
Energy-Related Products

Cynthia B. Foreso, Coordinator
(202) 205-3348
cynthia.foreso@usitc.gov

Change in 2003 from 2002:

U.S. trade deficit: Increased by \$35.2 billion (37 percent) to \$130.5 billion
U.S. exports: Increased by \$2.2 billion (15 percent) to \$16.6 billion
U.S. imports: Increased by \$37.3 billion (34 percent) to \$147.2 billion

Historically, the United States has been the world's largest consumer of energy products and has maintained a trade deficit in the energy sector. In 2003, the overall U.S. trade deficit in energy-related products increased by 37 percent primarily because of the rise in prices for crude petroleum and natural gas (see table EP-1). World prices for crude petroleum fluctuated from \$15.56 per barrel in 1999 to \$27.48 per barrel in 2003. During the same period, U.S. natural gas prices increased from a low of \$2.19 per thousand cubic feet to a record 30-year high of \$5.09 per thousand cubic feet. During 1999-2003, the trade deficit in this sector more than doubled.

The energy-related products with the largest year-to-year shifts (see table EP-2), in terms of value, included increased U.S. exports of electricity, crude petroleum, and natural gas; and increased imports of natural gas, crude petroleum, coal, and petroleum products.¹ Analyses of these shifts for crude petroleum, petroleum products, and natural gas are presented later in this chapter.

The value of U.S. exports of electricity increased in 2003 as a direct result of the increase in the price of natural gas, which is the primary fuel (fossil or renewable) used to generate electricity (see Natural Gas and Components). Fossil fuels account for an average of 75 percent of total U.S. electricity generation. The cost of fossil fuels at electric-generating plants increased from an average \$1.52 per million Btu in 2002 to \$2.50 per million Btu in 2003; as a result, retail prices for electricity to industrial and residential consumers increased. The United States and Canada, which are each other's only significant trading partner for electricity, share a sophisticated system of interconnected grids used to transmit electricity across the border with trade between the two countries dependent on which side of the grid is operating at any particular time. The quantity of U.S. imports of electricity declined from 36 billion kilowatthours in 2002 to 28 billion kilowatthours in 2003, whereas U.S. exports rose from 13 billion kilowatthours in 2002 to 24 billion kilowatthours in 2003. Although there is some negligible, sporadic trade with Mexico, there is no synchronized interconnecting grid in the border region.

U.S. exports of coal increased from 39.6 million short tons in 2002 to 43.6 million short tons in 2003.² U.S. imports of coal, which accounted for only 2 percent of U.S. consumption in 2003, increased 58 percent from 16.9 million short tons in 2002 to 26.9 million short tons in 2003. Nearly all of this increase was Indonesian coal shipped to the west coast of the United States.³

¹ The value of U.S. imports of nuclear materials increased 35 percent in 2003 from 2002 levels; however, these imports are actually uranium imported for enrichment and subsequently reexported.

² The United States accounts for the largest share of the world's recoverable coal reserves (25 percent) and is a major world exporter of coal.

³ Derived from official statistics of the U.S. Department of Energy and U.S. Department of Energy, Energy Information Administration, *Short-Term Energy Outlook*, 2003 and 2004 reports.

