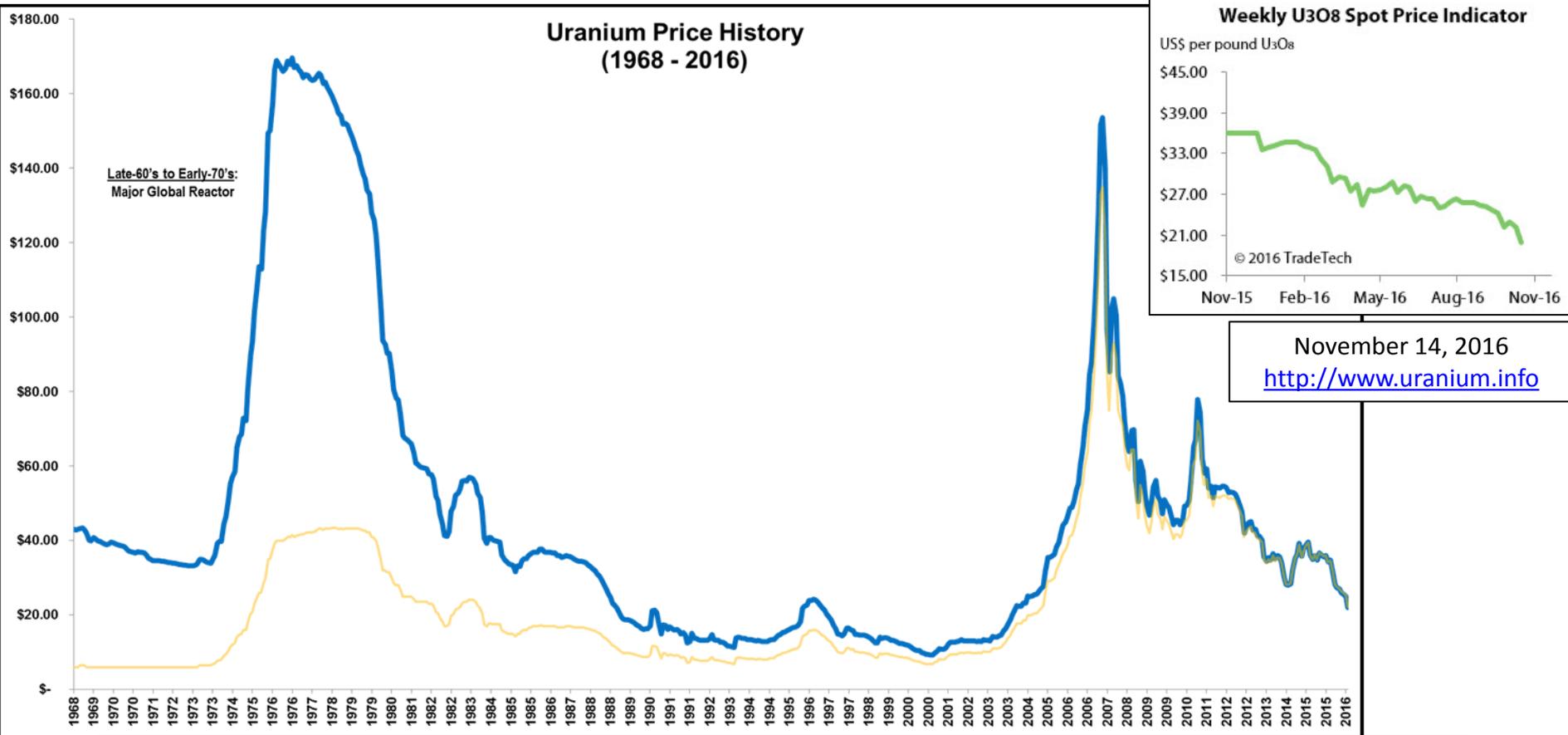


Uranium Prices Fall to their Lowest Level In More than Ten Years: Global Uranium Price Trends, Reactor Plans, Uranium Resources and Information Sources

Presented at
Western Mining Action Network Biennial Conference, San Carlos, Arizona
November 18, 2016

