

Table 10.20 Reasons that made electricity unswitchable, 2022

		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	79,883	77,654	56,385	911	1,410	Q	608	322	3,641	2,330	11,895
3112	Grain and Oilseed Milling	17,713	16,762	13,468	188	136	Q	19	0	373	384	2,060
311221	Wet Corn Milling and Starch Manufacturing	7,876	7,623	5,888	0	0	0	0	0	11	233	1,492
31131	Sugar Manufacturing	1,736	1,721	1,218	37	0	0	0	*	47	108	310
3114	Fruit and Vegetable Preserving and Specialty Food	8,919	8,865	6,286	250	Q	0	134	Q	321	437	1,286
3115	Dairy Product Manufacturing	13,111	12,352	9,293	Q	Q	0	48	77	561	528	1,815
3116	Animal Slaughtering and Processing	22,323	22,066	15,770	240	1,032	Q	*	141	661	485	3,718
312	Beverage and Tobacco Products	14,822	14,138	8,166	Q	Q	Q	127	Q	Q	213	1,433
3121	Beverages	14,100	13,416	7,545	Q	Q	Q	127	Q	Q	213	1,423
3122	Tobacco	722	722	621	2	*	0	0	0	88	0	11
313	Textile Mills	8,673	8,584	7,243	52	32	0	8	0	Q	Q	1,001
314	Textile Product Mills	2,983	2,982	2,247	92	0	0	Q	0	380	0	Q
315	Apparel	532	532	287	Q	Q	0	5	0	72	0	155
316	Leather and Allied Products	240	240	146	1	7	0	Q	5	40	7	34
321	Wood Products	21,454	19,880	15,580	163	278	94	549	Q	836	174	2,173
321113	Sawmills	9,077	7,619	6,081	60	82	9	519	3	316	50	500
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	5,639	5,630	4,748	27	Q	32	1	Q	111	18	680
321219	Reconstituted Wood Products	2,906	2,906	2,555	25	0	0	0	0	41	0	285
3219	Other Wood Products	6,223	6,116	4,435	Q	185	Q	Q	Q	402	92	851
322	Paper	54,388	50,943	35,945	D	861	D	804	0	5,728	637	6,461
322110	Pulp Mills	2,203	2,111	1,875	*	7	79	37	0	21	38	53
322120	Paper Mills	17,530	16,285	13,313	0	259	1	27	0	1,060	72	1,553
322130	Paperboard Mills	19,963	17,893	10,284	D	232	D	721	0	3,156	230	2,842
323	Printing and Related Support	9,160	8,125	5,922	Q	Q	0	Q	Q	394	Q	1,080
324	Petroleum and Coal Products	53,154	51,512	42,811	219	112	198	540	7	4,161	70	3,393
324110	Petroleum Refineries	49,342	47,765	39,992	0	D	D	475	0	4,059	0	3,010
324121	Asphalt Paving Mixture and Block	1,500	1,449	940	190	D	D	D	D	64	15	200
324122	Asphalt Shingle and Coating Materials	824	812	672	16	0	21	0	D	18	34	D
324191	Petroleum Lubricating Oil and Grease Manufacturing	800	798	640	14	30	0	D	0	D	21	70
324199	All Other Petroleum and Coal Products Manufacturing	688	688	568	0	*	0	D	0	D	0	D
325	Chemicals	165,439	162,888	111,832	1,681	1,110	542	3,288	37	11,975	3,513	28,911
325110	Petrochemicals	9,059	8,961	7,578	0	0	0	0	0	921	0	462
325120	Industrial Gases	27,999	27,625	9,334	0	0	0	0	0	4,507	Q	13,762
325180	Other Basic Inorganic Chemical Manufacturing	26,955	26,855	20,901	1,042	727	0	865	0	1,219	321	1,780
325193	Ethyl Alcohol	10,764	10,764	8,212	158	96	0	Q	0	219	288	1,592
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	5,844	5,843	5,446	D	0	*	D	0	0	D	319
325199	All Other Basic Organic Chemical Manufacturing	19,780	18,732	13,661	299	D	D	637	0	839	851	2,327
325211	Plastics Materials and Resins	20,617	20,596	17,246	141	0	0	586	0	1,038	321	1,263
325212	Synthetic Rubber	1,278	1,262	726	D	26	0	83	1	31	D	387
325220	Artificial and Synthetic Fibers and Filaments	2,384	2,377	1,923	0	4	0	0	0	271	99	79
325311	Nitrogenous Fertilizers	5,248	5,247	4,288	*	D	D	D	10	6	D	190
325312	Phosphatic Fertilizers	2,857	2,854	2,254	*	*	0	0	0	465	D	D
3254	Pharmaceuticals and Medicines	13,408	12,564	8,028	35	D	521	D	27	889	218	2,627
325412	Pharmaceutical Preparation	6,453	6,054	3,747	35	*	433	43	27	469	177	1,123
325992	Photographic Film, Paper, Plate, Chemical, and Copy Toner Manufacturing	708	706	514	0	*	0	0	0	37	70	84
326	Plastics and Rubber Products	70,449	70,120	40,522	Q	Q	0	Q	Q	6,613	4,384	15,273

