

URANIUM PRICES <sup>1</sup>	As of 11/30/2020	MoM	YTD	YoY
Spot Price US\$/lb U <sub>3</sub> O <sub>8</sub>	\$29.48	-0.8%	18.3%	13.0%
Long-Term Price US\$/lb U <sub>3</sub> O <sub>8</sub>	\$33.00	0%	3.1%	3.1%

GLOBAL REACTOR <sup>2</sup>	COUNT	GWe	MoM	YTD	YoY
Operable	442	393	0%	0%	-0.2%
Under Construction	52	59	0%	-3.7%	-5.5%
Planned	100	105	-5.7%	-8.3%	-9.1%
Proposed	326	356	0.3%	-1.2%	-1.2%

SLU <sub>3</sub> O <sub>8</sub> EQUITIES PERFORMANCE	As of 11/30/2020	MoM	YTD	YoY
SLU <sub>3</sub> O <sub>8</sub> Equity Index <sup>3</sup>	481.17	9.8%	-0.6%	-0.9%
UProducers Average <sup>4</sup>	MoM Top Performer: A.PEN: +36.07%	18.2%	2.8%	2.5%
UDevelopers Average <sup>4</sup>	MoM Top Performer: V.FSY: +35.7%	13.7%	29.5%	29.4%
UExplorers Average <sup>4</sup>	MoM Top Performer: A.DYL: +34.4%	16.9%	41.5%	53.7%

- Price as per UxC, LLC.
- As per World Nuclear Association; MoM, YTD and YoY percentages based on Global Reactor Count
- SLU<sub>3</sub>O<sub>8</sub> Equity Index Performance based on CCO, DML, EFR, UEX, URE, UEC & U
- Performance Averages from the SLU<sub>3</sub>O<sub>8</sub> UEquity list of companies

Updated on December 1, 2020

### MONTH IN REVIEW

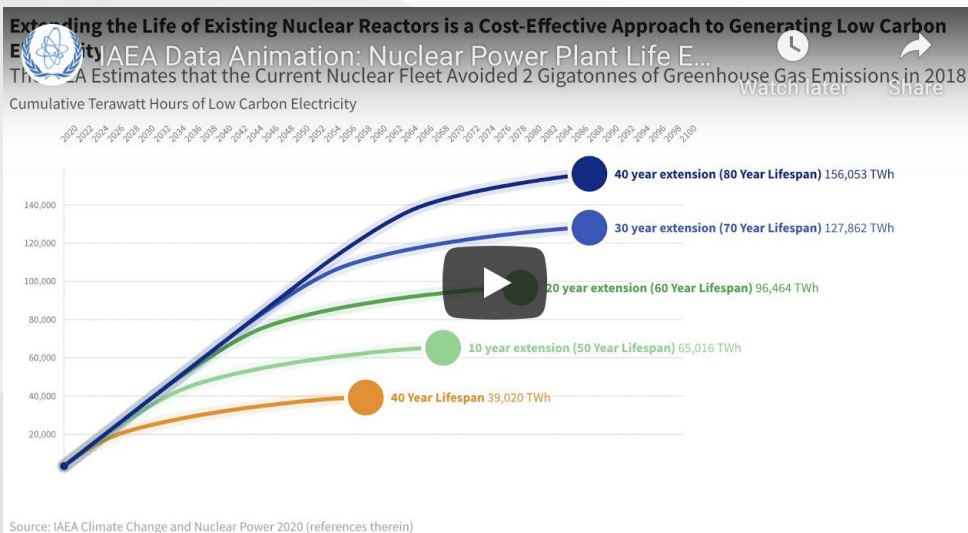
In November both the Spot and Term markets saw the lowest volumes of 2020, particularly due to the U.S. Thanksgiving holiday last week.

Uranium prices remained rather stable with the US\$29.48/lb. U<sub>3</sub>O<sub>8</sub> Spot price landing within pennies of October's close and the Term price constant at US\$33.00/lb. U<sub>3</sub>O<sub>8</sub>. Equities saw some action in November with uranium stocks generally rising by about 15%.

