

URANIUM PRICES	LONG TERM PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>	SPOT PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>
<b>UC PRICES</b>		
January 31, 2018	\$30.00 ↓	\$21.75 ↑
February 28, 2018	\$30.00 ●	\$21.56 ↓
<b>SLUC PRICE OUTLOOK</b>		
March 31, 2018	\$32.00 ↑	\$22.00 ↑
June 30, 2018	\$34.00 ↑	\$23.25 ↑
September 30, 2018	\$39.50 ↑	\$30.00 ↑
December 31, 2018	\$44.50 ↑	\$37.50 ↑
December 31, 2019	\$56.00 ↑	\$45.00 ↑
December 31, 2020	\$59.00 ↑	\$48.25 ↑

UXC: UX Consulting Company

SLUC EQUITY INDEX		
November 30, 2017	527.45	↓
December 31, 2017	531.10	↑
January 31, 2018	521.11	↑
February 28, 2018	500.61	↓

### WORLD NUCLEAR ASSOCIATION

Global Reactor Count	#	GWe
Operable	448	393
Under construction	57	62
Planned	158	163
Proposed	351	402

## MONTH IN REVIEW

**It's Awfully Quiet Out There** – For a second month in a row both the spot and long-term markets saw no significant transactions. As Buyers evaluate their position in light of production cuts and US calls for domestic subsidies, they appear to be reluctant to be the first to set a new pricing tone. The result of this standoff may be a more explosive move in price once the signing of new contracts begin.

Both the spot and long-term U<sub>3</sub>O<sub>8</sub> prices ended the month with little to no change from four weeks ago and the SLEquity Index dropped again from 521.11 to 500.61.

This month we have updated our SLOutlook incorporating:

- this extended period of indecision;
- newly reported 2017 production numbers;
- a current re-evaluation of Japanese restarts; and
- adjustments to construction project schedules.

## SASKATCHEWAN'S UNDISCOVERED URANIUM SUPER-DEPOSIT



In 1981, the Cigar Lake uranium deposit was discovered in Saskatchewan's Athabasca Basin. A monster in its day, eventually sizing up at 290MM lbs. of U<sub>3</sub>O<sub>8</sub> at a mine grade of 15%! Seven years later and 45 km (28 miles) away the McArthur River deposit was found, dwarfing Cigar with its 500MM lbs. of U<sub>3</sub>O<sub>8</sub> at a mine grade of 22%. Certainly, the lion's share of the Athabasca Basin's rich uranium endowment had been secured.

But wait ... 30 years and over \$2B in exploration spending later, the Basin serves up two more world class deposits 250 km (155 miles) away on the other side of the region; Triple R and Arrow coming in at 140MM and 300MM lbs. of U<sub>3</sub>O<sub>8</sub> respectively. Over the course of time, 39 deposits have been identified across the Athabasca Basin totaling over 2B lbs. of uranium – 10 of which came in at over 50MM lbs of U<sub>3</sub>O<sub>8</sub> each.

Known deposits are scattered across the Athabasca Basin, which covers approximately 100,000 square kilometres (39,000 square miles) of the Province of Saskatchewan Canada. Given the size of the Basin and the time, cost and difficulty in identifying a single deposit, how can there **not** be more out there. More to the point, is it possible to calculate what is waiting to be discovered?

*Let's give it a shot!*

CONTINUED ON PG 2

URANIUM PRICES	LONG TERM PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>	SPOT PRICE US\$/lb U <sub>3</sub> O <sub>8</sub>
<b>UC PRICES</b>		
February 28, 2018	\$30.00 ●	\$21.56 ↓
<b>SLU3O8 PRICE OUTLOOK</b>		
March 31, 2018	\$32.00 ↑	\$22.00 ↑

### SASKATCHEWAN'S UNDISCOVERED URANIUM SUPER-DEPOSIT (Cont'd)

#### Calculating Potential Endowment

Extensive exploration drilling over many decades has shown that the Athabasca Basin is clearly a reservoir of uranium. The "background" amount of uranium contained in drill samples can approach what is typically considered "minable" in other parts of the world. As a matter of fact, if we were to mine the entire Basin to an assumed depth of 5 km. (a ridiculously uneconomic endeavour), it has been estimated that we would produce about 125B lbs. of uranium.

If we limited our mining to a more reasonable depth of 200 metres and only on those trends and regions around the Basin, known to have discovery potential, a similar calculation demonstrates a total potential of approximately five billion pounds of uranium. With 2B already discovered, there would appear to be about 3B more to find.

