2023 Domestic Uranium Production Report

May 2024

Independent Statistics and Analysis
U.S. Energy Information Administration

www.eia.gov
U.S. Department of Energy
Washington, DC 20585

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Contacts

EIA's Electricity Supply & Uranium Statistics & Product Innovation Team prepared this report. If you have questions about this report, email us.

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Introduction

In this report, EIA provides detailed data on U.S. uranium production activities from 2009 through 2023.

Data in this report are based primarily on information reported on Form EIA-851A, *Domestic Uranium Production Report (Annual)*, and some information reported on Form EIA-858, *Uranium Marketing Annual Survey*. The Form EIA-851A survey collects data on uranium milling and in-situ recovery processing, feed sources, mining, employment, drilling, expenditures, and reserve estimates. The Form EIA-858 survey includes data collected on uranium contracts and deliveries.

Previous editions of this report are available on our website.

Definitions for terms in this report are available in our Energy Glossary.

Mining, production, shipments, and sales

U.S. uranium mines produced 50,000 pounds of of triuranium octoxide (U_3O_8), or uranium concentrate in 2023, a significant decrease from the 194,000 pounds produced in 2022 as no production occurred at White Mesa Mill in Utah. The production of uranium concentrate is the first step in the nuclear fuel production process, preceding the conversion of U_3O_8 into UF_6 to enable uranium enrichment, then fuel pellet fabrication, and finally fuel assembly fabrication.

Drilling and exploration

Exploration drilling during 2023 was 877 holes with total footage of 512,000 feet. This is up considerably from the 259 holes with total footage of 151,000 feet drilled in 2022. Development drilling totaled 1,053 holes with total footage of 556,000 feet. This is also up from 2022 development drilling of 749 holes and 384,000 feet. Exploration and development drilling activities in 2023 were at the highest levels since 2013 for number of holes drilled and 2014 for total footage drilled.

Facility status (mills, heap leach plants, and in-situ recovery plants)

At the end of 2023, the White Mesa Mill and the Shootaring Canyon Uranium Mill in Utah and the Sweetwater Uranium Project in Wyoming were on standby with a total capacity of 5,750 short tons of material per day. In Wyoming, the Sheep Mountain heap leach facility remains in the planning stages.

Regarding in-situ recovery facilities, at the end of 2023 the Lost Creek Project and the Smith Ranch-Highland Operation in Wyoming were operating with a combined capacity of 7.5 million pounds U_3O_8 per year. Nine in-situ recovery plants were on standby as of the end of 2023 with a combined annual production capacity of 13.8 million pounds U_3O_8. Ten in-situ recovery plants were planned for four states: New Mexico, South Dakota, Texas, and Wyoming with a combined annual production capacity of 15 million pounds U_3O_8.

Employment and expenditures

Total employment in the U.S. uranium production industry was 340 full-time person-years (one person year is equal to full-time employment for one person) in 2023, a 73% increase from the 196 full-time person-years in 2022 and the highest employment total since 2018.

Expenditures for land, exploration, drilling, production, and reclamation totaled $107.4 million in 2023, up from $84.7 million in 2022 and the highest total expenditures since 2018.