Japan now has 16 reactors at nine nuclear power plants that have cleared government requirements adopted after the 2011 Fukushima accident. In total the country has 33 operable reactors with only 9 restarted since the accident. Although there is undoubtedly more work to do before anyone flips the switch, another 16 reactors coming online in 2021 could have a serious impact on uranium prices by increasing demand by approximately 6MM lb. U<sub>3</sub>O<sub>8</sub> per year.

Comments or question? Ask us on Twitter ([@SightlineU3O8](https://twitter.com/SightlineU3O8)) or email us at [editor@sightlineU3O8.com](mailto:editor@sightlineU3O8.com).

## NUCLEAR POWER PLANT LIFE EXTENSIONS ENABLE CLEAN ENERGY TRANSITION



Source: IAEA

A new IAEA data animation shows that extending the life of existing nuclear power plants significantly increases the availability of reliable low carbon power, helping to meet climate goals and the transition to clean energy by 2050.

More than two thirds of the 442 nuclear power reactors in operation are over 30 years old and approaching – or have already reached – the end of their originally envisaged operational lifetime of around 40 years. While nuclear power plants do not have a predetermined lifespan, their components do, but nearly all of them can be replaced with new parts to safely extend

CONTINUED ON PG 2

## NUCLEAR POWER PLANT LIFE EXTENSIONS ENABLE CLEAN ENERGY TRANSITION (CONT'D)

the plant's operational lifetime. The operators of many of these older reactors have received permits from regulators to continue operations or are planning to apply for such permits, following refurbishments and corresponding safety reviews by authorities.

Given the timescale and investments required to make this transition, the world cannot afford to sacrifice existing low carbon nuclear that can operate safely and competitively for decades more.

Mikhail Chudakov, IAEA Deputy Director General and Head of the Department of Nuclear Energy

Using data from the recently released IAEA report Climate Change and Nuclear Power 2020, the animation shows how extending the global plant fleet's lifetime by 10 years would have a multiplying effect, adding 26 000 TWh of low carbon electricity generation. That's more than half the electricity produced in the previous 40 years by nuclear power, which took decades to reach its current output level.

"With many current reactors reaching their retirement dates and so few new plant projects underway, we need lifetime extensions of existing plants to keep global nuclear capacity from sharply declining by 2030, particularly in Europe and North America," said Alike van Heek, an IAEA energy expert heading the team that drafted the report. "Without these extensions, it could have major consequences in terms of carbon dioxide (CO<sub>2</sub>) emissions, air pollution and electricity supply security."

Around 100 nuclear power reactors have already received life extension licenses for varying periods following refurbishment. Nuclear power amounts to about 10 percent of global electricity production and almost one third of all low carbon electricity.

Extending the fleet's lifetime by a second decade to 60 years would generate an additional 31 400 TWh of electricity. That additional generation would represent almost 2% of the world's low carbon electricity produced between 2020 and 2080, using the average of the four illustrative model pathways in the Intergovernmental Panel on Climate Change Special Report on Global Warming of 1.5°C. Lifetime extension to 80 years total would more than double those figures.

The estimates in the data animation account only for existing reactors and do not account for new reactors to be added in the future. Currently, 53 nuclear reactors are under construction in 19 countries, representing some 56 000 MW in future installed capacity. In addition, several operating countries are looking to expand their nuclear power fleet and around 30 countries are considering adding nuclear power to their energy mix.

The levelized cost of electricity (LCOE), used to measure electricity generation costs, associated with the long-term operation of a nuclear power plant generally falls in the range US\$ 30-40 per MWh, for typical refurbishment costs for Light Water Reactors and a lifetime extension of 20 years. This is comparable to the LCOE of new wind and solar photovoltaic plants in optimal conditions, and is therefore one of the most cost-effective way of producing low carbon electricity.