A more refined calculation as to "what's left" may be possible thanks to Harvard linguist, George Kingsley Zipf who in 1949 formulated **Zipf's Law**, which describes the relationship between the size and rank of discrete phenomena. It is, in fact, a variant of the 80/20 rule that observes most things in life are not distributed evenly (i.e. 80% of a result is created by 20% of the input population).

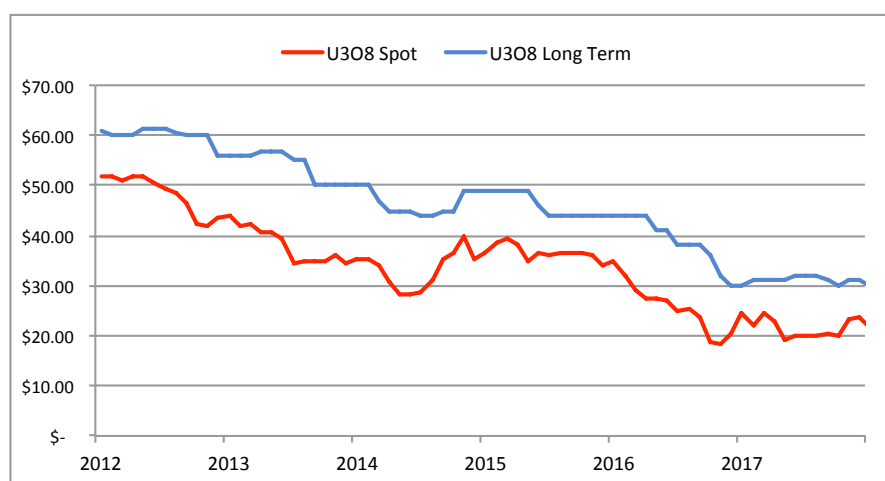
Originally established to describe the frequency of words in natural language, Zipf's Law was later applied to other phenomena such as income distribution among individuals, city populations, market share and, ultimately, sizes of oil, gas and mineral deposits.

#### Zipf's Law and Resource Endowment

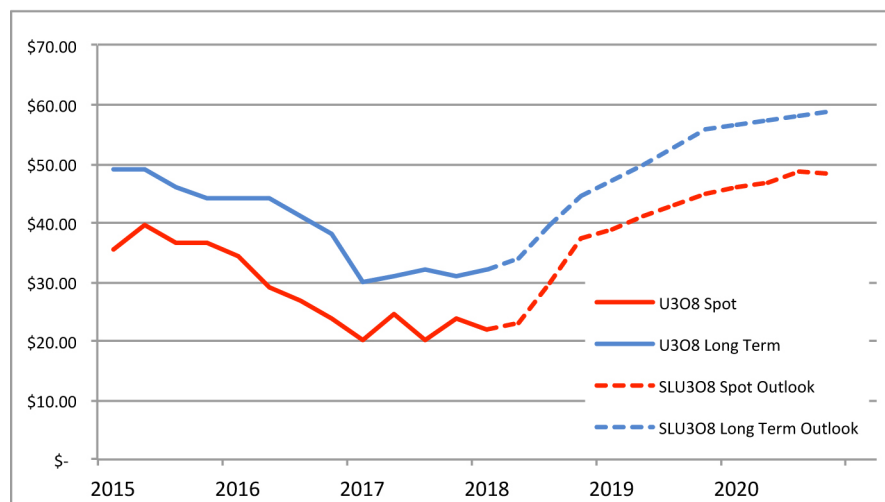
There have been numerous technical publications issued on the mathematical formulation, calculation and application of Zipf's Law but in its simplest form it boils down to the following:

**CONTINUED ON PG 3**

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



### SLU3O8 PRICE OUTLOOK



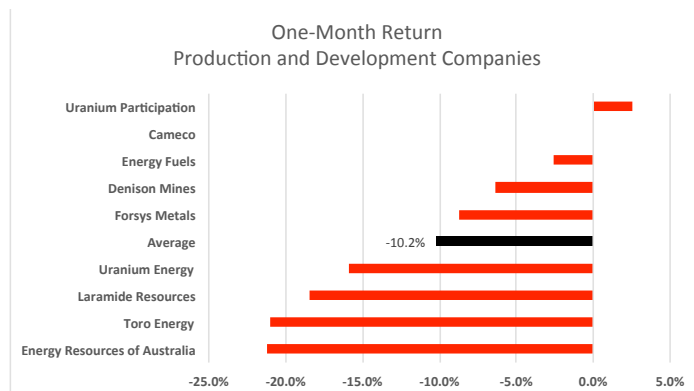
### UEQUITIES

PRODUCTION COMPANIES		Country Focus	Price (Feb 28/18)	52 Week Low	52 Week High	Mkt Cap (\$MM)
tsx:cco	Cameco Corp	Canada	\$11.32	\$9.90	\$17.04	\$4,480.40
tsx:dml	Denison Mines Corp	Canada	\$0.59	\$0.50	\$1.10	\$329.90
tsx:efr	Energy Fuels Inc	United States	\$1.93	\$1.66	\$3.53	\$138.90
asx:era	Energy Resources of Australia Limited	Australia	\$0.67	\$0.45	\$0.98	\$350.00
us:uec	Uranium Energy Corp.	United States	\$1.32	\$0.96	\$2.00	\$183.10
DEVELOPMENT COMPANIES						
tsx:fsy	Forsys Metals Corp	Namibia	\$0.11	\$0.11	\$0.22	\$15.53
tsxv:gxu	Govex Uranium Inc.	Niger	\$0.23	\$0.17	\$0.44	\$77.62
tsx:lam	Laramide Resources Ltd.	United States	\$0.31	\$0.23	\$0.74	\$35.61
asx:toe	Toro Energy Limited	Australia	\$0.03	\$0.03	\$0.06	\$76.31
EXPLORATION COMPANIES						
asx:aeo	Aura Energy Limited	Sweden, Mauritania	\$0.02	\$0.02	\$0.05	\$19.65
tsx:azz	Azarga Uranium Corp	United States	\$0.27	\$0.19	\$0.48	\$22.36
asx:bmh	Bannerman Resources Limited	Namibia	\$0.04	\$0.02	\$0.10	\$34.20
asx:bky	Berkeley Energia Ltd	Spain	\$0.85	\$0.65	\$1.18	\$216.40
asx:dyl	Deep Yellow Limited	Namibia	\$0.26	\$0.19	\$0.56	\$53.90
asx:eme	Energy Metals Ltd	Australia	\$0.13	\$0.05	\$0.28	\$26.25
tsxv:fuu	Fission 3.0 Corp	Canada	\$0.05	\$0.05	\$0.13	\$9.90
tsx:fcu	Fission Uranium Corp	Canada	\$0.69	\$0.53	\$0.92	\$334.55
tsxv:kiv	Kivalliq Energy Corp	Canada	\$0.08	\$0.08	\$0.18	\$18.52
tsx:mga	Mega Uranium Ltd	Australia	\$0.17	\$0.13	\$0.32	\$50.03
tsx:nxe	Nexgen Energy Ltd	Canada	\$2.82	\$2.40	\$4.45	\$954.90
tsxv:plu	Plateau Uranium Inc	Argentina	\$0.89	\$0.26	\$0.96	\$51.32
tsxv:ptu	Purepoint Uranium Group Inc.	Canada	\$0.07	\$0.06	\$0.18	\$13.30
tsxv:shy	Skyharbour Resources Ltd	Canada	\$0.40	\$0.31	\$0.70	\$21.49
tsx:uex	UEX Corporation	Canada	\$0.25	\$0.15	\$0.43	\$78.21
us:ury	Ur-Energy Inc. (USA)	United States	\$0.66	\$0.50	\$0.91	\$95.91
asx:vmy	Vimy Resources Ltd	Australia	\$0.14	\$0.10	\$0.26	\$52.18
OTHER						
tsx:u	Uranium Participation Corp	Canada	\$4.00	\$3.47	\$4.73	\$529.79

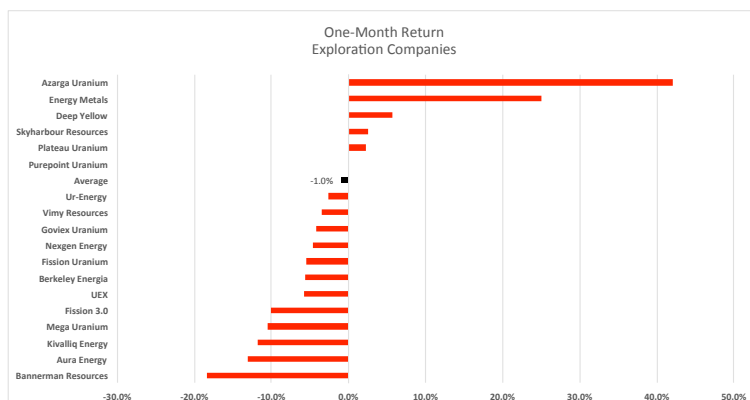
Note: Currencies for the price and market cap are respective to the country of trade.