Table 1. U.S. uranium drilling activities, 2009–23

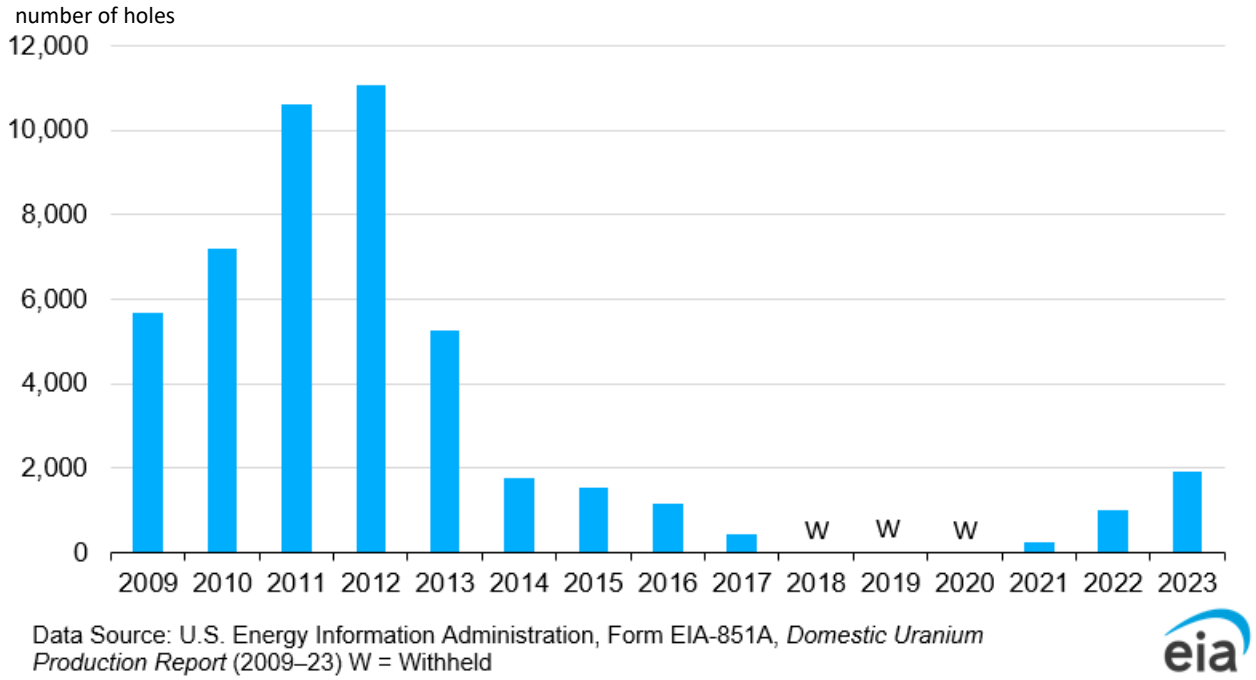
Year	Exploration drilling		Development drilling		Exploration and development drilling	
	number of holes	feet (thousand)	number of holes	feet (thousand)	number of holes	feet (thousand)
2009	1,790	1,051	3,889	2,691	5,679	3,742
2010	2,439	1,460	4,770	3,444	7,209	4,904
2011	5,441	3,322	5,156	3,003	10,597	6,325
2012	5,112	3,447	5,970	3,709	11,082	7,156
2013	1,231	919	4,013	2,926	5,244	3,845
2014	W	W	W	W	1,752	1,299
2015	W	W	W	W	1,518	878
2016	W	W	W	W	1,158	757
2017	W	W	W	W	420	196
2018	W	W	W	W	W	W
2019	W	W	W	W	W	W
2020	W	W	W	W	W	W
2021	W	W	W	W	260	123
2022	259	151	749	384	1,008	534
2023	877	512	1,053	556	1,930	1,068

NA = Not available. W = Data withheld to avoid disclosure of individual company data.

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

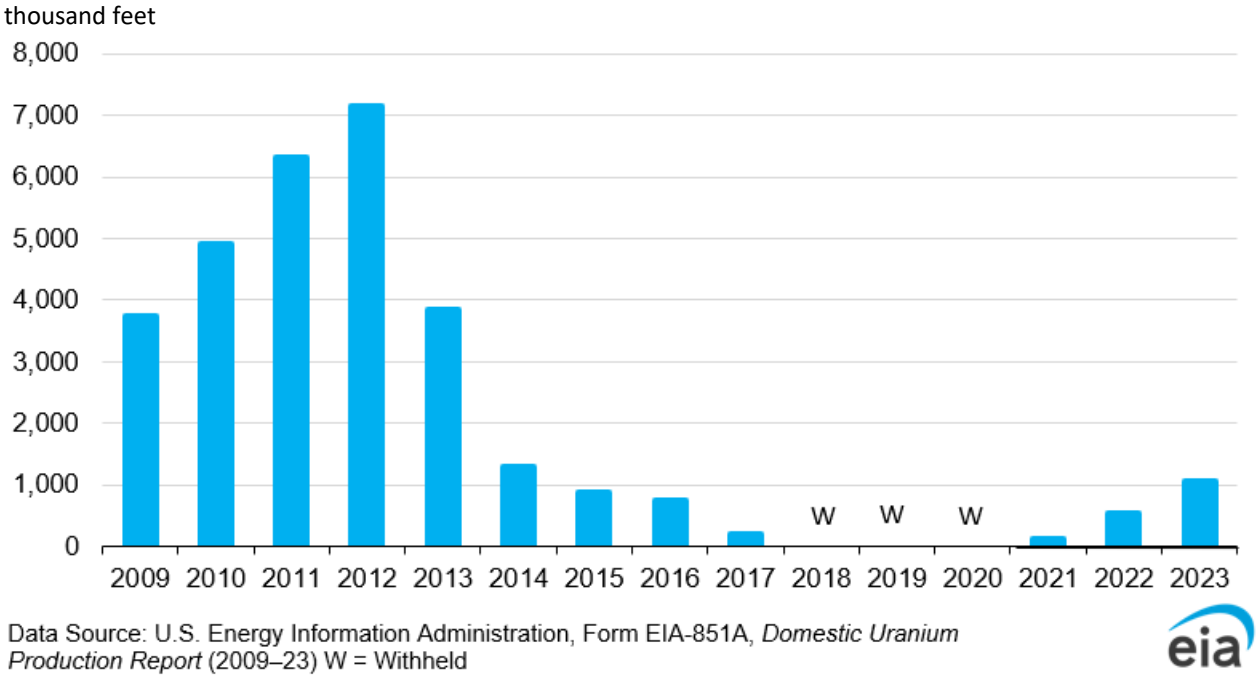
Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Figure 1. U.S. uranium drilling by number of holes, 2009–23



Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23) W = Withheld

Figure 2. U.S. uranium drilling, 2009–23



Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23) W = Withheld

Table 2. U.S. uranium mine production and number of mines and sources, 2009–23

Production / mining method	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Underground															
(estimated contained thousand pounds U_3O_8)	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Open pit															
(estimated contained thousand pounds U_3O_8)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-situ recovery															
(thousand pounds U_3O_8)	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Other[1]															
(thousand pounds U_3O_8)	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Total mine production															
(thousand pounds U_3O_8)	**4,145**	**4,237**	**4,114**	**4,335**	**4,577**	**4,912**	**3,711**	**2,545**	**1,150**	**721**	**174**	**W**	**21**	**194**	**50**
Number of operating mines															
Underground	14	4	5	6	3	2	1	0	0	0	1	1	0	0	0
Open pit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
In-Situ leaching	4	4	5	5	7	8	7	8	6	6	5	5	3	4	5
Other sources[1]	2	1	1	1	2	1	1	1	1	1	0	0	0	1	0
Total mines and sources	**20**	**9**	**11**	**12**	**12**	**11**	**9**	**9**	**7**	**7**	**6**	**6**	**3**	**5**	**5**

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

[1] *Other* includes, in various years, mine water, mill site cleanup and mill tailings, and well field restoration as sources of uranium.

Notes: Totals may not equal sum of components because of independent rounding. Table does not include byproduct production and sources.

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Table 3. U.S. uranium concentrate production, shipments, and sales, 2009–23

Activity at U.S. mills and in-situ-leach plants	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Estimated contained U_3O_8 (thousand pounds)															
Ore from underground mines and stockpiles fed to mills [1]	W	W	W	W	W	W	0	0	0	0	W	W	W	0	0
Other feed materials [2]	W	W	W	W	W	W	W	W	W	W	W	W	W	162	0
Total mill feed	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**W**	**162**	**0**
Uranium concentrate produced at U.S. mills															
(thousand pounds U_3O_8)	W	W	W	W	W	W	W	W	W	W	W	W	W	162	0
Uranium concentrate produced at U.S. in-situ-leach plants															
(thousand pounds U_3O_8)	W	W	W	W	W	W	W	W	W	W	W	W	W	34	50
Total uranium concentrate production															
(thousand pounds U_3O_8)	3,708	4,228	3,991	4,146	4,659	4,891	3,343	2,916	2,443	1,447	174	W	21	194	50
Total uranium concentrate shipped from U.S. mills and in-situ-leach plants															
(thousand pounds U_3O_8)	3,620	5,137	4,000	3,911	4,655	4,593	4,023	3,018	2,277	1,489	190	W	W	162	560
Total uranium concentrate sales by U.S. producers [3]															
(thousand pounds U_3O_8)	2,044	2,684	2,870	3,630	4,447	4,746	3,634	2,691	1,254	1,541	W	W	W	W	908
Weighted-average price (dollars per pound U_3O_8)	36.61	37.59	52.36	49.63	44.65	39.17	42.86	38.22	41.34	32.51	W	W	W	W	61.59

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

[1] Uranium ore *fed to mills* in any year can include ore mined and shipped to a mill during the same year, ore that was mined during a previous year and later shipped from mine-site stockpiles, ore obtained from drawdowns of stockpiles maintained at a mill site, or a combination of these options.

[2] Includes for various years uranium from mill cleanup, mine water, tailings water, and other materials.

[3] Sales of U.S-origin uranium only.

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

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23), and Form EIA-858, *Uranium Marketing Annual Survey* (2009–23)

Table 4. U.S. uranium mills and heap leach facilities by owner, location, capacity, and operating status at end of the year, 2019–23

Owner	Mill and heap leach[1] facility name	County, State (existing and planned locations)	Capacity (short tons of ore per day)	2019	2020	2021	2022	2023
Anfield Resources	Shootaring Canyon Uranium Mill	Garfield, Utah	750	standby	standby	standby	standby	standby
EFR White Mesa LLC	White Mesa Mill	San Juan, Utah	2,000	standby	operating-processing alternate feed	standby	operating-processing alternate feed	standby
Energy Fuels Wyoming Inc	Sheep Mountain	Fremont, Wyoming	725	undeveloped	undeveloped	undeveloped	undeveloped	undeveloped
Kennecott Uranium Company/Wyoming Coal Resource Company	Sweetwater Uranium Project	Sweetwater, Wyoming	3,000	standby	standby	standby	standby	standby
Total Capacity:			**6,475**					

[1] Heap leach solutions: The separation, or dissolving-out from mined rock, of the soluble uranium constituents by the natural action of percolating a prepared chemical solution through mounded (heaped) rock material. The mounded material usually contains low grade mineralized material and waste rock, which are produced from open pit or underground mines. The solutions are collected after percolation is completed and processed to recover the valued components.

