	*	*	*	0	0	0	*	0	*	*	*
325193	Ethyl Alcohol	*	*	*	0	*	*	0	0	*	*	*
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	*	*	*	*	0	0	0	0	*	0	*
325199	Other Basic Organic Chemicals	*	*	*	*	0	0	0	*	*	0	*
325211	Plastics Materials and Resins	D	D	*	*	0	0	0	*	*	*	D
325212	Synthetic Rubber	*	*	*	0	*	0	0	*	*	*	*
325220	Artificial and Synthetic Fibers and Filaments	*	*	*	0	0	*	*	0	*	*	*
325311	Nitrogenous Fertilizers	*	*	*	*	0	0	0	0	0	0	*
325312	Phosphatic Fertilizers	*	*	*	0	0	0	0	0	0	0	*
3254	Pharmaceuticals and Medicines	*	*	*	*	*	0	0	0	*	0	*
325412	Pharmaceutical Preparation	*	*	*	*	*	0	0	0	*	0	*
325992	Photographic Film, Paper, Plate, and Chemicals	*	*	*	*	0	0	0	0	*	0	*
326	Plastics and Rubber Products	1	1	*	*	0	0	*	*	*	0	*

327	Nonmetallic Mineral Products	1	1	*	*	*	*	*	*	*	*	*
327120	Clay Building Material and Refractories	*	*	*	*	*	0	0	*	*	*	*
327211	Flat Glass	*	*	*	0	0	*	0	0	*	0	*
327212	Other Pressed and Blown Glass and Glassware	*	*	*	*	*	0	0	*	*	*	*
327213	Glass Containers	*	*	*	*	0	0	0	0	0	0	0
327215	Glass Products from Purchased Glass	*	*	*	*	*	0	0	*	*	*	*
327310	Cements	*	*	*	0	0	0	0	0	0	0	*
327410	Lime	*	*	*	0	0	0	0	0	*	0	*
327420	Gypsum	*	*	*	*	0	0	0	0	*	*	*
327993	Mineral Wool	*	*	*	0	*	*	0	*	*	0	*
331	Primary Metals	1	1	*	*	*	*	*	*	*	*	*
331110	Iron and Steel Mills and Ferroalloys	*	*	*	*	*	*	*	*	*	*	*
3312	Steel Products from Purchased Steel	*	*	*	*	0	*	*	*	*	0	*
3313	Alumina and Aluminum	*	*	*	*	*	*	*	0	*	*	*
331314	Secondary Smelting and Alloying of Aluminum	*	*	*	*	0	*	*	0	*	0	*
331315	Aluminum Sheet, Plate and Foils	*	*	*	*	0	0	0	0	*	0	*
331318	Other Aluminum Rolling, Drawing and Extruding	*	*	*	*	*	0	*	0	*	*	*
3314	Nonferrous Metals, except Aluminum	*	*	*	*	*	*	0	0	*	*	*
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	*	*	*	0	0	0	0	0	*	*	*
3315	Foundries	*	*	*	*	*	*	*	*	*	*	*
331511	Iron Foundries	*	*	*	*	*	*	0	*	*	*	*
331523	Nonferrous Metal Die-Casting Foundries	*	*	*	*	*	0	0	0	*	*	*
331524	Aluminum Foundries, except Die-Casting	*	*	*	*	0	*	*	*	*	*	*
332	Fabricated Metal Products	1	1	*	*	0	*	0	*	*	*	*
333	Machinery	1	1	1	*	*	*	*	*	*	*	*
334	Computer and Electronic Products	*	*	*	0	0	*	0	0	*	0	*
334413	Semiconductors and Related Devices	*	*	*	0	0	*	0	0	*	0	*
335	Electrical Equip., Appliances, and Components	*	*	*	*	0	0	*	0	*	*	*
336	Transportation Equipment	1	1	*	*	0	*	*	*	*	*	*
336111	Automobiles	*	*	*	0	0	*	0	0	*	*	*
336112	Light Trucks and Utility Vehicles	*	*	*	*	0	*	*	0	*	*	*
3364	Aerospace Product and Parts	*	*	*	*	0	*	0	0	*	*	*
336411	Aircraft	*	*	*	0	0	0	0	0	*	*	*
337	Furniture and Related Products	*	*	*	0	0	0	0	0	*	*	*
339	Miscellaneous	*	*	*	*	0	0	0	*	*	0	*
	Total	17	14	7	*	1	*	*	*	1	1	4

