

# 2015 Uranium Marketing Annual Report

May 2016















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## **Contacts**

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## **Preface**

The U.S. Energy Information Administration (EIA) reports detailed data spanning 2011 through 2015 and summary data back to 1994 on uranium marketing activities in the United States in this report, 2015 Uranium Marketing Annual Report.

Data in this report are based on information reported on Form EIA-858, "Uranium Marketing Annual Survey." Form EIA-858 survey collects data on contracts, deliveries (during the report year and projected for the next ten years), enrichment services purchased, inventories, use in fuel assemblies, feed deliveries to enrichers (during the report year and projected for the next ten years), and unfilled market requirements for the next ten years.

Prior editions of this report may be found on the EIA website at <a href="http://www.eia.gov/nuclear/reports.cfm">http://www.eia.gov/nuclear/reports.cfm</a>.

Definitions for terms used in this report can be found in EIA's Energy Glossary: http://www.eia.gov/tools/glossary/.

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## **Uranium purchases and prices**

Owners and operators of U.S. civilian nuclear power reactors ("civilian owner/operators" or "COOs") purchased a total of 57 million pounds  $U_3O_8e$  (equivalent<sup>1</sup>) of deliveries from U.S. suppliers and foreign suppliers during 2015, at a weighted-average price of \$44.13 per pound  $U_3O_8e$ . The 2015 total of 57 million pounds  $U_3O_8e$  increased 6% compared with the 2014 total of 53 million pounds  $U_3O_8e$ . The 2015 weighted-average price of \$44.13 per pound  $U_3O_8e$  decreased 4% compared with the 2014 weighted-average price of \$46.16 per pound  $U_3O_8e$ .

Six percent of the 57 million pounds  $U_3O_8e$  delivered in 2015 was U.S.-origin uranium at a weighted-average price of \$43.86 per pound. Foreign-origin uranium accounted for the remaining 94% of deliveries at a weighted-average price of \$44.14 per pound. Uranium originating in Kazakhstan, Russia and Uzbekistan accounted for 37% of the 57 million pounds. Australian-origin and Canadian-origin uranium together accounted for 47%. The remaining 10% originated from Bulgaria, Czech Republic, Malawi, Namibia, Niger, and South Africa.

COOs purchased uranium of three material types for 2015 deliveries from 36 sellers, two more than in 2014. Uranium concentrate was 55% of the 57 million pounds  $U_3O_8e$  delivered in 2015. Natural UF<sub>6</sub> was 30% and enriched UF<sub>6</sub> was 15%. During 2015, 21% of the uranium was purchased under spot contracts at a weighted-average price of \$36.80 per pound. The remaining 79% was purchased under long-term contracts at a weighted-average price of \$46.04 per pound. Spot contracts are contracts with a one-time uranium delivery (usually) for the entire contract and the delivery is to occur within one year of contract execution (signed date). Long-term contracts are contracts with one or more uranium deliveries to occur after a year following the contract execution (signed date) and as such may reflect some agreements of short and medium terms as well as longer term.

#### New and future uranium contracts

In 2015, COOs signed 54 new purchase contracts with deliveries in 2015 of 12 million pounds  $U_3O_8e$  at a weighted-average price of \$37.97 per pound. Nine new contracts were long-term contracts with 24% of the 2015 deliveries and 45 new contracts were spot contracts with 76% of the deliveries in 2015.

COOs report minimum and maximum quantities of future deliveries under contract, to allow for the option of either decreasing or increasing quantities. As of the end of 2015, the maximum uranium deliveries for 2016 through 2025 under existing purchase contracts for COOs totaled 183 million pounds  $U_3O_8e$ . Also as of the end of 2015, unfilled uranium market requirements for 2016 through 2025 totaled 259 million pounds  $U_3O_8e$ . These contracted deliveries and unfilled market requirements combined represent the maximum anticipated market requirements of 442 million pounds  $U_3O_8e$  over the tenyear period for COOs.

<sup>&</sup>lt;sup>1</sup>Uranium quantities are expressed in the unit of measure  $U_3O_8e$  (equivalent).  $U_3O_8e$  is uranium oxide (or uranium concentrate) and the equivalent uranium-component of uranium hexafluoride (UF<sub>6</sub>) and enriched uranium.

## Uranium feed, enrichment services, uranium loaded

In 2015, COOs delivered 41 million pounds  $U_3O_8e$  of natural uranium feed to U.S. and foreign enrichers. Forty three percent of the feed was delivered to U.S. enrichment suppliers and the remaining 57% was delivered to foreign enrichment suppliers. Thirteen million separative work units  $(SWU)^2$  were purchased under enrichment services contracts from 12 sellers in 2015, one more than in 2014. The average price paid by the COOs for the 13 million SWU was \$136.88 per SWU in 2015, compared with the 2014 average price of \$140.75 per SWU. In 2015, the U.S.-origin SWU share was 32% and foreign-origin SWU accounted for the remaining 68%. Russian-origin SWU was 17% of the total. Germany, Netherlands, and the United Kingdom had an aggregate share of 48%.

Uranium in fuel assemblies loaded into U.S. civilian nuclear power reactors during 2015 contained 47 million pounds  $U_3O_8e$ , compared with 51 million pounds  $U_3O_8e$  loaded during 2014. Nine percent of the uranium loaded during 2015 was U.S.-origin uranium, and 91% was foreign-origin uranium.

## **Uranium foreign purchases/sales and inventories**

U.S. suppliers (brokers, converters, enrichers, fabricators, producers, and traders) and COOs purchase uranium each year from foreign suppliers. Together, foreign purchases totaled 64 million pounds  $U_3O_8e$  in 2015, and the weighted-average price was \$42.96 per pound  $U_3O_8e$ . Also, U.S. suppliers and COOs sold uranium to foreign suppliers. Together, foreign sales totaled 26 million pounds  $U_3O_8e$  in 2015, and the weighted-average price was \$39.29 per pound  $U_3O_8e$ .

Year-end commercial uranium inventories represent ownership of uranium in different stages of the nuclear fuel cycle (in-process for conversion, enrichment, or fabrication) at domestic or foreign nuclear fuel facilities. Total U.S. commercial inventories (including inventories owned by COOs, U.S. brokers, converter, enrichers, fabricators, producers, and traders) was 136 million pounds  $U_3O_8e$  as of the end of 2015. Commercial uranium inventories owned at the end of 2015 by COOs totaled 121 million pounds  $U_3O_8e$ , an increase of 6% from year-end 2014. Uranium inventories owned by U.S. brokers and traders were 6 million pounds  $U_3O_8e$ . U.S. converter, enrichers, fabricators and producers owned 9 million pounds  $U_3O_8e$  of inventories at the end of 2015.

<sup>&</sup>lt;sup>2</sup> Separative work unit (SWU): The standard measure of enrichment services. The effort expended in separating a mass F of feed of assay  $x_f$  into a mass P of product assay  $x_p$  and waste of mass W and assay  $x_w$  is expressed in terms of the number of separative work units needed, given by the expression SWU = WV( $x_w$ ) + PV( $x_p$ ) - FV( $x_f$ ), where V( $x_w$ ) is the "value function," defined as V( $x_w$ ) = (1 - 2 $x_w$ ) 1n((1 -  $x_w$ )/ $x_w$ ).

Table S1a. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors, 1994-2015

million pounds U<sub>3</sub>O<sub>8</sub> equivalent

Delivery year	Total purchased	Purchased from U.S. producers	Purchased from U.S. brokers and traders	Purchased from other owners and operators of U.S. civilian nuclear power reactors, other U.S. suppliers, (and U.S. government for 2007) <sup>1</sup>	Purchased from foreign suppliers	U.Sorigin uranium	Foreign-origin uranium	Spot contracts <sup>2</sup>	Short, medium, and long-term contracts <sup>3</sup>
1994	38.3	5.4	15.3	1.1	16.5	7.7	30.6	8.5	29.8
1995	43.4	5.3	16.2	0.6	21.4	5.2	38.2	13.6	29.8
1996	47.3	5.8	13.3	1.9	26.4	8.3	39.0	9.1	38.3
1997	42.0	5.7	9.9	3.0	23.4	8.1	33.9	5.5	36.5
1998	42.7	6.5	10.5	4.5	21.3	7.2	35.6	7.8	34.9
1999	47.9	5.2	10.4	5.6	26.8	11.4	36.5	8.0	40.0
2000	51.8	3.6	9.1	8.8	30.4	13.3	38.6	10.4	39.1
2001	55.4	2.3	11.7	11.4	30.0	13.2	42.2	14.4	40.0
2002	52.7	1.5	13.4	5.7	32.2	6.2	46.5	8.6	41.4
2003	56.6	0.6	10.5	8.3	37.2	10.2	46.4	8.2	46.7
2004	64.1	0	13.2	12.2	38.7	12.3	51.8	9.2	53.3
2005	65.7	W	10.4	W	39.4	11.0	54.7	6.9	58.8
2006	66.5	0	13.9	12.6	40.0	10.8	55.7	6.3	59.4
2007	51.0	0	9.8	7.6	33.5	4.0	47.0	6.6	43.7
2008	53.4	0.6	9.4	6.3	37.2	7.7	45.6	8.7	42.8
2009	49.8	W	11.1	W	36.8	7.1	42.8	8.1	41.0
2010	46.6	0.4	11.7	1.9	32.6	3.7	42.9	8.2	37.9
2011	54.8	0.6	14.8	1.1	38.4	5.2	49.6	12.0	42.3
2012	57.5	W	11.5	W	37.6	9.8	47.7	8.1	48.9
2013	57.4	W	12.8	W	37.4	9.5	47.9	11.3	46.1
2014	53.3	W	17.1	W	34.4	3.3	50.0	14.5	38.8
2015	56.5	1.5	13.9	3.0	38.2	3.4	53.1	11.3	43.2

<sup>- - =</sup> Not applicable. W = Data withheld to avoid disclosure of individual company data. NA = Not available.

Notes: "Other U.S. Suppliers" are U.S. converters, enrichers, and fabricators. Totals may not equal sum of components because of independent rounding.

Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual, Tables 10, 11 and 16. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

<sup>&</sup>lt;sup>1</sup> Includes purchases between owners and operators of U.S. civilian nuclear power reactors along with purchases from other U.S. suppliers which are U.S. converters, enrichers, and fabricators.

<sup>&</sup>lt;sup>2</sup> Spot Contract: A one-time delivery (usually) of the entire contract to occur within one year of contract execution (signed date).

<sup>&</sup>lt;sup>3</sup> Short, Medium, and Long-Term Contracts: One or more deliveries to occur after a year following contract execution (signed date).



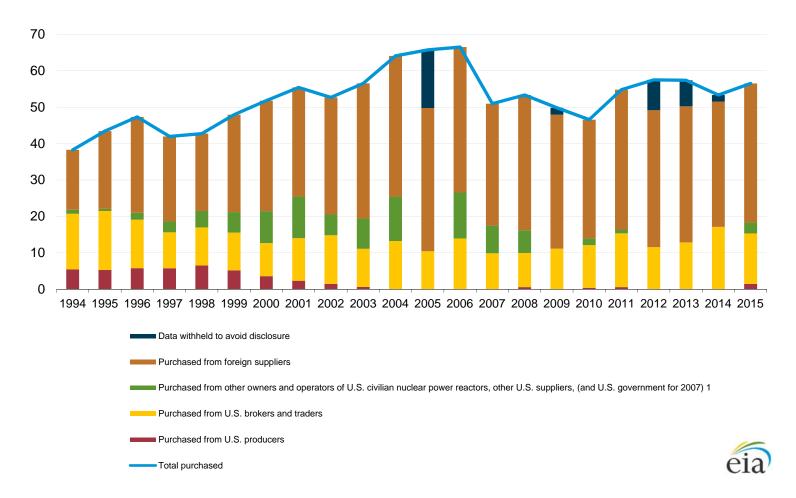


Table S1b. Weighted-average price of uranium purchased by owners and operators of U.S. civilian nuclear power reactors, 1994-2015

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Delivery year	Total purchased (weighted- average price)	Purchased from U.S. producers	Purchased from U.S. brokers and traders	Purchased from other owners and operators of U.S. civilian nuclear power reactors, other U.S. suppliers, (and U.S. government for 2007)	Purchased from foreign suppliers	U.Sorigin uranium (weighted- average price)	Foreign-origin uranium (weighted- average price)	Spot contracts <sup>2</sup> (weighted- average price)	Short, medium, and long-term contracts <sup>3</sup> (weighted- average price)
1994	10.40	13.72	9.34	8.04	10.43	12.08	9.97	9.01	NA
1995	11.25	14.84	9.83	12.52	11.40	14.20	10.84	10.30	NA
1996	14.12	14.20	13.36	14.98	14.45	14.62	14.02	14.22	NA
1997	12.88	13.60	12.31	W	12.91	13.36	12.78	11.61	NA
1998	12.14	13.61	11.95	W	11.97	13.37	11.90	10.56	NA
1999	11.63	13.93	11.54	W	11.47	12.24	11.47	9.52	NA
2000	11.04	14.81	11.28	10.45	10.65	11.52	10.88	8.54	11.70
2001	10.15	13.26	10.44	9.98	9.86	10.50	10.05	7.92	10.96
2002	10.36	13.03	10.21	W	10.37	10.89	10.29	9.29	10.58
2003	10.81	14.17	11.05	10.16	10.82	10.81	10.81	10.10	10.94
2004	12.61		12.08	11.30	13.15	11.87	12.76	14.77	12.24
2005	14.36	W	13.76	W	14.70	15.11	14.21	20.04	13.70
2006	18.61		20.49	W	18.62	17.85	18.75	39.48	16.38
2007	32.78		34.10	W	32.36	28.89	33.05	88.25	24.45
2008	45.88	75.16	39.62	W	48.49	59.55	43.47	66.95	41.59
2009	45.86	W	41.88	W	46.68	48.92	45.35	46.45	45.74
2010	49.29	47.13	44.98	42.24	51.30	45.25	49.64	43.99	50.43
2011	55.64	58.12	53.29	52.50	56.60	52.12	55.98	54.69	55.90
2012	54.99	W	54.44	W	54.40	59.44	54.07	51.04	55.65
2013	51.99	W	50.44	W	51.93	56.37	51.13	43.83	54.00
2014	46.16	W	42.90	W	47.62	48.11	46.03	36.64	49.73
2015	44.13	52.35	44.67	31.31	44.66	43.86	44.14	36.80	46.04

<sup>- - =</sup> Not applicable. W = Data withheld to avoid disclosure of individual company data. NA = Not available.

Notes: "Other U.S. Suppliers" are U.S. converters, enrichers, and fabricators. Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual, Tables 10, 11 and 16. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

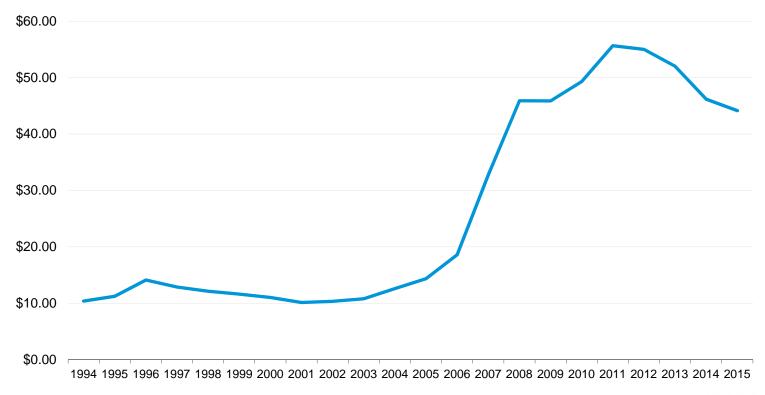
<sup>1</sup> Includes purchases between owners and operators of U.S. civilian nuclear power reactors along with purchases from other U.S. suppliers which are U.S. converters, enrichers, and fabricators.

<sup>&</sup>lt;sup>2</sup> Spot Contract: A one-time delivery (usually) of the entire contract to occur within one year of contract execution (signed date).

<sup>&</sup>lt;sup>3</sup> Short, Medium, and Long-Term Contracts: One or more deliveries to occur after a year following contract execution (signed date).

Figure S2. Weighted-average price of uranium purchased by owners and operators of U.S. civilian nuclear power reactors, 1994-2015 deliveries

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent



Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual reports. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".



Table S2. Uranium feed deliveries, enrichment services, and uranium loaded by owners and operators of U.S. civilian nuclear power reactors, 1994-2015

	Million pounds U <sub>3</sub> O <sub>8</sub> equivalent		Million			
Year	Feed deliveries by owners and operators of U.S. civilian nuclear power reactors	Uranium in fuel assemblies loaded into U.S. civilian nuclear power reactors	U.Sorigin enrichment services purchased	Foreign-origin enrichment services purchased	Total purchased enrichment services	Average price (US\$ per SWU)
1994	37.6	40.4	7.5	1.7	9.2	_
1995	44.3	51.1	6.7	2.8	9.5	-
1996	49.1	46.2	8.0	3.2	11.2	-
1997	40.3	48.2	6.0	2.9	8.9	-
1998	40.6	38.2	5.7	4.4	10.1	-
1999	43.9	58.8	4.6	5.4	10.0	-
2000	47.8	51.5	5.2	6.6	11.8	-
2001	47.3	52.7	1.3	9.1	10.4	-
2002	54.7	57.2	1.7	9.8	11.5	-
2003	49.3	62.3	1.7	10.3	12.0	-
2004	53.4	50.1	1.4	10.4	11.8	-
2005	52.9	58.3	1.1	10.3	11.4	-
2006	56.6	51.7	1.6	11.8	13.4	106.57
2007	49.0	45.5	1.5	12.7	14.2	114.58
2008	43.4	51.3	1.9	10.7	12.6	121.33
2009	51.9	49.4	4.1	13.1	17.2	130.78
2010	45.5	44.3	2.3	11.5	13.8	136.14
2011	51.3	50.9	2.4	12.4	14.8	136.12
2012	52.1	49.5	3.3	12.3	15.6	141.36
2013	47.4	42.6	3.9	8.5	12.3	142.22
2014	41.9	50.5	3.8	9.2	12.9	140.75
2015	41.4	47.4	4.1	8.8	12.9	136.88

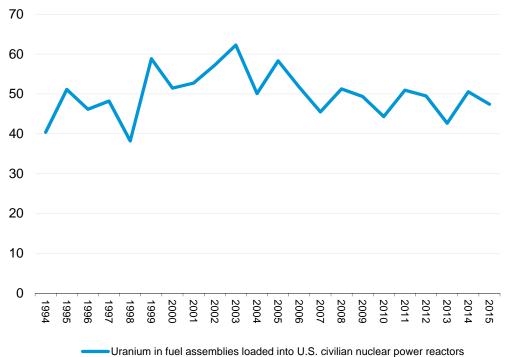
<sup>- =</sup> No data reported.

Notes: Totals may not equal sum of components because of independent rounding. Average prices are not adjusted for inflation.

Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual, Tables 22, 23, 25, and 27. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

Figure S3. Uranium loaded into U.S. civilian nuclear power reactors, 1994-2015

million pounds  $U_3O_8$  equivalent

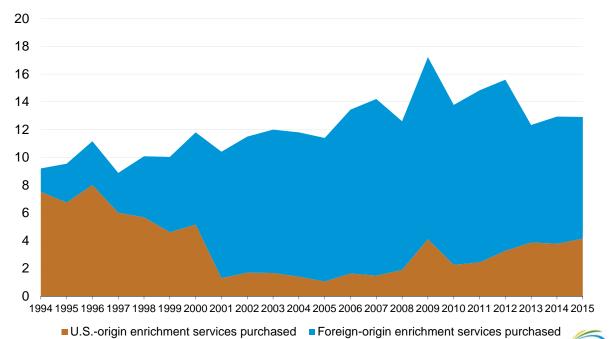


Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual reports. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".