327	Nonmetallic Mineral Products	61,865	61,357	27,598	548	1,086	53	1,265	103	3,050	Q	10,784
327120	Clay Building Material and Refractories	1,486	1,481	921	19	0	0	20	*	164	91	267
327211	Flat Glass	1,572	1,572	1,272	189	2	53	0	34	Q	0	*
327212	Other Pressed and Blown Glass and Glassware	1,919	1,670	1,317	51	*	0	0	0	154	1	147
327213	Glass Containers	3,449	3,449	3,014	0	0	0	65	0	0	14	356
327215	Glass Products from Purchased Glass	3,708	3,701	2,941	20	Q	0	Q	34	255	69	300
327310	Cements	13,007	13,007	7,262	0	827	0	1,016	0	1,717	0	2,184
327410	Lime	1,371	1,371	764	16	55	0	0	0	31	72	433
327420	Gypsum	1,826	1,826	1,573	0	0	0	0	0	D	0	D
327993	Mineral Wool	4,140	3,893	2,570	101	16	0	0	0	Q	331	Q
331	Primary Metals	99,754	99,350	79,726	619	1,037	272	4,693	32	1,902	4,343	6,726
331110	Iron and Steel Mills and Ferroalloys	54,761	54,548	44,939	30	670	0	3,477	0	873	1,236	3,323
3312	Steel Products from Purchased Steel	5,582	5,564	D	Q	55	225	39	D	216	D	950
3313	Alumina and Aluminum Production and Processing	19,795	19,786	D	120	36	1	998	D	168	D	352
331314	Secondary Smelting and Alloying of Aluminum	552	545	402	0	34	1	0	0	11	D	D
331315	Aluminum Sheet, Plate and Foils	6,166	6,166	4,982	0	0	0	998	D	138	D	D
331318	Other Aluminum Rolling, Drawing and Extruding	2,070	2,068	1,600	120	2	0	0	0	19	52	276
3314	Nonferrous Metal (except Aluminum) Production and Processing	9,800	9,748	7,390	406	45	0	63	0	452	155	1,237
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	4,523	4,523	3,518	0	19	0	1	0	385	Q	595
3315	Foundries	9,815	9,703	7,667	45	232	46	116	0	193	541	864
331511	Iron Foundries	4,712	4,703	3,939	0	212	0	63	0	60	Q	245
331523	Nonferrous Metal Die-Casting Foundries	2,031	2,030	1,488	*	4	46	Q	0	101	72	301
331524	Aluminum Foundries, except Die-Casting	566	564	414	Q	15	0	Q	0	0	8	103
332	Fabricated Metal Products	42,093	41,858	28,576	D	Q	D	Q	D	D	Q	6,633
333	Machinery	21,997	21,506	12,899	Q	106	0	Q	Q	1,226	1,009	3,485
334	Computer and Electronic Products	27,584	27,190	10,291	306	Q	1,536	Q	Q	Q	5,495	4,316
334413	Semiconductors and Related Devices	13,631	13,386	3,723	306	0	1,482	Q	0	444	4,872	2,479
335	Electrical Equip., Appliances, and Components	11,784	11,436	7,177	Q	Q	Q	523	Q	1,577	0	1,411
336	Transportation Equipment	46,361	45,350	26,708	Q	203	D	Q	D	D	1,975	4,542
336110	Automobile and Light Duty Motor Vehicle Manufacturing	7,991	7,847	4,389	0	1	D	0	D	D	1,015	473
3364	Aerospace Product and Parts	9,563	9,156	5,470	Q	192	681	37	3	895	Q	1,212
336411	Aircraft	2,648	2,470	1,465	0	D	D	0	0	239	0	174
337	Furniture and Related Products	Q	Q	2,740	Q	Q	0	*	Q	314	Q	936
339	Miscellaneous	9,632	9,317	6,482	Q	10	0	154	Q	429	Q	Q
	Total	811,473	794,011	529,281	16,706	8,533	4,405	16,989	1,391	61,101	43,576	112,029

