

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

**Table 10.21 Reasons that Made Natural Gas Unswitchable, 2018;**

Level: National Data;  
 Row: NAICS Codes;  
 Column: Reasons that Made Quantity Unswitchable;  
 Unit: Billion Cubic Feet.

		Non Switchable Amount Attributed to:										
NAICS Code(a)	Subsector and Industry	Total Amount of Natural Gas Consumed as Fuel	Total Amount of Unswitchable Natural Gas 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	644	578	429	8	6	13	12	Q	12	17	76
3112	Grain and Oilseed Milling	144	124	99	*	*	5	0	*	3	1	15
311221	Wet Corn Milling	59	54	53	0	0	1	0	0	0	0	*
31131	Sugar Manufacturing	32	27	18	0	0	3	3	0	0	0	3
3114	Fruit and Vegetable Preserving and Specialty Food	88	82	60	1	*	3	Q	*	*	4	13
3115	Dairy Product	76	65	53	*	*	0	*	0	1	2	8
3116	Animal Slaughtering and Processing	144	127	88	1	6	1	1	*	3	5	22
312	Beverage and Tobacco Products	52	47	36	*	2	1	1	*	1	1	4
3121	Beverages	48	44	34	*	2	1	1	*	1	1	4
3122	Tobacco	4	2	2	0	*	0	*	0	*	0	*
313	Textile Mills	22	12	9	*	0	0	*	0	*	Q	1
314	Textile Product Mills	11	6	3	0	*	0	0	*	Q	*	1
315	Apparel	2	1	1	0	*	*	*	0	*	0	*
316	Leather and Allied Products	1	1	1	0	*	0	*	*	*	*	*
321	Wood Products	65	63	43	Q	*	*	2	*	3	1	6
321113	Sawmills	17	17	9	Q	*	0	1	*	*	*	*
3212	Veneer, Plywood, and Engineered Woods	30	29	22	*	*	*	1	*	3	1	2
321219	Reconstituted Wood Products	20	19	13	*	0	*	1	*	1	1	2
3219	Other Wood Products	15	14	10	*	*	0	*	*	*	*	3
322	Paper	551	489	344	3	15	31	8	2	19	17	48
322110	Pulp Mills	39	32	25	0	1	*	0	0	0	2	4
322121	Paper Mills, except Newsprint	216	195	151	*	1	19	0	1	7	2	15
322122	Newsprint Mills	5	5	5	0	0	0	0	0	0	0	0
322130	Paperboard Mills	227	199	125	0	11	11	8	2	7	11	24
323	Printing and Related Support	23	20	11	*	1	0	*	0	3	2	4
324	Petroleum and Coal Products	1,037	934	728	15	24	1	1	6	52	18	89
324110	Petroleum Refineries	958	864	683	15	17	*	0	4	51	13	81
324121	Asphalt Paving Mixture and Block	40	31	18	*	*	1	1	Q	1	4	4
324122	Asphalt Shingle and Coating Materials	13	13	11	0	0	0	0	0	*	1	1
324191	Petroleum Lubricating Oil and Grease Products	18	18	10	*	Q	*	*	0	*	0	2
324199	Other Petroleum and Coal Products	8	8	6	0	1	*	0	*	*	*	1
325	Chemicals	2,258	2,177	1,678	6	103	27	13	Q	50	64	236
325110	Petrochemicals	292	281	211	0	0	0	0	0	D	D	D
325120	Industrial Gases	80	80	65	0	0	0	0	0	*	0	15
325180	Other Basic Inorganic Chemicals	210	203	177	3	6	1	0	0	4	2	10
325193	Ethyl Alcohol	346	342	280	0	3	Q	3	0	9	16	30
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	49	47	20	0	0	0	0	0	*	26	*
325199	Other Basic Organic Chemicals	386	372	269	1	9	17	5	0	1	4	65
325211	Plastics Materials and Resins	402	386	281	0	83	2	*	*	5	1	14
325212	Synthetic Rubber	19	17	7	0	*	*	0	*	*	8	2
325220	Artificial and Synthetic Fibers and Filaments	22	16	5	0	*	1	*	0	*	*	10
325311	Nitrogenous Fertilizers	205	205	200	0	0	*	1	0	3	Q	0
325312	Phosphatic Fertilizers	24	24	D	0	0	0	0	0	0	0	D
3254	Pharmaceuticals and Medicines	60	51	30	2	*	4	3	*	*	2	9

