

URANIUM PRICES	LONG TERM PRICE US\$/lb U ₃ O ₈	SPOT PRICE US\$/lb U ₃ O ₈
UC PRICES		
November 1, 2017	\$30.00 ↓	\$19.95 ↓
December 1, 2017	\$31.00 ↑	\$23.12 ↑
SLU₃ PRICE OUTLOOK		
December 31, 2017	\$31.00 ●	\$22.75 ↓
March 31, 2018	\$35.00 ↑	\$25.25 ↑
June 30, 2018	\$39.00 ↑	\$33.00 ↑
September 30, 2018	\$44.00 ↑	\$38.00 ↑
December 31, 2018	\$44.50 ↑	\$37.50 ↓
December 31, 2019	\$52.00 ↑	\$44.00 ↑
December 31, 2020	\$57.00 ↑	\$48.25 ↑

SLU ₃ EQUITY INDEX		
September 1, 2017	491.06	↓
October 1, 2017	471.17	↓
November 1, 2017	426.14	↓
December 1, 2017	527.45	↑

WORLD NUCLEAR ASSOCIATION

Global Reactor Count	#	GWe
Operable	447	392
Under construction	56	61
Planned	160	165
Proposed	351	402

UXC: UX Consulting Company

MONTH IN REVIEW

As we go to print, Kazakhstan has announced large decreases in production moving forward – on the heels of Cameco's announced mine closures in November. This certainly re-sets the needle on uranium prices in the coming year.

Cameco's announcement quickly sent the spot price moving up, then settling back to \$22.14 – a nice \$3.17 gain on the month. The term price eased up slightly by \$1.00 to close at \$31.00.

Equities also went for a ride following the Cameco news, taking our SL Equity Index from 426.14 up to 527.45 representing the first increase in the index in half a year.

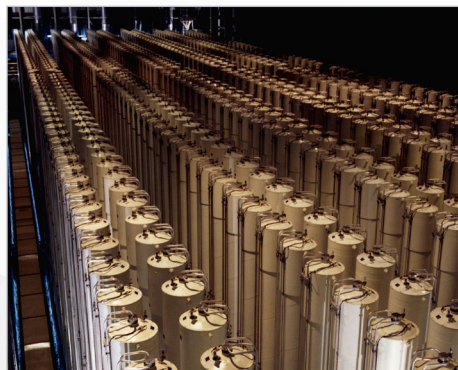
We have updated the SLU Price Outlook numbers to reflect Cameco's new numbers, however, watch for a mid-month update to incorporate the Kazakhstan reductions.

Nothing affects U prices more dramatically than production changes and we see a solid year ahead as prices head back toward profitable levels.

URANIUM UNDERFEEDING: A BIG PRICE FACTOR? (PART 1)

EXCLUSIVE TO SIGHTLINE U₃O₈ – Since 2007, U₃O₈ prices have largely been moving in one direction – down. With long-term and spot prices languishing at 12-year lows, the uranium sector has been struggling over the past few years.

Many analysts will cite uranium underfeeding and the subsequent sale of additional enriched uranium on the spot market as one of the key drivers behind the fall of U₃O₈ prices. Low SWU (separative work unit) prices (down 65%) since 2011 and excess capacity are the common culprits cited to explain the drastic increase in secondary supply from underfeeding.



However, the underlying drivers behind underfeeding activity must be examined to truly understand its overall impact on U₃O₈.

CONTINUED ON PG 2

URANIUM SHARES SPIKE AS CANADIAN GIANT CAMECO SUSPENDS PRODUCTION

The Sydney Morning Herald, Cole Latimer – The uranium price slump has forced the world's largest producer, Cameco, to temporarily suspend production at two key operations from next year, driving uranium miners' shares skywards.

Canadian giant Cameco on Thursday said it would shutter its MacArthur River mining and Key Lake milling operations for 10 months by the end of January, pulling a significant chunk of production from the world market.

CONTINUED ON PG 5

URANIUM PRICES	LONG TERM PRICE US\$/lb U ₃ O ₈	SPOT PRICE US\$/lb U ₃ O ₈
UC PRICES		
December 1, 2017	\$31.00 ↑	\$23.12 ↑
SLU3O8 PRICE OUTLOOK		
December 31, 2017	\$31.00 ●	\$22.75 ↓

URANIUM UNDERFEEDING: A BIG PRICE FACTOR? (PART 1) (Cont'd)

prices. This month we discuss the economics of enrichment and the relationship between utilities, enrichers, miners, and U₃O₈ prices. In Part 2, we will look at the impact underfeeding has had and discuss its future anticipated impact.