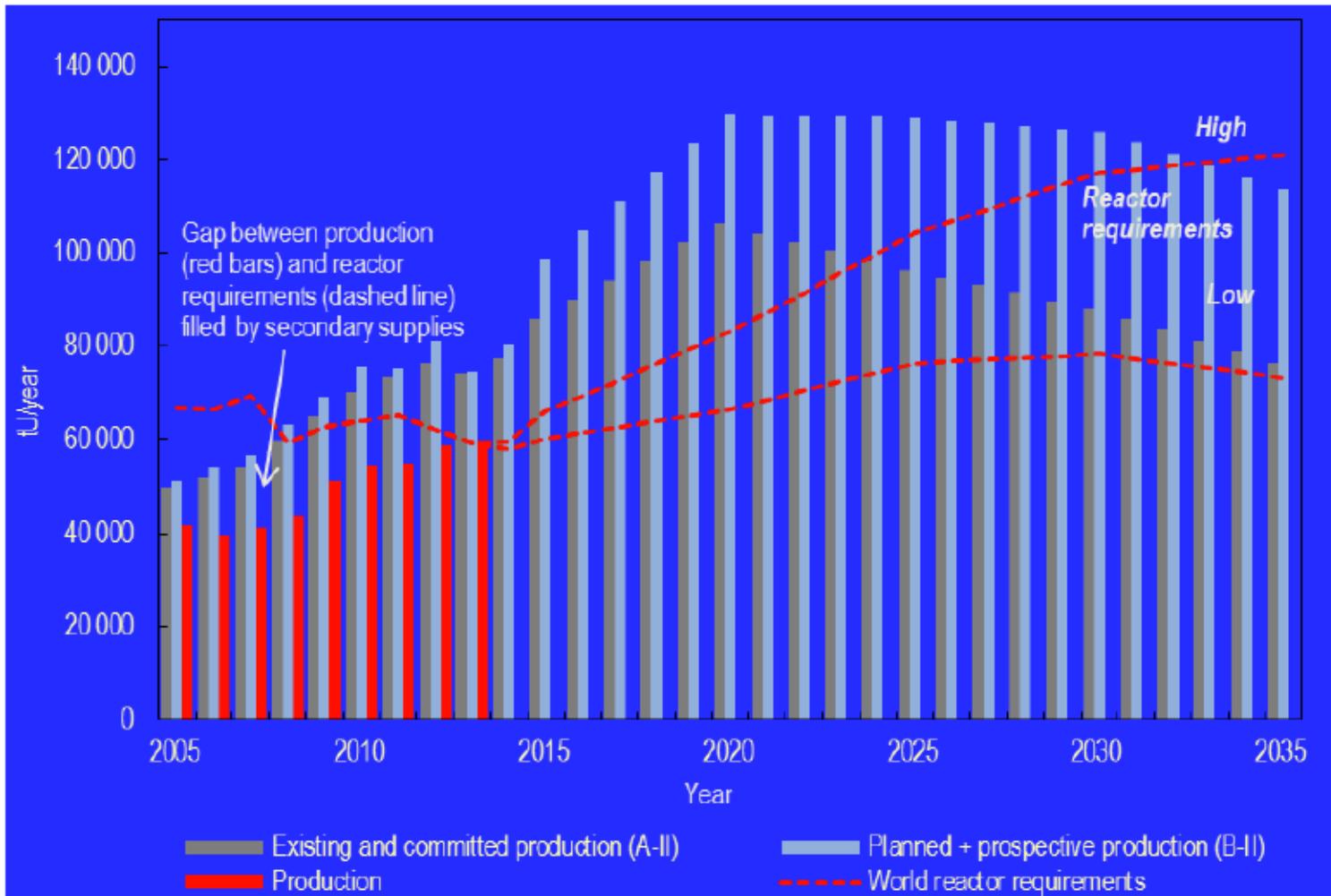
Paul Robinson - srcipaul@earthlink.net

Research Director, Southwest Research and Information Center - www.sric.org

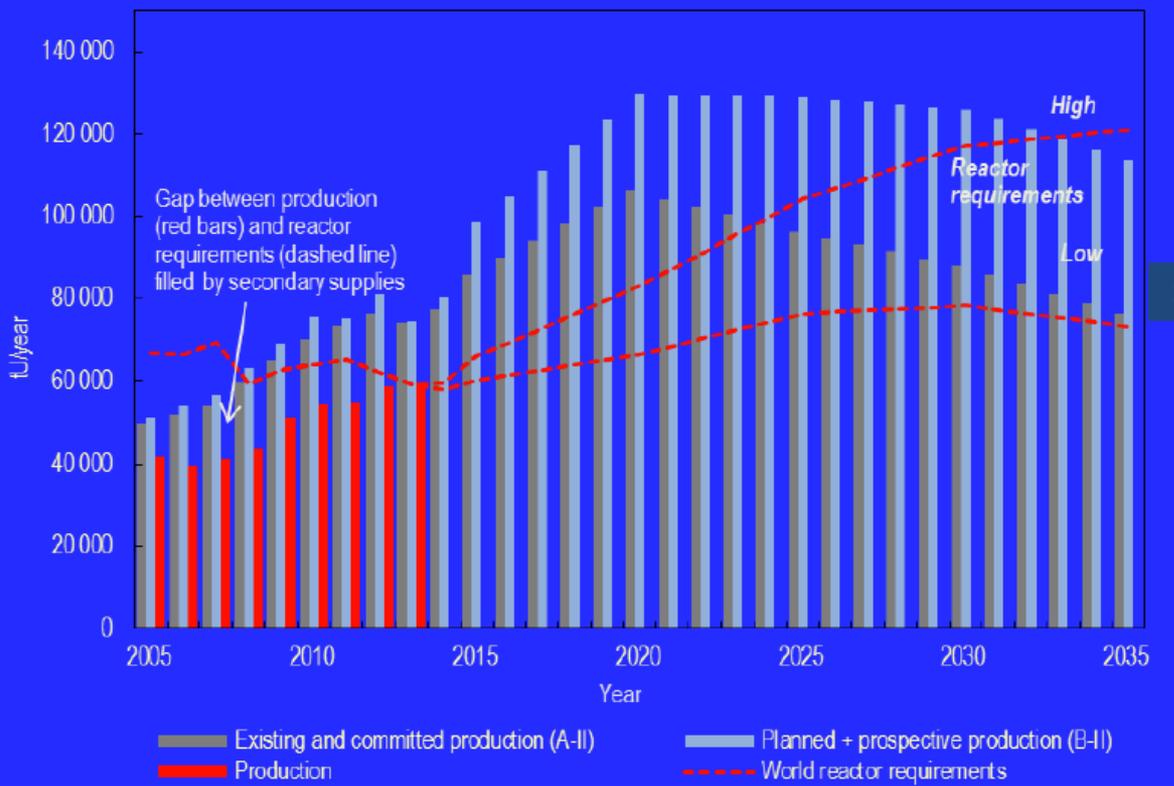




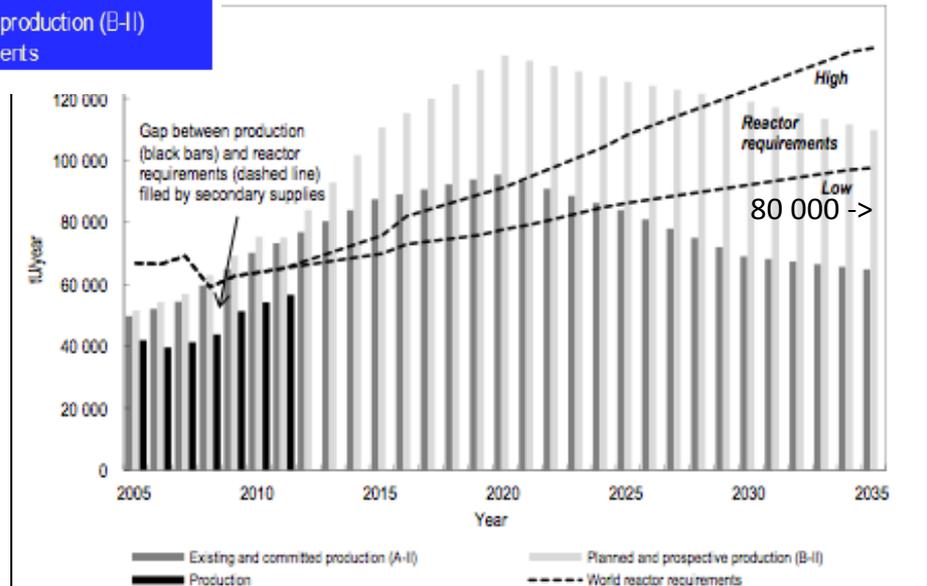
Global Uranium Supply - Demand



Uranium Red Book 2014



1 annual world uranium production capability to 2035 compared with projected world reactor requirements*



Source: Tables 2.2 and 2.4.
* Includes all existing, committed, planned and prospective production centres supported by RAR and inferred resources recoverable at a cost of <USD 130/kgU.

2012 and 2014 Projections of World Uranium Production Capability and World Reactor Requirements to 2035

Uranium Redbook 2012

Where will future uranium supplies come from?