Figure S4. Uranium enrichment services purchased by owners and operators of U.S. civilian nuclear power reactors, 1994-2015

million separative work units (SWU)



Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual reports. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

Table S3a. Foreign purchases, foreign sales, and uranium inventories owned by U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors, 1994-2015

million pounds U<sub>3</sub>O<sub>8</sub> equivalent

Delivery year	Foreign purchases by U.S. suppliers	Foreign purchases by owners and operators of U.S. civilian nuclear power reactors	Total foreign purchases	U.S. broker and trader purchases from foreign suppliers	Foreign sales	U.S. supplier owned uranium inventories	Owners and operators of U.S. civilian nuclear power reactors owned uranium inventories	Total commercial uranium inventories
1994	21.1	15.5	36.6	22.3	17.7	21.5	65.4	86.9
1995	20.2	21.1	41.3	18.3	9.8	13.7	58.7	72.5
1996	21.7	23.7	45.4	17.8	11.5	13.9	66.1	80.0
1997	20.4	22.5	43.0	15.7	17.0	40.4	65.9	106.2
1998	22.6	21.1	43.7	21.7	15.1	70.7	65.8	136.5
1999	21.0	26.6	47.6	19.2	8.5	68.8	58.3	127.1
2000	17.4	27.5	44.9	15.8	13.6	56.5	54.8	111.3
2001	18.7	28.0	46.7	18.3	11.7	48.1	55.6	103.8
2002	22.7	30.0	52.7	18.6	15.4	48.7	53.5	102.1
2003	18.2	34.9	53.0	15.8	13.2	39.9	45.6	85.5
2004	30.2	35.9	66.1	26.4	13.2	37.5	57.7	95.2
2005	27.0	38.5	65.5	24.0	20.5	29.1	64.7	93.8
2006	26.1	38.7	64.8	24.0	18.7	29.1	77.5	106.6
2007	21.6	32.5	54.1	18.9	14.8	31.2	81.2	112.4
2008	24.1	32.9	57.1	21.3	17.2	27.0	83.0	110.0
2009	26.7	32.2	58.9	26.8	23.5	26.8	84.8	111.5
2010	25.0	30.4	55.3	24.7	23.1	24.7	86.5	111.3
2011	19.3	35.1	54.4	19.6	16.7	22.3	89.8	112.1
2012	20.2	36.0	56.2	20.2	18.0	23.3	97.6	120.9
2013	23.2	34.1	57.3	w	18.9	21.3	113.1	134.4
2014	24.2	34.4	58.6	w	20.0	18.7	114.0	132.7
2015	27.2	36.9	64.1	26.1	25.7	15.1	120.9	135.9

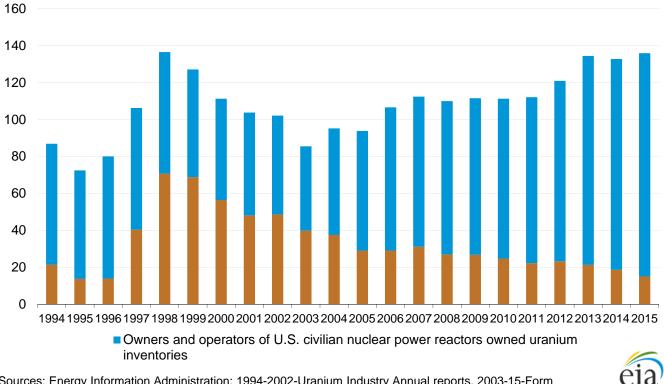
W = Data withheld to avoid disclosure of individual company data.

Notes: Totals may not equal sum of components because of independent rounding. Foreign purchase: A uranium purchase of foreign-origin uranium from a firm located outside the United States. Foreign sale: A uranium sale to a firm located outside the United States.

Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual, Tables 28, 29, 30 and 31. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

Figure S5. Total commercial uranium inventories of U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors, 1994-2015

million pounds U<sub>3</sub>O<sub>8</sub> equivalent



Sources: Energy Information Administration: 1994-2002-Uranium Industry Annual reports. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey" .

Table S3b. Weighted-average price of foreign purchases and foreign sales by U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors, 1994-2015

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Delivery year	or Foreign purchases by U.S. suppliers	Foreign purchases by wners and operators of U.S. civilian nuclear power reactors	Total foreign purchases (weighted-average price)	U.S. broker and trader purchases from foreign suppliers (weighted- average price)	Foreign sales (weighted-
1994	7.78	10.53	8.95	7.87	11.34
1995	8.96	11.39	10.20	9.02	13.48
1996	11.78	14.41	13.15	11.78	14.20
1997	10.61	12.89	11.81	10.71	12.39
1998	10.50	11.96	11.19	10.77	12.05
1999	9.42	11.45	10.55	9.60	11.97
2000	8.45	10.68	9.84	8.61	8.48
2001	8.98	9.87	9.51	8.87	8.79
2002	9.65	10.37	10.05	9.59	10.04
2003	10.19	10.79	10.59	10.19	10.39
2004	11.21	13.13	12.25	11.15	12.63
2005	15.11	14.63	14.83	15.68	20.70
2006	20.28	18.66	19.31	21.61	32.87
2007	36.59	32.58	34.18	39.88	55.47
2008	33.30	47.46	41.30	35.39	45.62
2009	34.80	46.55	41.23	34.88	41.48
2010	41.30	51.69	47.01	41.23	42.78
2011	48.80	56.87	54.00	49.27	49.05
2012	46.80	54.08	51.44	47.08	47.57
2013	43.25	51.64	48.24	W	42.75
2014	39.13	47.62	44.11	W	35.69
2015	40.68	44.70	42.96	40.77	39.29

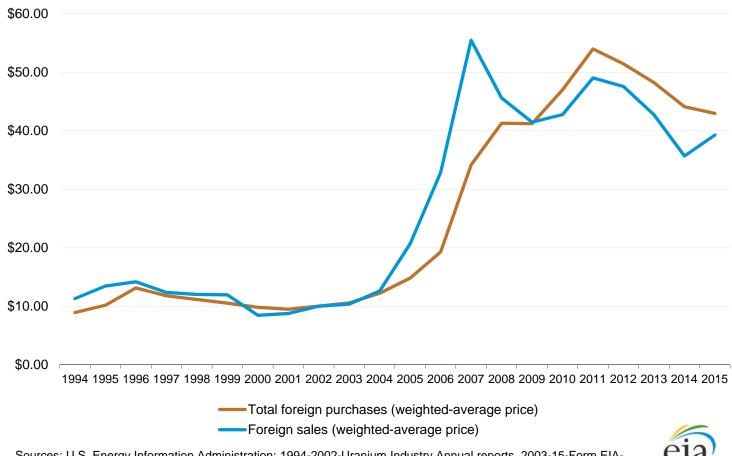
W = Data withheld to avoid disclosure of individual company data.

Notes: Totals may not equal sum of components because of independent rounding. Foreign purchase: A uranium purchase of foreign-origin uranium from a firm located outside the United States. Foreign sale: A uranium sale to a firm located outside the United States. Weighted-average prices are not adjusted for inflation.

Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual, Tables 28, 29, 30 and 31. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".

Figure S6. Weighted-average price of foreign purchases and foreign sales of uranium, 1994-2015

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent



Sources: U.S. Energy Information Administration: 1994-2002-Uranium Industry Annual reports. 2003-15-Form EIA-858, "Uranium Marketing Annual Survey".



Table 1. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by supplier and delivery year, 2011-15

thousand pounds  $U_3O_8$  equivalent; dollars per pound  $U_3O_8$  equivalent

Deliveries	2011	2012	2013	2014	2015
Purchased from U.S. producers					
Purchases of U.Sorigin and					
foreign-origin uranium	550	W	W	W	1,455
Weighted-average price	58.12	W	W	W	52.35
Purchased from U.S. brokers and trader	'S				
Purchases of U.Sorigin and					
foreign-origin uranium	14,778	11,545	12,835	17,111	13,852
Weighted-average price	53.29	54.44	50.44	42.90	44.67
Purchased from other owners and oper	ators of U.S. civiliar	nuclear power re	actors		
Purchases	0	0	0	0	W
Weighted-average price					W
Purchased from other U.S. suppliers					
Purchases of U.Sorigin and					
foreign-origin uranium	1,061	W	W	W	W
Weighted-average price	52.50	W	W	W	W
Purchased from foreign suppliers					
Purchases of U.Sorigin and					
foreign-origin uranium	38,442	37,624	37,405	34,404	38,184
Weighted-average price	56.60	54.40	51.93	47.62	44.66
Total purchased by owners and operato	ors of U.S. civilian n	uclear power react	ors		
Purchases of U.Sorigin and					
foreign-origin uranium	54,831	57,520	57,403	53,349	56,524
Weighted-average price	55.64	54.99	51.99	46.16	44.13

W = Data withheld to avoid disclosure of individual company data.

Notes: "Other U.S. Suppliers" are U.S. converters, enrichers, and fabricators. Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

<sup>-- =</sup> Not applicable.