- (a) The Bureau of the Census classifies establishments using the 2017 North American Industry Classification System (NAICS).  
(b) The environmental restrictions related to air quality that limit the amount of the usable alternative fuel that could be used instead.  
(c) Long-term contracts are typically with a utility or third-party supplier such as an energy broker and requires the purchase of a fuel for an extended amount of time.  
(d) The storage of usable alternative fuels is not available due to the potential environmental impact of storage tanks.

\* 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.

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

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-FY21-312).

Released: September 2021  
 Next MECS will be fielded in 2023.

**RSE Table 10.23 Relative Standard Errors for Table 10.23;**

Unit: Percents.

Non Switchable Amount Attributed to:

NAICS Code(a)	Subsector and Industry	Total Amount of HGL (excluding natural gasoline) Consumed as Fuel	Total Amount of Unswitchable HGL (excluding natural gasoline) Fuel Use	Equipment is Not Capable of Using Another Fuel	Switching Adversely Affects the Products	Unavailable Alternative Fuel Supply	Environmental Restrictions(c)	Long-Term Contract in Place(d)	Unavailable Storage for Alternative Fuels(e)	Another Reason	Combinations of Cols. F, G, H, I, J, and K	Don't Know/ Didn't Answer
<b>Total United States</b>												
311	Food	18.4	22.8	30.0	11.9	79.8	0.0	22.4	1.9	41.7	68.6	22.0
3112	Grain and Oilseed Milling	15.0	16.8	25.4	0.0	88.1	X	X	X	62.6	0.0	3.5
311221	Wet Corn Milling	0.0	0.0	0.0	0.0	X	X	X	X	0.0	X	0.0
31131	Sugar Manufacturing	0.0	0.0	0.0	X	X	0.0	0.0	X	0.0	X	0.0
3114	Fruit and Vegetable Preserving and Specialty Food	5.8	7.3	8.9	56.2	X	X	23.2	1.9	20.0	59.0	19.0
3115	Dairy Product	12.9	19.5	33.3	X	91.3	X	X	X	56.2	0.0	24.9
3116	Animal Slaughtering and Processing	22.0	22.4	26.2	93.6	97.1	0.0	49.1	X	61.5	X	47.3
312	Beverage and Tobacco Products	11.3	11.5	15.8	0.0	22.1	70.7	87.5	X	14.2	68.3	33.3
3121	Beverages	12.9	13.2	16.6	0.0	56.0	70.7	87.5	X	14.4	68.3	33.7
3122	Tobacco	0.0	0.0	0.0	X	0.0	X	X	X	0.0	X	0.0
313	Textile Mills	25.7	7.5	6.7	93.5	31.6	X	97.3	X	39.0	X	60.8
314	Textile Product Mills	29.1	35.0	38.5	99.4	X	X	X	X	39.7	74.5	91.1
315	Apparel	42.3	37.9	45.8	X	X	X	X	X	69.0	X	67.8
316	Leather and Allied Products	31.1	31.4	38.6	X	X	X	X	X	21.3	X	47.2
321	Wood Products	5.6	5.8	6.4	49.6	50.0	13.2	0.0	84.4	33.6	79.3	18.1
321113	Sawmills	8.6	9.7	10.2	0.0	63.3	X	0.0	70.6	5.4	17.8	17.8