Table 1.26. World uranium production capability to 2035

(in tonnes U/year, from RAR and inferred resources recoverable at costs up to USD 130/kgU, except as noted)

Country	2013		2015		2020		2025		2030		2035	
	A-II	B-II	A-II	B-II	A-II	B-II	A-II	B-II	A-II	B-II	A-II	B-II
Argentina	120	120*	150	150*	150	250	300*	300*	300*	300*	300*	300*
Australia	9 700	9 700	9 700	10 200	10 100	20 800	10 100	28 400	9 800	28 100	9 800	28 100
Brazil	340	340	340	340	1 600	2 000	1 600	2 000	2000*	2000*	2000*	2000*
Canada	16 430	16 430	17 730	17 730	17 730	19 000	17 730	19 000	17 730	19 000	17 730	19 000
China*	1 500	1 600	1 800	2 000	1 800	2 000	1 800	2 000	1 800	2 000	1 800	2 000
Czech Republic	500	500	500	500	50	50	50	50	50	50	30	30
Finland**	0	0	0	350	0	350	0	350	0	350	0	350
India*	610	610	740	740	1 080	1 200	1 200	1 600	1 200	2 000	1 200	2 000
Iran, Islamic Rep. of	70	70	90	90	90	120	100*	100*	100*	100*	100*	100*
Jordan*	0	0	0	0	2 000	2 000	2 000	2 000	2 000	2 000	2 000	2 000
Kazakhstan	22 000	22 000	24 000	25 000	24 000	25 000	14 000	15 000	11 000	12 000	5 000	6 000
Malawi*	1 200	1 200	1 400	1 460	1 400	1 460	0	0	0	0	0	0
Mongolia*	0	0	0	500	150	1 000	150	1 000	150	1 000	150	1 000
Namibia*	6 000	6 000	10 000	10 000	15 700	15 700	16 100	16 100	16 100	16 100	12 000	12 000
Niger*	5 400	5 400	5 400	10 500	10 500	10 500	10 500	10 500	7 500	7 500	7 500	7 500
Pakistan ^(a)	70	70	70	110	140	150	140	150	140	650	140	650
Romania ^(a)	230	230	230	230	350	475	350	475	350	630	350	630
Russian Federation	3 135	3 135	3 920	3 970	4 140	4 180	5 520	7 250	5 180	10 830	4 900	9 900
South Africa*	540	540	1 100	1 380	1 540	3 180	1 360	3 000	1 185	2 830	890	2 530
Tanzania*	0	0	0	0	3 000	3 000	2 000	2 000	1 000	1 000	0	0
Ukraine	1 075	1 075	1 075	3 230	810	5 500	250	5 800	170	6 400	0*	6 400*
United States ^(b)	2 040	2 040	3 400	6 100	3 800	6 600	3 700	6 500	3 100	5 600	3 100	5 600
Uzbekistan	3 350	3 350	4 150	4 150	4 500	4 500	5 000	5 000	5 000*	5 000*	5 000*	5 000*
Zambia*	0	0	0	0	0	650	0	650	0	650	0	650
Total	74 310	74 410	85 795	98 730	104 630	129 665	93 950	129 225	85 855	126 090	73 990	113 740

A-II = Production capability of existing and committed centres supported by RAR and inferred resources recoverable at <USD 130/kgU.

B-II = Production capability of existing, committed, planned and prospective centres supported by RAR and inferred resources recoverable at <USD 130/kgU.

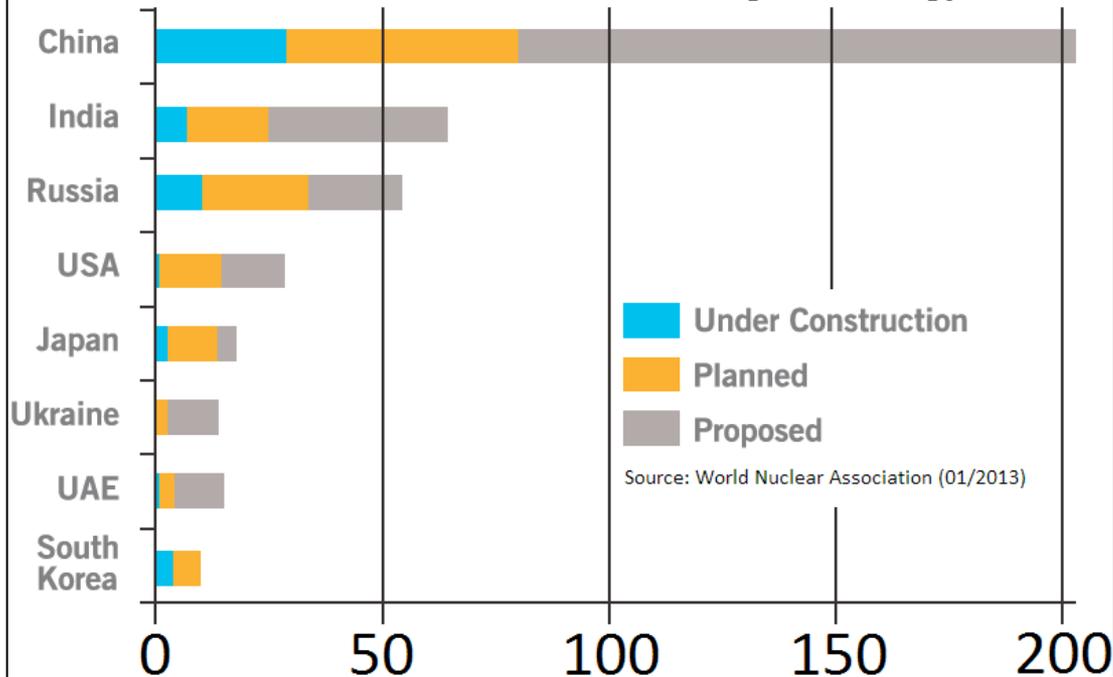
* Secretariat estimate.

** By-product of nickel production.

(a) Projections are based on reported plans to meet domestic requirements through the discovery of additional resources.

(b) Data from previous Red Book.

New nuclear reactors on the horizon to meet global energy demand



Most potential growth in nuclear power generation is among “Planned” and Proposed” reactors rather than “Under “Construction” reactors