325412	Pharmaceutical Preparation	29	25	15	1	*	3	3	0	*	1	3
325992	Photographic Film, Paper, Plate, and Chemicals	3	1	1	0	*	0	*	*	*	*	*
326	Plastics and Rubber Products	80	67	44	*	Q	Q	*	0	Q	Q	15
327	Nonmetallic Mineral Products	335	303	209	3	4	2	7	4	15	14	44
327120	Clay Building Material and Refractories	35	31	25	*	0	*	2	0	2	2	1
327211	Flat Glass	40	37	32	0	2	0	0	0	0	2	2
327212	Other Pressed and Blown Glass and Glassware	22	21	14	*	2	0	*	0	0	2	3
327213	Glass Containers	41	41	35	0	0	1	0	0	0	5	*
327215	Glass Products from Purchased Glass	8	7	5	1	*	0	*	*	*	1	*
327310	Cements	55	39	14	0	0	1	0	0	*	1	22
327410	Lime	18	15	2	2	1	*	0	0	7	1	3
327420	Gypsum	50	49	40	0	0	0	2	3	*	0	3
327993	Mineral Wool	21	20	16	0	0	0	0	1	*	1	2
331	Primary Metals	616	590	454	3	14	*	18	*	18	48	34
331110	Iron and Steel Mills and Ferroalloys	396	378	291	*	13	0	6	0	6	43	18
3312	Steel Products from Purchased Steel	24	24	19	Q	*	*	1	0	1	*	2
3313	Alumina and Aluminum	112	109	80	1	*	0	9	*	10	3	5
331314	Secondary Smelting and Alloying of Aluminum	17	17	14	0	0	0	1	0	*	0	2
331315	Aluminum Sheet, Plate and Foils	52	51	30	0	*	0	8	0	10	3	*
331318	Other Aluminum Rolling, Drawing and Extruding	17	14	12	0	0	0	*	*	0	*	2
3314	Nonferrous Metals, except Aluminum	40	38	34	*	*	*	1	*	*	*	3
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	15	15	15	0	0	0	*	*	*	*	*
3315	Foundries	43	40	29	*	*	0	2	*	1	1	7
331511	Iron Foundries	12	11	8	*	0	0	1	*	*	1	2
331523	Nonferrous Metal Die-Casting Foundries	14	13	9	*	*	0	1	0	*	*	2
331524	Aluminum Foundries, except Die-Casting	6	6	4	*	0	0	*	0	1	*	1
332	Fabricated Metal Products	120	116	81	Q	*	Q	*	Q	*	*	17
333	Machinery	57	54	37	Q	Q	*	Q	*	2	Q	4
334	Computer and Electronic Products	29	27	17	*	*	1	*	*	1	4	4
334413	Semiconductors and Related Devices	13	12	7	0	*	1	*	0	1	2	1
335	Electrical Equip., Appliances, and Components	35	34	24	*	Q	*	*	*	*	Q	4
336	Transportation Equipment	151	146	91	*	Q	2	*	Q	13	6	26
336111	Automobiles	18	17	14	0	0	*	0	0	3	0	*
336112	Light Trucks and Utility Vehicles	24	24	14	*	*	0	0	0	4	1	6
3364	Aerospace Product and Parts	26	23	12	*	*	2	0	*	1	5	4
336411	Aircraft	6	5	3	0	0	1	0	*	*	1	*
337	Furniture and Related Products	15	13	10	*	0	0	*	*	1	*	2
339	Miscellaneous	24	23	21	*	*	0	0	*	*	*	2
	Total	6,129	5,701	4,273	52	185	84	66	30	190	204	618

- (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-FY20-260).

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**RSE Table 10.21 Relative Standard Errors for Table 10.21;**

Unit: Percents.