"Climate change mitigation is urgent, but the challenge of switching to an essentially decarbonized global power system is daunting," said Mikhail Chudakov, IAEA Deputy Director General and Head of the Department of Nuclear Energy. "Given the timescale and investments required to make this transition, the world cannot afford to sacrifice existing low carbon nuclear that can operate safely and competitively for decades more." •

## TOP SUPPLY NEWS

[Senate proposes spending increase at environmental agencies](#)  
November 10, 2020

[Russia retires Leningrad 2 RBMK](#)  
November 10, 2020

[Boris Johnson set to reveal plan for reaching net zero carbon emissions by 2050](#)  
November 15, 2020

[Japan's Energy Supply and Demand in Fiscal 2019 Shows CO<sub>2</sub> Emissions Down for Sixth Year in a Row](#)  
November 24, 2020

[SA takes another step towards new nuclear power](#)  
November 25, 2020

[Takahama town assembly gives nod to restart of aging reactor](#)  
November 25, 2020

## TOP DEMAND NEWS

[Boris Johnson is close to giving Sizewell nuclear power plant in Suffolk the go-ahead](#)  
November 5, 2020

[Japan now has 16 reactors that meet requirements](#)  
November 12, 2020

[Turkey grants construction license for Akkuyu NPP's 3rd unit](#)  
November 17, 2020

[Work proceeds on Turkey's 1st nuclear power plant](#)  
November 22, 2020

[Nuclear Power Plant Life Extensions Enable Clean Energy Transition](#)  
November 24, 2020

[First Hualong One reactor connected to grid](#)  
November 27, 2020

[Hot testing of Tianwan 6 begins](#)  
November 30, 2020

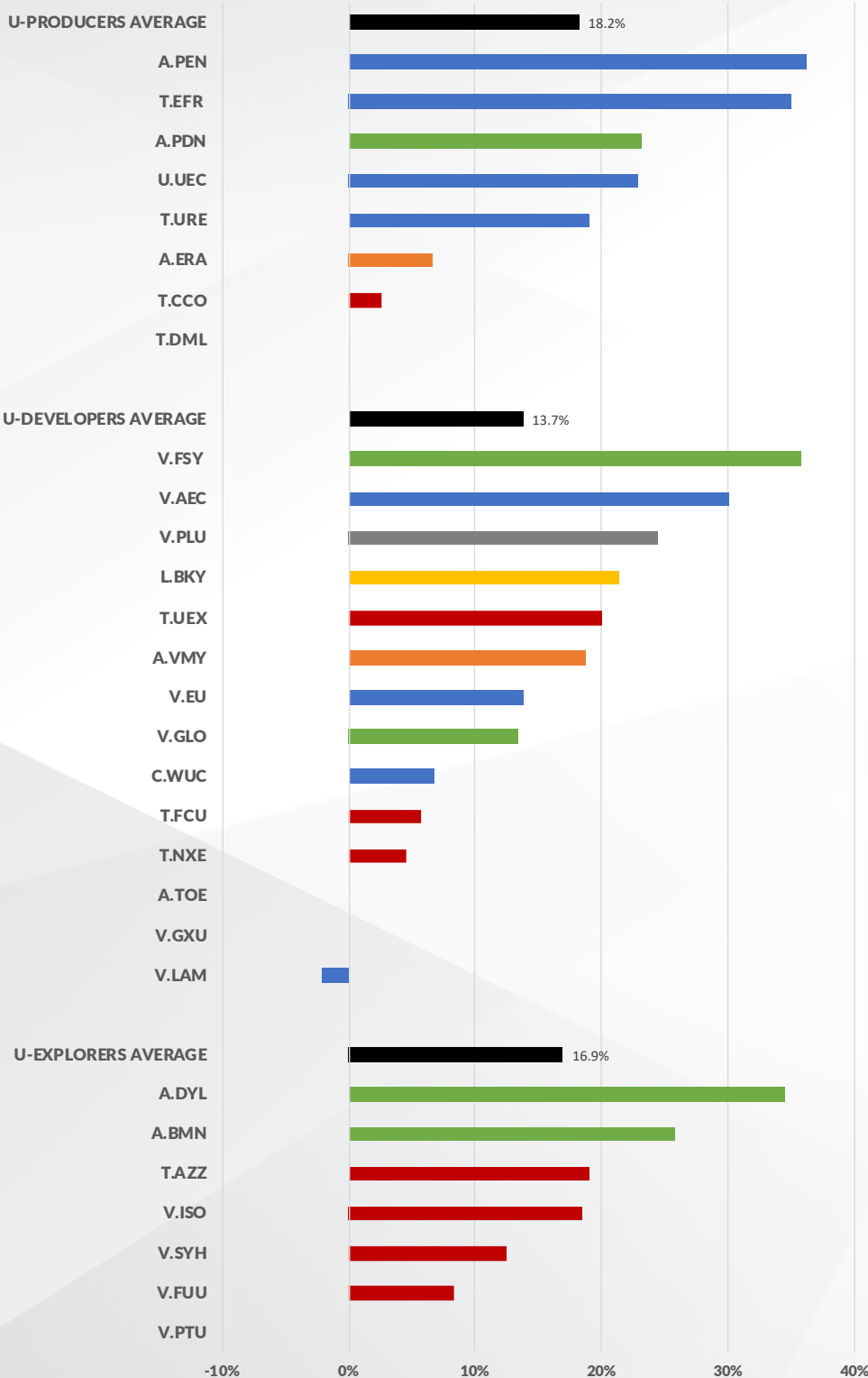
[Construction work resumes on Khmelnytsky units](#)  
November 30, 2020