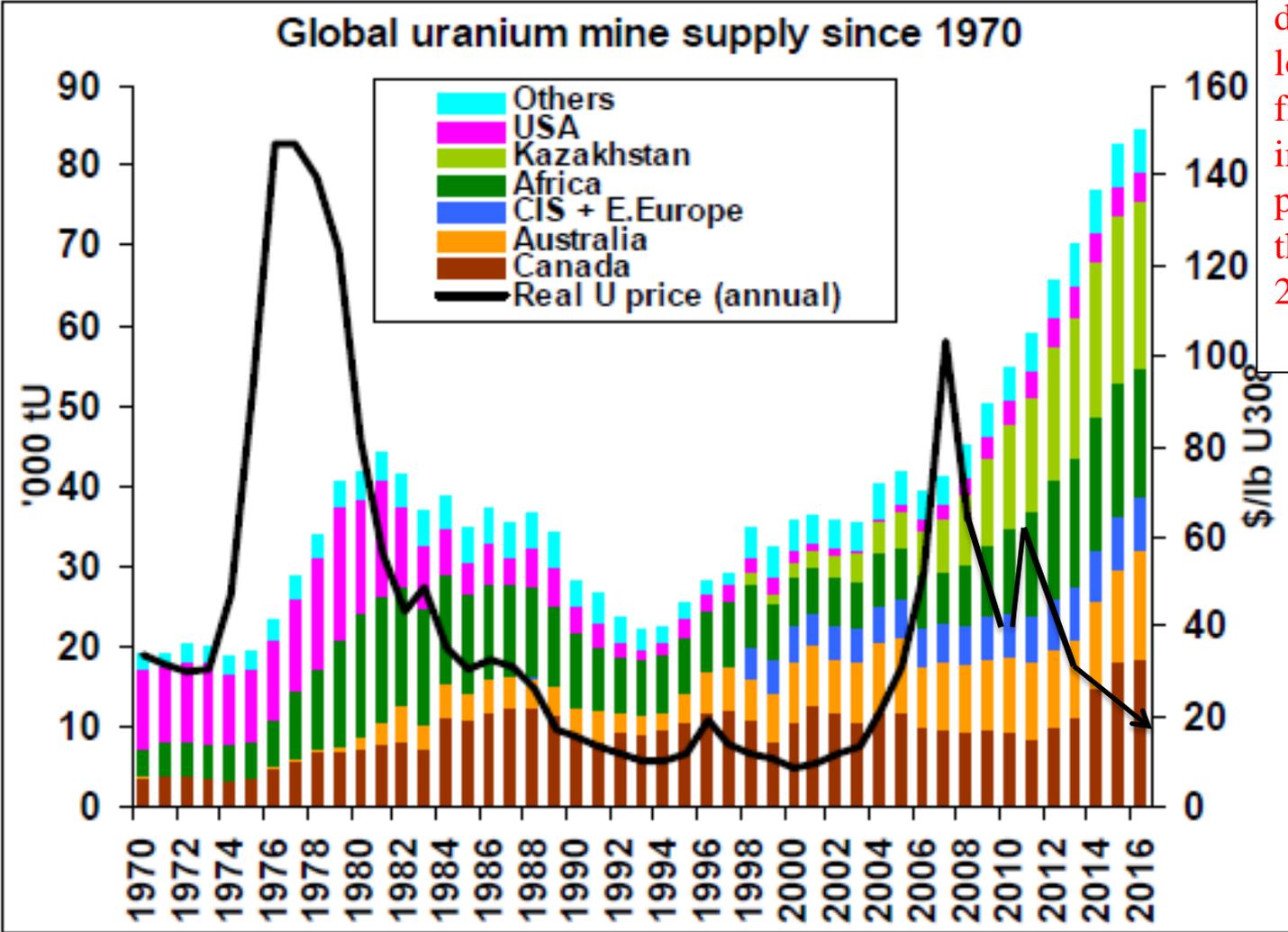
Market Analyst projections of uranium prices have been overly optimistic – “bullish” - for years; forecasting projected prices far above actual market prices.

“Special Report: The Coming Uranium Rush”
<http://www.outsiderclub.com/report/the-coming-uranium-rush/1015>

URANIUM ANALYST FORECASTS

Bank	2013	2014	2015	2016	2017
Dundee Capital	65.00	65.00	65.00		
Haywood Securities	60.00	70.00	75.00	75.00	70.00
JPM Australia	43.00	58.00	70.00	90.00	
Scotiabank	46.00	52.00			
Macquarie	45.00	52.50	63.00	70.00	70.00
RBC Capital Markets	45.00	65.00	75.00	75.00	80.00
UBS	50.00	55.00	65.00	65.00	65.00
Morgan Stanley	46.75	60.00	63.00	64.00	69.50
Raymond James	40.00	52.00	70.00	70.00	70.00
BMO	49.00	52.00	60.00	70.00	70.00
Canaccord Genuity	44.00	50.00	55.00	60.00	70.00
Cantor Fitzgerald	55.00	70.00			
TD Securities	41.30	48.00	55.00	70.00	70.00
Mean	48.47	57.65	65.09	70.90	70.50

Mine supply: strong growth assumed



Black line shows “Real U Price” that shows the value of old prices in current dollars and demonstrates that the lower uranium prices from the 1970s are equal in value to much higher prices in current dollars than more recent, post-2000, uranium prices

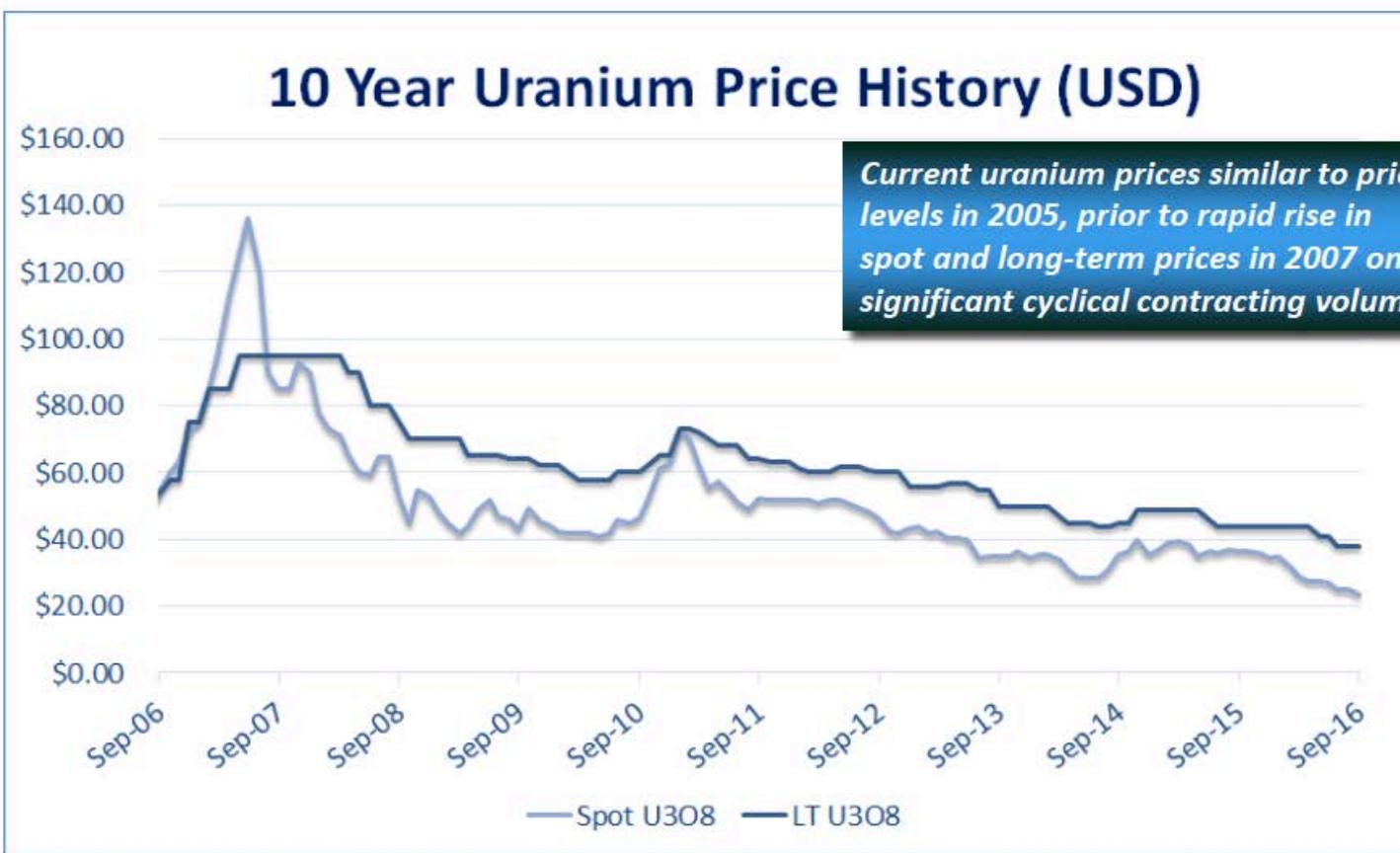
November 4, 2016
 Uranium Spot Market Price
 (www.uxc.com)
 - \$18.75