### UEQUITIES MONTHLY PERFORMANCE

#### Producers/Developers



#### Explorers



### SASKATCHEWAN'S UNDISCOVERED URANIUM SUPER-DEPOSIT (Cont'd)

1. In geology, Zipf's Law predicts how many entities (deposits) may be left in a sequence of decreasing size assuming we know the size of the largest deposit.
2. When all deposits are ranked in order of size, the second largest deposit will be one-half the size of the largest deposit. The third largest deposit will be one-third the size of the largest deposit. The fourth largest deposit will equal one quarter the size of the largest deposit, etc.
3. Starting with the largest deposit, the remaining theoretical deposits can all be calculated and a Zipf Curve is determined.

CONTINUED ON PG 5

### TOP CORPORATE NEWS

[JNFL and MHI become shareholders of Orano](#)  
February 26, 2018

[Energy Fuels Receives Federal Approvals](#)  
February 26, 2018

[Azarga Identifies Expands Dewey Burdock](#)  
February 26, 2018

[Fission Hits New High-Grade Holes](#)  
February 26, 2018

[Purepoint Acquires New Basin Projects](#)  
February 21, 2018

[Fission Issues New Triple R Resource Est](#)  
February 20, 2018

[Paladin trading again on ASX](#)  
February 16, 2018

[Energy Fuels Announces Mgt Changes](#)  
February 15, 2018

[Berkeley Discusses Salamanca Timing](#)  
February 14, 2018

[Cameco Q4 Results](#)  
February 9, 2018

[UEC Acquires Athabasca Project](#)  
February 9, 2018

CONTINUED ON PG 4

### TOP CORPORATE NEWS (cont'd)

[Cameco Appoints New Chair](#)  
February 8, 2018

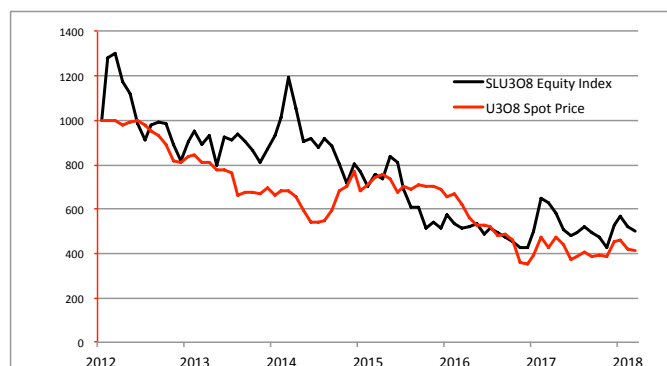
[Uranium Participation Corp NAV 01/31/18](#)  
February 8, 2018