Notes: Capacity for 2023. An operating status of *Operating* indicates the mill usually was producing uranium concentrate at the end of the period.

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2019–23)

Table 5. U.S. uranium in-situ recovery plants by owner, location, capacity, and operating status at end of the year, 2019–23

In-situ recovery plant owner	In-situ recovery plant name	County, State (existing and planned locations)	Production capacity (pounds U_3O_8 per year)	2019	2020	2021	2022	2023
Uranium Energy Corporation	Reno Creek ISR Uranium Project	Campbell, Wyoming	2,000,000	partially permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Azarga Uranium Corp	Dewey Burdock Project	Fall River and Custer, South Dakota	1,000,000	partially permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Cameco	Crow Butte Operation	Dawes, Nebraska	1,000,000	standby	standby	standby	standby	standby
Hydro Resources, Inc.	Church Rock	McKinley, New Mexico	1,000,000	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed
Hydro Resources, Inc.	Crownpoint	McKinley, New Mexico	1,000,000	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed	partially permitted and licensed
Lost Creek ISR LLC	Lost Creek Project	Sweetwater, Wyoming	2,000,000	operating	operating	operating	operating	operating
Mestena Uranium LLC	Alta Mesa Project	Brooks, Texas	1,500,000	standby	standby	standby	standby	standby
Pathfinder Mines Corporation	Pathfinder Shirley Basin	Carbon County, Wyoming	2,000,000	developing	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Power Resources Inc., dba Cameco Resources	Smith Ranch-Highland Operation	Converse, Wyoming	5,500,000	operating	operating	operating	operating	operating
Uranium Energy Corporation	Hobson ISR Processing Plant	Karnes, Texas	2,000,000	standby	standby	standby	standby	standby
Uranium Energy Corporation	La Palangana ISR Uranium Project	Duval, Texas	1,000,000	standby	standby	standby	standby	standby
Strata Energy Inc	Ross CPP	Crook, Wyoming	3,000,000	standby	standby	standby	standby	standby
URI, Inc. (an enCore Energy company)	Kingsville Dome	Kleberg, Texas	1,000,000	restoration	standby	standby	standby	standby
URI, Inc. (an enCore Energy company)	Rosita	Duval, Texas	1,000,000	reclamation	standby	standby	standby	standby
URI, Inc. (an enCore Energy company)	Vasquez	Duval, Texas	1,000,000	restoration	reclamation	reclamation	reclamation	reclamation
Uranerz Energy Corporation (An Energy Fuels	Nichols Ranch ISR Project	Johnson and Campbell, Wyoming	2,000,000	operating	standby	standby	standby	standby
Uranium Energy Corporation	Burke Hollow ISR Uranium Project	Bee County, Texas	1,000,000	partially permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Uranium Energy Corporation	Goliad ISR Uranium Project	Goliad, Texas	1,000,000	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Uranium Energy Corporation	Jab and Antelope	Sweetwater, Wyoming	2,000,000	developing	developing	developing	developing	developing
Uranium Energy Corporation	Moore Ranch	Campbell, Wyoming	3,000,000	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed	permitted and licensed
Uranium Energy Corporation	Willow Creek Project (Christensen Ranch and Irigaray)	Campbell and Johnson, Wyoming	1,300,000	standby	standby	standby	standby	standby
Total Production Capacity:			**36,300,000**					

Notes: Production capacity for 2023. An operating status of *Operating* indicates the in-situ recovery plant usually was producing uranium concentrate at the end of the period. Hobson ISR Plant processes uranium concentrate that came from La Palangana. Hobson and La Palangana are part of the same project. ISR stands for in-situ recovery. Christensen Ranch and Irigaray are part of the Willow Creek Project. Uranerz Energy has a tolling arrangement with Cameco Resources. Uranium is first processed at the Nichols Ranch plant and then transported to the Smith Ranch-Highland Operation plant for final processing into Uranerz's uranium concentrate. CPP = central processing plant.

Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2019–23)

Table 6. Employment in the U.S. uranium production industry by category, 2009–23

person-years

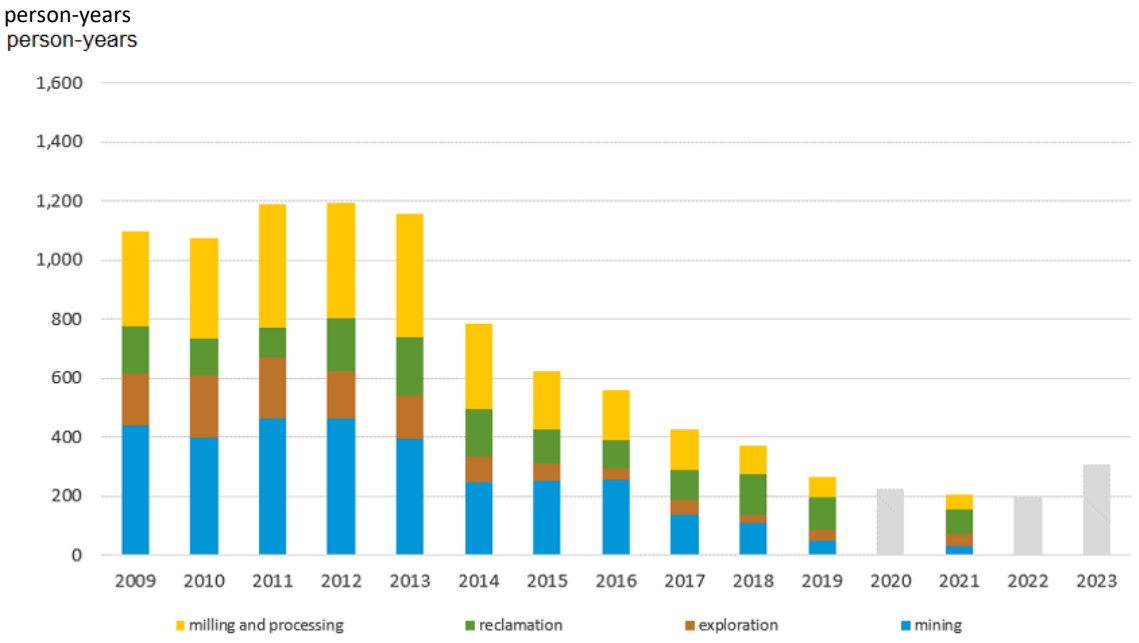
Year	Exploration	Mining	Milling	Processing	Reclamation	Total
2009	175	441	W	W	162	**1,096**
2010	211	400	W	W	125	**1,073**
2011	208	462	W	W	102	**1,191**
2012	161	462	W	W	179	**1,196**
2013	149	392	W	W	199	**1,156**
2014	86	246	W	W	161	**787**
2015	58	251	W	W	116	**625**
2016	38	255	W	W	98	**560**
2017	50	136	W	W	100	**424**
2018	27	110	W	W	138	**372**
2019	40	48	W	W	110	**265**
2020	W	W	W	W	W	**225**
2021	42	32	0	52	82	**207**
2022	W	W	W	50	105	**196**
2023	110	W	W	W	157	**340**

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

Note: Totals may not equal sum of components because of independent rounding. A large, one-time reclamation project needed to be withheld and was not included in 2016 data.

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Figure 3. Employment in the U.S. uranium production industry by category, 2009–23



Source: U.S. Energy Information Administration: Form EIA-851A, *Domestic Uranium Production Report* (2009-2023)

Table 7. Employment in the U.S. uranium production industry by state, 2009–23

person-years

State(s)	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Wyoming	308	348	424	512	531	416	343	323	245	197	146	112	96	89	160
Colorado and Texas	340	292	331	248	198	105	79	61	46	54	44	42	58	49	130
Nebraska and New Mexico	159	134	127	W	W	W	W	W	56	36	48	46	W	W	W
Arizona, Utah, and Washington	273	281	W	W	W	W	W	W	W	W	W	W	W	W	W
Alaska, Michigan, Nevada, and South Dakota	W	W	W	W	W	0	0	0	W	W	W	W	W	W	W
California, Montana, North Dakota, Oklahoma, Oregon, Utah, and Virginia	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W
Total	**1,096**	**1,073**	**1,191**	**1,196**	**1,156**	**787**	**625**	**560**	**424**	**372**	**265**	**225**	**207**	**196**	**340**

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

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

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Table 8. U.S. uranium expenditures, 2009–23

million dollars

			Land and other [3]				
Year	Drilling [1]	Production [2]	total land and other	land	exploration	reclamation	Total Expenditures
2009	35.4	141.0	104.0	17.3	24.2	62.4	**280.5**
2010	44.6	133.3	99.5	20.2	34.5	44.7	**277.3**
2011	53.6	168.8	96.8	19.6	43.5	33.7	**319.2**
2012	66.6	186.9	99.4	16.8	33.3	49.3	**352.9**
2013	49.9	168.2	90.6	14.6	21.6	54.4	**308.7**
2014	28.2	137.6	74.0	11.6	10.7	51.7	**239.7**
2015	28.7	118.5	76.2	12.1	4.7	59.4	**223.5**
2016	22.3	98.0	49.6	9.9	2.5	37.2	**169.9**
2017	4.0	78.3	40.2	8.9	3.7	27.7	**122.5**
2018	W	65.9	W	W	W	W	**108.8**
2019	W	38.0	W	W	W	W	**81.0**
2020	W	40.0	W	W	W	W	**87.0**
2021	W	29.2	W	8.6	W	W	**72.5**
2022	9.4	22.2	53.1	11.4	5.4	36.4	**84.7**
2023	28.5	22.5	56.4	8.3	16.5	31.6	**107.4**

NA = Not available. W = Data withheld to avoid disclosure of individual company data.