## SLU<sup>3</sup>C<sup>8</sup> EQUITIES MONTHLY PERFORMANCE (NOVEMBER 30, 2020)

### TOP EQUITIES NEWS

**Project Regional Focus:**

Red: Canada   Blue: USA   Green: Africa   Orange: Australia   Yellow: Spain   Gray: Peru



[T.CCO Reports Q3 – Well Positioned, Strengthened Balance Sheet, Supported by Cigar Lake Startup](#)  
November 4, 2020

[T.DML announces decision to resume formal Environmental Assessment process for Wheeler River](#)  
November 9, 2020

[V.PTU: JV Partners Approve Upcoming Program at Hook Lake](#)  
November 9, 2020

[T.CCO Investor Webcast Advisory](#)  
November 10, 2020

[T.DML Announces Establishment of At-The-Market Program](#)  
November 13, 2020

[T.DML Reports Results From Waterbury PEA, Including Base Case Pre-Tax NPV of \\$177M and IRR of +39.1%](#)  
November 17, 2020

[T.FCU closes \\$17.07 million bought deal offering](#)  
November 17, 2020

[V.ISO Reports Additional High-Grade Uranium Assays in Two Southern Extension Drill Holes at the Hurricane Zone](#)  
November 17, 2020

[T.FCU to expand operations team and prepare for feasibility study](#)  
November 19, 2020

[V.PTU: CRUX Investor interview with Chris Frostad, President & CEO of Purepoint Uranium Group Inc. \(TSX-V:PTU\)](#)  
November 23, 2020

[T.AZZ Receives Final EPA Permits for Flagship Dewey Burdock Project; Another Substantial Milestone Achieved](#)  
November 25, 2020

URANIUM PRICES	SPOT PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>	LONG TERM PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>
<b>U<sub>3</sub>O<sub>8</sub> PRICES</b>		
November 30, 2020	\$29.48 ↓	\$33.00 ●

## TOP POLITICS NEWS

[Biden win to bring new approach to energy markets](#)

November 10, 2020

[Korea Hydro & Nuclear Power vies for Czech nuclear plant deal](#)

November 17, 2020

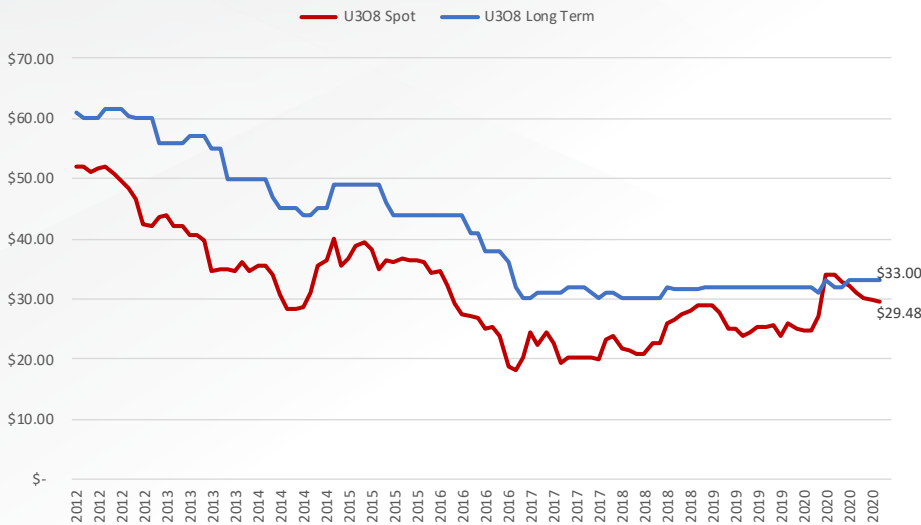
[South Korea and Russia Likely to Vie for Dukovany Nuclear Power Station](#)