[Fission Initiates Drilling and PFS Work](#)  
February 6, 2018

[Cameco: A Buying Opportunity?](#)  
February 2, 2018

[Cameco: 2018 Expectations](#)  
February 1, 2018

### SLU308 EQUITY INDEX



### TOP DEMAND STORIES

[UAE - World's Largest Nuclear Project](#)  
February 28, 2018

[Kazakhstan Guarantees China U Supply](#)  
February 27, 2018

[Closing New Jersey's Nuclear Plants?](#)  
February 26, 2018

[China to Overtake US in Nuclear Power](#)  
February 21, 2018

[Questioning Georgia's Vogtle Schedule](#)  
February 21, 2018

[Construction of Japan's Shimane may proceed](#)  
February 20, 2018

[EDF Revisits French Nuclear Targets](#)  
February 20, 2018

[\\$475MM Upgrade for Alabama's Nuclear Plant](#)  
February 20, 2018

[Two Reactors Results from Saudi/Russian Agreement](#)  
February 16, 2018

[Japan's Plutonium Glut Problems](#)  
February 14, 2018

[Possible New Reactors for France](#)  
February 14, 2018

[Slovakia's New Reactor Nears Completion](#)  
February 13, 2018

[China's Sanmen Reactor Sees Delays](#)  
February 13, 2018

[India Approves 12 New Reactors](#)  
February 8, 2018

[Fuel Loading Begins at China's Ohi 3](#)  
February 8, 2018

[Russia Helps Ukraine Move to Nuclear](#)  
February 7, 2018

[Analysing Shifting Uranium Deliveries](#)  
February 7, 2018

[Turkish Consortium Pulls Out of Project](#)  
February 7, 2018

[Japan Power Companies suffer from Fuel Costs](#)  
February 6, 2018

[Japan's Ikata-3 Restart Spurs Increased Revenues](#)  
February 6, 2018

[Russia Turning on Two New Reactors](#)  
February 1, 2018

[Uranium Miners File "Buy American" Petition](#)  
February 1, 2018

### TOP SUPPLY STORIES

[Canada's Athabasca Basin Update](#)  
February 15, 2018

[Cameco Wins Court Victory in Australia](#)  
February 12, 2018

[Resource Increases in the Athabasca Basin](#)  
February 8, 2018

[Cameco Layoffs Begin](#)  
February 1, 2018

### TOP POLITICAL STORIES

[Rick Perry in Talks with Saudi Arabia](#)  
February 27, 2018

[S. Korea to Leverage UAE Contract](#)  
February 27, 2018

[India and France work on Nuclear Agreement](#)  
February 26, 2018

[S. Korea's Nuclear Future](#)  
February 26, 2018

[Trump's Nuclear Concessions with Saudi Arabia](#)  
February 20, 2018

[Saudi Arabia Negotiation with many Nations](#)  
February 18, 2018

[China's CGN Proposes a Shenzhen Listing](#)  
February 12, 2018

[US Budget Assists Nuclear](#)  
February 8, 2018

### TOP ALTERNATIVES NEWS

[Canada's Small Reactor Strategy](#)  
February 27, 2018

[Growth in Renewables Matching Nuclear](#)  
February 16, 2018

[EIA Annual Energy Outlook 2018](#)  
February 7, 2018

[US Looks to Small Reactors](#)  
February 7, 2018

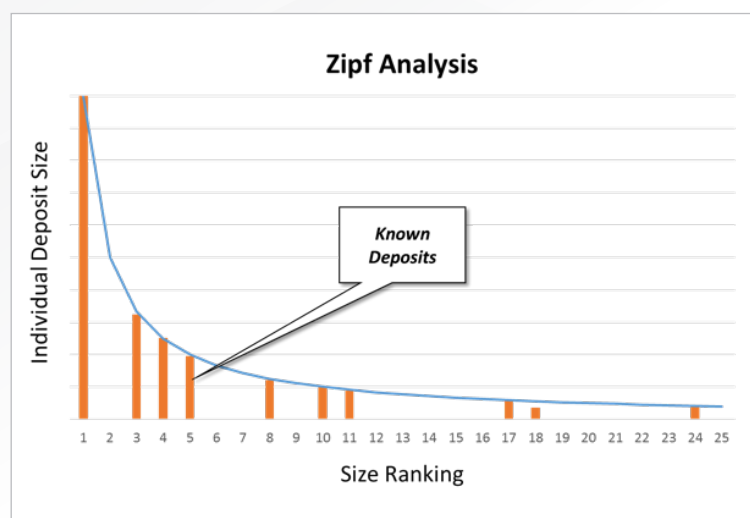
[The Future of Small Reactors](#)  
February 1, 2018



### SASKATCHEWAN'S UNDISCOVERED URANIUM SUPER-DEPOSIT (Cont'd)

- Generally, the largest deposit identified to date is assumed to be the largest deposit existing in the region. This is based on the fact that the largest known deposit would typically have the largest footprint and would have been an early discovery in the history of the area.
- All known deposits are then matched to a correspondingly sized predicted deposit.
- By eliminating the known deposits from the list, we are left with those yet to be found.

Once completed the resulting Zipf Curve will take this shape:



The stacked bars represent the actual deposits known to exist. The first stacked bar matches the first point on the Zipf graph. The gaps represent deposits not yet identified.