3212	Veneer, Plywood, and Engineered Woods	3.1	3.1	2.3	96.9	0.0	0.0	0.0	X	5.2	42.8	10.8
321219	Reconstituted Wood Products	5.9	5.9	6.0	X	X	X	X	X	8.5	X	19.7
3219	Other Wood Products	14.7	15.1	22.6	62.2	92.8	52.3	X	87.2	47.0	91.6	25.6
322	Paper	11.1	11.7	16.5	0.0	0.0	X	95.7	X	20.7	74.5	22.6
322110	Pulp Mills	0.0	0.0	0.0	X	X	X	0.0	X	X	X	0.0
322121	Paper Mills, except Newsprint	0.0	0.0	0.0	X	0.0	X	X	X	0.0	0.0	0.0
322122	Newsprint Mills	0.0	0.0	0.0	X	X	X	X	X	0.0	X	X
322130	Paperboard Mills	0.0	0.0	0.0	0.0	X	X	X	X	0.0	X	0.0
323	Printing and Related Support	21.4	22.3	27.0	0.1	90.4	X	X	91.0	31.3	X	71.0
324	Petroleum and Coal Products	5.6	8.3	1.8	71.8	22.4	87.7	4.4	16.0	0.1	17.6	0.1
324110	Petroleum Refineries	0.0	0.0	0.0	0.0	0.0	X	X	0.0	0.0	0.0	0.0
324121	Asphalt Paving Mixture and Block	36.8	47.2	22.0	88.6	92.2	87.7	X	35.8	17.9	80.4	5.1
324122	Asphalt Shingle and Coating Materials	2.6	2.6	3.5	X	X	X	0.0	X	0.0	0.0	1.3
324191	Petroleum Lubricating Oil and Grease Products	19.5	19.5	33.9	0.0	0.0	X	14.3	X	9.9	X	14.0
324199	Other Petroleum and Coal Products	0.0	0.0	0.0	X	X	X	X	0.0	0.0	X	0.0
325	Chemicals	13.9	13.1	11.3	72.5	55.8	0.0	0.0	26.6	12.9	91.4	14.6
325110	Petrochemicals	0.0	0.0	0.0	X	0.0	X	X	X	0.0	X	0.0
325120	Industrial Gases	70.3	75.7	63.8	X	X	X	X	X	X	X	87.2
325180	Other Basic Inorganic Chemicals	9.2	9.2	10.2	X	X	X	0.0	X	85.7	11.9	31.8
325193	Ethyl Alcohol	8.6	8.9	12.7	X	74.3	0.0	X	X	15.3	0.5	0.5
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	0.0	0.0	0.0	0.0	X	X	X	X	0.0	X	0.0
325199	Other Basic Organic Chemicals	8.3	8.3	24.9	3.4	X	X	X	0.0	5.2	X	8.4
325211	Plastics Materials and Resins	D	D	16.5	0.5	X	X	X	0.0	24.3	94.0	D
325212	Synthetic Rubber	0.0	0.0	0.0	X	0.0	X	X	0.0	0.0	0.0	0.0
325220	Artificial and Synthetic Fibers and Filaments	0.0	0.0	0.0	X	X	0.0	0.0	X	0.0	0.0	0.0
325311	Nitrogenous Fertilizers	86.5	86.5	21.7	X	X	X	X	X	X	X	89.3
325312	Phosphatic Fertilizers	0.0	0.0	0.0	X	X	X	X	X	X	X	0.0
3254	Pharmaceuticals and Medicines	25.5	26.6	20.9	0.0	58.4	X	X	X	39.8	X	8.7
325412	Pharmaceutical Preparation	30.1	31.6	28.0	0.0	58.4	X	X	X	41.4	X	42.5
325992	Photographic Film, Paper, Plate, and Chemicals	1.5	1.5	0.0	77.9	X	X	X	X	0.0	X	0.1
326	Plastics and Rubber Products	17.3	15.6	21.0	99.0	X	X	97.2	98.2	41.2	X	28.4
327	Nonmetallic Mineral Products	27.5	29.3	13.5	89.8	13.7	0.0	99.0	18.1	11.5	0.8	70.4
327120	Clay Building Material and Refractories	5.5	5.8	2.3	0.0	63.4	X	X	50.6	0.1	0.0	43.7
327211	Flat Glass	0.0	0.0	0.0	X	X	0.0	X	X	0.0	X	0.0