Figure 1. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by supplier and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

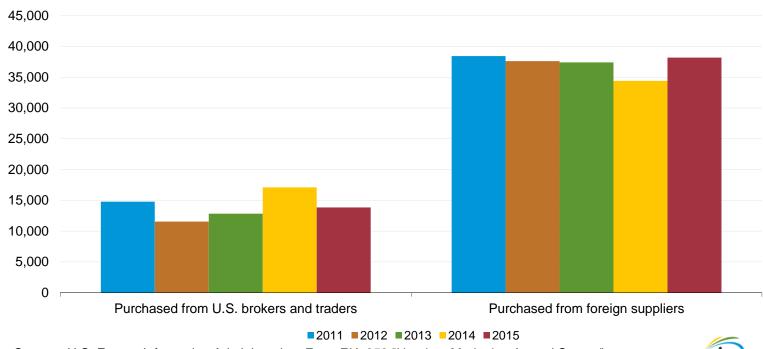




Figure 2. Weighted-average price of uranium purchased by owners and operators of U.S. civilian nuclear power reactors by supplier and delivery year, 2011-15

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

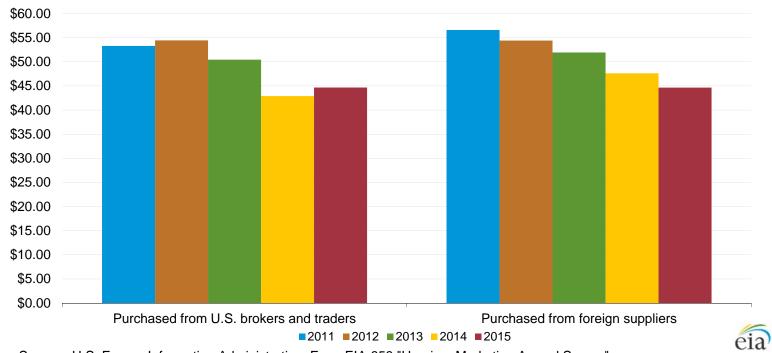


Table 2. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by origin and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Deliveries	2011	2012	2013	2014	2015
U.Sorigin uranium					
Purchases	5,205	9,807	9,484	3,316	3,419
Weighted-average price	52.12	59.44	56.37	48.11	43.86
Foreign-origin uranium					
Purchases	49,626	47,713	47,919	50,033	53,106
Weighted-average price	55.98	54.07	51.13	46.03	44.14
Total					
Purchases	54,831	57,520	57,403	53,349	56,524
Weighted-average price	55.64	54.99	51.99	46.16	44.13

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2011-15).

Figure 3. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by origin and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

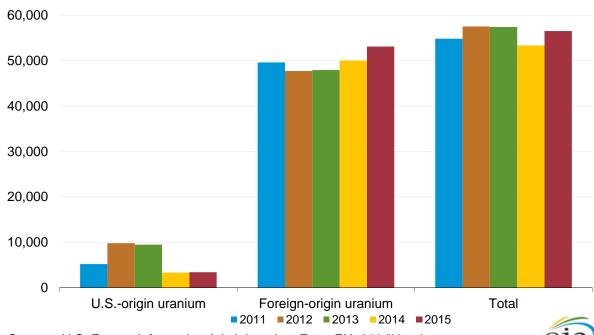


Figure 4. Weighted-average price of uranium purchased by owners and operators of U.S. civilian nuclear power reactors by origin and delivery year, 2011-15

dollars per pound  $U_3O_8$  equivalent

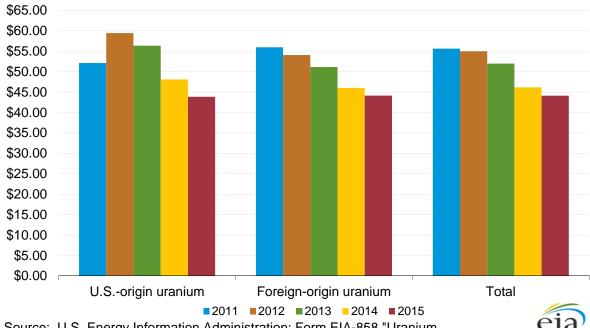


Table 3. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by origin country and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

	Deliveries in 2011		Deliveries in 2012		Deliveries in 2013		Deliveries in 2014		Deliveries in 2015	
Origin country	Purchases	Weighted- average price								
Australia	6,001	57.47	6,724	51.17	10,741	49.92	10,511	48.03	9,678	44.16
Brazil	W	W	W	W	W	W	W	W	0	
Bulgaria	0		0		0	<del></del>	0		W	W
Canada	10,832	56.08	13,584	56.75	7,808	52.61	9,789	45.87	16,876	45.84
China	W	W	W	W	W	W	W	W	0	
Czech Republic	0		0		W	W	W	W	W	W
Germany	0		0		W	W	0		0	
Hungary	0		0		W	W	0		0	
Kazakhstan	9,728	53.71	6,234	51.69	6,454	46.73	12,032	44.47	10,723	42.82
Malawi	780	65.44	W	W	1,277	59.89	1,514	44.94	W	W
Namibia	6,199	56.74	5,986	54.56	5,677	49.78	4,603	45.54	3,456	48.57
Niger	1,744	54.38	2,133	50.45	1,666	51.26	1,316	42.86	922	39.74
Portugal	0		0		W	W	0		0	
Russia	10,199	56.57	7,643	54.40	10,580	53.73	6,859	45.65	9,063	40.87
South Africa	1,524	53.62	1,243	56.45	186	46.72	938	43.71	826	37.64
Ukraine	W	W	W	W	0		W	W	0	
United Kingdom	0		0		0		W	W	0	
Uzbekistan	1,808	55.99	2,576	52.80	3,064	50.02	1,779	46.84	1,040	47.90
unknown	0		0		W	W	W	W	W	W
Foreign Total	49,626	55.98	47,713	54.07	47,919	51.13	50,033	46.03	53,106	44.14
United States	5,205	52.12	9,807	59.44	9,484	56.37	3,316	48.11	3,419	43.86
Total Purchases	54,831	55.64	57,520	54.99	57,403	51.99	53,349	46.16	56,524	44.13

W = Data withheld to avoid disclosure of individual company data. -- = Not applicable.

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Figure 5. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by selected origin country and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

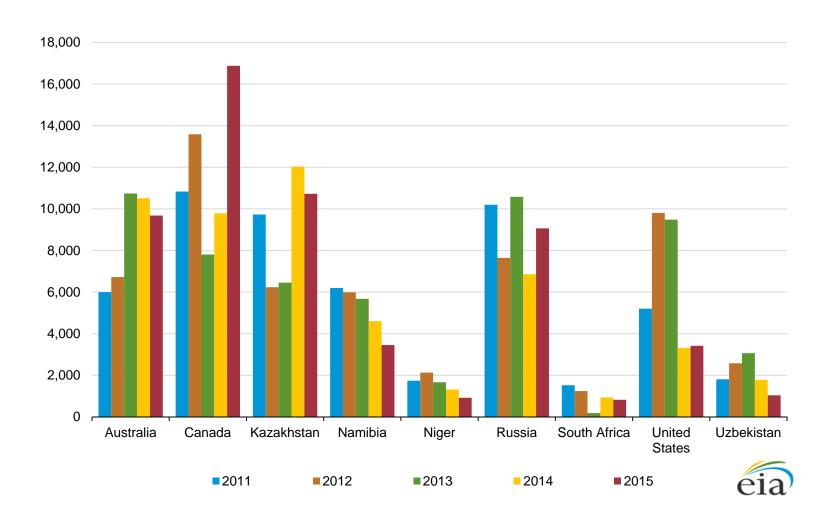


Table 4. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by origin and material type, 2015 deliveries

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

	Uranium			Natural UF <sub>6</sub> and	
Deliveries	concentrate	Natural UF <sub>6</sub>	Enriched UF <sub>6</sub>	Enriched UF <sub>6</sub>	Total
U.Sorigin uranium					
Purchases	2,733	W	W	686	3,419
Weighted-average price	46.23	W	W	34.44	43.86
Foreign-origin uranium					
Purchases	28,179	W	W	24,927	53,106
Weighted-average price	43.61	W	W	44.77	44.14
Total					
Purchases	30,912	16,877	8,736	25,612	56,524
Weighted-average price	43.85	45.82	41.75	44.48	44.13

W = Data withheld to avoid disclosure of individual company data.

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation. Natural UF $_6$  is uranium hexafluoride. The natural UF $_6$  and enriched UF $_6$  quantity represents only the U $_3$ O $_8$  equivalent uranium-component quantity specified in the contract for each delivery of natural UF $_6$  and enriched UF $_6$ . The natural UF $_6$  and enriched UF $_6$  weighted-average price represent only the U $_3$ O $_8$  equivalent uranium-component price specified in the contract for each delivery of natural UF $_6$  and enriched UF $_6$ , and does not include the conversion service and enrichment service components.

Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2015).

Figure 6. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by material type, 2015 deliveries

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

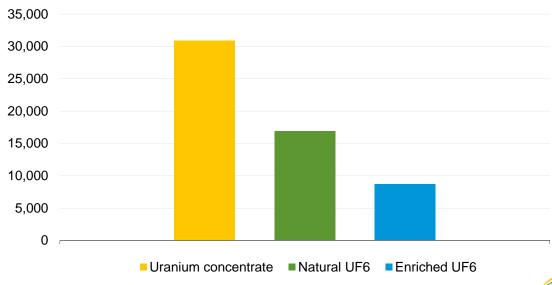




Table 5. Average price and quantity for uranium purchased by owners and operators of U.S. civilian nuclear power reactors by pricing mechanisms and delivery year, 2014-15

dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent; thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

	Domestic purchases <sup>1</sup>		Foreign purchases <sup>2</sup>		Total purchases	
Pricing mechanisms	2014	2015	2014	2015	2014	2015
Contract-specified (fixed and base-	escalated) pricing	3				
Weighted-average price	41.87	40.34	49.87	44.93	45.47	42.88
Quantity with reported price	15,711	13,862	12,815	17,241	28,526	31,104
Spot-market pricing						
Weighted-average price	37.28	38.22	37.04	35.94	37.06	36.36
Quantity with reported price	222	876	2,481	3,881	2,703	4,756
Other pricing						
Weighted-average price	51.68	53.59	47.26	46.74	48.16	48.19
Quantity with reported price	4,527	3,931	17,568	14,666	22,095	18,597
All pricing mechanisms						
Weighted-average price	43.99	43.03	47.51	44.70	46.16	44.13
Quantity with reported price	20,460	18,669	32,863	35,788	53,323	54,457
Total quantity	20,486	19,612	32,863	36,912	53,349	56,524

<sup>&</sup>lt;sup>1</sup> A uranium purchase of both U.S.-origin uranium or from a firm located in the United States.

