

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

Table 10.20 Reasons that Made Electricity Unswitchable, 2018;

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

Non Switchable Amount Attributed to:												
NAICS Code(a)	Subsector and Industry	Total Amount of Electricity Consumed as Fuel	Total Amount of Unswitchable Electricity 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
Total United States												
311	Food	92,018	90,799	67,480	691	626	647	1,575	120	5,782	1,532	12,346
3112	Grain and Oilseed Milling	14,717	14,622	11,520	D	89	43	0	8	1,536	408	D
311221	Wet Corn Milling	6,035	5,979	5,722	0	0	34	0	0	0	217	6
31131	Sugar Manufacturing	1,179	1,179	787	0	0	0	D	*	2	22	D
3114	Fruit and Vegetable Preserving and Specialty Food	9,945	9,907	6,682	57	Q	345	Q	0	454	68	2,227
3115	Dairy Product	11,509	10,901	8,587	22	104	38	0	0	562	217	1,370
3116	Animal Slaughtering and Processing	31,674	31,249	24,883	180	111	Q	208	Q	2,005	550	3,085
312	Beverage and Tobacco Products	14,184	14,065	11,442	452	46	21	133	52	877	90	952
3121	Beverages	13,418	13,299	10,740	452	46	21	133	52	856	90	909
3122	Tobacco	766	766	702	*	0	0	0	0	21	0	43
313	Textile Mills	10,882	10,535	5,699	Q	0	Q	Q	Q	3,275	Q	896
314	Textile Product Mills	2,842	2,839	1,532	Q	133	0	Q	0	435	Q	595
315	Apparel	722	705	330	Q	Q	0	Q	0	157	5	169
316	Leather and Allied Products	226	226	138	7	Q	*	Q	5	31	7	20
321	Wood Products	21,764	21,503	16,690	341	Q	40	205	80	1,533	169	1,819
321113	Sawmills	8,180	8,144	6,176	122	Q	0	44	12	549	36	601
3212	Veneer, Plywood, and Engineered Woods	6,817	6,800	5,681	6	6	Q	143	0	589	80	294
321219	Reconstituted Wood Products	4,289	4,289	3,506	0	0	0	143	0	459	60	121
3219	Other Wood Products	6,313	6,108	4,494	157	Q	36	Q	68	395	Q	874
322	Paper	55,961	D	36,744	1	704	D	1,959	134	6,285	1,437	4,596
322110	Pulp Mills	2,033	D	1,291	1	0	D	0	0	D	D	D
322121	Paper Mills, except Newsprint	17,898	16,583	10,204	0	296	516	1,244	0	3,150	542	632
322122	Newsprint Mills	4,946	4,946	4,946	0	0	0	0	0	*	0	0
322130	Paperboard Mills	18,401	17,240	11,323	0	81	424	715	D	1,807	D	2,403
323	Printing and Related Support	10,032	10,014	6,908	379	Q	0	Q	Q	1,197	Q	1,458
324	Petroleum and Coal Products	58,130	57,188	43,417	20	2,009	101	182	Q	5,166	914	5,213
324110	Petroleum Refineries	53,819	53,021	40,194	0	1,931	D	D	0	5,068	D	4,773
324121	Asphalt Paving Mixture and Block	1,378	1,282	783	5	20	D	D	Q	53	D	173
324122	Asphalt Shingle and Coating Materials	930	926	799	*	0	0	D	20	8	D	73
324191	Petroleum Lubricating Oil and Grease Products	1,393	1,351	1,222	14	17	0	2	*	31	0	64
324199	Other Petroleum and Coal Products	610	608	418	*	41	0	4	1	6	9	130
325	Chemicals	160,480	158,421	103,482	1,558	350	1,654	3,399	68	14,173	5,429	28,308
325110	Petrochemicals	7,903	7,851	3,934	0	1	0	0	0	D	*	D
325120	Industrial Gases	23,068	22,758	11,807	0	0	0	71	0	1,977	134	8,769
325180	Other Basic Inorganic Chemicals	30,356	30,270	22,134	995	0	Q	1,418	65	1,298	766	3,578
325193	Ethyl Alcohol	10,819	10,819	8,510	43	35	63	231	0	622	763	551
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	3,515	3,513	2,987	0	0	107	2	0	*	97	319
325199	Other Basic Organic Chemicals	21,178	20,971	10,748	Q	29	43	Q	0	3,088	Q	5,229
325211	Plastics Materials and Resins	24,174	24,014	19,149	29	Q	Q	484	0	2,022	271	1,944
325212	Synthetic Rubber	1,417	1,409	814	1	1	14	0	*	123	176	278
325220	Artificial and Synthetic Fibers and Filaments	2,728	2,346	1,750	0	54	3	4	0	432	12	91
325311	Nitrogenous Fertilizers	5,137	5,044	3,836	0	0	Q	1,021	0	101	Q	*

