Table 10.25 Reasons that made residual fuel oil unswitchable, 2022

Level: National data Row: NAICS codes

Column: Reasons that made quantity unswitchable

Unit: Thousand barrels

Non switchable amount attributed to:

NAICS		Total amount of residual fuel oil	Total amount of unswitchable residual	Equipment is not capable of using	Switching adversely affects	Unavailable alternative	Environmental	Long-term contract	Unavailable storage for	Another	Combinations of	Don't know/
code	Subsector and industry	consumed as fuel	fuel oil fuel use	another fuel	the products	fuel supply	restrictions ^b	in place ^c	alternative fuels ^d	reason	cols. F, G, H, I, J, and K	
Total United States * * * * 0 0 0 * 0 0 *												
311	Food	*	*		0	0		0	0	0	0	
3112	Grain and Oilseed Milling	*	0	0	0	0		.	0	0	0	
311221	Wet Corn Milling and Starch Manufacturing	0	0	0	0	0			0	0	0	
31131	Sugar Manufacturing	*	*		0	0			0	0	0	
3114	Fruit and Vegetable Preserving and Specialty Food	*	*	0	0	0			0_	0	0	
3115	Dairy Product Manufacturing	*			0	0			0	0	0	
3116	Animal Slaughtering and Processing			0	0	0		0	0	0	0	
312	Beverage and Tobacco Products	0	0	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	0	
313	Textile Mills	0		0	0	0			0	0	0	
314	Textile Product Mills	0	0	0	0	0			0 0	0	0	
315	Apparel	0		0	0	0				0	0	
316	Leather and Allied Products	0	0	0	0	0			0	0	0	
321	Wood Products			* *	0	0			0	0	0	
321113	Sawmills			·*	0	0			0	0	0	
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing			·*	0	0			0	0	0	
321219	Reconstituted Wood Products				0	0			0	0	0	
3219	Other Wood Products	0	0	0	0	0			0	0	0	
322	Paper	1	1	1	0		0		0		0	
322110	Pulp Mills			·*	0	0			0	0	0	
322120	Paper Mills			·*	0	0	-		0		0	
322130	Paperboard Mills				0		0		0	0	0	
323	Printing and Related Support			0	0	0			0	0	0	
324	Petroleum and Coal Products				0		0		0	0	0	
324110	Petroleum Refineries			0	0 0	0	0		0 0	0 0	0	
324121	Asphalt Paving Mixture and Block	0							0			
324122	Asphalt Shingle and Coating Materials	0		0	0 0	0				0	0	
324191 324199	Petroleum Lubricating Oil and Grease Manufacturing					0			0	0	0	
	All Other Petroleum and Coal Products Manufacturing Chemicals	0	0 0	0	0	0				0	0	
325	Petrochemicals		0			0					0	
325110 325120	Industrial Gases					0					0	
			0							0		
325180 325193	Other Basic Inorganic Chemical Manufacturing Ethyl Alcohol	0 0	u	0		0			0	0	0	
325193 325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals		<u>U</u>	0	0	0			0	0	0	
325194	Cyclic Crudes, Intermediate and Gum and Wood Chemicals All Other Basic Organic Chemical Manufacturing		0 0		0	0		.		0	0	
325199	Plastics Materials and Resins					0					0	
325211	Synthetic Rubber					0				0	0	
			0									
325220 325311	Artificial and Synthetic Fibers and Filaments Nitrogenous Fertilizers	0 0	u	<u>0</u>	0 0	0		0		0	0 0	
325311	Nitrogenous Fertilizers Phosphatic Fertilizers		0 0	0	0	0				0	0	
325312			0 0	0		0			0		0	
3254	Pharmaceuticals and Medicines	0	<u>U</u> 0	0	0	0			0	0	0	
	Pharmaceutical Preparation									0		
325992	Photographic Film, Paper, Plate, Chemical, and Copy Toner Manufacturing Plastics and Rubber Products	0	0	0	0	0			0	0	0 0	
326 327	Nonmetallic Mineral Products	*	*	<u>U</u>		0					0	
341	NOTHINE CALLE AND								U			