Non Switchable Amount Attributed to:												
NAICS Code(a)	Subsector and Industry	Total Amount of Natural Gas Consumed as Fuel	Total Amount of Unswitchable Natural Gas 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	4.5	5.0	6.4	48.0	2.4	6.9	32.2	75.6	29.0	16.1	7.8
3112	Grain and Oilseed Milling	3.6	4.1	3.7	0.0	68.0	0.7	X	0.0	28.4	24.2	25.0
311221	Wet Corn Milling	0.0	0.0	0.0	X	X	0.0	X	X	X	X	0.0
31131	Sugar Manufacturing	0.0	0.0	0.0	X	X	0.0	0.0	X	X	X	0.0
3114	Fruit and Vegetable Preserving and Specialty Food	3.2	3.5	4.7	16.5	69.4	4.5	54.1	0.0	0.0	6.9	6.3
3115	Dairy Product	2.3	2.4	2.6	0.0	44.1	X	62.3	X	38.4	16.9	8.8
3116	Animal Slaughtering and Processing	6.2	6.9	9.8	26.6	0.1	25.3	18.0	27.6	13.0	16.7	11.2
312	Beverage and Tobacco Products	8.5	9.5	12.2	56.2	8.8	0.0	0.0	67.8	2.5	26.2	14.1
3121	Beverages	9.2	10.0	12.9	56.2	9.0	0.0	0.0	67.8	3.0	26.2	14.5
3122	Tobacco	0.0	0.0	0.0	X	0.0	X	0.0	X	0.0	X	0.0
313	Textile Mills	12.7	10.6	12.0	66.4	X	X	30.3	X	78.4	93.1	19.7
314	Textile Product Mills	13.5	20.3	27.6	X	40.0	X	X	95.8	85.8	48.9	21.6
315	Apparel	14.3	17.0	26.8	X	74.4	0.0	54.0	X	71.5	X	27.3
316	Leather and Allied Products	11.6	13.2	9.2	X	54.6	X	85.5	0.0	36.8	0.0	45.2
321	Wood Products	10.2	10.6	4.7	89.8	7.4	68.1	8.1	6.4	7.7	21.0	17.1
321113	Sawmills	36.2	36.9	2.8	96.8	38.0	X	0.0	25.7	47.7	15.2	7.9
3212	Veneer, Plywood, and Engineered Woods	1.2	1.2	1.6	0.5	2.9	0.0	0.0	0.0	0.0	0.0	3.6
321219	Reconstituted Wood Products	0.9	1.0	1.4	0.0	X	0.0	0.0	0.0	0.0	0.0	0.5
3219	Other Wood Products	14.9	15.6	19.4	72.6	98.3	X	84.5	10.8	88.4	90.8	33.6
322	Paper	1.0	1.2	1.4	0.0	18.5	0.1	0.0	6.3	10.6	8.8	4.6
322110	Pulp Mills	0.0	0.0	0.0	X	0.0	0.0	X	X	X	0.0	0.0
322121	Paper Mills, except Newsprint	0.0	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0
322122	Newsprint Mills	0.0	0.0	0.0	X	X	X	X	X	X	X	X
322130	Paperboard Mills	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0	0.0	0.0	0.0
323	Printing and Related Support	10.0	10.9	15.9	70.8	48.9	X	65.4	X	28.2	37.4	28.7
324	Petroleum and Coal Products	0.3	0.4	0.1	0.4	13.5	6.3	15.3	21.2	0.1	0.8	0.7
324110	Petroleum Refineries	0.0	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0
324121	Asphalt Paving Mixture and Block	3.9	4.8	3.3	45.4	48.7	10.0	15.8	74.8	8.5	4.1	10.0
324122	Asphalt Shingle and Coating Materials	1.1	1.1	1.3	X	X	X	X	X	0.0	0.1	0.8
324191	Petroleum Lubricating Oil and Grease Products	17.4	17.8	1.4	0.0	55.4	0.0	8.2	X	0.0	X	27.5
324199	Other Petroleum and Coal Products	0.0	0.0	0.0	X	0.0	0.0	X	0.0	0.0	0.0	0.0
325	Chemicals	1.7	1.7	2.2	19.0	4.4	4.8	14.1	63.1	4.3	8.3	4.1
325110	Petrochemicals	0.0	0.0	0.0	X	X	X	X	X	D	D	D
325120	Industrial Gases	1.9	1.9	0.5	X	X	X	X	X	0.0	X	10.1
325180	Other Basic Inorganic Chemicals	4.0	4.1	4.7	35.3	0.0	32.3	X	X	10.8	16.6	10.5
325193	Ethyl Alcohol	1.5	1.5	1.8	X	8.9	74.3	0.0	X	11.9	31.0	4.5
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	0.0	0.0	0.0	X	X	X	X	X	0.0	0.0	0.0
325199	Other Basic Organic Chemicals	6.0	6.2	8.1	2.9	44.9	0.2	36.9	X	13.4	7.1	12.8
325211	Plastics Materials and Resins	1.1	1.2	1.4	X	0.1	0.0	61.9	92.5	12.8	48.5	18.5
325212	Synthetic Rubber	0.0	0.0	0.0	X	0.0	0.0	X	0.0	0.0	0.0	0.0
325220	Artificial and Synthetic Fibers and Filaments	0.0	0.0	0.0	X	0.0	0.0	0.0	X	0.0	0.0	0.0
325311	Nitrogenous Fertilizers	3.2	3.2	3.2	X	X	87.1	0.0	X	0.0	86.7	X
325312	Phosphatic Fertilizers	0.0	0.0	D	X	X	X	X	X	X	X	D
3254	Pharmaceuticals and Medicines	5.2	5.7	9.5	0.3	0.0	0.0	0.0	89.8	41.6	2.3	1.6
325412	Pharmaceutical Preparation	9.6	11.1	19.1	0.0	0.0	0.0	0.0	X	35.4	6.7	3.6
325992	Photographic Film, Paper, Plate, and Chemicals	0.4	0.9	1.2	X	0.0	X	0.0	0.0	31.6	0.0	0.8