<sup>&</sup>lt;sup>2</sup> A uranium purchase of foreign-origin uranium from a firm located outside of the United States. Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Figure 7. Average price for uranium purchased by owners and operators of U.S. civilian nuclear power reactors by pricing mechanisms and delivery year, 2014-15

dollars per pound  $U_3O_8$  equivalent

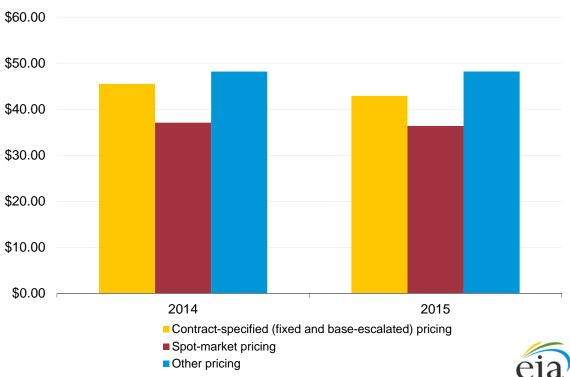


Table 6a. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors ranked by price and distributed by quantity, 2013-15 deliveries

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

	D	eliveries in 2013	D	eliveries in 2014	Deliveries in 2015		
Quantity distribution <sup>1</sup>	Quantity with reported price	Weighted- average price	Quantity with reported price	Weighted- average price	Quantity with reported price	Weighted- average price	
First	7,175	34.34	6,665	30.26	6,807	29.68	
Second	7,175	41.29	6,665	35.11	6,807	36.03	
Third	7,175	45.89	6,665	39.29	6,807	38.63	
Fourth	7,175	49.84	6,665	43.36	6,807	41.80	
Fifth	7,175	53.17	6,665	46.74	6,807	44.63	
Sixth	7,175	57.24	6,665	50.65	6,807	47.84	
Seventh	7,175	61.55	6,665	55.49	6,807	52.69	
Eighth	7,175	72.62	6,665	68.37	6,807	61.70	
Total	57,403	51.99	53,323	46.16	54,457	44.13	

<sup>&</sup>lt;sup>1</sup> Distribution divides total quantity of uranium delivered (with a price) into eight distributions by price (sorted from lowest to highest) and provides the quantity-weighted average price for each distribution.

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Table 6b. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors ranked by price and distributed by purchaser, 2013-15 deliveries

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

	Deliveries in 2013				Deliveries in 2014				Deliveries in 2015	
Distribution of purchasers	Number of purchasers	Quantity with reported price	Weighted- average price	Number of purchasers	Quantity with reported price	Weighted- average price	Number of purchasers	Quantity with reported price	Weighted- average price	
First	8	12,328	42.01	8	11,681	37.64	8	11,864	39.35	
Second	8	13,143	49.94	7	8,493	42.68	7	22,481	43.16	
Third	7	18,057	53.43	7	21,805	48.04	7	10,889	46.47	
Fourth	7	13,875	60.93	7	11,344	53.91	7	9,222	49.86	
Total	30	57,403	51.99	29	53,323	46.16	29	54,457	44.13	

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

# Table 7. Uranium purchased by owners and operators of U.S. civilian nuclear power reactors by contract type and material type, 2015 deliveries

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

	Sp	Spot Contracts <sup>1</sup>		Long-Term Contracts <sup>2</sup>		Total
Material Type	Quantity with reported price	Weighted- average price	Quantity with reported price	Weighted- average price	Quantity with reported price	Weighted- average price
U <sub>3</sub> O <sub>8</sub>	6,175	36.40	24,107	45.76	30,282	43.85
Natural UF <sub>6</sub>	3,879	38.52	12,292	48.13	16,171	45.82
Enriched UF <sub>6</sub>	1,231	33.37	6,773	43.28	8,003	41.75
Total	11,284	36.80	43,173	46.04	54,457	44.13

 $<sup>^{1}</sup>$  A one-time delivery (usually) of the entire contract to occur within one year of contract execution (signed date).

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

 $UF_6$  is uranium hexafluoride. The natural  $UF_6$  and enriched  $UF_6$  quantity represents only the  $U_3O_8$  equivalent uranium-component quantity specified in the contract for each delivery of natural  $UF_6$  and enriched  $UF_6$ . The natural  $UF_6$  and enriched  $UF_6$  weighted-average price represent only the  $U_3O_8$  equivalent uranium-component price specified in the contract for each delivery of natural  $UF_6$  and enriched  $UF_6$ , and does not include the conversion service and enrichment service components. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey"

 $<sup>^{2}</sup>$  One or more deliveries to occur after a year following contract execution (signed date).

# Table 8. Contracts signed in 2015 by owners and operators of U.S. civilian nuclear power reactors by contract type

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Purchase contract type (Signed in 2015)	Quantity of deliveries received in 2015	Weighted-average price	Number of purchase contracts for deliveries in 2015
Spot	9,200	37.54	45
Long-term	2,896	39.72	9
Total	12,096	37.97	54

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2015).

Table 9. Contracted purchases of uranium by owners and operators of U.S. civilian nuclear power reactors, signed in 2015, by delivery year, 2016-25

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

Year of delivery	Minimum	Maximum
2016	4,974	5,946
2017	4,189	5,237
2018	2,940	3,245
2019	3,887	4,232
2020	2,973	4,453
2021	2,138	3,613
2022	428	W
2023	0	W
2024	0	W
2025	0	0
Total	21,527	27,623

W = Data withheld to avoid disclosure of individual company data.

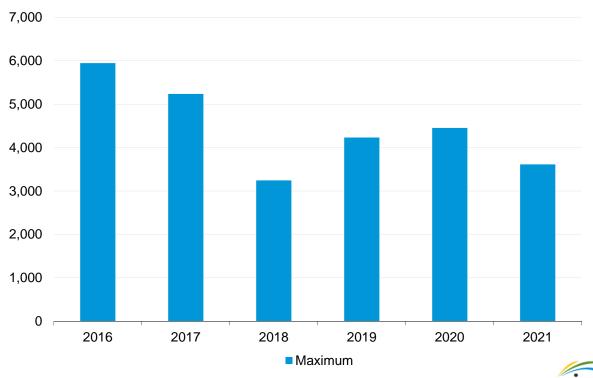
Note: Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-858

"Uranium Marketing Annual Survey" (2015).

Figure 8. Contracted purchases of uranium by owners and operators of U.S. civilian nuclear power reactors, signed in in 2015, by delivery year, 2016-21

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent



Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2015).

Table 10. Contracted purchases of uranium from suppliers by owners and operators of U.S. civilian nuclear power reactors, in effect at the end of 2015, by delivery year, 2016-25

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

	Contracted purchases from U.S. suppliers		Contracted pur foreign su		Contracted purchases from all suppliers	
Year of delivery	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
2016	9,185	10,570	31,198	33,196	40,383	43,766
2017	8,357	9,986	24,982	26,451	33,339	36,436
2018	7,616	8,154	19,417	20,704	27,033	28,858
2019	7,532	8,063	13,628	14,650	21,160	22,713
2020	4,188	5,743	10,974	11,949	15,162	17,692
2021	3,325	5,091	6,014	6,339	9,339	11,430
2022	1,118	1,438	5,348	5,573	6,466	7,010
2023	W	1,767	W	4,355	5,382	6,121
2024	W	W	W	W	4,629	5,401
2025	W	W	W	W	3,316	3,516
Total	44,189	53,153	122,019	129,790	166,208	182,943

W = Data withheld to avoid disclosure of individual company data.

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

Figure 9. Maximum contracted purchases of uranium from suppliers by owners and operators of U.S. civilian nuclear power reactors, in effect at the end of 2015, by delivery year, 2016-23

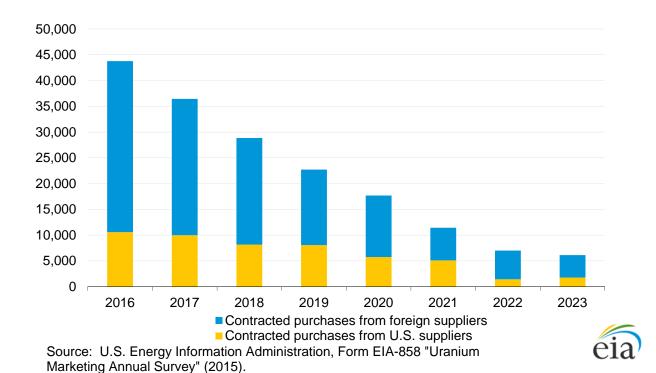


Table 11. Unfilled uranium market requirements of owners and operators of U.S. civilian nuclear power reactors, 2015-25

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

	As of Dece	ember 31, 2014	As of Dece	mber 31, 2015
Year	Annual	Cumulative	Annual	Cumulative
2015	3,496	3,496	-	
2016	7,384	10,880	3,152	3,152
2017	10,351	21,231	4,656	7,807
2018	18,468	39,699	9,943	17,750
2019	29,929	69,629	12,204	29,954
2020	33,521	103,150	21,404	51,358
2021	42,933	146,083	35,154	86,513
2022	45,279	191,363	41,497	128,010
2023	44,199	235,561	40,790	168,799
2024	47,281	282,843	47,313	216,112
2025	-		42,750	258,862

<sup>- =</sup> No data reported. -- = Not applicable.

Note: Totals may not equal sum of components because of independent rounding. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2014-15).