#### Zipf's Curve in the Athabasca Basin

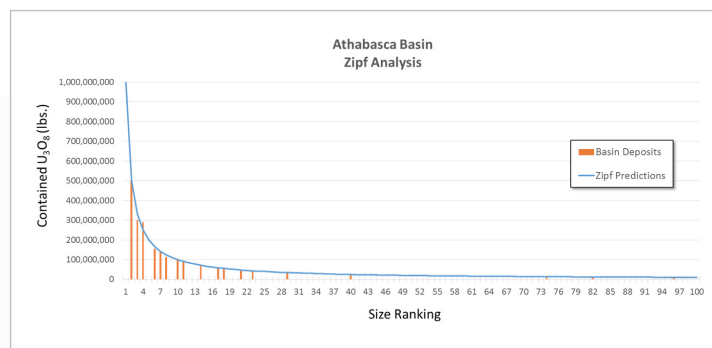
As noted, there are currently 39 known deposits in the Athabasca Basin; a valid sample size for this sort of analysis. If we assume that McArthur River is, in fact, the largest deposit in the Basin and line up the known deposits by size, we start to see a problem.

too many larger deposits. Further, if you add up all of the projected deposits set out on the entire Zipf Curve it totals only 3.5B lbs. of  $U_3O_8$ .

As we try to line up the known deposits with predictions, what becomes evident is that McArthur River, in fact, may not be the largest deposit in the Basin. By assuming an unknown larger deposit, our known deposits more appropriately align with the Zipf predictions.

Deposit Name	Resource Size (lbs. $U_3O_8$ )	Zipf Predicted Deposits (lbs. $U_3O_8$ )
Undiscovered Deposit	-	1,000,000,000
McArthur River	500,000,000	500,000,000
Arrow	300,000,000	333,000,000
Cigar Lake	290,000,000	250,000,000
Undiscovered Deposit	-	200,000,000
Key Lake	155,000,000	167,000,000
Triple R	140,000,000	143,000,000
Undiscovered Deposit	-	124,000,000
Eagle Point	113,000,000	111,000,000
Undiscovered Deposit	-	100,000,000

Moreover, the sum of the predictions from this set of numbers totals in the range of 5 billion pounds – more in line with our macro estimate – and results in the following curve:



#### So?...What's Left

It should be pointed out that Zipf's Law is based on observation, not theory and, as with any law, there are restrictions and assumptions that cannot always be met.

If one is to lend credence to the predictions provided by Zipf's Law, we can draw the following conclusions:

- Somewhere, lurking in the Athabasca Basin, there is a super-deposit in the range of 1 billion pounds of  $U_3O_8$  - approximately the same size as the McArthur River, Arrow and Cigar Lake deposits combined;
- There are three more Tier 1 deposits of between 100-200,000,000 pounds  $U_3O_8$  yet to be discovered;

CONTINUED ON PG 6

Deposit Name	Resource Size (lbs. $U_3O_8$ )	Zipf Predicted Deposits (lbs. $U_3O_8$ )
McArthur River	500,000,000	500,000,000 (assumed largest)
Arrow	300,000,000	250,000,000 (1/2 x largest)
Cigar Lake	290,000,000	166,666,666 (1/3 x largest)
Key Lake	155,000,000	125,000,000 (1/4 x largest)
Triple R	140,000,000	100,000,000 (1/5 x largest)
Eagle Point	113,000,000	83,000,000 (1/6 x largest)

All of our deposits are, on average, nearly 40% larger than the Zipf Curve would predict. As a matter of fact, it appears that we have

## SASKATCHEWAN'S UNDISCOVERED URANIUM SUPER-DEPOSIT (Cont'd)

3. There are six more deposits out there ranging between 50-90 million pounds of U<sub>3</sub>O<sub>8</sub>;
4. One could re-compile the analysis looking at the Eastern Basin as a separate region from the Western Basin. Such an analysis, however, results in the same conclusion - there is an unfound monster waiting to be found in the East. Further, the Western deposits are still being explored and continuing to grow. The "largest" deposit is not yet defined.

One thing is for sure. You cannot find a deposit if you are not drilling. For investors cheering on their favorite explorers, it would appear that the eight companies currently managing exploration drill programs across the Basin still have lots to discover. ■

*(They are Cameco Corporation, Denison Mines Corp, Fission Uranium Corp, Orano (Areva Resources Canada), NexGen Energy Ltd, Purepoint Uranium Group Inc., Skyharbour Resources Ltd. and UEX Corporation)*

# SIGHTLINE | U<sub>3</sub>O<sub>8</sub>

[www.sightlineu3o8.com](http://www.sightlineu3o8.com)

### ABOUT THE SLU<sub>3</sub>O<sub>8</sub> OUTLOOK

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

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

Sightline U<sub>3</sub>O<sub>8</sub> 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](mailto:editor@sightlineu3o8.com)