[1] Drilling: All expenditures directly associated with exploration and development drilling.

[2] Production: All expenditures for mining, milling, processing of uranium, and facility expense.

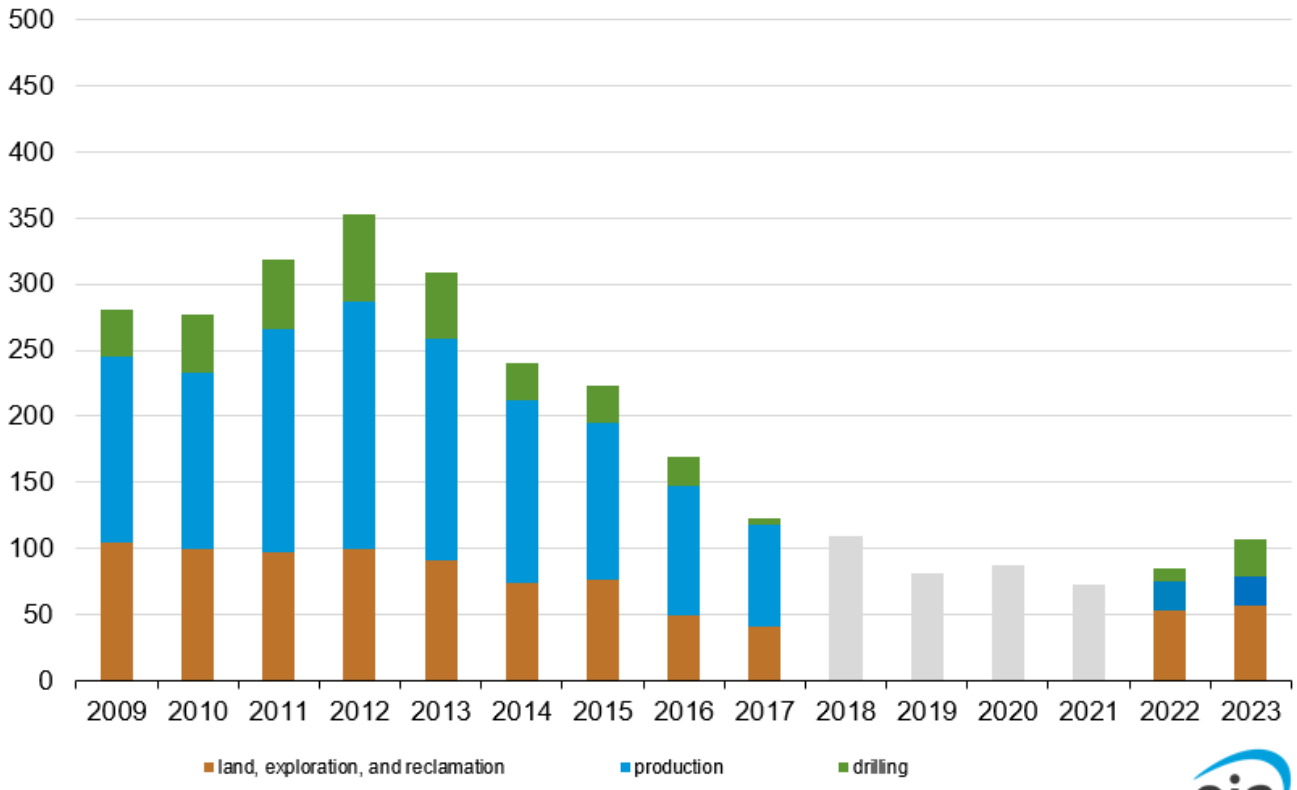
[3] Land and Other: All expenditures for land; geological research; geochemical and geophysical surveys; costs incurred by field personnel in the course of exploration, reclamation, and restoration work; and overhead and administrative charges directly associated with supervising and supporting field activities.

Notes: Expenditures are in nominal U.S. dollars. Totals may not equal sum of components because of independent rounding.

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23).