November 23, 2020

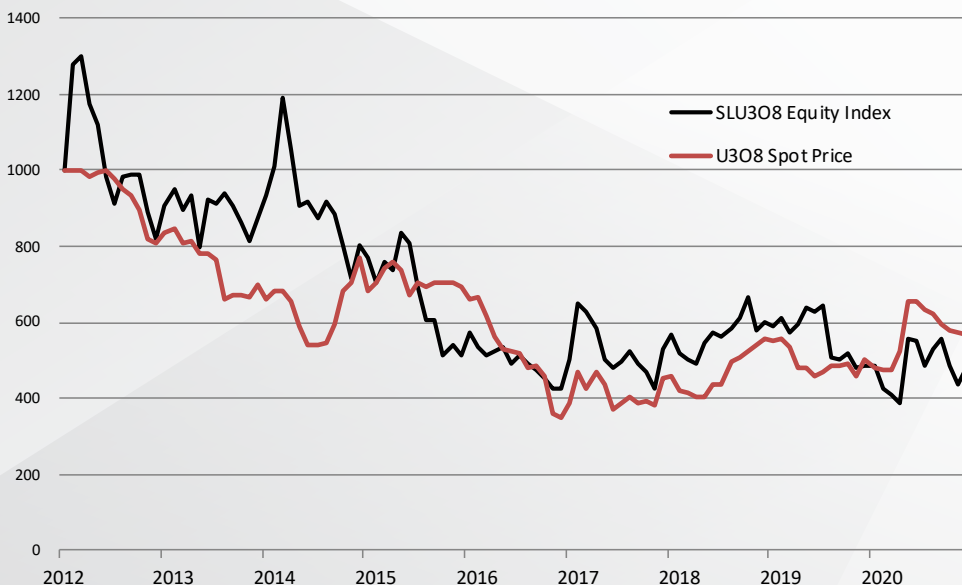
[India, US extend nuclear energy partnership by another decade](#)

November 25, 2020

## U<sub>3</sub>O<sub>8</sub> PRICES - HISTORIC



## SLU<sub>3</sub>O<sub>8</sub> EQUITY INDEX



## TOP ALTERNATIVE NEWS

[Nuclear power stations will create 6,000 UK 'levelling up' jobs by 2025 and 40,000 in 15 years in a boost to green economic recovery](#)

November 11, 2020

[Canada, Ultra Safe Nuclear Corporation One Step Closer to Constructing World's First Micro Modular Reactor with Signing of Project Host Agreement](#)

November 20, 2020

[Can 3D printing build a better, cheaper reactor faster?](#)

November 23, 2020

[Design updates, financial shakeup prompt utilities to rethink structure of NuScale's \\$6.1B SMR project](#)