325312	Phosphatic Fertilizers	2,085	2,052	1,433	0	0	0	0	0	5	0	613
3254	Pharmaceuticals and Medicines	10,447	10,236	5,403	223	0	771	68	0	1,288	626	1,858
325412	Pharmaceutical Preparation	6,115	5,984	3,085	134	0	437	68	0	702	332	1,227
325992	Photographic Film, Paper, Plate, and Chemicals	923	910	478	8	158	0	2	Q	18	35	208
326	Plastics and Rubber Products	49,327	48,945	31,736	Q	Q	Q	Q	Q	3,636	3,130	7,854
327	Nonmetallic Mineral Products	37,923	37,301	24,246	305	326	189	612	534	3,191	1,602	6,296
327120	Clay Building Material and Refractories	1,767	1,764	1,197	19	D	1	65	D	370	*	96
327211	Flat Glass	1,419	1,322	1,198	0	0	60	0	0	*	46	17
327212	Other Pressed and Blown Glass and Glassware	2,123	1,919	1,778	13	0	0	0	0	8	77	43
327213	Glass Containers	3,447	3,433	3,083	0	0	0	0	0	D	D	D
327215	Glass Products from Purchased Glass	3,670	3,663	2,758	102	1	0	173	*	490	44	94
327310	Cements	11,421	11,421	5,120	0	D	D	D	D	1,179	801	3,695
327410	Lime	1,398	1,398	852	0	0	32	0	25	43	1	445
327420	Gypsum	1,541	1,541	1,106	0	0	0	D	D	6	D	76
327993	Mineral Wool	3,110	3,011	2,254	Q	0	D	0	D	64	225	313
331	Primary Metals	113,382	113,036	81,859	376	1,174	70	1,773	2	12,024	6,013	9,745
331110	Iron and Steel Mills and Ferroalloys	56,170	56,037	41,889	229	969	0	792	*	4,746	2,768	4,644
3312	Steel Products from Purchased Steel	6,914	6,900	5,993	59	Q	Q	147	0	198	72	361
3313	Alumina and Aluminum	26,260	26,251	15,200	27	10	0	729	0	6,726	2,327	1,233
331314	Secondary Smelting and Alloying of Aluminum	780	779	680	0	0	0	7	0	29	0	62
331315	Aluminum Sheet, Plate and Foils	5,377	5,377	2,555	0	0	0	708	0	719	431	964
331318	Other Aluminum Rolling, Drawing and Extruding	1,917	1,909	1,652	27	10	0	13	0	22	14	171
3314	Nonferrous Metals, except Aluminum	13,272	13,235	11,424	Q	36	0	42	0	137	202	1,359
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	7,887	7,863	7,265	0	0	0	1	0	4	93	501
3315	Foundries	10,766	10,613	7,353	28	97	62	64	2	217	644	2,147
331511	Iron Foundries	5,196	5,088	3,189	2	57	Q	37	2	33	316	1,446
331523	Nonferrous Metal Die-Casting Foundries	2,078	2,056	1,477	Q	24	41	18	0	78	85	316
331524	Aluminum Foundries, except Die-Casting	788	782	510	2	Q	0	5	*	41	148	74
332	Fabricated Metal Products	36,063	34,995	21,396	2,479	Q	Q	Q	Q	1,637	276	8,638
333	Machinery	23,569	23,307	15,692	Q	652	105	Q	0	Q	Q	3,348
334	Computer and Electronic Products	22,194	22,037	11,179	Q	Q	1,656	294	Q	2,110	3,011	3,622
334413	Semiconductors and Related Devices	11,613	11,569	5,130	0	0	1,656	199	Q	1,405	2,675	470
335	Electrical Equip., Appliances, and Components	11,037	11,033	8,320	Q	Q	0	Q	0	370	482	1,304
336	Transportation Equipment	50,462	49,870	30,525	314	Q	1,325	519	187	4,301	2,292	6,948
336111	Automobiles	4,024	4,017	1,815	0	1	768	184	0	D	706	D
336112	Light Trucks and Utility Vehicles	4,233	4,233	1,734	16	1	0	323	173	809	170	1,005
3364	Aerospace Product and Parts	9,699	9,519	6,398	215	Q	557	Q	Q	400	180	1,733
336411	Aircraft	2,721	2,573	1,971	0	0	D	0	D	116	D	D
337	Furniture and Related Products	4,669	4,561	2,877	Q	Q	0	0	Q	468	Q	857
339	Miscellaneous	9,547	9,418	6,993	Q	Q	Q	Q	Q	540	Q	1,269
	Total	785,414	D	528,687	8,819	10,976	D	12,742	1,825	69,378	27,254	106,253