Source: WNA, Macquarie Research, September 2008

Updated through November 4, 2016 spot market price. Chart from “The Global Uranium Outlook 2008/9”- 2008 World Nuclear Association Symposium at <http://www.world-nuclear.org/sym/2008/presentations/laytonpresentation.pdf>

Uranium long-term contract prices have dropped along with uranium spot market prices recently

Uranium Price History



Source: UxC Consulting Company, LLC ("UxC")

TSX: U | 6

LOWER COST URANIUM RESOURCES AROUND THE WORLD ARE DISAPPEARING RAPIDLY

Global Identified Reasonably Assured Uranium Resources by Cost Category, 2013

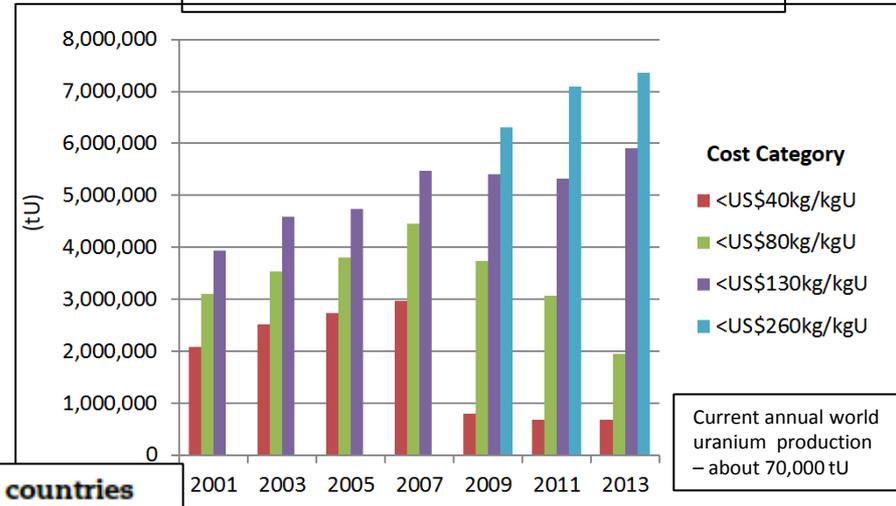
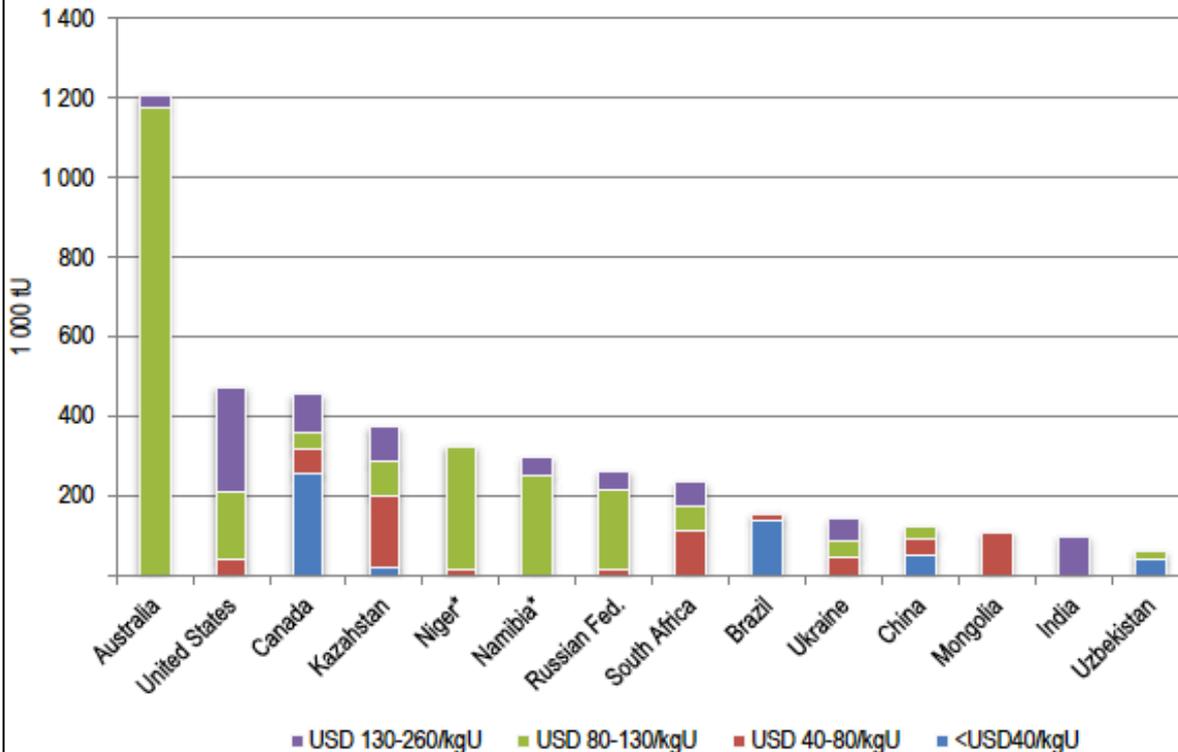


Figure 1.2. Distribution of reasonably assured resources (RAR) among countries with a significant share of resources



NRCanada 2014

Ore Grades, Resources and Production at the World's Largest Conventional Uranium Mines (IAEA/OECD-NEA 2014)