Data source: U.S. Energy Information Administration, Office of Energy Demand and Integrated Statistics, Form EIA-846, 2022 Manufacturing Energy Consumption Survey

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

^a The Bureau of the Census classifies establishments using the 2022 North American Industry Classification System (NAICS).

^b The environmental restrictions related to air quality limiting 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 require the purchase of 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%.

NA=Not available.

The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure protection of the confidential source data (Project No. 7504703, Disclosure Review Board (DRB) approval number: CBDRB-FY25-0054).

		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	3.2	3.3	3.9	18.6	14.4	57.4	45.3	27.7	24.1	10.7	9.6
3112	Grain and Oilseed Milling	2.9	3.1	3.9	6.9	38.2	64.7	0.0	X	17.8	0.0	4.8
311221	Wet Corn Milling and Starch Manufacturing	0.0	0.0	0.0	X	X	X	X	X	0.0	0.0	0.0
31131	Sugar Manufacturing	0.0	0.0	0.0	0.0	X	X	X	0.0	0.0	0.0	0.0
3114	Fruit and Vegetable Preserving and Specialty Food	3.0	3.0	3.9	19.1	87.7	X	45.2	58.6	19.8	10.0	9.3
3115	Dairy Product Manufacturing	4.0	4.2	5.5	75.9	93.8	X	29.0	31.0	12.3	8.3	10.0
3116	Animal Slaughtering and Processing	4.0	4.1	5.7	29.2	8.5	62.3	0.0	43.0	15.4	11.5	7.9
312	Beverage and Tobacco Products	17.9	18.7	5.3	80.6	69.9	96.6	30.4	51.0	57.7	20.7	17.5
3121	Beverages	18.8	19.7	5.8	80.7	70.1	96.6	30.4	51.0	64.1	20.7	17.6
3122	Tobacco	0.0	0.0	0.0	0.0	0.0	X	X	X	0.0	X	0.0
313	Textile Mills	6.5	6.6	7.7	26.6	5.7	X	0.0	X	53.9	52.2	19.7
314	Textile Product Mills	13.3	13.3	17.1	37.1	X	X	63.7	X	27.5	X	51.7
315	Apparel	11.4	11.4	13.3	61.7	73.3	X	31.9	X	36.9	X	31.7
316	Leather and Allied Products	4.9	4.9	4.6	43.6	33.2	X	93.3	16.6	23.6	21.5	15.9
321	Wood Products	6.1	6.6	8.2	21.5	18.7	39.4	4.2	55.9	9.9	22.2	13.9
321113	Sawmills	1.9	2.2	2.7	36.5	11.8	33.6	1.6	0.0	12.6	12.6	7.6
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	2.7	2.7	3.2	3.6	59.5	0.0	0.0	87.5	18.8	11.4	5.0
321219	Reconstituted Wood Products	3.2	3.2	3.6	0.0	X	X	X	X	0.0	X	0.7
3219	Other Wood Products	20.8	21.1	28.4	63.9	27.4	69.4	76.9	67.5	17.3	41.5	34.9
322	Paper	2.4	2.5	3.5	D	25.4	D	0.0	X	5.2	8.0	9.5
322110	Pulp Mills	0.0	0.0	0.0	0.0	0.0	0.0	0.0	X	0.0	0.0	0.0