(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 10.20 Relative Standard Errors for Table 10.20;

Unit: Percents.

Non Switchable Amount Attributed to:													
NAICS Code(a)	Subsector and Industry	Total Amount of Electricity Consumed as Fuel	Total Amount of Unswitchable Electricity 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	
Total United States													
311	Food	11.4	11.5	15.4	38.3	48.6	23.8	36.8	49.3	11.5	17.1	9.4	
3112	Grain and Oilseed Milling	1.9	1.9	2.1	D	5.8	20.0	X	0.0	13.4	9.3	D	
311221	Wet Corn Milling	0.0	0.0	0.0	X	X	0.0	X	X	X	0.0	0.0	
31131	Sugar Manufacturing	0.0	0.0	0.0	X	X	X	D	0.0	0.0	0.0	D	
3114	Fruit and Vegetable Preserving and Specialty Food	6.1	6.1	4.7	18.5	86.1	13.9	58.7	X	6.1	23.0	24.2	
3115	Dairy Product	3.3	3.4	4.3	0.0	37.7	32.4	X	X	20.6	39.1	5.8	
3116	Animal Slaughtering and Processing	31.0	31.4	39.5	34.1	33.4	88.1	27.5	55.1	14.8	2.3	12.4	
312	Beverage and Tobacco Products	15.5	15.7	19.2	44.2	39.7	31.9	9.7	43.5	18.7	49.6	11.7	
3121	Beverages	16.4	16.6	20.4	44.3	39.7	31.9	9.7	43.5	19.2	49.6	12.3	
3122	Tobacco	0.0	0.0	0.0	0.0	X	X	X	X	0.0	X	0.0	
313	Textile Mills	6.1	6.3	9.1	88.8	X	90.5	90.8	97.3	17.2	51.2	26.2	
314	Textile Product Mills	7.9	7.9	13.6	86.7	0.0	X	99.4	X	18.5	90.1	8.8	
315	Apparel	11.3	11.5	21.9	77.7	74.4	X	69.0	X	20.0	32.2	20.8	
316	Leather and Allied Products	5.1	5.1	6.3	31.7	62.9	84.0	57.6	9.1	8.8	27.1	32.4	
321	Wood Products	2.9	2.9	2.1	18.9	79.3	6.2	9.1	41.9	7.3	20.1	11.1	
321113	Sawmills	6.2	6.2	1.6	33.9	82.1	X	4.6	39.2	3.9	44.1	11.2	
3212	Veneer, Plywood, and Engineered Woods	1.2	1.2	1.5	36.0	42.6	80.4	0.0	X	2.5	9.7	6.6	
321219	Reconstituted Wood Products	1.5	1.5	1.9	X	X	X	0.0	X	1.9	0.1	7.0	
3219	Other Wood Products	5.8	5.9	7.3	28.6	96.6	0.0	97.7	48.6	27.5	54.9	21.7	
322	Paper	1.2	D	1.9	0.0	27.8	D	0.0	46.3	6.1	13.6	8.8	
322110	Pulp Mills	0.0	D	0.0	0.0	X	D	X	X	D	D	D	