Mine	Location	Type	% Grade	Resources (including reserves) (tU)	2013 Production (tU)
1 - McArthur River	Canada	underground	11.5	170 000	7744
2 - Cigar Lake	Canada	underground	14.0	120 000	0 (March 2014 start-up)
3 - Olympic Dam	Australia	Underground copper-gold mine	0.02	1 109 200	3399
4 - SOMAIR	Niger	open pit	0.14	67 200	2730
5 - Ranger	Australia	open pit	0.06	58 200	2510
6 - Priargunsky	Russia	underground	0.16	98 000	2133
7 - Langer Heinrich	Namibia	open pit	0.05	60 900	2098
8 - Rossing	Namibia	open pit	0.03	51 600	2031
9 - Rabbit Lake	Canada	underground	0.61	14 700	1587
10 - COMINAK	Niger	underground	0.35	20 800	1508



Natural Resources
Canada

Ressources naturelles
Canada

Canada

For comparison:

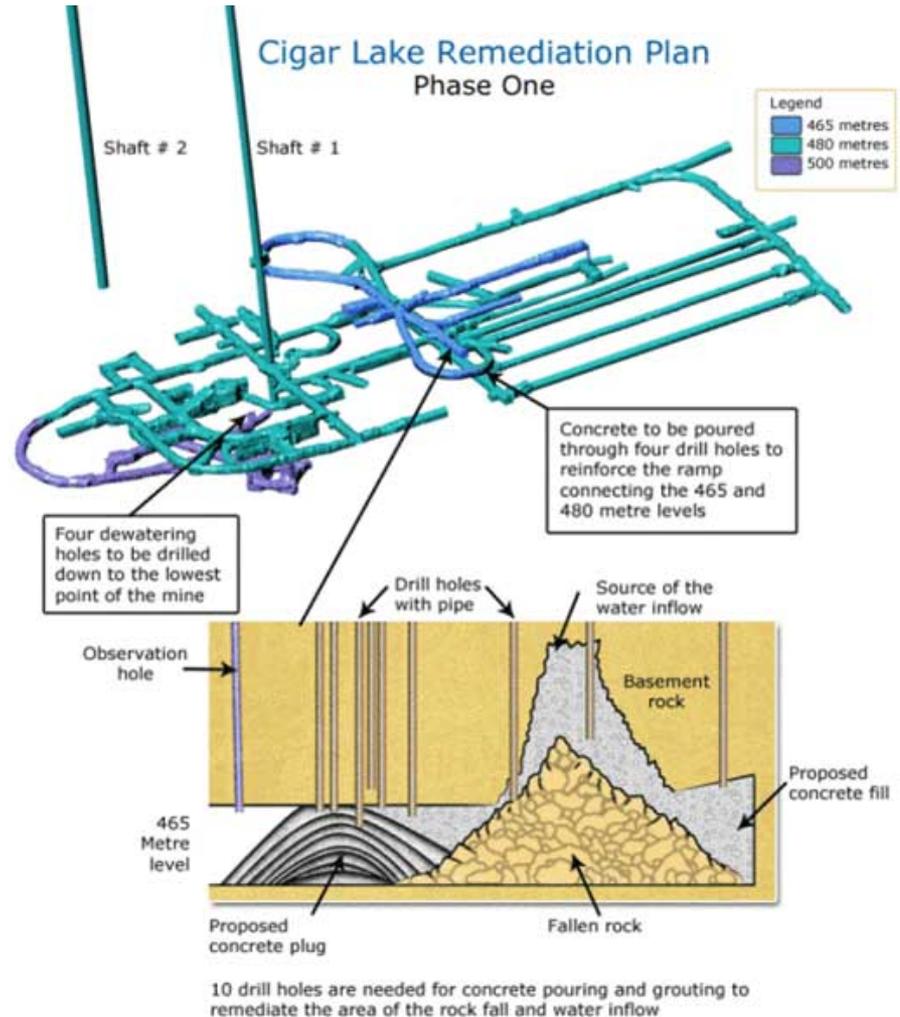
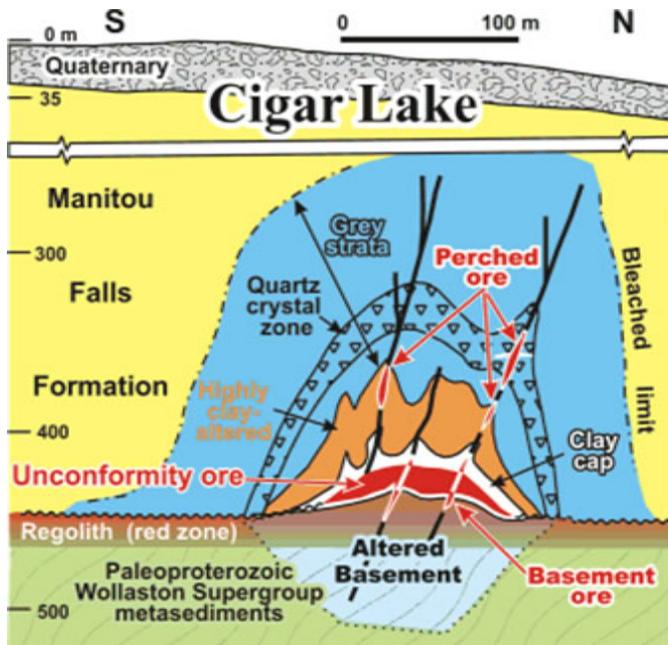
- Roca Honda (New Mexico) – Combined Resources (No Reserves) – 25 200 tU – - 0.40% ore grade - assuming \$65/lb price for uranium (Energy Fuels - 2015 10-K SEC Form)

- Mkuju (Tanzania) – Combined Resources (No Reserves) – 55 000 tU – -0.02% ore grade - projected price for profitable mining - \$55/lb – (Reuters March 6, 2016)

Cigar Lake - Modern Uranium Mine with a Major Problem –

Nine-year mine closure from 2006 due to unforeseen and extensive mine flooding problem

Was one of the catalysts for the uranium price spike of 2007. Mine has begun uranium production and is schedule to produce 9000 tons per year of Uranium beginning in 2017



Cigar Lake uranium mine history of mine development problems

July 16, 2014 - Canadian uranium miner Cameco Corp said on Wednesday that some ore from its Cigar Lake, Saskatchewan, mine would not be milled until early 2015, instead of before the end of 2014, due to problems with a mining process that involves freezing the ore and the ground around it.

As a result, Cameco said it will lower its 2014 uranium target for milling Cigar Lake ore, which is currently 2 million to 3 million pounds.

Cameco, the world's third-biggest uranium producer, first expected to open Cigar Lake in 2007, but two floods pushed the launch of the mine well behind schedule. The mine finally began production in March 2014.

“UPDATE 1-Uranium output at Cameco Cigar Lake mine delayed by freezing problem”, -
<http://ca.reuters.com/article/companyNews/idCAL2N0PR11G20140716>

October 23 2006 - Cameco Corp. said its Cigar Lake underground uranium project in northern Saskatchewan is expected to flood completely after a rockfall yesterday.

Cameco said the fall occurred Sunday afternoon in an underground area that had been dry and a "significant" amount of water started flowing in.