Table EP-1

Energy-related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 1999-2003¹

Item	1999	2000	2001	2002	2003	Change, 2003 from 2002	
						Absolute	Percent
<i>Million dollars</i>							
U.S. exports of domestic merchandise:							
Canada	2,370	2,896	3,862	2,889	4,296	1,408	48.7
Mexico	2,311	4,342	3,296	3,274	2,897	-376	-11.5
Saudi Arabia	33	42	37	34	38	4	10.9
Venezuela	79	149	111	121	184	63	52.1
Nigeria	26	17	24	37	22	-15	-39.9
United Kingdom	257	257	278	201	206	4	2.2
Angola	1	1	1	3	3	(²)	8.9
Russia	10	142	216	231	125	-105	-45.6
Algeria	14	14	16	19	23	4	19.4
Iraq	0	0	0	0	(²)	(²)	(³)
All other	6,856	7,669	7,231	7,622	8,843	1,221	16.0
Total	11,957	15,529	15,073	14,431	16,639	2,208	15.3
EU-15	1,912	2,072	2,146	1,731	1,714	-17	-1.0
OPEC	245	309	273	300	384	84	28.0
Latin America	3,746	6,422	5,161	5,290	6,159	869	16.4
CBERA	704	1,178	1,026	1,213	2,271	1,059	87.3
Asia	3,096	3,083	2,793	3,305	3,348	43	1.3
Sub-Saharan Africa	150	158	149	193	166	-27	-14.0
Central and Eastern Europe	42	70	40	30	50	20	67.6
U.S. imports of merchandise for consumption:							
Canada	17,766	31,860	34,598	29,903	41,579	11,676	39.0
Mexico	6,280	11,356	9,103	11,567	14,792	3,225	27.9
Saudi Arabia	6,679	12,478	10,625	10,264	14,538	4,274	41.6
Venezuela	8,480	14,863	12,030	11,798	13,791	1,993	16.9
Nigeria	3,720	8,706	8,627	5,773	10,028	4,255	73.7
United Kingdom	2,278	3,919	3,298	4,399	5,436	1,037	23.6
Angola	2,320	3,321	2,769	3,204	4,137	932	29.1
Russia	1,056	1,725	1,746	2,591	3,932	1,341	51.8
Algeria	1,559	2,317	2,030	1,827	3,365	1,538	84.2
Iraq	2,721	4,148	3,735	2,748	3,297	549	20.0
All other	16,616	27,956	25,665	25,726	32,288	6,562	25.5
Total	69,473	122,650	114,226	109,800	147,183	37,382	34.0
EU-15	4,444	8,338	7,614	8,778	11,453	2,674	30.5
OPEC	24,856	45,389	39,424	34,506	47,416	12,910	37.4
Latin America	20,816	35,997	29,945	32,598	41,240	8,642	26.5
CBERA	1,479	3,117	2,689	2,900	4,600	1,700	58.6
Asia	2,055	3,021	2,720	2,284	2,611	327	14.3
Sub-Saharan Africa	8,001	15,016	14,271	11,713	17,674	5,962	50.9
Central and Eastern Europe	44	5	131	201	168	-33	-16.4

See footnote(s) at end of table.

Table EP-1--Continued

Energy-related products: U.S. exports of domestic merchandise, imports for consumption, and merchandise trade balance, by selected countries and country groups, 1999-2003¹

Item	1999	2000	2001	2002	2003	Change, 2003 from 2002	
						Absolute	Percent
	<i>Million dollars</i>						
U.S. merchandise trade balance:							
Canada	-15,396	-28,964	-30,736	-27,014	-37,283	-10,268	-38.0
Mexico	-3,970	-7,014	-5,807	-8,294	-11,894	-3,601	-43.4
Saudi Arabia	-6,646	-12,436	-10,588	-10,230	-14,500	-4,270	-41.7
Venezuela	-8,401	-14,714	-11,919	-11,677	-13,607	-1,930	-16.5
Nigeria	-3,694	-8,690	-8,603	-5,736	-10,006	-4,270	-74.4
United Kingdom	-2,021	-3,662	-3,020	-4,197	-5,230	-1,033	-24.6
Angola	-2,318	-3,320	-2,767	-3,201	-4,133	-932	-29.1
Russia	-1,046	-1,583	-1,531	-2,360	-3,806	-1,446	-61.3
Algeria	-1,544	-2,303	-2,014	-1,808	-3,342	-1,535	-84.9
Iraq	-2,721	-4,148	-3,735	-2,748	-3,297	-549	-20.0
All other	-9,760	-20,287	-18,434	-18,103	-23,445	-5,341	-29.5
Total	-57,516	-107,121	-99,153	-95,369	-130,544	-35,175	-36.9
EU-15	-2,532	-6,266	-5,468	-7,048	-9,738	-2,691	-38.2
OPEC	-24,611	-45,080	-39,152	-34,206	-47,033	-12,826	-37.5
Latin America	-17,070	-29,575	-24,784	-27,308	-35,081	-7,773	-28.5
CBERA	-775	-1,939	-1,664	-1,687	-2,328	-642	-38.0
Asia	1,041	62	73	1,022	737	-285	-27.8
Sub-Saharan Africa	-7,850	-14,859	-14,122	-11,520	-17,508	-5,989	-52.0
Central and Eastern Europe	-2	65	-91	-171	-118	53	31.0

¹Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export.²Less than \$500,000.³Not meaningful for purposes of comparison.