Enrichment 101

Generally, natural uranium (U₃O₈) is converted to UF₆, enriched from 0.711% U-235 to ~4.0% U-235, called enriched uranium, then fabricated into fuel rods to be used by a reactor. Uranium under 20% U-235 content is called low-enriched uranium or LEU. High enriched uranium or HEU has 20% or greater concentration of U-235. At 85% or higher U-235 content, HEU becomes weapon-grade. **All commercial reactors take enriched uranium anywhere from 3.5-5.5% U-235 content or LEU.**

The bi-product of the enrichment process is tails assays which have a lower concentration of U-235 than U₃O₈. Tails assays can either be stored, disposed of, or re-enriched to ~4.0% U-235. The latter being referred to as underfeeding.

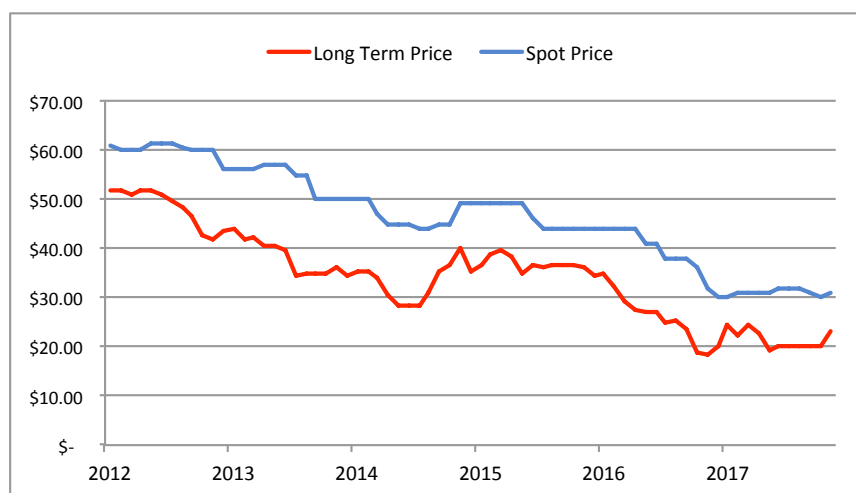
SWU or separative work unit, is the effort necessary to enrich natural uranium to ~4.0% U-235. Enrichment capacity is measured in tonnes of SWU per year. In 2008, world SWU capacity was ~55,300 tSWU. Little capacity has come offline or been taken online since then while nuclear generated electricity has suffered comparatively severe fluctuations.

Analysts will point to the disparity between world capacity for enrichment and LEU requirements as the driver behind increased underfeeding activity. While total demand for LEU dropped to ~60% of the world's enrichment capacity after Fukushima, excess capacity is not a sufficient driver to prompt increased underfeeding activity.