322120	Paper Mills	0.0	0.0	0.0	X	0.0	0.0	0.0	X	0.0	0.0	0.0
322130	Paperboard Mills	0.0	0.0	0.0	D	0.0	D	0.0	X	0.0	0.0	0.0
323	Printing and Related Support	12.3	10.7	14.0	63.7	63.4	X	96.2	86.0	9.2	58.4	26.8
324	Petroleum and Coal Products	0.1	0.1	0.1	4.8	9.1	0.1	1.4	3.4	0.2	3.1	0.6
324110	Petroleum Refineries	0.0	0.0	0.0	X	D	D	0.0	X	0.0	X	0.0
324121	Asphalt Paving Mixture and Block	3.9	3.9	5.7	5.5	D	D	D	D	10.3	14.3	9.4
324122	Asphalt Shingle and Coating Materials	1.1	1.1	1.3	0.0	X	0.0	X	D	6.4	0.0	D
324191	Petroleum Lubricating Oil and Grease Manufacturing	1.6	1.6	1.9	0.0	2.4	X	D	X	D	0.0	12.6
324199	All Other Petroleum and Coal Products Manufacturing	0.0	0.0	0.0	X	0.0	X	D	X	D	X	D
325	Chemicals	3.1	3.1	2.0	3.6	10.4	0.0	4.2	28.4	5.4	10.7	16.0
325110	Petrochemicals	0.0	0.0	0.0	X	X	X	X	X	0.0	X	0.0
325120	Industrial Gases	16.0	16.2	1.5	X	X	X	X	X	3.0	95.0	32.6
325180	Other Basic Inorganic Chemical Manufacturing	2.8	2.7	2.6	2.2	2.6	X	1.7	X	9.8	0.0	29.3
325193	Ethyl Alcohol	2.6	2.6	3.0	19.3	27.3	X	66.0	X	0.0	28.4	12.7
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	0.0	0.0	0.0	D	X	0.0	D	X	X	D	0.0
325199	All Other Basic Organic Chemical Manufacturing	2.3	2.4	3.2	0.0	D	D	5.9	X	12.0	17.5	7.1
325211	Plastics Materials and Resins	4.0	4.0	4.8	33.3	X	X	0.0	X	14.9	6.4	13.2
325212	Synthetic Rubber	0.5	0.5	0.0	D	0.0	X	0.0	0.0	0.0	D	0.0
325220	Artificial and Synthetic Fibers and Filaments	2.2	2.2	2.7	X	0.0	X	X	X	0.0	0.0	0.0
325311	Nitrogenous Fertilizers	0.0	0.0	0.0	0.0	D	D	D	0.0	0.0	D	0.0
325312	Phosphatic Fertilizers	0.0	0.0	0.0	0.0	0.0	X	X	X	0.0	D	D
3254	Pharmaceuticals and Medicines	5.1	5.4	7.7	21.3	D	0.0	D	39.6	18.7	0.0	11.8
325412	Pharmaceutical Preparation	4.8	5.0	3.9	21.3	96.5	0.0	14.1	39.6	27.2	0.0	21.4
325992	Photographic Film, Paper, Plate, Chemical, and Copy Toner Manufacturing	0.0	0.0	0.0	X	0.0	X	X	X	0.0	0.0	0.0
326	Plastics and Rubber Products	18.6	18.7	29.9	56.9	68.8	X	97.6	99.0	29.0	45.1	32.8
327	Nonmetallic Mineral Products	26.5	26.7	3.3	13.6	7.9	0.0	0.1	26.5	9.6	94.4	36.7
327120	Clay Building Material and Refractories	2.5	2.5	2.5	0.0	X	X	0.0	85.2	9.4	12.2	11.2
327211	Flat Glass	1.2	1.2	1.1	0.0	0.0	0.0	X	0.0	53.2	X	0.0
327212	Other Pressed and Blown Glass and Glassware	0.7	0.9	1.1	6.8	93.4	X	X	X	0.8	28.0	0.1
327213	Glass Containers	0.1	0.1	0.1	X	X	X	0.0	X	X	0.0	0.0