Note.—Calculations based on unrounded data. The countries shown are those with the largest total U.S. trade (U.S. imports plus exports) in these products in 2003.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table EP-2
Leading changes in U.S. exports and imports of energy-related products, 1999-2003

Industry/commodity group	1999	2000	2001	2002	2003	Change, 2003 from 2002	
						Absolute	Percent
<i>Million dollars</i>							
U.S. EXPORTS:							
Increases:							
Petroleum products (CH005)	6,599	9,562	8,936	8,662	9,783	1,121	12.9
Electrical energy (CH001)	206	398	1,258	304	716	412	135.9
Natural gas and components (CH006)	759	1,286	1,109	1,675	2,074	399	23.8
Coal, coke, and related chemical products (CH003) ...	2,671	2,718	2,354	2,188	2,360	171	7.8
Crude petroleum (CH004)	772	444	177	92	155	63	69.0
Nuclear materials (CH002)	950	1,121	1,239	1,510	1,551	42	2.8
TOTAL	11,957	15,529	15,073	14,431	16,639	2,208	15.3
U.S. IMPORTS:							
Increases:							
Crude petroleum (CH004)	31,642	56,546	49,673	54,704	73,527	18,823	34.4
Natural gas and components (CH006)	11,042	19,157	23,054	18,609	28,885	10,276	55.2
Petroleum products (CH005)	22,079	39,787	34,372	30,594	37,280	6,687	21.9
Nuclear materials (CH002)	1,636	1,989	2,036	2,144	2,892	748	34.9
Coal, coke, and related chemical products (CH003) ...	1,741	2,460	2,411	2,589	3,217	628	24.2
Electrical energy (CH001)	1,334	2,711	2,681	1,160	1,382	221	19.1
TOTAL	69,473	122,650	114,226	109,800	147,183	37,382	34.0

Note.-Calculations based on unrounded data.

Source: Compiled from official statistics of the U.S. Department of Commerce.

COMMODITY ANALYSIS

Crude Petroleum

Change in 2003 from 2002:

U.S. trade deficit: Increased by \$18.8 billion (34 percent) to \$73.4 billion

U.S. exports: Increased by \$63 million (69 percent) to \$155 million

U.S. imports: Increased by \$18.8 billion (34 percent) to \$73.5 billion

The U.S. trade deficit in crude petroleum increased 34 percent from 2002 to 2003, primarily because of the price of crude petroleum, which rose from \$22.51 per barrel in 2002 to \$27.48 per barrel in 2003. World prices for crude petroleum increased as a result of a combination of factors, including increased demand coupled with tight supplies (resulting in lower U.S. inventories), the threat of escalating global terrorism, and reduced production by OPEC.⁴ The quantity of crude petroleum exports increased from 9,000 barrels per day (b/d) in 2002 to 12,000 b/d in 2003.⁵ Historically, Canada, which accounted for 99.9 percent of the total quantity of U.S. crude petroleum exports in 2003, has been the only consistent market for these exports.

U.S. imports

U.S. imports of crude petroleum rose from 9.1 million b/d in 2002 to 9.6 million b/d in 2003, or by 5 percent. In terms of quantity, Saudi Arabia, Canada, Mexico, Venezuela, and Nigeria were the leading sources of U.S. imports of crude petroleum in 2003. OPEC, which accounts for nearly 70 percent of world reserves and 40 percent of world production of crude petroleum, was again the largest regional supplier to the U.S. market, accounting for 47 percent of total U.S. imports of crude petroleum. U.S. imports of crude petroleum continued to account for over 60 percent of domestic consumption as demand for crude petroleum increased and U.S. production continued to decline.

Cynthia B. Foreso
(202) 205-3348
cynthia.foreso@usitc.gov

⁴ U.S. Department of Energy, Energy Information Administration, *Short-Term Energy Outlook*, 2003 and 2004 reports.