Figure 4. U.S. uranium expenditures, 2009–23

million dollars



Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Table 9. Summary production statistics of the U.S. uranium industry, 2009–23

Year	Exploration and development surface drilling million feet	Exploration and development drilling expenditures [1] million dollars	Mine production of uranium million pounds U_3O_8	Uranium concentrate production million pounds U_3O_8	Uranium concentrate shipments million pounds U_3O_8	Employment person-years
2009	3.7	35.4	4.1	3.7	3.6	1,096
2010	4.9	44.6	4.2	4.2	5.1	1,073
2011	6.3	53.6	4.1	4.0	4.0	1,191
2012	7.2	66.6	4.3	4.1	3.9	1,196
2013	3.8	49.9	4.6	4.7	4.7	1,156
2014	1.3	28.2	4.9	4.9	4.6	787
2015	0.9	28.7	3.7	3.3	4.0	625
2016	0.8	22.3	2.5	2.9	3.0	560
2017	0.2	4.0	1.2	2.4	2.3	424
2018	W	W	0.7	1.6	1.5	372
2019	W	W	0.2	0.2	0.2	265
2020	W	W	W	W	W	225
2021	0.1	W	0.02	0.02	W	207
2022	0.5	9.4	0.02	0.2	0.2	196
2023	1.1	28.5	0.5	0.5	0.6	340

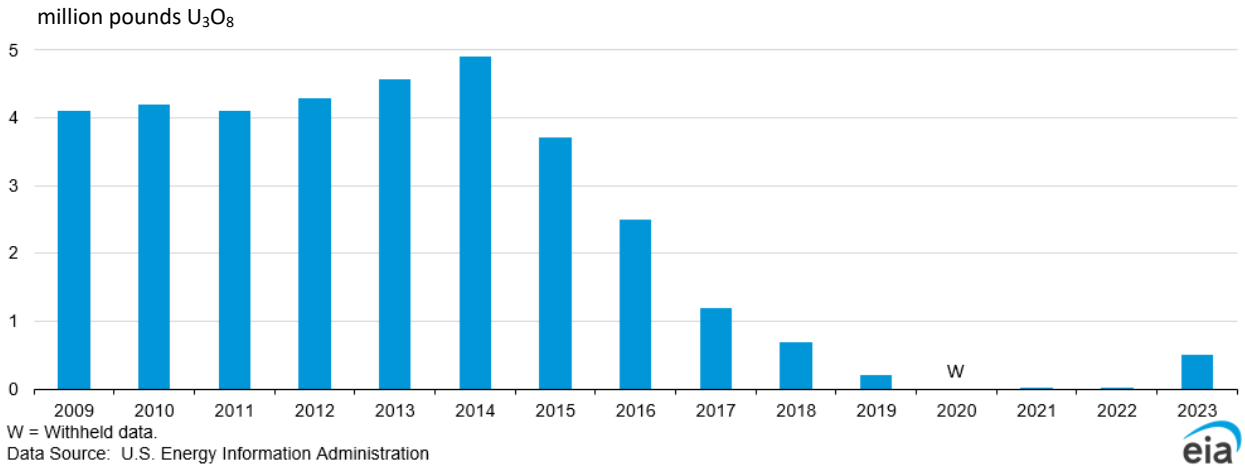
W = Data withheld to avoid disclosure of individual company data.

[1] Expenditures are in nominal U.S. dollars.

Note: A large, one-time reclamation project needed to be withheld and was not included in 2016 data.

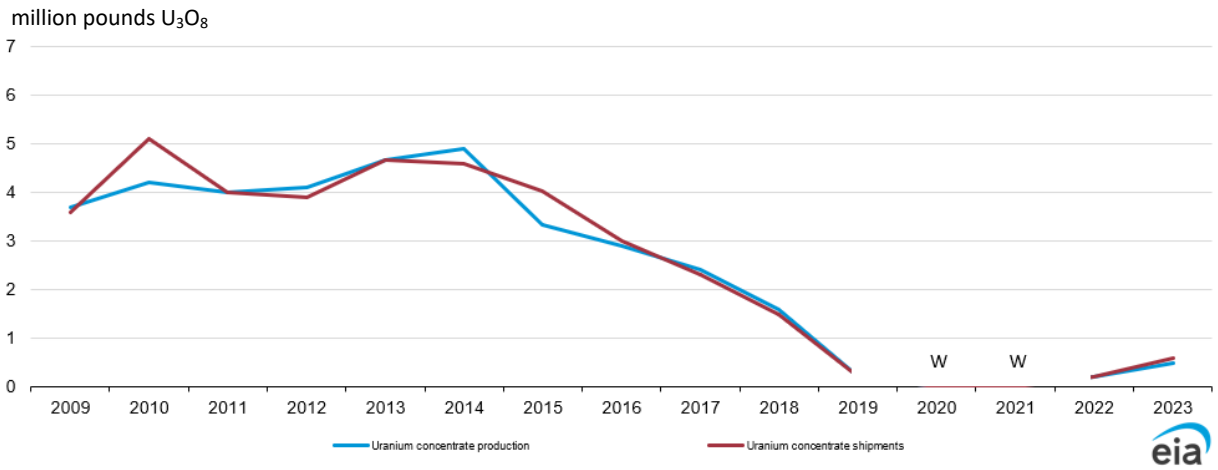
Data Source: U.S. Energy Information Administration, 2009-2023 data from Form EIA-851A, *Domestic Uranium Production Report* (2009–23)