November 25, 2020

**SLU3C UEQUITIES**

PRODUCING COMPANIES		COUNTRY FOCUS	PRICE AS OF 11/30/2020	52 WEEK HIGH	52 WEEK LOW	MARKET CAP (MILLIONS)
T.CCO	Cameco Corp	Canada	\$12.99	\$16.72	\$7.69	\$5,237.04
T.DML	Denison Mines Corp	Canada	\$0.47	\$0.75	\$0.235	\$332.06
T.EFR	Energy Fuels Inc	United States	\$2.70	\$3.29	\$1.10	\$361.76
A.ERA	Energy Resources of Australia Limited	Australia	\$0.16	\$0.20	\$0.14	\$572.16
A.PDN	Paladin Energy Ltd	Namibia	\$0.16	\$0.18	\$0.035	\$314.32
A.PEN	Peninsula Energy Limited	United States	\$0.083	\$0.19	\$0.056	\$74.01
T.URE	Ur-Energy Inc	United States	\$0.69	\$1.00	\$0.39	\$117.07
U.UEC	Uranium Energy Corp	United States	\$1.06	\$1.29	\$0.35	\$219.09
DEVELOPMENT COMPANIES						
V.AEC	Anfield Energy Inc	United States	\$0.065	\$0.16	\$0.04	\$7.81
L.BKY	Berkeley Energia Ltd	Spain	\$24.50	\$54.99	\$6.75	\$65.30
V.EU	Encore Energy Corp	United States	\$0.455	\$0.54	\$0.07	\$76.63
T.FCU	Fission Uranium Corp	Canada	\$0.28	\$0.495	\$0.09	\$162.40
T.FSY	Forsys Metals Corp	Namibia	\$0.19	\$0.22	\$0.06	\$30.04
V.GLO	Global Atomic Corporation	Niger	\$0.68	\$0.90	\$0.23	\$103.19
V.GXU	Goviex Uranium Inc	Niger	\$0.135	\$0.19	\$0.075	\$71.23
T.LAM	Laramide Resources Ltd	United States	\$0.24	\$0.37	\$0.10	\$40.67
T.NXE	NexGen Energy Ltd	Canada	\$2.33	\$2.65	\$0.76	\$900.91
V.PLU	Plateau Energy Metals Inc	Peru	\$0.28	\$0.40	\$0.16	\$30.42
A.TOE	Toro Energy Limited	Australia	\$0.014	\$0.022	\$0.003	\$41.35
T.UEX	UEX Corporation	Canada	\$0.15	\$0.195	\$0.065	\$61.00
A.VMY	Vimy Resources Ltd	Australia	\$0.038	\$0.055	\$0.019	\$29.59
C.WUC	Western Uranium and Vanadium	United States	\$0.63	\$1.10	\$0.245	\$18.92
EXPLORATION COMPANIES						
T.AZZ	Azarga Uranium Corp	United States	\$0.22	\$0.25	\$0.07	\$44.16
A.BMN	Bannerman Resources Limited	Namibia	\$0.044	\$0.047	\$0.015	\$47.29
A.DYL	Deep Yellow Limited	Namibia	\$0.43	\$0.44	\$0.10	\$105.37
V.FUU	Fission 3.0 Corp	Canada	\$0.065	\$0.105	\$0.02	\$10.52
V.ISO	IsoEnergy Ltd	Canada	\$1.35	\$1.60	\$0.23	\$120.39
V.PTU	Purepoint Uranium Group Inc	Canada	\$0.045	\$0.075	\$0.025	\$10.30
V.SYH	Skyharbour Resources Ltd	Canada	\$0.18	\$0.235	\$0.08	\$16.66
OTHERS						
T.U	Uranium Participation Corp	Canada	\$4.01	\$5.40	\$3.12	\$563.07
L.GCL	Geiger Counter Ltd	UK	\$17.50	\$20.50	\$9.60	\$16.22
U.URA	Global X Uranium ETF	US	\$11.83	\$12.59	\$6.94	\$156.46
L.YCA	Yellow Cake Plc	UK	\$195.00	\$231.50	\$148.20	\$165.26
T.HURA	Horizon Global Uranium ETF	Canada	\$9.40	\$10.84	\$5.79	\$4.46
U.URNM	North Shore Global Uranium Mining ETF	United States	\$29.78	\$34.44	\$15.55	\$18.24
V.URC	Uranium Royalty Corp	Canada	\$1.19	\$1.47	\$0.80	\$84.05

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



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## ABOUT THE SLU<sub>3</sub>O<sub>8</sub> EQUITY INDEX

The SLU<sub>3</sub>O<sub>8</sub> 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\*:

- 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 SLU<sub>3</sub>O<sub>8</sub>

**Sightline U<sub>3</sub>O<sub>8</sub>** is a nuclear industry research organization reporting through 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

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