⁵ U.S. exports of crude petroleum have been prohibited since 1973, except as approved by the U.S. Government. Exports to Canada are part of a commercial exchange agreement between refiners in the United States and Canada under the approval of the Secretary of the Department of Energy. In May 1996, the President determined that allowing exports of Alaskan North Slope (ANS) crude was in the national interest, thus ending the 23-year ban on ANS crude exports. However, the President can impose new export restrictions in the event of severe crude petroleum supply shortages.

Petroleum Products

Change in 2003 from 2002:

U.S. trade deficit: Increased by \$5.6 billion (25 percent) to \$27.5 billion

U.S. exports: Increased by \$1.1 billion (13 percent) to \$9.8 billion

U.S. imports: Increased by \$6.7 billion (22 percent) to \$37.3 billion

The U.S. trade deficit in petroleum products increased 25 percent in 2003 from 2002 levels primarily as a result of the increase in the average per barrel price for crude petroleum on the world market (see Crude Petroleum). The United States is a major world producer and consumer of petroleum products, with both production and consumption increasing by about 2 percent in 2003 from 2002 levels. In terms of quantity, U.S. exports of petroleum products are minimal, accounting for less than 5 percent of total U.S. production and less than 6 percent of total world exports of petroleum products. The quantity of U.S. exports of petroleum products, primarily distillate and residual fuel oils to Mexico and Canada, increased only 1 percent.

U.S. imports

While the value of U.S. imports of petroleum products in 2003 increased 22 percent from 2002 levels, the quantity of these imports remained relatively stable at 1.4 million b/d. U.S. imports of petroleum products, on average, account for less than 10 percent of domestic consumption. The primary sources of U.S. imports of petroleum products in 2003 continued to be Canada, Saudi Arabia, and Venezuela. The quantity of U.S. imports of gasoline increased by about 3 percent as demand remained strong despite a nearly 14 cents per gallon increase in U.S. retail prices from 2002 to 2003. The quantity of U.S. imports of distillate and residual fuel oils, used primarily as heating and bunker fuels, increased about 20 percent in 2003, as higher natural gas prices coupled with a colder winter encouraged some fuel switching.⁶

Cynthia B. Foreso
(202) 205-3348
cynthia.foreso@usitc.gov

⁶ U.S. Department of Energy, Energy Information Administration, *Energy Supply Monthly*, *Natural Gas Monthly* and *Short-Term Energy Outlook*, 2003 and 2004 reports.

Natural Gas and Components

Change in 2003 from 2002:

U.S. trade deficit: Increased by \$9.9 billion (58 percent) to \$26.8 billion

U.S. exports: Increased by \$399 million (24 percent) to \$2.1 billion

U.S. imports: Increased by \$10.3 billion (55 percent) to \$28.9 billion

The trade deficit for natural gas and components increased primarily because of the rise in the price of pipeline natural gas, which accounted for 64 percent of sector imports in 2003. The price increase is attributable to increased demand for natural gas for heating purposes beyond expected levels during January-March 2003, which forced suppliers to import additional gas from Canada at higher spot market prices.⁷ In addition, an effort to replenish diminished supplies during the normally lax summer months preserved a higher than normal price level. Finally, the long-term contract prices for natural gas are directly linked to, and can rise or fall with, prices for certain petroleum products (primarily distillate and residual fuel oils). As a result, rising crude petroleum prices contributed to the increased price for natural gas (see Crude Petroleum).

Although U.S. trade in pipeline natural gas is limited to Canada and Mexico, higher natural gas prices in 2003 accentuated the difference between imports and exports; the actual volumes traded changed only slightly. Although the value of the trade deficit for pipeline natural gas increased by \$6.1 billion from 2002 to 2003, the deficit, in terms of volume, declined more than 4 percent.

Exports of natural gas and components account for a minimal share of U.S. production, about 2 to 3 percent, and are generally shipped to Canada. Exports of natural gas and components increased 24 percent, from \$1.7 billion in 2002 to \$2.1 billion in 2003.

U.S. imports

Imports of natural gas and components increased 55 percent to \$28.9 billion in 2003. Canada accounted for 69 percent of U.S. imports of the products in this sector and more than 99 percent of pipeline natural gas imports. The value of these U.S. imports from Canada increased nearly 60 percent, reaching \$18.2 billion in 2003, whereas the volume of imports declined approximately 2 percent, from 110 billion cubic meters in 2002 to 108 billion cubic meters in 2003.