327215	Glass Products from Purchased Glass	2.1	2.1	1.7	34.1	72.3	X	83.8	18.3	1.2	3.6	8.8
327310	Cements	6.1	6.1	10.7	X	0.0	X	0.0	X	11.2	X	0.1
327410	Lime	0.0	0.0	0.0	0.0	0.0	X	X	X	0.0	0.0	0.0
327420	Gypsum	3.7	3.7	4.2	X	X	X	X	X	D	X	D
327993	Mineral Wool	13.1	14.0	2.3	0.0	6.5	X	X	X	84.3	0.0	63.4
331	Primary Metals	0.2	0.3	0.3	4.1	1.3	0.0	0.5	28.1	3.1	3.0	1.2
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	3.4	3.5	D	65.3	0.0	0.0	24.2	D	6.6	D	3.7
3313	Alumina and Aluminum Production and Processing	0.2	0.2	D	0.0	1.6	0.0	0.0	D	3.7	D	2.4
331314	Secondary Smelting and Alloying of Aluminum	0.0	0.0	0.0	X	0.0	0.0	X	X	0.0	D	D
331315	Aluminum Sheet, Plate and Foils	0.5	0.5	0.6	X	X	X	0.0	D	0.0	D	D
331318	Other Aluminum Rolling, Drawing and Extruding	1.4	1.4	1.8	0.0	36.1	X	X	X	32.9	19.1	3.1
3314	Nonferrous Metal (except Aluminum) Production and Processing	0.9	0.9	1.0	4.7	24.3	X	15.1	X	12.1	3.9	4.4
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	0.1	0.1	0.1	X	0.0	X	0.0	X	0.0	89.1	0.2
3315	Foundries	1.3	1.3	1.0	27.9	3.4	0.0	17.8	X	9.1	18.4	5.2
331511	Iron Foundries	2.3	2.3	1.2	X	3.8	X	27.7	X	25.4	53.5	16.8
331523	Nonferrous Metal Die-Casting Foundries	2.3	2.3	3.0	0.0	15.4	0.0	67.0	X	1.3	3.6	2.9
331524	Aluminum Foundries, except Die-Casting	3.5	3.5	3.0	51.8	0.0	X	86.6	X	X	3.4	10.8
332	Fabricated Metal Products	15.4	15.5	22.0	D	64.6	D	64.9	D	D	51.0	24.1
333	Machinery	11.1	11.3	12.4	53.5	49.3	X	93.0	97.1	27.7	43.5	23.9
334	Computer and Electronic Products	15.3	15.5	11.4	0.0	60.6	3.5	75.3	52.6	81.0	6.5	13.8
334413	Semiconductors and Related Devices	2.2	2.2	5.7	0.0	X	0.0	86.4	X	33.9	0.0	8.4
335	Electrical Equip., Appliances, and Components	10.1	10.4	14.4	98.2	66.3	88.9	31.1	87.7	21.0	X	27.5
336	Transportation Equipment	6.3	6.4	8.7	80.7	11.6	D	53.7	D	D	15.0	15.9
336110	Automobile and Light Duty Motor Vehicle Manufacturing	1.1	1.1	1.5	X	0.0	D	X	D	D	5.8	0.7
3364	Aerospace Product and Parts	5.3	5.6	3.4	80.7	11.0	0.4	43.9	0.0	40.1	54.4	7.3
336411	Aircraft	5.6	6.0	8.8	X	D	D	X	X	0.3	X	42.9
337	Furniture and Related Products	50.9	51.9	14.7	95.7	56.9	X	0.0	74.8	43.1	54.6	27.9
339	Miscellaneous	16.4	16.9	21.3	56.5	21.1	X	8.1	65.6	40.1	53.5	52.7
	Total	3.0	3.0	2.8	32.8	11.0	3.4	11.9	23.3	8.4	36.9	7.4

Data source: U.S. Energy Information Administration, Office of Energy Demand and Integrated Statistics, Form EIA-846, 2022 *Manufacturing Energy Consumption Survey*

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

^a The Bureau of the Census classifies establishments using the 2022 North American Industry Classification System (NAICS).

^b The environmental restrictions related to air quality limiting 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 require the purchase of 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%.

NA=Not available.

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

The Census Bureau has reviewed this data product to ensure appropriate access, use, and disclosure protection of the confidential source data (Project No. 7504703, Disclosure Review Board (DRB) approval number: CBDRB-FY25-0054).