“Cameco's Cigar Lake mine inundated; stock falls” Last Updated: Monday, October 23, 2006
<http://www.cbc.ca/money/story/2006/10/23/cameco.html>

Nov 6, 2007 - Cameco doesn't have a "fixed" deadline for the overhaul of its flooded Cigar Lake mine, the uranium miner's chief operating officer said in documents made available on Tuesday.

At a hearing last week before the Canadian Nuclear Safety Commission (CNSC), which is considering extending Cameco's construction license to rehabilitate the mine, COO Tim Gitzel said Cameco, the world's largest uranium producer, would not take shortcuts in the overhaul process.

“No set deadline for Cigar Lake repairs-Cameco COO” | Reuters Wed Nov 7, 2007
<http://energynet.newsvine.com/news/2007/11/07/1080920-no-set-deadline-for-cigar-lake-repairs-cameco-coo-reuters>

US Uranium Reserves - The amount of uranium mineable at a profit – reported by the Department of Energy (DOE) Energy Information Administration (EIA) have dropped by 70% between 2008 and 2015.

Government estimates of US uranium reserves have fallen dramatically as the cost of uranium mining has increased, the price of uranium has decreased and projected demand has slowed significantly.

US uranium reserves reported by DOE for <\$50/lb “forward cost” fell by 40% between 2008 and 2015 from 275 million lbs to 165 million lbs.

<\$100/lb “forward cost” fell by 70% between 2008 and 2015 from 1,227 million lbs in 2008 to 361.8 million lbs in 2015.

In Wyoming, <\$100/lb uranium reserves has fallen by 76% from 446 million lbs to 105.6 million lbs between 2008 and 2015.

In New Mexico (no longer reported separately by DOE), <\$100/lb uranium reserves fell >52% from 390 million lbs in 2008 to a portion of the 212 million lbs identified for New Mexico, Arizona, and Utah in 2015.

US DOE Uranium Resources Data for 2015 vs. data for 2008

Uranium Reserve Estimates ¹ by Mine and Property Status, Mining Method, and State(s)	End of 2014			End of 2015		
	Forward Cost ²			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	154.6	24.3	W	151.6
Properties Under Development for Production and Development Drilling	W	38.2	W	W	38.2	W
Mines in Production	W	19.2	W	W	16.4	W
Mines Closed Temporarily, Closed Permanently, and Mined Out	W	W	W	W	W	135.2
Total	45.3	163.5	359.3	66.2	165.8	361.8
In-Situ Leach Mining	W	W	150.8	W	W	148.6
Underground and Open Pit Mining	W	W	208.5	W	W	213.2
Total	45.3	163.5	359.3	66.2	165.8	361.8
Arizona, New Mexico and Utah	0	W	212.3	0	W	212.0
Colorado, Nebraska and Texas	W	W	40.3	W	39.2	44.3
Wyoming	W	W	106.8	W	W	105.6
Total	45.3	163.5	359.3	66.2	165.8	361.8

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

<http://www.eia.gov/uranium/production/annual/pdf/dupr.pdf>

Table 1. U.S. Forward-Cost Uranium Reserves by State, Year-End 2008

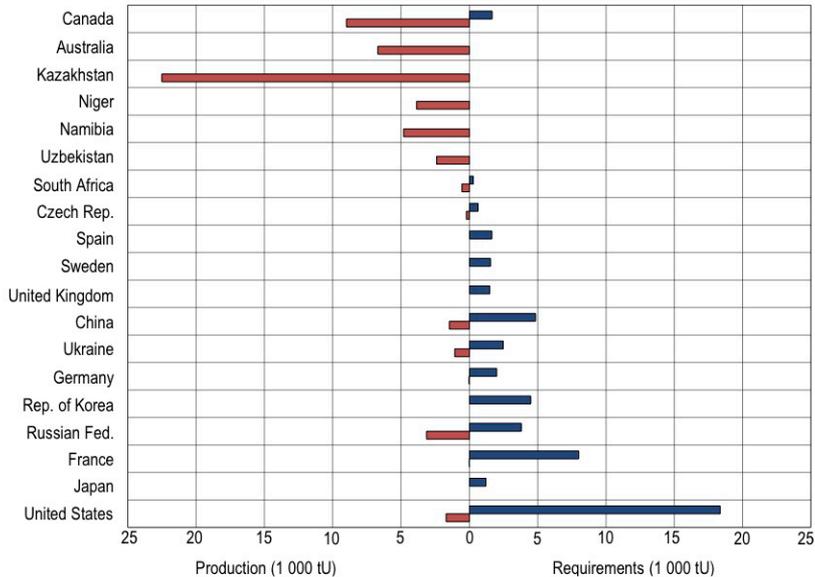
State	\$50/lb			\$100/lb		
	Ore (million tons)	Grade ^a (%)	U ₃ O ₈ (million lbs)	Ore (million tons)	Grade ^a (%)	U ₃ O ₈ (million lbs)
Wyoming	145	0.076%	220	398	0.056%	446
New Mexico	64	0.140%	179	186	0.105%	390
Arizona, Colorado, Utah	22	0.145%	63	117	0.084%	198
Texas	15	0.089%	27	32	0.062%	40
Other ^b	28	0.090%	50	95	0.081%	154
Total	275	0.098%	539	828	0.074%	1,227

^a Average percent U₃O₈ per ton of ore.

^b Includes Alaska, California, Idaho, Montana, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Virginia and Washington.

NOTE: While DOE EIA “forward cost” reserves are not comparable to “reserves” as defined by Canadian NI 43-101 standards, “forward cost” reserves calculated by DOE for separate years of data are comparable as they were developed with the same methodology.

Figure 2.5. Estimated 2013 uranium production and reactor-related requirements for major producing and consuming countries



Source: Uranium Red Book 2014

3.7 million lbs = 1,850 tons
 21.8 million lbs = 10,900 tons
 10.3 million lbs = 5,150 tons

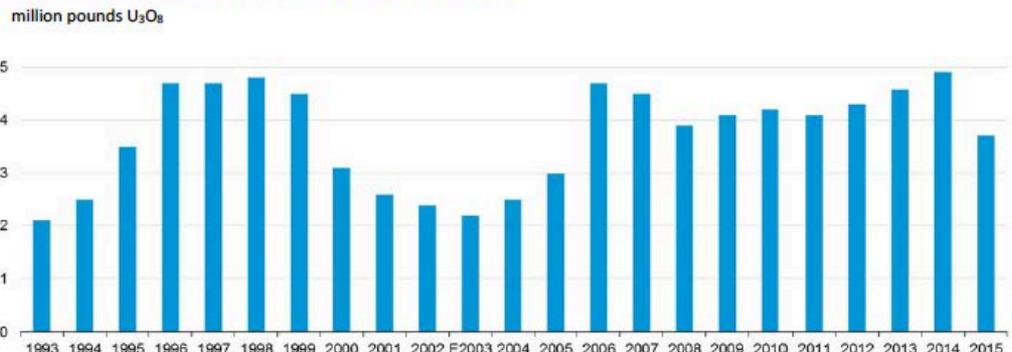
US demand for uranium in 2013 was about 18,000 tons. The US only produced 1,850 tons from Licensing capacity of 10,900 tons

US DOE reports 2015 US uranium production from mines of 3.7 million lbs. This production represents only 17% of licensed production capacity.