327212	Other Pressed and Blown Glass and Glassware	27.7	28.5	41.4	0.0	0.0	X	X	0.0	0.0	11.2	33.9
327213	Glass Containers	0.0	0.0	0.0	0.0	X	X	X	X	X	0.0	X
327215	Glass Products from Purchased Glass	1.9	1.9	1.7	0.0	0.0	X	X	17.9	7.2	0.0	14.4
327310	Cements	1.1	1.2	1.2	X	X	X	X	X	X	X	0.0
327410	Lime	0.0	0.0	0.0	X	X	X	X	X	0.0	X	0.0
327420	Gypsum	1.4	1.4	1.7	0.0	X	X	X	X	0.1	0.0	0.1
327993	Mineral Wool	6.3	6.5	10.1	X	0.0	0.0	X	X	3.2	X	16.4
331	Primary Metals	2.2	2.3	2.6	4.2	0.5	4.7	30.2	5.0	9.3	5.2	7.1
331110	Iron and Steel Mills and Ferroalloys	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3312	Steel Products from Purchased Steel	15.4	16.6	20.8	72.8	X	0.0	36.1	47.2	37.4	X	31.7
3313	Alumina and Aluminum	1.0	1.0	2.3	0.0	35.7	0.0	30.6	X	0.0	0.0	0.9
331314	Secondary Smelting and Alloying of Aluminum	1.1	1.1	3.7	0.0	X	0.0	0.0	X	0.0	X	1.1
331315	Aluminum Sheet, Plate and Foils	0.0	0.0	0.0	0.0	X	X	X	X	0.0	X	0.0
331318	Other Aluminum Rolling, Drawing and Extruding	2.3	2.3	3.9	0.0	35.7	X	32.4	X	0.0	0.0	0.8
3314	Nonferrous Metals, except Aluminum	1.9	1.7	2.3	45.6	0.5	55.1	X	X	24.8	20.1	9.6
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	3.1	3.3	1.1	X	X	X	X	X	35.8	0.0	2.9
3315	Foundries	1.8	2.0	3.0	8.7	1.1	0.0	0.0	2.0	13.8	1.2	4.9
331511	Iron Foundries	4.5	4.4	6.1	0.0	57.8	0.0	X	0.0	17.0	0.0	3.7
331523	Nonferrous Metal Die-Casting Foundries	1.4	1.4	1.8	47.9	0.0	X	X	X	1.2	X	9.6
331524	Aluminum Foundries, except Die-Casting	2.9	4.9	2.0	25.8	X	0.0	0.0	2.7	8.1	0.0	17.9
332	Fabricated Metal Products	18.3	19.2	20.4	71.5	X	80.2	X	72.6	63.3	99.5	39.3
333	Machinery	28.0	28.3	38.5	88.4	97.9	99.0	67.7	99.0	59.1	99.0	50.2
334	Computer and Electronic Products	48.0	30.1	43.4	X	X	0.0	X	X	73.2	X	53.3
334413	Semiconductors and Related Devices	13.2	1.2	4.4	X	X	0.0	X	X	0.0	X	0.0
335	Electrical Equip., Appliances, and Components	24.5	25.4	30.1	89.5	X	X	94.1	X	77.3	62.1	65.7
336	Transportation Equipment	13.5	14.1	21.3	52.1	X	0.0	80.4	88.7	61.0	55.0	17.7
336111	Automobiles	0.0	0.0	0.0	X	X	0.0	X	X	0.0	0.0	0.0
336112	Light Trucks and Utility Vehicles	0.0	0.0	0.0	0.0	X	0.0	0.0	X	0.0	0.0	0.0
3364	Aerospace Product and Parts	18.5	18.5	25.9	0.0	X	0.0	X	X	12.8	9.4	15.8
336411	Aircraft	52.7	52.7	56.0	X	X	X	X	X	34.1	85.7	23.1
337	Furniture and Related Products	24.6	25.6	32.6	X	X	X	X	X	55.6	52.7	45.7
339	Miscellaneous	45.0	52.9	59.5	99.0	X	X	X	97.6	94.7	X	50.9
	Total	3.9	4.5	6.7	28.1	10.4	78.6	27.2	25.3	7.6	25.9	7.3

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

(b) The environmental restrictions related to air quality that limit the amount of the usable alternative fuel that could be used instead.

(c) Long-term contracts are typically with a utility or third-party supplier such as an energy broker and requires the purchase of a fuel for an extended amount of time.

(d) The storage of usable alternative fuels is not available due to the potential environmental impact of storage tanks.

\* 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.

NA=Not available.

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

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: CDBRB-FY21-312).