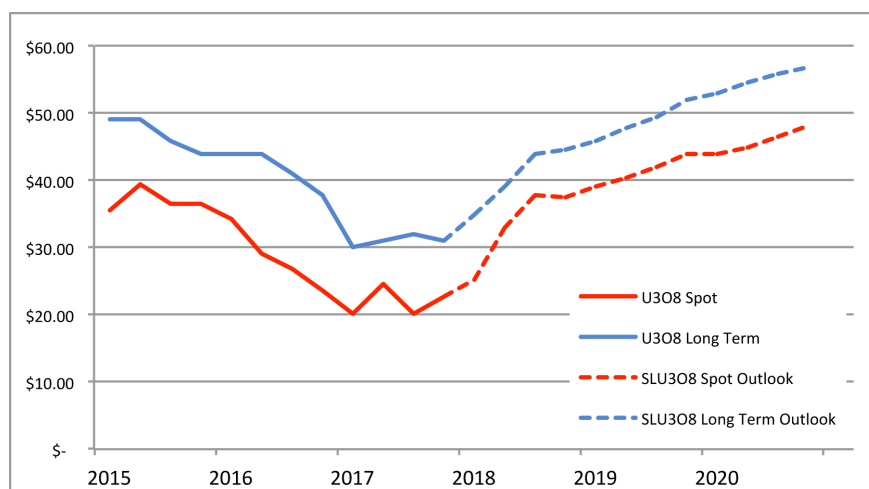
Enrichers are a Profit Center

Nuclear power plants can either contract separately at each stage of the uranium

U₃O₈ PRICES - HISTORIC



SLU3O8 PRICE OUTLOOK



CONTINUED ON PG 3

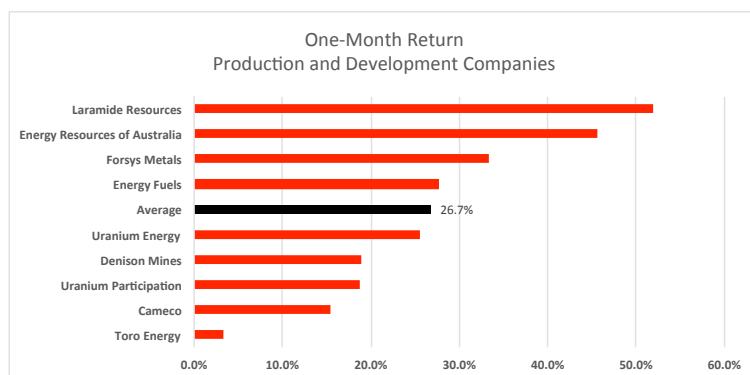
UEQUITIES

PRODUCTION COMPANIES		Country Focus	Price (Aug 31/17)	52 Week Low	52 Week High	Mkt Cap (\$MM)
tse:cco	Camco Corp	Canada	\$12.10	\$9.90	\$17.65	\$4,789.1
tse:dml	Denison Mines Corp	Canada	\$0.63	\$0.49	\$1.10	\$352.2
tse:efr	Energy Fuels Inc	United States	\$2.26	\$1.66	\$3.53	\$162.7
asx:era	Energy Resources of Australia Limited	Australia	\$0.83	\$0.32	\$0.83	\$433.5
uec	Uranium Energy Corp.	United States	\$1.33	\$0.81	\$1.92	\$147.0
DEVELOPMENT COMPANIES						
tse:fsy	Forsys Metals Corp	Namibia	\$0.16	\$0.06	\$0.28	\$23.7
cve:gxu	Govix Uranium Inc.	Niger	\$0.26	\$0.09	\$0.44	\$84.1
tse:lam	Laramide Resources Ltd.	United States	\$0.38	\$0.18	\$0.74	\$43.6
asx:toe	Toro Energy Limited	Australia	\$0.03	\$0.03	\$0.06	\$49.2
EXPLORATION COMPANIES						
asx:ae	Aura Energy Limited	Sweden, Mauritania	\$0.02	\$0.02	\$0.05	\$16.8
tse:azz	Azarga Uranium Corp	United States	\$0.25	\$0.18	\$0.57	\$20.1
asx:bm	Bannerman Resources Limited	Namibia	\$0.06	\$0.02	\$0.10	\$40.8
asx:bky	Berkeley Energia Ltd	Spain	\$0.95	\$0.65	\$1.20	\$241.8
asx:dyl	Deep Yellow Limited	Namibia	\$0.30	\$0.02	\$0.64	\$58.3
asx:eme	Energy Metals Ltd	Australia	\$0.10	\$0.05	\$0.28	\$19.2
cve:fuu	Fission 3.0 Corp	Canada	\$0.06	\$0.05	\$0.13	\$12.1
tse:fcu	Fission Uranium Corp	Canada	\$0.67	\$0.49	\$0.92	\$324.9
cve:kiv	Kivalliq Energy Corp	Canada	\$0.10	\$0.07	\$0.19	\$23.5
tse:mga	Mega Uranium Ltd	Australia	\$0.19	\$0.11	\$0.32	\$55.9
tse:nxe	Nexgen Energy Ltd	Canada	\$3.13	\$1.42	\$4.45	\$1,059.9
cve:plu	Plateau Uranium Inc	Argentina	\$0.58	\$0.17	\$0.71	\$33.4
cve:ptu	Purepoint Uranium Group Inc.	Canada	\$0.08	\$0.06	\$0.19	\$15.1
cve:syh	Skyharbour Resources Ltd	Canada	\$0.40	\$0.25	\$0.70	\$21.5
tse:uex	UEX Corporation	Canada	\$0.29	\$0.15	\$0.43	\$92.6
urg	Ur-Energy Inc. (USA)	United States	\$0.64	\$0.41	\$0.91	\$93.4
asx:vmy	Vimy Resources Ltd	Australia	\$0.14	\$0.10	\$0.31	\$50.4
OTHER						
tse:u	Uranium Participation Corp	Canada	\$4.18	\$3.47	\$4.73	\$553.6