Eric Land
(202) 205-3349
eric.land@usitc.gov

⁷ U.S. Department of Energy, Energy Information Administration, *Energy Supply Monthly*, *Natural Gas Monthly* and *Short-Term Energy Outlook*, 2003 and 2004 reports.

Table EP-3

Energy-related products : U.S. trade for industry/commodity groups and subgroups, 1999-2003¹

USITC code ²	Industry/commodity group	1999	2000	2001	2002	2003	Change, 2003 from 2002	
							Absolute	Percent
<i>Million dollars</i>								
CH001	Electrical energy:							
	Exports	206	398	1,258	304	716	412	135.9
	Imports	1,334	2,711	2,681	1,160	1,382	221	19.1
	Trade balance	-1,127	-2,313	-1,423	-857	-666	191	22.3
CH002	Nuclear materials:							
	Exports	950	1,121	1,239	1,510	1,551	42	2.8
	Imports	1,636	1,989	2,036	2,144	2,892	748	34.9
	Trade balance	-686	-868	-797	-635	-1,341	-706	-111.2
CH003	Coal, coke, and related chemical products:							
	Exports	2,671	2,718	2,354	2,188	2,360	171	7.8
	Imports	1,741	2,460	2,411	2,589	3,217	628	24.2
	Trade balance	930	257	-57	-401	-857	-456	-113.8
CH004	Crude petroleum:							
	Exports	772	444	177	92	155	63	69.0
	Imports	31,642	56,546	49,673	54,704	73,527	18,823	34.4
	Trade balance	-30,870	-56,103	-49,496	-54,612	-73,372	-18,760	-34.4
CH005	Petroleum products:							
	Exports	6,599	9,562	8,936	8,662	9,783	1,121	12.9
	Imports	22,079	39,787	34,372	30,594	37,280	6,687	21.9
	Trade balance	-15,480	-30,224	-25,436	-21,931	-27,497	-5,566	-25.4
CH006	Natural gas and components:							
	Exports	759	1,286	1,109	1,675	2,074	399	23.8
	Imports	11,042	19,157	23,054	18,609	28,885	10,276	55.2
	Trade balance	-10,282	-17,870	-21,944	-16,934	-26,811	-9,877	-58.3

¹Import values are based on customs value; export values are based on f.a.s. value, U.S. port of export.

²This coding system is used by the U.S. International Trade Commission to identify major groupings and subgroupings of HTS import and export items for trade monitoring purposes

Note.—Calculations based on unrounded data.

Source: Compiled from official statistics of the U.S. Department of Commerce.

Table EP-4

Energy-related products sector: Profile of U.S. industry and market, by industry/commodity groups and subgroups, 1999-2003