Figure 10. Annual unfilled uranium market requirements of owners and operators of U.S. civilian nuclear power reactors, as of 12/31/2014 and 12/31/2015

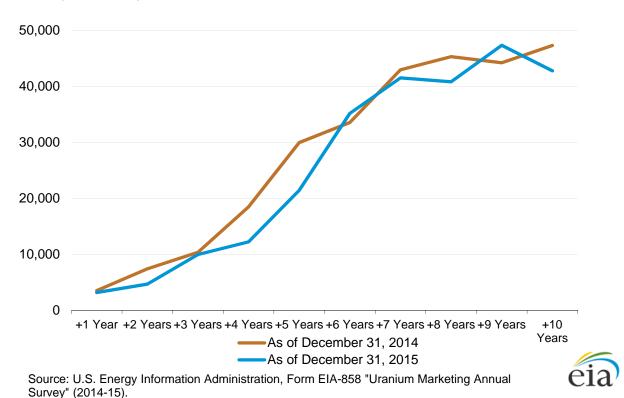


Table 12. Maximum anticipated uranium market requirements of owners and operators of U.S. civilian nuclear power reactors, 2016-25, as of December 31, 2015

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

Year	Maximum under purchase contracts	Unfilled market requirements	Maximum anticipated market requirements	Enrichment feed deliveries
2016	43,766	3,152	46,918	42,040
2017	36,436	4,656	41,092	43,576
2018	28,858	9,943	38,801	41,579
2019	22,713	12,204	34,917	40,326
2020	17,692	21,404	39,096	45,243
2021	11,430	35,154	46,584	47,024
2022	7,010	41,497	48,507	47,139
2023	6,121	40,790	46,911	45,242
2024	5,401	47,313	52,714	51,712
2025	3,516	42,750	46,266	45,224
Total	182,943	258,862	441,805	449,103

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

Figure 11. Maximum anticipated uranium market requirements of owners and operators of U.S. civilian nuclear power reactors, 2016-25, as of December 31, 2015

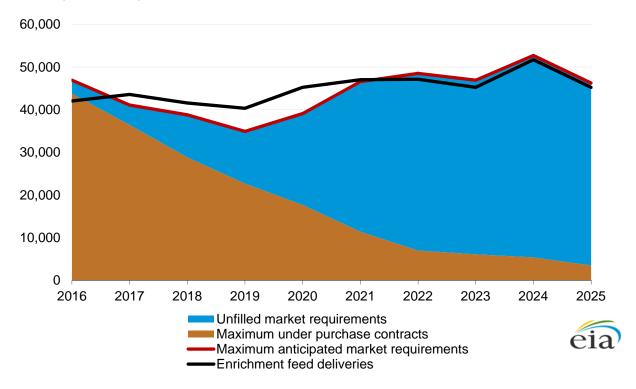


Table 13. Deliveries of uranium feed by owners and operators of U.S. civilian nuclear power reactors by enrichment country and delivery year, 2013-15

	Fe	eed deliverie	es in 2013	Fe	ed deliverie	s in 2014	Fe	ed deliverie	s in 2015
Enrichment country	U.S origin	Foreign- origin	Total	U.S origin	Foreign- origin	Total	U.S origin	Foreign- origin	Total
China	0	W	W	W	W	W	0	W	W
France	0	1,606	1,606	0	3,055	3,055	W	W	3,299
Germany	W	W	W	W	W	2,140	W	W	W
Netherlands	1,058	2,773	3,831	0	3,115	3,115	W	W	4,180
Russia	W	W	2,333	0	W	W	0	2,089	2,089
United Kingdom	438	4,097	4,535	W	W	2,975	W	W	3,460
Europe <sup>1</sup>	W	W	4,374	W	W	6,750	0	8,297	8,297
unknown <sup>2</sup>	0	0	0	0	0	0	0		W
Foreign total	1,809	17,664	19,473	826	21,248	22,074	1,056	22,437	23,493
United States	2,600	25,345	27,945	1,893	17,961	19,854	1,485	16,407	17,892
Total	4,409	43,009	47,418	2,719	39,209	41,928	2,541	38,844	41,385

W = Data withheld to avoid disclosure of individual company data.

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

<sup>&</sup>lt;sup>1</sup> Specific country in Europe was not reported.

<sup>&</sup>lt;sup>2</sup> Specific country was not reported.

Figure 12. Deliveries of uranium feed for U.S. and foreign enrichment by owners and operators of U.S. civilian nuclear power reactors by delivery year, 2013-15

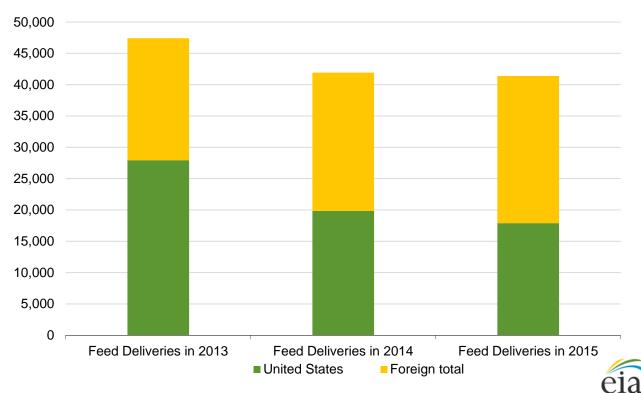


Table 14. Deliveries of uranium feed for enrichment by owners and operators of U.S. civilian nuclear power reactors by origin country and delivery year, 2013-15

		Deliv	eries in 2013		Delive	ries in 2014		Delive	ries in 2015
Origin country of feed	U.S. enrichment	Foreign enrichment	Total	U.S. enrichment	Foreign enrichment	Total	U.S. enrichment	Foreign enrichment	Total
Australia	2,417	2,476	4,893	910	4,467	5,377	1,673	3,797	5,470
Brazil	0	W	W	0	W	W	0	W	W
Canada	4,889	4,673	9,562	5,424	4,315	9,738	6,212	9,698	15,910
China	0	W	W	0	W	W	0	W	W
Czech Republic	0	0	0	0	0	0	0	W	W
Kazakhstan	1,366	1,941	3,307	W	W	3,868	3,490	4,173	7,662
Malawi	W	W	W	W	W	745	W	W	347
Namibia	1,260	1,882	3,142	1,143	1,798	2,941	963	1,588	2,551
Niger	W	W	518	W	W	1,322	0	W	W
Portugal	0	W	W	0	0	0	0	0	0
Russia	14,797	3,423	18,220	8,313	4,174	12,486	4,019	1,490	5,509
South Africa	W	W	211	109	322	431	W	W	445
Ukraine	0	0	0	0	W	W	0	0	0
United Kingdom	0	0	0	W	0	W	0	0	0
Uzbekistan	422	585	1,007	W	W	823	W	W	108
unknown	0	0	0	0	0	0	0	W	W
Foreign total	25,345	17,664	43,009	17,961	21,248	39,209	16,407	22,437	38,844
United States	2,600	1,809	4,409	1,893	826	2,719	1,485	1,056	2,541
Total	27,945	19,473	47,418	19,854	22,074	41,928	17,892	23,493	41,385

W = Data withheld to avoid disclosure of individual company data.

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

Figure 13. Deliveries of uranium feed for enrichment by owners and operators of U.S. civilian nuclear power reactors by selected origin country of feed and delivery year, 2013-15

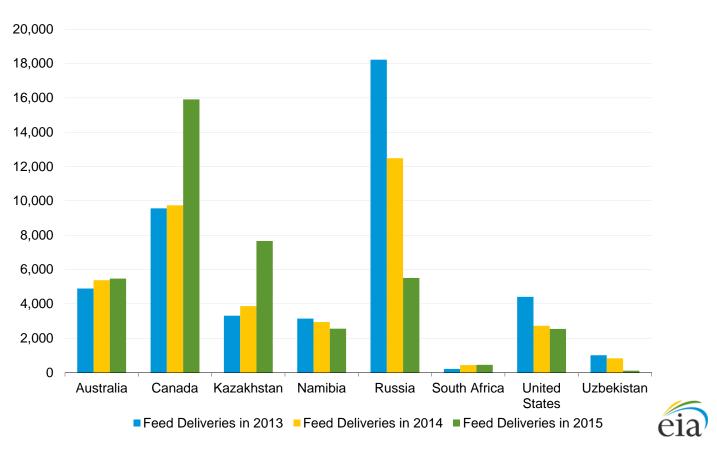


Table 15. Shipments of uranium feed by owners and operators of U.S. civilian nuclear power reactors to domestic and foreign enrichment suppliers, 2016-25

	Amount of feed to be shipped		Change	from 2014 to 2015
	As of	As of		
Year of shipment	December 31, 2014	December 31, 2015	Annual	Cumulative
2016	46,529	42,040	-4,489	-4,489
2017	49,924	43,576	-6,348	-10,837
2018	51,169	41,579	-9,590	-20,427
2019	46,184	40,326	-5,858	-26,285
2020	49,598	45,243	-4,355	-30,640
2021	51,793	47,024	-4,769	-35,409
2022	50,286	47,139	-3,147	-38,556
2023	49,118	45,242	-3,876	-42,432
2024	51,829	51,712	-117	-42,549
2025	-	45,224		

<sup>- =</sup> No data reported. -- = Not applicable.

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

Figure 14. Shipments of uranium feed by owners and operators of U.S. civilian nuclear power reactors to domestic and foreign enrichment suppliers, 2016-24

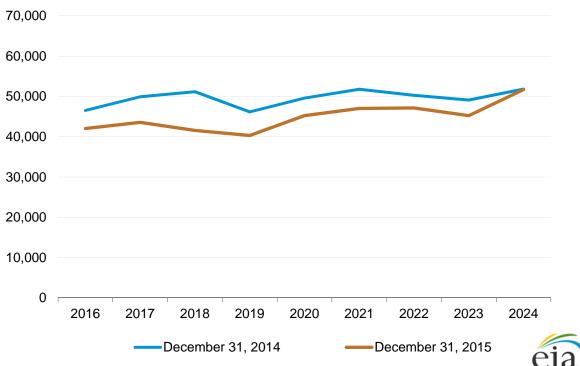


Table 16. Purchases of enrichment services by owners and operators of U.S. civilian nuclear power reactors by origin country and year, 2011-15

thousand separative work units (SWU)

Country of enrichment service (SWU-

origin)	2011	2012	2013	2014	2015
China	W	W	W	636	W
France	W	0	0	0	0
Germany	1,539	1,075	753	1,005	1,281
Netherlands	1,506	1,496	2,112	1,801	2,385
Russia	5,308	6,560	2,491	3,083	2,234
United Kingdom	2,813	2,648	2,674	2,435	2,522
Europe <sup>1</sup>	670	W	0	W	0
Other <sup>2</sup>	0	W	W	W	W
Foreign total	12,395	12,330	8,464	9,165	8,769
United States	2,434	3,261	3,867	3,773	4,146
Total	14,829	15,590	12,331	12,939	12,914
Average price (US\$ per SWU)	136.12	141.36	142.22	140.75	136.88

W = Data withheld to avoid disclosure of individual company data.