322121	Paper Mills, except Newsprint	0.0	0.0	0.0	X	0.0	0.0	0.0	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	X	0.0	0.0	0.0	D	0.0	D	0.0	
323	Printing and Related Support	7.8	7.9	10.6	49.2	51.8	X	85.2	99.0	19.6	60.7	20.9	
324	Petroleum and Coal Products	0.5	0.5	0.6	5.7	0.1	26.0	0.6	68.5	0.1	1.0	0.4	
324110	Petroleum Refineries	0.0	0.0	0.0	X	0.0	D	D	X	0.0	D	0.0	
324121	Asphalt Paving Mixture and Block	8.7	9.4	3.5	21.9	10.6	D	D	78.2	7.0	D	9.6	
324122	Asphalt Shingle and Coating Materials	1.7	1.7	1.8	0.0	X	X	D	0.0	0.0	D	12.2	
324191	Petroleum Lubricating Oil and Grease Products	18.4	18.9	21.0	0.0	0.0	X	0.0	0.0	6.2	X	15.6	
324199	Other Petroleum and Coal Products	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0	0.0	
325	Chemicals	1.4	1.4	1.7	13.1	9.8	32.1	2.7	19.4	4.9	19.9	3.4	
325110	Petrochemicals	0.0	0.0	0.0	X	0.0	X	X	X	D	0.0	D	
325120	Industrial Gases	3.5	3.6	4.5	X	X	X	0.0	X	17.3	16.3	7.8	
325180	Other Basic Inorganic Chemicals	2.0	2.0	2.8	3.1	X	72.0	0.0	20.0	14.7	1.7	1.9	
325193	Ethyl Alcohol	1.9	1.9	2.6	0.0	0.0	26.7	25.5	X	7.5	5.3	6.7	
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	0.0	0.0	0.0	X	X	0.0	0.0	X	0.0	0.0	0.0	
325199	Other Basic Organic Chemicals	5.2	5.3	5.2	52.5	2.9	0.0	72.2	X	6.6	58.2	5.0	
325211	Plastics Materials and Resins	2.4	2.5	3.2	49.8	55.6	73.7	4.4	X	8.5	28.5	10.7	
325212	Synthetic Rubber	0.0	0.0	0.0	0.0	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	12.5	12.8	17.0	X	X	87.1	0.0	X	0.0	77.5	0.0	
325312	Phosphatic Fertilizers	0.0	0.0	0.0	X	X	X	X	X	0.0	X	0.0	
3254	Pharmaceuticals and Medicines	2.9	3.0	2.4	3.4	X	0.0	12.9	X	22.4	4.6	2.9	
325412	Pharmaceutical Preparation	1.7	1.7	2.8	0.0	X	0.0	12.9	X	9.3	8.6	2.7	
325992	Photographic Film, Paper, Plate, and Chemicals	0.3	0.3	0.1	0.6	0.0	X	0.0	84.3	10.6	0.0	0.7	
326	Plastics and Rubber Products	7.7	7.7	10.7	92.3	95.3	58.3	52.9	94.0	40.5	37.0	22.4	