USITC code	Industry/commodity group	1999	2000	2001	2002	2003	Percent change, 2003 from 2002
CH001	Electrical energy:						
	Number of establishments	3,225	3,225	3,225	3,225	3,225	0.0
	Employees (thousands)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
	Capacity utilization (percent)	100	100	100	100	100	0.0
	U.S. shipments (million dollars)	219,460	218,610	220,824	229,664	340,400	48.2
	U.S. exports (million dollars)	206	398	1,258	304	716	135.9
	U.S. imports (million dollars)	1,334	2,711	2,681	1,160	1,382	19.1
	Apparent U.S. consumption (million dollars)	220,587	220,923	222,247	230,521	341,066	48.0
	Trade balance (million dollars)	-1,127	-2,313	-1,423	-857	-666	22.3
	Ratio of imports to consumption (percent)	0.6	1.2	1.2	0.5	0.4	-20.0
	Ratio of exports to shipments (percent)	0.1	0.2	0.6	0.1	0.2	100.0
CH003	Coal, coke, and related chemical products:						
	Number of establishments	520	520	520	520	520	0.0
	Employees (thousands)	150.0	150.0	150.0	150.0	150.0	0.0
	Capacity utilization (percent)	90	90	90	90	90	0.0
	U.S. shipments (million dollars)	32,965	32,606	34,320	38,496	36,582	-5.0
	U.S. exports (million dollars)	2,671	2,718	2,354	2,188	2,360	7.8
	U.S. imports (million dollars)	1,741	2,460	2,411	2,589	3,217	24.2
	Apparent U.S. consumption (million dollars)	32,035	32,349	34,377	38,897	37,439	-3.7
	Trade balance (million dollars)	930	257	-57	-401	-857	-113.8
	Ratio of imports to consumption (percent)	5.4	7.6	7.0	6.7	8.6	28.4
	Ratio of exports to shipments (percent)	8.1	8.3	6.9	5.7	6.5	14.0
CH004	Crude petroleum:						
	Number of establishments	18,000	18,000	18,000	18,000	18,000	0.0
	Employees (thousands)	204.0	204.0	204.0	204.0	204.0	0.0
	Capacity utilization (percent)	100	100	100	100	100	0.0
	U.S. shipments (million dollars)	34,602	57,499	46,960	55,203	57,550	4.3
	U.S. exports (million dollars)	772	444	177	92	155	69.0
	U.S. imports (million dollars)	31,642	56,546	49,673	54,704	73,527	34.4
	Apparent U.S. consumption (million dollars)	65,472	113,602	96,456	109,815	130,922	19.2
	Trade balance (million dollars)	-30,870	-56,103	-49,496	-54,612	-73,372	-34.4
	Ratio of imports to consumption (percent)	48.3	49.8	51.5	49.8	56.2	12.9
	Ratio of exports to shipments (percent)	2.2	0.8	0.4	0.2	0.3	50.0

See footnote(s) at end of table.

Table EP-4—Continued

Energy-related products sector: Profile of U.S. industry and market, by industry/commodity groups and subgroups, 1999-2003

USITC code	Industry/commodity group	1999	2000	2001	2002	2003	Percent change, 2003 from 2002
CH005	Petroleum products:						
	Number of establishments	190	190	190	190	190	0.0
	Employees (thousands)	75.0	75.0	75.0	75.0	75.0	0.0
	Capacity utilization (percent)	90	90	90	90	90	0.0
	U.S. shipments (million dollars)	113,231	213,475	140,162	193,710	200,475	3.5
	U.S. exports (million dollars)	6,599	9,562	8,936	8,662	9,783	12.9
	U.S. imports (million dollars)	22,079	39,787	34,372	30,594	37,280	21.9
	Apparent U.S. consumption (million dollars)	128,711	243,699	165,598	215,641	227,972	5.7
	Trade balance (million dollars)	-15,480	-30,224	-25,436	-21,931	-27,497	-25.4
	Ratio of imports to consumption (percent)	17.2	16.3	20.8	14.2	16.4	15.5
	Ratio of exports to shipments (percent)	5.8	4.5	6.4	4.5	4.9	8.9
CH006	Natural gas and components:						
	Number of establishments	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)
	Employees (thousands)	200.0	200.0	200.0	200.0	205.0	2.5
	Capacity utilization (percent)	80	80	80	80	80	0.0
	U.S. shipments (million dollars)	69,000	120,000	150,000	115,000	165,000	43.5
	U.S. exports (million dollars)	759	1,286	1,109	1,675	2,074	23.8
	U.S. imports (million dollars)	11,042	19,157	23,054	18,609	28,885	55.2
	Apparent U.S. consumption (million dollars)	79,282	137,870	171,944	131,934	191,811	45.4
	Trade balance (million dollars)	-10,282	-17,870	-21,944	-16,934	-26,811	-58.3
	Ratio of imports to consumption (percent)	13.9	13.9	13.4	14.1	15.1	7.1
	Ratio of exports to shipments (percent)	1.1	1.1	0.7	1.5	1.3	-13.3

¹Not available.

Note.—Calculations based on unrounded data.

Source: These data have been estimated by the Commission's international trade analysts on the basis of primary and secondary data sources including discussions with various Government and industry contacts. These estimated data are subject to change either from secondary sources or from detailed surveys the Commission often conducts in the course of statutory investigations or other work. Further, these data may undergo adjustments based on revisions in tariff nomenclature, classification practices, or redefinitions of industry classes.