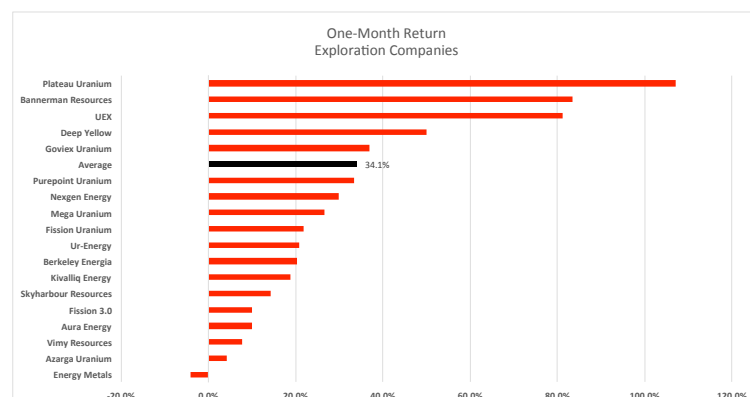
Note: Currencies for the price and market cap are respective to the country of trade.

UEQUITIES MONTHLY PERFORMANCE

Producers/Developers



Explorers



URANIUM UNDERFEEDING: A BIG PRICE FACTOR? (PART 1) (Cont'd)

process or directly purchase enriched product.

The majority of U₃O₈ suppliers do not have in house enrichment capacity (Areva excluded), which helps restrict some of the potential for weapons grade enrichment and makes it easier for the IAEA to monitor enrichment activity. Countries with the largest enrichment capacity (in descending order) are: Russia, Germany, France, USA, and China. Together accounting for over 90% of the world's enrichment capacity.

Rather than leaving the enrichment price negotiation to miners and enrichers, most utilities will contract at each step of the nuclear cycle. Thus, when considering the LEU supply chain, enrichers act as a profit center whose goals are to maximize returns

CONTINUED ON PG 5

TOP CORPORATE NEWS

[Berkeley Secures Funding for Salamanca](#)
November 30, 2017

[NexGen Completes Summer Season](#)
November 30, 2017

[Purepoint Private Placement Oversubscribed](#)
November 30, 2017

[Top Stocks to Consider in Uranium Now](#)
November 29, 2017

[Uranium Energy Corp Increases Resource by 38%](#)
November 27, 2017

[Denison Reports Wheeler River Assays](#)
November 27, 2017

[Govix Releases Mutanga PEA](#)
November 21, 2017

[Purepoint/Cameco/Areva Approve \\$4MM for Hook Lake](#)
November 16, 2017

[Bannerman Advances Etango Project](#)
November 15, 2017

[Plateau Drills 45m at 633ppm U₃O₈ at Falchani](#)
November 15, 2017

CONTINUED ON PG 4

TOP CORPORATE NEWS (cont'd)

[GoviEx Receives Agaliouk Exploration Permits](#)

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[Protests at Berkeley's Salamanca Project](#)

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[Plateau Commences Test Work](#)

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[Fission 3.0 Identifies High-Grade Outcrops at Midas](#)

November 14, 2017

[Energy Fuels Acquires/Extinguishes Royalties on Nichols](#)

November 13, 2017

[Skyharbour Announces Preston Exploration Program](#)

November 9, 2017

[Purepoint Triples the Size of McArthur E Project](#)

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[Cameco Suspends Production at McArthur and Key Lake](#)

November 8, 2017

[Energy Fuels Sells Non-Core U Projects](#)

November 2, 2017

[Azarga Finds Uranium at Dewey Terrace](#)

November 1, 2017

TOP SUPPLY STORIES

[Kazakhstan & China to Build Nuclear Fuel Assembly Plant](#)

November 30, 2017

[Kazakhstan Meets 2017 Reduction Targets](#)

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[BHP Revisits Olympic Dam](#)

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[US Geological Survey reports on New U Sources](#)

November 21, 2017

[US Q3 U Production Falls 17%](#)