Figure 5. U.S. mine production of uranium, 2009–23



W = Withheld data.
Data Source: U.S. Energy Information Administration

Figure 6. U.S. uranium concentrate production and shipments, 2009–23



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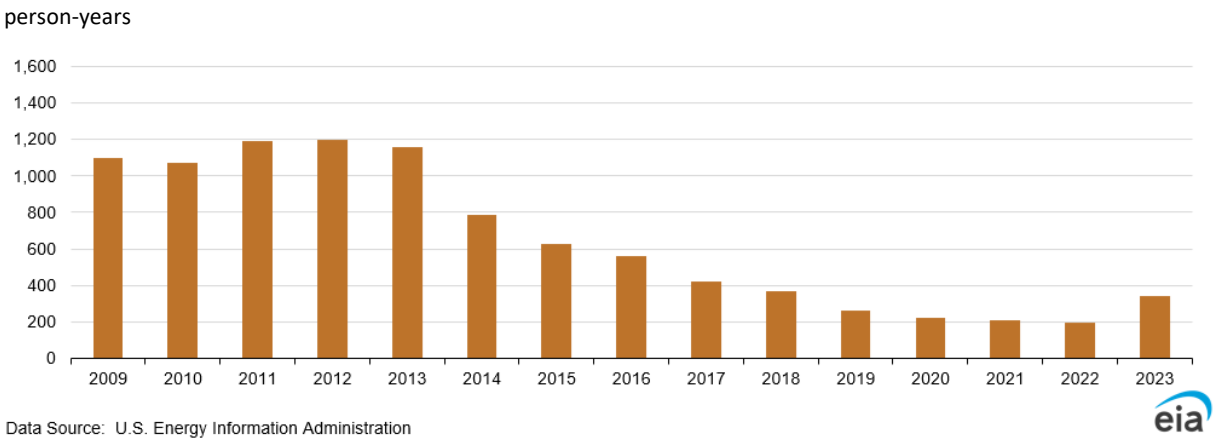
Data Source: U.S. Energy Information Administration

Figure 7. Employment in the U.S. uranium production industry, 2009–23



Data Source: U.S. Energy Information Administration

Table 10. Uranium reserve estimates at the end of 2022 and 2023

million pounds U3O8

Uranium reserve estimates[1] by mine and property status, mining method, and State(s)	End of 2022			End of 2023		
	Forward Cost[2]					
	$0 to $30 per pound	$0 to $50 per pound	$0 to $100 per pound	$0 to $30 per pound	$0 to $50 per pound	$0 to $100 per pound
Properties with exploration completed, exploration continuing, and only assessment work	W	W	W	W	W	W
Properties under development for production and development drilling	W	W	W	W	W	W
Mines in production	W	W	W	W	W	W
Mines closed temporarily, closed permanently, and mined out	W	W	W	W	W	W
Total	**W**	**W**	**437.5**	**W**	**W**	**446.2**
In-situ leach mining	W	W	W	W	W	W
Underground and open pit mining	W	W	W	W	W	W
Total	**W**	**W**	**437.5**	**W**	**W**	**446.2**
Arizona, New Mexico, and Utah	W	W	W	W	W	W
Colorado, Nebraska, and Texas	W	W	W	W	W	W
Wyoming	W	W	W	W	W	W
Total	**W**	**W**	**437.5**	**W**	**W**	**446.2**

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

[1] These uranium reserve estimates cannot be compared with the much larger historical data set of uranium reserves that were published in the July 2010 report *U.S. Uranium Reserves Estimates* . Reserves, as reported here, do not necessarily imply compliance with U.S. or international government definitions for purposes of investment disclosure.

[2] Forward Cost: The operating and capital costs still to be incurred in the production of uranium from in-place reserves. By using forward costing, estimates for reserves for ore deposits in differing geological settings and status of development can be aggregated and reported for selected cost categories. Included are costs for labor, materials, power and fuel, royalties, payroll taxes, insurance, and applicable general and administrative costs. Excluded from forward cost estimates are prior expenditures, if any, incurred for property acquisition, exploration, mine development, and mill construction, as well as income taxes, profit, and the cost of money. Forward costs are neither the full costs of production nor the market price at which the uranium, when produced, might be sold.

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

Data Source: U.S. Energy Information Administration, Form EIA-851A, *Domestic Uranium Production Report* (2022–23)