326	Plastics and Rubber Products	14.3	15.0	16.7	93.1	95.7	64.2	69.8	X	79.9	89.9	43.8
327	Nonmetallic Mineral Products	1.7	1.8	1.5	1.0	2.2	0.0	25.2	0.8	24.7	3.2	5.1
327120	Clay Building Material and Refractories	2.2	2.4	1.6	9.0	X	0.0	25.8	X	0.3	25.4	10.2
327211	Flat Glass	0.0	0.0	0.0	X	0.0	X	X	X	X	0.0	0.0
327212	Other Pressed and Blown Glass and Glassware	0.7	0.7	0.9	25.8	0.0	X	62.7	X	X	0.8	2.3
327213	Glass Containers	0.0	0.0	0.0	X	X	0.0	X	X	X	0.0	0.0
327215	Glass Products from Purchased Glass	1.1	1.2	1.5	0.0	0.0	X	0.0	11.6	38.1	6.7	9.4
327310	Cements	1.2	1.7	0.7	X	X	0.0	X	X	0.0	0.0	3.0
327410	Lime	0.0	0.0	0.0	0.0	0.0	0.0	X	X	0.0	0.0	0.0
327420	Gypsum	0.5	0.5	0.6	X	X	X	0.0	0.0	0.0	X	0.1
327993	Mineral Wool	1.0	1.0	1.2	X	X	X	X	3.1	88.1	0.0	0.3
331	Primary Metals	0.2	0.2	0.2	14.7	0.5	14.5	0.1	0.2	0.5	0.1	1.6
331110	Iron and Steel Mills and Ferroalloys	0.0	0.0	0.0	0.0	0.0	X	0.0	X	0.0	0.0	0.0
3312	Steel Products from Purchased Steel	3.9	3.9	4.3	72.0	0.0	0.0	0.8	X	8.8	15.2	14.5
3313	Alumina and Aluminum	0.4	0.4	0.3	0.0	0.0	X	0.2	0.0	0.0	0.6	7.6
331314	Secondary Smelting and Alloying of Aluminum	2.3	2.3	1.9	X	X	X	0.0	X	0.0	X	19.1
331315	Aluminum Sheet, Plate and Foils	0.0	0.0	0.0	X	0.0	X	0.0	X	0.0	0.0	0.0
331318	Other Aluminum Rolling, Drawing and Extruding	0.4	0.5	0.6	X	X	X	32.4	0.0	X	19.6	0.6
3314	Nonferrous Metals, except Aluminum	1.3	1.4	1.6	49.4	25.7	78.9	0.0	0.0	12.0	18.2	3.1
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	1.3	1.3	1.3	X	X	X	0.0	0.0	0.0	0.0	0.0
3315	Foundries	0.9	0.8	0.9	8.8	19.3	X	0.7	35.1	4.6	3.9	4.1
331511	Iron Foundries	2.0	1.3	1.7	0.0	X	X	0.4	35.1	5.5	0.0	3.6
331523	Nonferrous Metal Die-Casting Foundries	1.6	1.8	1.7	27.8	20.2	X	0.0	X	40.7	33.3	8.3
331524	Aluminum Foundries, except Die-Casting	1.3	1.3	1.8	6.2	X	X	0.0	X	0.1	4.4	7.7
332	Fabricated Metal Products	16.1	16.7	19.4	70.9	83.9	92.1	98.8	97.6	51.8	99.5	34.1
333	Machinery	13.0	13.5	16.4	80.6	74.6	9.9	99.0	72.6	46.7	54.8	31.1
334	Computer and Electronic Products	10.4	11.0	16.3	81.4	96.3	0.0	4.9	99.0	3.0	20.1	22.0
334413	Semiconductors and Related Devices	3.6	3.8	6.4	X	0.0	0.0	0.0	X	0.1	0.0	0.4
335	Electrical Equip., Appliances, and Components	15.1	15.5	20.0	83.9	55.6	85.9	96.1	98.9	98.9	66.5	29.5
336	Transportation Equipment	8.5	8.8	10.6	43.9	98.6	0.0	73.8	61.0	14.9	0.6	23.6
336111	Automobiles	0.0	0.0	0.0	X	X	0.0	X	X	0.0	X	0.0
336112	Light Trucks and Utility Vehicles	0.0	0.0	0.0	0.0	0.0	X	X	X	0.0	0.0	0.0
3364	Aerospace Product and Parts	2.8	3.2	5.4	38.3	33.7	0.0	X	0.0	3.7	0.7	9.2
336411	Aircraft	1.6	1.7	2.5	X	X	0.0	X	0.0	0.0	0.0	27.9
337	Furniture and Related Products	12.4	12.1	15.2	78.6	X	X	56.1	69.2	48.7	94.4	31.6
339	Miscellaneous	17.6	18.4	20.2	97.8	81.9	X	X	84.7	65.7	88.0	35.3
	Total	0.9	1.0	1.2	15.2	5.2	4.2	7.6	33.6	3.3	3.7	2.6

(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: CBDRB-FY20-260).