November 20, 2017

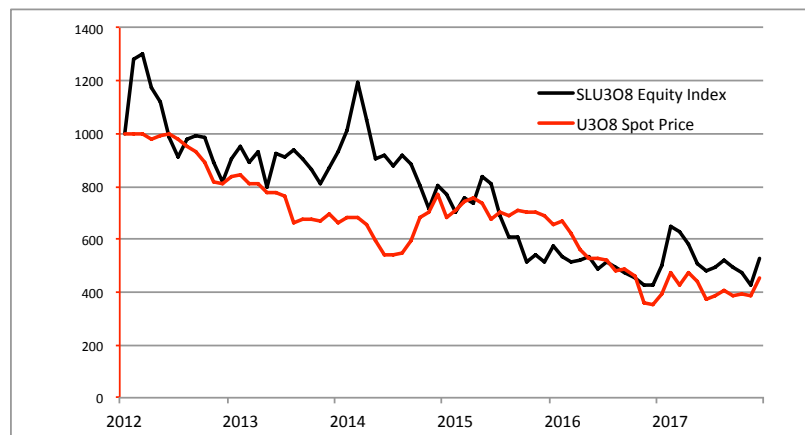
[Cameco Takes another Hit - Markets Surge](#)

November 8, 2017

[Trump to Reconsider Grand Canyon U Mining Ban](#)

November 3, 2017

SLU308 EQUITY INDEX



TOP DEMAND STORIES

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[Japan's Regulators Require New Cooling System](#)

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[Fukui Pushes for Japan's Oi Reactor Restart](#)

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[S. Korea Ups Efforts to Build Britain's Reactors](#)

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[Japan's Oi Reactors to Resume Operation Q1 2018](#)

November 27, 2017

[China to Build Pakistan's Chashma 5 Reactor](#)

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[Jordan's First Nuclear Reactor](#)

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[S. Korea Stops Construction at Cheonji](#)

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[Nuclear Power a "vital part" of UK Strategy](#)

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[Egypt Creates Nuclear Power Regulator](#)

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[France Evaluates EDF Restructuring](#)

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[UK Seeks Government Clarity on Nuclear Sector](#)

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[World Energy Outlook 2017](#)

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[Initial Design Phase Complete on Molten-Salt Plants](#)

November 8, 2017

[China Looks for US Cooperation on Next-Generation Technology](#)

November 6, 2017

URANIUM UNDERFEEDING: A BIG PRICE FACTOR? (PART 1) (Cont'd)

by minimizing input costs and maximizing revenue generating activity.

How Enrichers Generate Profit

An enricher has two ways to generate revenue: enrichment services where SWU price is charged to nuclear power plants for the service rendered or sale of enriched uranium on the spot market.

For services rendered, SWU prices represent revenue. SWU costs are company specific and are largely based on the type of enrichment plant used. The difference between SWU cost and SWU prices represents the gross profit of an enrichment plant. Recall, since utilities are contracting at each stage of the uranium process, enrichers do not bear the U_3O_8 cost.

For underfeeding sales, LEU prices represent revenue. The difference between LEU price and SWU cost is gross profit. The cost of tails assay conversion and storage is saved if an enricher chooses to underfeed.

With limited enrichment capacity in one year, an enricher must prioritize how much SWU to spend enriching natural uranium versus enriching tails assays. They cannot enrich two concentrations of U-235 simultaneously and cannot exceed their annual tSWU. Excess capacity reduces the opportunity cost of that choice but underfeeding still must make economic sense.

Enrichment Contracts and Average Cost of Enrichment

A utility's cost of LEU can be summarized as follows: U_3O_8 + UF₆ Conversion Cost + SWU costs + transport costs. As mentioned above, a utility will engage different key players at each stage of the fuel cycle. More importantly, while over 70% of U_3O_8 purchases are contract based, almost all enrichment is contracted due to the importance of a steady stream of LEU.

While SWU prices have been dropping, enrichers are price protected by the contracts signed in previous years when SWU was more expensive. Similar to how miners are protected against falling U_3O_8 prices, enrichers are able to weather falling SWU prices. Analysts will often cite the currently depressed SWU prices as

incentive to increase underfeeding and LEU spot market sales, however that analysis is ignoring a major part of the profit generating equation.

The average SWU price an enricher is paid is much higher than the current long term SWU because the average price will include previous, more profitable contracts. Only new contracts signed at a lower SWU price and contract renegotiations will bring an enricher's average SWU price down.

The Switch to Centrifuge Production

The switch by most enrichers from Gaseous Diffusion Plants to Centrifuge Plants was done to save on SWU cost and increase gross profit. This change was done in a period of LEU demand growth (pre-2011) when the drop in demand was not anticipated.

While Centrifuge Plants save on enrichment costs, they are significantly less responsive to changes in production and scaling back centrifuge production is very costly, similar

to scaling back U_3O_8 production for miners. Turning off a centrifuge runs the risk of giving business to the competition and failing to secure new contracts from any demand pick up. Thus, enrichment plants will stay online as long as they are marginally profitable.