327120	Clay Building Material and Refractories	0	0	0	0	0	0	0	0	0	0	0
327211	Flat Glass	0	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	0
327213	Glass Containers	0	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	0
327310	Cements	0	0	0	0	0	0	0	0	0	0	0
327410	Lime	0	0	0	0	0	0	0	0	0	0	0
327420	Gypsum	*	*	*	0	0	0	0	0	0	0	*
327993	Mineral Wool	0	0	0	0	0	0	0	0	0	0	0
331	Primary Metals	*	*	*	0	0	0	0	0	0	0	*
331110	Iron and Steel Mills and Ferroalloys	*	*	*	0	0	0	0	0	0	0	*
3312	Steel Products from Purchased Steel	0	0	0	0	0	0	0	0	0	0	0
3313	Alumina and Aluminum Production and Processing	0	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	0
331315	Aluminum Sheet, Plate and Foils	0	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	0
3314	Nonferrous Metal (except Aluminum) Production and Processing	0	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	0
3315	Foundries	0	0	0	0	0	0	0	0	0	0	0
331511	Iron Foundries	0	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	0
331524	Aluminum Foundries, except Die-Casting	0	0	0	0	0	0	0	0	0	0	0
332	Fabricated Metal Products	*	*	*	0	0	0	0	0	0	0	0
333	Machinery	0	0	0	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	0
336	Transportation Equipment	*	*	*	0	0	0	0	0	0	0	0
336110	Automobile and Light Duty Motor Vehicle Manufacturing	0	0	0	0	0	0	0	0	0	0	0
3364	Aerospace Product and Parts	0	0	0	0	0	0	0	0	0	0	0
336411	Aircraft	0	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	0
339	Miscellaneous	0	0	0	0	0	0	0	0	0	0	0
	Total	2	2	1	0	*	*	0	0	*	0	1
										· ·		

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.

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).

^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.

RSE Table 10.25 Relative standard errors for table 10.25

Unit: Percentage

Non switchable amount attributed	
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NAICS		Total amount of residual fuel oil	Total amount of unswitchable residual	Equipment is not capable of using	Switching adversely affects	Unavailable alternative	Environmental	Long-term contract	Unavailable storage for	Another	Combinations of	Don't know/
code ^a	Subsector and industry	consumed as fuel	fuel oil fuel use	another fuel	the products	fuel supply	restrictions ^b	in place ^c	alternative fuels ^d	reason col	s. F, G, H, I, J, and K	didn't answer
311	Food	40.5	Total United States 43.5	63.9	Х	X	0.0	Х	X	Х	X	0.0
3112	Grain and Oilseed Milling	15.6	X	X	X	X	X	X	X	X	X	X
311221	Wet Corn Milling and Starch Manufacturing	X	X	X	X	X	X	X	X	X	X	X
31131	Sugar Manufacturing	0.0	0.0	0.0	X	X	X	X	X	X	X	X
3114	Fruit and Vegetable Preserving and Specialty Food	0.0	0.0	X	X	X	X	X	X	X	X	0.0
3115	Dairy Product Manufacturing	74.0	79.2	79.2	X	X	X	X	X	X	X	X
3116	Animal Slaughtering and Processing	0.0	0.0	X	X	X	0.0	X	X	X	X	X
312	Beverage and Tobacco Products	X	X	Х	X	X	X	X	Х	X	X	X
3121	Beverages	X	X	Х	X	X	X	X	Х	X	X	X
3122	Tobacco	X	X	Х	X	X	X	X	Х	X	X	X
313	Textile Mills	X	X	Х	X	X	Х	X	Х	X	Х	Х
314	Textile Product Mills	X	X	X	X	X	X	X	X	X	X	X
315	Apparel	X	X	X	X	X	X	X	X	X	X	X
316	Leather and Allied Products	Х	X	X	Х	Х	Х	Х	X	Х	Х	X
321	Wood Products	37.3	37.3	28.9	X	X	X	X	X	X	X	39.7
321113	Sawmills	38.7	38.7	71.0	X	X	X	X	X	X	X	39.7
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	0.0	0.0	0.0	X	X	X	X	X	X	X	X
321219	Reconstituted Wood Products	0.0	0.0	0.0	X	X	X	X	X	X	X	X
3219	Other Wood Products	X	X	X	X	X	X	X	X	X	X	X
322	Paper	0.9	1.1	0.0	X	0.0	X	X	X	0.0	X	3.2
322110	Pulp Mills	0.0	0.0	0.0	X	X	X	X	X	X	X	0.0
322120	Paper 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	X	X	X	X	X	0.0
323	Printing and Related Support	99.0	99.0	X	X	X	X	X	X	X	X	99.0
324	Petroleum and Coal Products	15.9	20.1	22.8	X	57.4	X	X	X	X	X	63.0
324110	Petroleum Refineries	0.0	0.0	X	X	X	X	X	X	X	X	0.0
324121	Asphalt Paving Mixture and Block	17.7	20.5	22.8	X	57.4	X	X	X	X	X	75.4
324122	Asphalt Shingle and Coating Materials	X	X	X	X	X	X	X	X	X	X	X
324191	Petroleum Lubricating Oil and Grease Manufacturing	X	X	X	X	X	X	X	X	X	X	X
324199	All Other Petroleum and Coal Products Manufacturing	X	X	X	X	X	X	X	X	X	X	X
325	Chemicals	0.0	X	X	X	X	X	X	X	X	X	X
325110	Petrochemicals	X	X	X	X	X	X	X		X	X	<u>X</u>
325120	Industrial Gases	X	X	X	X	X	X	X	X	X	X	<u>X</u>
325180 325193	Other Basic Inorganic Chemical Manufacturing Ethyl Alcohol	XX	x x	X	X	X	x	X	X	X	x x	X
325193	Cyclic Crudes, Intermediate and Gum and Wood Chemicals	X	X	X	X	X	X	X	X	X	X	X
325194	All Other Basic Organic Chemical Manufacturing	0.0	X	X	X	X	X	x	X	X	X	X
325211	Plastics Materials and Resins	X	X	^			^_	X	^_	<u>^</u>	X	<u>^</u>
325211	Synthetic Rubber		X	x	^_	^	^	x	^_	^X	^_	^
325212	Artificial and Synthetic Fibers and Filaments			X		X	x		^_	X	x	x
325220	Nitrogenous Fertilizers		X	X			X		^_X	X	^_	^
325311	Phosphatic Fertilizers	0.0	X	X	X	X	X	X	X	X	X	X
325312	Pharmaceuticals and Medicines	X	X	X			X		^_X	X	^_	X
325412	Pharmaceutical Preparation			X	x	X	^	X	^_X	X	x	X
325992	Photographic Film, Paper, Plate, Chemical, and Copy Toner Manufacturing		X	X			X	······································	^X	X	^_	X
326	Plastics and Rubber Products	90.7	99.0	X	X	X	X	X	X	X	X	99.0
327	Nonmetallic Mineral Products	0.0	0.0	0.0			X		^_X	X	^_	0.0
327120	Clay Building Material and Refractories	X	X	X	X	X	X	X	X	X	X	X
327211	Flat Glass	X	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	X
327213	Glass Containers	X	X	X	X	X	X	X	X	X	X	X
												