327	Nonmetallic Mineral Products	2.5	2.6	3.2	41.6	2.8	7.6	19.5	1.2	16.9	3.9	4.7
327120	Clay Building Material and Refractories	3.6	3.6	5.3	0.0	D	0.0	42.8	D	0.1	41.5	9.3
327211	Flat Glass	0.0	0.0	0.0	X	X	0.0	X	X	0.0	0.0	0.0
327212	Other Pressed and Blown Glass and Glassware	0.6	0.7	0.6	17.0	X	X	X	X	38.5	11.5	1.8
327213	Glass Containers	0.0	0.0	0.0	X	X	X	X	X	D	D	D
327215	Glass Products from Purchased Glass	1.4	1.4	1.8	23.4	0.0	X	0.3	51.0	2.1	8.5	6.5
327310	Cements	0.4	0.4	0.3	X	D	D	D	D	2.8	0.0	0.7
327410	Lime	0.0	0.0	0.0	X	X	0.0	X	0.0	0.0	0.0	0.0
327420	Gypsum	2.0	2.0	2.8	X	X	X	D	D	35.4	D	8.9
327993	Mineral Wool	0.4	0.4	0.5	88.2	X	D	X	D	0.0	0.0	0.3
331	Primary Metals	1.1	1.1	1.5	6.3	3.8	21.3	0.7	29.6	0.4	0.6	1.0
331110	Iron and Steel Mills and Ferroalloys	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0	0.0
3312	Steel Products from Purchased Steel	17.6	17.6	20.4	21.3	65.5	72.8	7.1	X	20.8	0.0	15.9
3313	Alumina and Aluminum	0.1	0.1	0.2	3.0	0.0	X	0.6	X	0.1	0.0	0.6
331314	Secondary Smelting and Alloying of Aluminum	1.5	1.5	1.5	X	X	X	0.0	X	0.0	X	12.3
331315	Aluminum Sheet, Plate and Foils	0.0	0.0	0.0	X	X	X	0.0	X	0.0	0.0	0.0
331318	Other Aluminum Rolling, Drawing and Extruding	1.2	1.2	1.4	3.0	0.0	X	32.4	X	17.7	0.0	1.0
3314	Nonferrous Metals, except Aluminum	0.9	0.9	0.8	53.6	49.9	X	1.9	X	20.5	14.4	5.4
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	0.6	0.6	0.6	X	X	X	0.0	X	0.0	0.0	0.0
3315	Foundries	0.9	0.9	1.3	33.7	7.7	22.1	9.7	31.2	3.1	3.5	1.4
331511	Iron Foundries	1.5	1.6	2.5	0.0	0.7	91.7	5.0	35.1	4.1	6.7	1.1
331523	Nonferrous Metal Die-Casting Foundries	1.2	1.2	1.5	51.9	17.5	0.0	30.7	X	4.2	2.0	6.0
331524	Aluminum Foundries, except Die-Casting	1.1	1.1	1.1	41.0	88.5	X	0.0	0.0	5.9	4.5	6.1
332	Fabricated Metal Products	10.0	10.3	13.0	41.9	50.3	99.5	99.5	99.5	34.6	43.3	26.0
333	Machinery	17.2	17.4	24.3	56.2	37.8	21.4	56.9	X	63.3	58.7	18.6
334	Computer and Electronic Products	6.8	6.8	6.7	63.2	71.2	0.0	43.6	58.6	16.7	9.8	36.3
334413	Semiconductors and Related Devices	3.3	3.3	4.9	X	X	0.0	43.9	91.0	23.6	3.3	3.8
335	Electrical Equip., Appliances, and Components	8.8	8.8	11.6	51.5	83.8	X	96.1	X	38.4	43.9	18.7
336	Transportation Equipment	9.2	9.3	10.6	29.6	98.4	0.4	1.7	4.6	20.4	22.9	11.5
336111	Automobiles	0.0	0.0	0.0	X	0.0	0.0	0.0	X	D	0.0	D
336112	Light Trucks and Utility Vehicles	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0	0.0	0.0
3364	Aerospace Product and Parts	4.2	4.2	6.3	20.2	73.3	1.1	79.6	51.0	14.1	17.0	6.6
336411	Aircraft	10.0	10.5	13.8	X	X	D	X	D	4.3	D	D
337	Furniture and Related Products	8.6	8.7	11.0	85.5	88.4	X	X	86.3	27.3	73.2	19.8
339	Miscellaneous	11.2	11.3	14.4	70.1	58.8	96.5	94.4	81.6	13.7	66.4	28.4
	Total	1.8	D	2.4	14.3	31.7	D	7.6	14.8	3.8	6.5	3.5

- (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).