Conclusion

With a low cost of production, high cost of underutilization, and even higher cost of closure, many enrichment plants have remained online. Increasing projected reactor growth and enrichment fulfillment prices greater than current long term SWU add further reasons for current enrichers to keep their plants online.

Currently weak long term SWU prices however, have also prevented new enrichment capacity from coming online. Part 2 will address the effects of transitioning from an enrichment over-capacity environment to one of potential under-capacity as new reactors come online. ■

URANIUM SHARES SPIKE AS CANADIAN GIANT CAMECO SUSPENDS PRODUCTION (Cont'd)

Aura Energy 31 per cent, Peninsular Energy 29 per cent, A-Cap Resources 10 per cent, Pepinni Minerals 11 per cent, Greenland Minerals and Energy 15 per cent and Cauldron Energy more than 12 per cent.

Uranium prices have fallen more than 70 per cent since Japan's Fukushima nuclear power plant meltdown following a tsunami in 2011 and have reached what uranium miners call "an unsustainably low level".

"With the continued state of oversupply in the uranium market and no expectation of change on the immediate horizon, it does not make economic sense for us to continue producing at McArthur River

CONTINUED ON PG 6

URANIUM SHARES SPIKE AS CANADIAN GIANT CAMECO SUSPENDS PRODUCTION (Cont'd)

and Key Lake when we are holding a large inventory, or paying dividends out of proportion with our earnings," Cameco's president Tim Gitzel said in a statement.

Cameco's move comes after Kazakhstan, the world's largest uranium producing nation, announced it was cutting output by 10 per cent earlier this year due to poor market conditions.

Peter Reeve, the chairman of Astralian uranium junior Aura Energy, said Cameco's announcement was enormous for the market, but not surprising.

"This is significant for the uranium market, and frankly, three years overdue," Mr Reeve told Fairfax Media.

"When someone the size of Cameco takes action such as this in the market, it has a significant impact.

"Kazakhstan may also carry out further cuts on the back of this."

Mr Reeves said his company's share price spike was "completely shocking".

Uranium miners have seen utilities turn away from longer-term contracts since Fukushima, and focus increasingly on the spot market, driving the price of uranium below production costs.

"Hopefully this is a turning point for uranium," Mr Reeve said.

Far East Capital analyst Warwick Grigor was less positive on the movement, stating it was likely to be a short term speculation.

"Speculators saw that Cameco had cut production and reacted," Mr Grigor told Fairfax Media.

He stated that Cameco's suspension of operations makes sense, as at current uranium prices mining is not profitable.

"It's more valuable in the ground," he said.

"I don't see this as a turnaround for the uranium price; at best they will stay where they are, but it doesn't signal a boom in price."

As Cameco will draw down on its existing stockpiles, and may come online again if prices improve significantly, it puts companies not already in production unlikely to be in a position to take advantage of positive market movements.

"The market has a subdued outlook," Mr Grigor said.

"Speculators will get burnt."

Cameco is one of the world's largest uranium producers, accounting for about 17 per cent of global production from its mines in Canada, the US and Kazakhstan. Its MacArthur River and Key Lake operations together produced 11.1 million pounds of uranium in the first nine months of 2017. ■

ABOUT THE SLU₃O₈ OUTLOOK

The SLU₃O₈ Outlook; is an in-depth forecast model, optimized to anticipate the timing and extent of pending changes in uranium prices. Projections are maintained quarterly and based on the analysis of uranium price movement relative to detailed supply and demand changes over the past 15 years.

ABOUT THE SLU₃O₈ EQUITY INDEX

The SLU₃O₈ Equity Index tracks the relative share price of a select basket of uranium-based equities, checking the market's reaction to industry activities. The Index is based on share price movement since January 1, 2012 (1,000.00) of the following companies*:

- AREVA SA
- Cameco Corporation
- Denison Mines Limited
- Energy Fuels Inc.
- UEX Corporation
- UR-Energy Inc.
- Uranium Energy Corp.
- Uranium Participation Corp

* As the significant stock price movement of Fission Uranium Corp and NexGen Energy Ltd. is a function of major uranium discoveries, we have not included their stock performance in the Index to better reflect the uranium equities market in general.

ABOUT SIGHTLINE SLU₃O₈

Sightline U₃O₈ is a monthly newsletter and supporting website created and maintained to provide uranium investors and industry stakeholders with a single source of insight into the ongoing factors that directly affect uranium prices.

We welcome your comments, questions and ideas. Please contact us at editor@sightlineu3o8.com