327215	Glass Products from Purchased Glass	X	X	X	X	X	X	X	X	Х	X	X
327310	Cements	X	Х	X	X	X	X	X	X	Х	X	X
327410	Lime	X	Х	X	X	X	X	Х	X	Х	X	X
327420	Gypsum	0.0	0.0	0.0	X	X	X	Х	X	Х	X	0.0
327993	Mineral Wool	X	Х	Х	X	Х	X	Х	Х	Х	X	Х
331	Primary Metals	0.0	0.0	0.0	X	X	X	Х	X	Х	X	0.0
331110	Iron and Steel Mills and Ferroalloys	0.0	0.0	0.0	X	Х	X	Х	Х	Х	X	0.0
3312	Steel Products from Purchased Steel	X	Х	X	X	X	X	Х	X	Х	X	Х
3313	Alumina and Aluminum Production and Processing	X	Х	Х	X	Х	X	Х	Х	Х	X	Х
331314	Secondary Smelting and Alloying of Aluminum	X	Х	X	X	X	X	Х	X	Х	X	Х
331315	Aluminum Sheet, Plate and Foils	Х	Х	X	X	X	Х	Х	Х	Х	X	Х
331318	Other Aluminum Rolling, Drawing and Extruding	X	Х	Х	X	X	X	Х	X	Х	X	X
3314	Nonferrous Metal (except Aluminum) Production and Processing	Х	Х	X	X	X	Х	Х	Х	Х	X	Х
331410	Nonferrous Metal (except Aluminum) Smelting and Refining	X	Х	Х	X	X	X	Х	X	Х	X	X
3315	Foundries	Х	Х	X	X	X	Х	Х	Х	Х	X	Х
331511	Iron Foundries	X	Х	Х	X	X	X	Х	X	Х	X	X
331523	Nonferrous Metal Die-Casting Foundries	X	Х	X	X	X	X	Х	X	Х	X	Х
331524	Aluminum Foundries, except Die-Casting	X	Х	Х	X	Х	X	Х	Х	Х	X	Х
332	Fabricated Metal Products	99.5	99.5	99.5	X	X	X	Х	X	Х	X	Х
333	Machinery	X	Х	Х	X	Х	X	Х	Х	Х	X	Х
334	Computer and Electronic Products	0.0	0.0	0.0	X	X	X	Х	X	Х	X	Х
334413	Semiconductors and Related Devices	0.0	0.0	0.0	X	Х	X	Х	Х	Х	X	Х
335	Electrical Equip., Appliances, and Components	X	Х	X	X	X	X	Х	X	Х	X	Х
336	Transportation Equipment	96.5	96.5	96.5	X	Х	X	Х	Х	Х	X	Х
336110	Automobile and Light Duty Motor Vehicle Manufacturing	X	X	Х	X	X	X	Х	X	Х	X	X
3364	Aerospace Product and Parts	X	Х	Х	X	Х	X	Х	Х	Х	X	Х
336411	Aircraft	X	Х	X	X	X	X	Х	X	Х	X	Х
337	Furniture and Related Products	X	X	X	X	X	X	Х	X	X	X	X
339	Miscellaneous	X	Х	Х	X	X	X	Х	X	Х	X	X
	Total	3.5	3.7	6.3	Х	26.0	0.0	Х	Х	0.0	Х	3.3

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.

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).

^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.