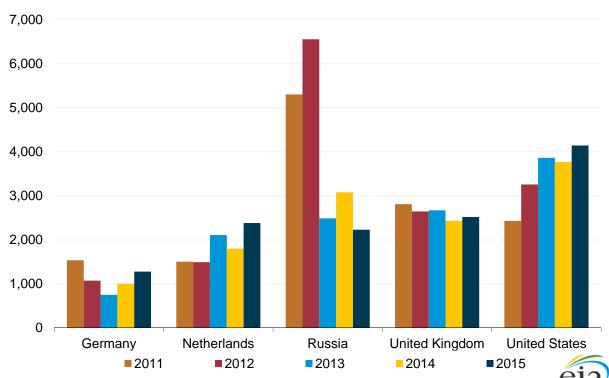
Notes: Totals may not equal sum of components because of independent rounding. Average prices are not adjusted for inflation. Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2011-15).

<sup>&</sup>lt;sup>1</sup> Specific country in Europe was not reported.

<sup>&</sup>lt;sup>2</sup> Specific country was not reported.

Figure 15. Purchases of enrichment services by owners and operators of U.S. civilian nuclear power reactors by selected origin country and year, 2011-15

thousand separative work units (SWU)



Source: U.S. Energy Information Administration: Form EIA-858 "Uranium Marketing Annual Survey" (2011-15).

Table 17. Purchases of enrichment services by owners and operators of U.S. civilian nuclear power reactors by contract type in delivery year, 2015

thousand separative work units (SWU)

<b>Enrichment service</b>		Foreign	
contract type	U.S. enrichment	enrichment	Total
Spot	W	W	1,051
Long-term	W	W	11,864
Total	4,146	8,769	12,914

W = Data withheld to avoid disclosure of individual company data.

Note: Totals may not equal sum of components because of independent rounding. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2015).

Table 18. Uranium in fuel assemblies loaded into U.S. civilian nuclear power reactors by year, 2011-15

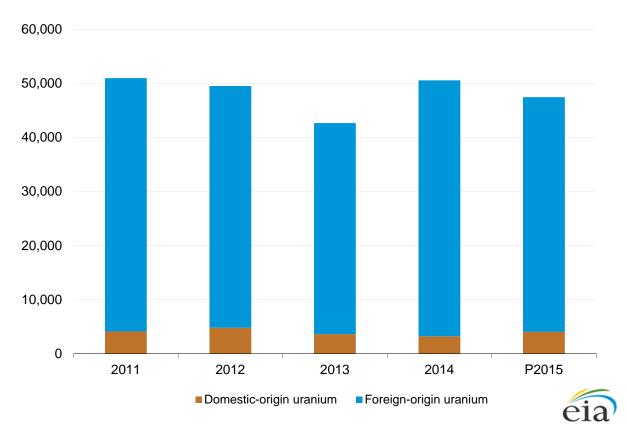
Origin of uranium	2011	2012	2013	2014	P2015
Domestic-origin uranium	4,134	4,825	3,643	3,251	4,050
Foreign-origin uranium	46,809	44,657	39,000	47,281	43,381
Total	50,943	49,483	42,642	50,532	47,431

P = Preliminary data. Final 2014 fuel assembly data reported in the 2015 survey.

Notes: Includes only unirradiated uranium in new fuel assemblies loaded into reactors during the year. Does not include uranium removed from reactors that subsequently will be reloaded. Totals may not equal sum of components because of independent rounding.

Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2012-15).

Figure 16. Uranium in fuel assemblies loaded into U.S. civilian nuclear power reactors by year, 2011-15 thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent



P = Preliminary data. Final 2014 fuel assembly data reported in the 2015 survey. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2012-15).

Table 19. Foreign purchases of uranium by U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors by delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Deliveries	2011	2012	2013	2014	2015
U.S. suppliers					
Foreign purchases	19,318	20,196	23,233	24,199	27,233
Weighted-average price	48.80	46.80	43.25	39.13	40.68
Owners and operators of U.S. civilian n	uclear power reactors				
Foreign purchases	35,071	36,037	34,095	34,404	36,912
Weighted-average price	56.87	54.08	51.64	47.62	44.70
Total					
Foreign purchases	54,388	56,233	57,328	58,603	64,145
Weighted-average price	54.00	51.44	48.24	44.11	42.96

Notes: Totals may not equal sum of components because of independent rounding. Foreign Purchase: A uranium purchase of foreign-origin uranium from a firm located outside of the United States. Weighted-average prices are not adjusted for inflation.

Figure 17. Foreign purchases of uranium by U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors by delivery year, 2011-15

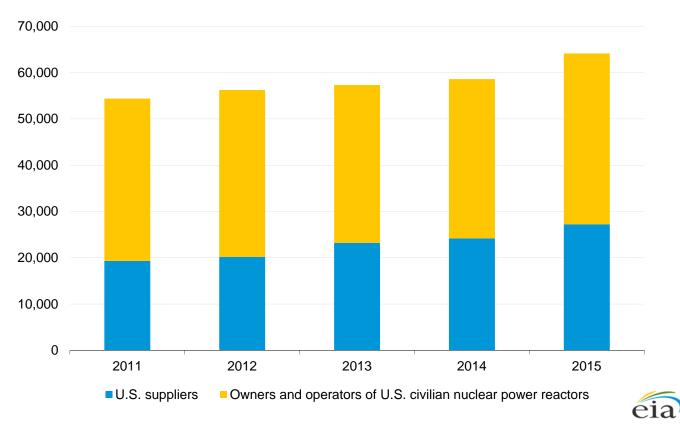


Table 20. U.S. broker and trader purchases of uranium by origin, supplier, and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Deliveries	2011	2012	2013	2014	2015
Received U.Sorigin uranium					
Purchases	1,668	1,194	W	410	2,702
Weighted-average price	54.85	51.78	W	33.55	35.04
Received foreign-origin uranium					
Purchases	24,695	24,606	W	28,743	33,014
Weighted-average price	49.69	47.75	W	38.42	39.58
Total received by U.S. brokers and traders					
Purchases	26,363	25,800	30,191	29,153	35,716
Weighted-average price	50.02	47.94	42.95	38.35	39.24
Received from foreign suppliers					
Purchases	19,579	20,243	W	W	26,069
Weighted-average price	49.27	47.08	W	W	40.77

W = Data withheld to avoid disclosure of

individual company data.

Notes: Totals may not equal sum of components because of independent rounding. Weighted-average prices are not adjusted for inflation.

Figure 18. U.S. broker and trader purchases of uranium by delivery year, 2011-15

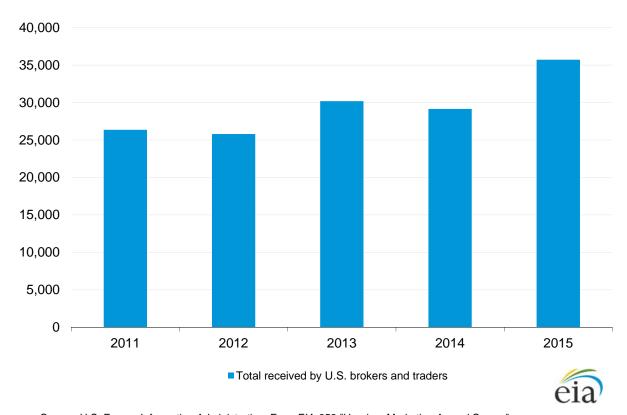


Table 21. Foreign sales of uranium from U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors by origin and delivery year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent; dollars per pound U<sub>3</sub>O<sub>8</sub> equivalent

Deliveries to foreign suppliers and utilities	2011	2012	2013	2014	2015
U.Sorigin uranium					
Foreign sales	4,387	4,798	4,148	4,210	4,258
Weighted-average price	53.08	47.53	43.10	32.91	37.85
Foreign-origin uranium					
Foreign sales	12,297	13,185	14,717	15,794	21,465
Weighted-average price	47.61	47.58	42.66	36.43	39.58
Total sent:					
Foreign sales	16,683	17,982	18,864	20,004	25,723
Weighted-average price	49.05	47.57	42.75	35.69	39.29
From owners and operators of U.S. civilian nuclear	power reactors, U.S.	producers, and	other U.S. supp	liers	
Foreign sales	4,538	3,699	4,177	4,493	6,022
Weighted-average price	52.63	47.26	44.61	36.45	38.77
From U.S. brokers and traders					
Foreign sales	12,145	14,284	14,687	15,511	19,700
Weighted-average price	47.71	47.65	42.26	35.47	39.45

Notes: "Other U.S. Suppliers" are U.S. converters, enrichers, and fabricators. Totals may not equal sum of components because of independent rounding. Foreign sale: A uranium sale to a firm located outside the United States. Weighted-average prices are not adjusted for inflation.