2015 US uranium production was 20% less than 2014 US uranium production.

2015 US Production capacity – 13.8 million lbs. - In situ licensed production 8.0 million lbs. – licensed conventional production 21.8 million lbs. - US Operating Capacity (10.3 million lbs. – developing or partly licensed ISL) 3.7/21.8 – 16.9% Operating Capacity

Figure 5. U.S. mine production of uranium, 1993-2015



E = Estimated data.

Sources: U.S. Energy Information Administration: 1993-2002-Uranium Industry Annual 2002 (May 2003), Table H1 and Table 2. 2003-15-Form EIA-851A, "Domestic Uranium Production Report" (2003-15).

US has one licensed conventional uranium mill with capable of producing 8,000,000 lbs (4,000 tons) per year at White Mesa in Utah. Its owner, Energy Fuels, Inc., reports total uranium production of 1,075,000 lbs. in 2015.

<http://www.energyfuels.com/news-pr/energy-fuels-announces-2015-results/>

DOE reports that US in situ uranium mines hold licenses represent production capacity of 13.8 million lbs. per year. Developing, or partly licensed, mines represent another 10.3 million lbs. of production capacity.

Table 4. U.S. uranium mills and heap leach facilities by owner, location, capacity, and operating status at end of the year, 2009-13

Owner	Mill and Heap Leach ¹ Facility Name	County, State (existing and planned locations)	Capacity (short tons of ore per day)	Operating Status at End of the Year				
				2009	2010	2011	2012	2013
Cotter Corporation	Canon City Mill	Fremont, Colorado	0	Standby	Standby	Reclamation	Demolished	Demolished
Energy Fuels Resources Corporation	Piñon Ridge Mill	Montrose, Colorado	500	Developing	Developing	Permitted And Licensed	Partially Permitted And Licensed	Permitted And Licensed
Energy Fuels Wyoming Inc.	Sheep Mountain	Fremont, Wyoming	725	-	-	-	-	Undeveloped
Kennecott Uranium Company/Wyoming Coal Resource Company	Sweetwater Uranium Project	Sweetwater, Wyoming	3,000	Standby	Standby	Standby	Standby	Standby
Roca Honda Resources LLC	Pena Ranch	McKinley, New Mexico	2,000	-	-	-	-	Undeveloped
Strathmore Resources (US) Ltd	Gas Hills	Fremont, Wyoming	2,200	-	-	-	-	Undeveloped
Uranium One Americas, Inc.	Shooting Canyon Uranium Mill	Garfield, Utah	750	Standby	Standby	Standby	Standby	Standby
Total Capacity:			11,175					

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/or waste rock 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 2013. An operating status of "Operating" indicates the mill was producing uranium concentrate at the end of the period.
 Source: U.S. Energy Information Administration: Form EIA-851A, "Domestic Uranium Production Report" (2009-2013).

Table 5. U.S. uranium in-situ-leach plants by owner, location, capacity, and operating status at end of the year, 2011-15

In-Situ-Leach Plant Owner	In-Situ-Leach Plant Name	County, State (existing and planned locations)	Production Capacity (pounds U ₃ O ₈ per year)	Operating Status at End of the Year				
				2011	2012	2013	2014	2015
AUC LLC	Reno Creek	Campbell, Wyoming	2,000,000	-	-	Developing	Developing	Partially Permitted and Licensed
Azarga Uranium Corp	Dewey Burdock Project	Fall River and Custer, South Dakota	1,000,000	Undeveloped	Developing	Developing	Partially Permitted And Licensed	Partially Permitted And Licensed
Cameco	Crow Butte Operation	Dawes, Nebraska	1,000,000	Operating	Operating	Operating	Operating	Operating
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.	Crowpoint	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	Partially Permitted And Licensed	Under Construction	Operating	Operating	Operating
Metstena Uranium LLC	Alta Mesa Project	Brooks, Texas	1,500,000	Producing	Producing	Producing	Producing	Standby
Power Resources Inc., dba Cameco Resources	Smith Ranch-Highland Operation	Converse, Wyoming	5,500,000	Operating	Operating	Operating	Operating	Operating
South Texas Mining Venture	Hobson ISR Plant	Karnes, Texas	1,000,000	Operating	Operating	Operating	Operating	Operating
South Texas Mining Venture	La Palangana	Duval, Texas	1,000,000	Operating	Operating	Operating	Operating	Operating
Strata Energy Inc	Ross CPP	Crook, Wyoming	375,000	Developing	Partially Permitted And Licensed	Partially Permitted And Licensed	Under Construction	Changing License to Operational
URI, Inc.	Kingsville Dome	Kleberg, Texas	1,000,000	Standby	Standby	Restoration	Restoration	Restoration
URI, Inc.	Rosita	Duval, Texas	1,000,000	Standby	Standby	Restoration	Restoration	Reclamation
URI, Inc.	Vasquez	Duval, Texas	800,000	Restoration	Restoration	Restoration	Restoration	Restoration
Uranerz Energy Corporation	Nichols Ranch ISR Project	Johnson and Campbell, Wyoming	2,000,000	Under Construction	Under Construction	Under Construction	Producing	Operating
Uranium Energy Corp.	Goliad ISR Uranium Project	Goliad, Texas	1,000,000	Partially Permitted And Licensed	Permitted And Licensed	Permitted And Licensed	Permitted And Licensed	Permitted And Licensed
Uranium One Americas, Inc.	Job and Antelope	Sweetwater, Wyoming	2,000,000	Developing	Developing	Developing	Developing	Developing
Uranium One Americas, Inc.	Moore Ranch	Campbell, Wyoming	500,000	Permitted And Licensed	Permitted And Licensed	Permitted And Licensed	Permitted And Licensed	Permitted And Licensed
Uranium One USA, Inc.	Willow Creek Project (Christensen Ranch and Irigaray)	Campbell and Johnson, Wyoming	1,300,000	Producing	Producing	Producing	Operating	Operating
Total Production Capacity:			26,975,000					

- = No data reported.
 Notes: Production capacity for 2015. An operating status of "Operating" indicates the in-situ-leach plant usually was producing uranium concentrate at the end of the period. Hobson ISR Plant processed 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 stands for central processing plant.
 Source: U.S. Energy Information Administration: Form EIA-851A, "Domestic Uranium Production Report" (2011-15).

The USA has enough licensed or planned uranium production to meet 80% of its demand for existing reactors but domestic uranium is much more expensive to mine and process than other uranium available on the world market.

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