Figure 19. Foreign sales of uranium from U.S. suppliers and owners and operators of U.S. civilian nuclear power reactors by origin and delivery year, 2011-15

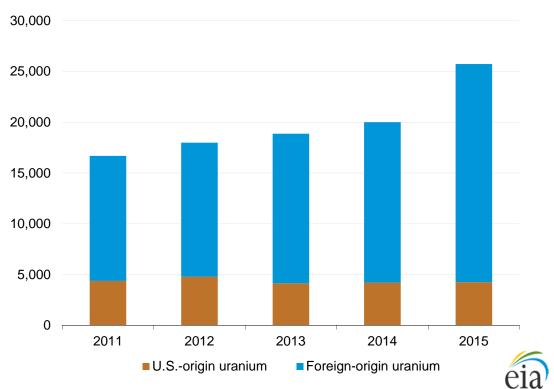


Table 22. Inventories of natural and enriched uranium by material type as of end of year, 2011-15

		Inventories a	t the end of the	year	
Type of Uranium Inventory Owned by	2011	2012	2013	2014	P2015
Owners and operators of U.S. civilian nuclear power reactors inventories	89,835	97,647	113,077	114,046	120,857
Uranium concentrate (U₃O <sub>8</sub> )	14,718	15,963	18,131	19,060	20,635
Natural UF <sub>6</sub>	35,883	29,084	38,332	40,803	47,253
Enriched UF <sub>6</sub>	19,596	38,428	40,841	43,382	42,151
Fabricated fuel (not inserted into a reactor)	19,638	14,173	15,773	10,802	10,819
U.S. supplier inventories	22,269	23,289	21,342	18,682	15,066
Uranium concentrate (U₃O8)	7,057	W	7,658	6,170	6,289
Natural UF <sub>6</sub>	W	W	W	W	W
Enriched UF <sub>6</sub>	W	W	W	W	W
Fabricated fuel (not inserted into a reactor)	0	0	0	0	0
Total Commercial Inventories	112,104	120,936	134,418	132,728	135,923

P = Preliminary data. Final 2014 inventory data reported in the 2015 survey.

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

W = Data withheld to avoid disclosure of individual company data.

160,000
140,000
120,000
100,000
80,000
40,000
20,000
0
2011
2012
2013
2014
P2015

Figure 20. Commercial inventories of natural and enriched uranium as of end of year, 2011-15

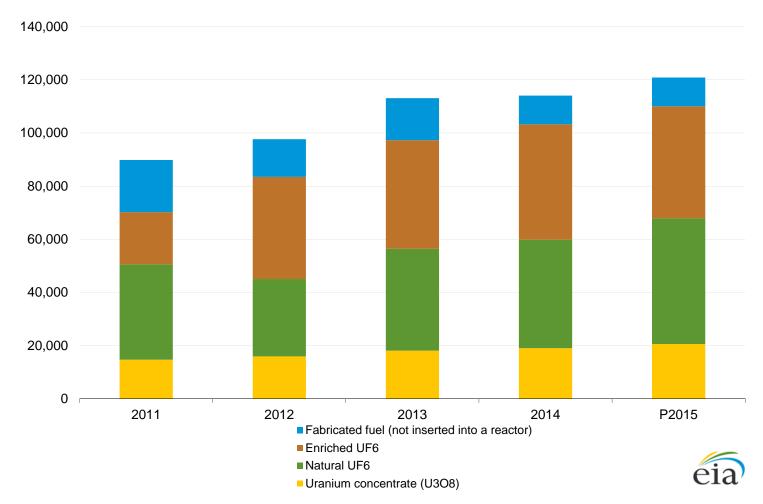
Owners and operators of U.S. civilian nuclear power reactors inventories

P = Preliminary data. Final 2014 inventory data reported in the 2015 survey. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2012-15).

■ U.S. supplier inventories



Figure 21. Owners and operators of U.S. civilian nuclear power reactors inventories by material type as of end of year, 2011-15 thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent



P = Preliminary data. Final 2014 inventory data reported in the 2015 survey. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2012-15).

## Table 23. Inventories of uranium by owner as of end of year, 2011-15

thousand pounds U<sub>3</sub>O<sub>8</sub> equivalent

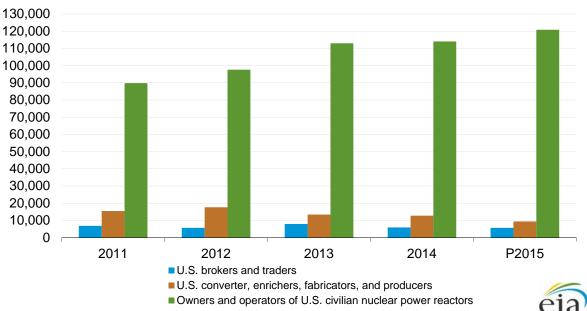
## Inventories at the End of Year

Owner of uranium inventory	2011	2012	2013	2014	P2015
Owners and operators of U.S. civilian nuclear power reactors	89,835	97,647	113,007	114,046	120,857
U.S. brokers and traders	6,841	5,677	7,926	5,916	5,678
U.S. converter, enrichers, fabricators, and producers	15,428	17,611	13,416	12,766	9,388
Total commercial inventories	112,104	120,936	134,418	132,728	135,923

P = Preliminary data. Final 2014 inventory data reported in the 2015 survey.

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

Figure 22. Commercial inventories of uranium by owner as of end of year, 2011-15



P=Preliminary data. Final 2014 inventory data reported in the 2015 survey. Source: U.S. Energy Information Administration, Form EIA-858 "Uranium Marketing Annual Survey" (2012-15).

Table 24. Uranium sellers to owners and operators of U.S. civilian nuclear power reactors, 2013-15

2013	2014	2015
American Fuel Resources, LLC	Advance Uranium Asset Management Ltd.	AREVA / AREVA NC, Inc.
AREVA NC, Inc.	AREVA / AREVA NC, Inc.	ARMZ (AtomRedMetZoloto)
BHP Billiton Olympic Dam Corporation Pty Ltd	ARMZ (AtomRedMetZoloto)	BHP Billiton Olympic Dam Corporation Pty Ltd
CAMECO	BHP Billiton Olympic Dam Corporation Pty Ltd	CAMECO
ConverDyn	CAMECO	CGN Global Uranium Limited
Deutsche Bank	Deutsche Bank	ConverDyn
Energy Fuels Resources	Energy Fuels Resources	Deutsche Bank
Energy Resources of Australia Ltd.	Energy Resources of Australia Ltd.	Duke Energy Florida, Inc.
Energy USA, Inc.	Energy USA, Inc.	Energy Fuels Resources
Itochu Corporation / Itochu International	Itochu Corporation / Itochu International	Energy Resources of Australia Ltd.
J. Aron & Company	J. Aron & Company	Energy USA, Inc.
Kazatomprom	Kazatomprom	Itochu Corporation / Itochu International
Langer Heinrich Uranium Ltd (Paladin Energy)	Langer Heinrich Uranium Ltd (Paladin Energy)	Kazatomprom
Louisiana Energy Services LLC	Mestena Uranium LLC	Langer Heinrich Uranium Ltd (Paladin Energy)
Mestena Uranium LLC	MTM Trading, LLC	Macquarie Bank
MTM Trading, LLC	Nufcor International Limited	Mitsui & Co.
Nufcor International Limited	NUKEM, Inc.	MTM Trading, LLC
NUKEM, Inc.	NYNCO Trading, Ltd.	Nufcor International Limited
NYNCO Trading, Ltd.	Paladin Resources Limited / Paladin Energy	NUKEM, Inc.
Paladin Resources Limited / Paladin Energy	PPL Energy Plus LLC	NYNCO Trading, Ltd.
Rossing Uranium Limited	Rio Tinto Uranium Limited	Paladin Resources Limited / Paladin Energy
SOPAMIN (Société de Patrimoine des Mines du Niger "Heritage		
Society of Mines in Niger")	Rossing Uranium Limited	Rio Tinto Uranium Limited
TENIANC	SOPAMIN (Société de Patrimoine des Mines du Niger "Heritage	Barrier Harrison Harrier I
TENAM Corporation	Society of Mines in Niger")	Rossing Uranium Limited
TENEX (Techsnabexport)	TENAM Corporation	SOPAMIN (Société de Patrimoine des Mines du Niger "Heritage Society of Mines in Niger")
Traxys North America, LLC	TENEX (Techsnabexport)	Southern Cross Resources Australia Pty. Ltd.
UG U.S.A., Inc.	Traxys North America, LLC	TENAM Corporation
Uranium One	UG U.S.A., Inc.	TENEX (Techsnabexport)
UrAsia Energy Ltd.	Uranerz Energy Corporation	Traxys North America, LLC
URENCO, Inc.	Uranium One	UG U.S.A., Inc.
URENCO USA (LES)	UrAsia Energy Ltd.	Uranerz Energy Corporation
Ur-Energy / Ur-Energy USA Inc	URENCO, Inc.	Uranium One
USEC, Inc. (United States Enrichment Corporation)	Ur-Energy / Ur-Energy USA Inc	UrAsia Energy Ltd.
Westinghouse Electric Company, LLC	USEC, Inc. (United States Enrichment Corporation)	URENCO, Inc.
	Westinghouse Electric Company, LLC	Ur-Energy / Ur-Energy USA Inc
	3 3	USEC, Inc. (United States Enrichment Corporation)

## Table 25. Enrichment service sellers to owners and operators of U.S. civilian nuclear power reactors, 2013-15

2013	2014	2015
AREVA NC, Inc.	AREVA Enrichment Services, LLC / AREVA NC, Inc.	AREVA Enrichment Services, LLC / AREVA NC, Inc.
CNEIC (China Nuclear Energy Industry Corporation)	CNEIC (China Nuclear Energy Industry Corporation)	CAMECO
LES, LLC (Louisiana Energy Services)	LES, LLC (Louisiana Energy Services)	CNEIC (China Nuclear Energy Industry Corporation)
NUKEM, Inc.	NYNCO Trading, LTD	Energy Northwest
NYNCO Trading, LTD	TENAM Corporation	LES, LLC (Louisiana Energy Services)
TENAM Corporation	TENEX (Techsnabexport Joint Stock Company)	TENAM Corporation
TENEX (Techsnabexport Joint Stock Company)	UG U.S.A., Inc.	TENEX (Techsnabexport Joint Stock Company)
URENCO, Inc.	URENCO, Inc.	UG U.S.A., Inc.
URENCO USA, Inc.	URENCO USA, Inc.	URENCO, Inc.
USEC, Inc. (United States Enrichment Corporation)	USEC, Inc. (United States Enrichment Corporation)	URENCO USA, Inc.
	Westinghouse Electric Company, LLC	USEC, Inc. (United States Enrichment Corporation)
		Westinghouse Electric Company, LLC