

Uraniumletter INTERNATIONAL

the international independent information and advice bulletin for uranium resource investments

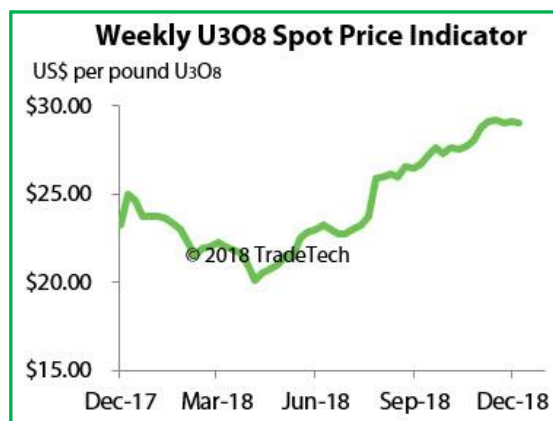
Quarter 4, 2018

Uranium Market Outlook



Marino G. Pieterse, publisher and editor

- ▶ Gap between spot and long-term U3O8 price almost closed at resistance level of \$ 30/lb
- ▶ Open market under control of Kazakhstan



OVERVIEW of U3O8 PRICES					
	Spot	Long-term		Spot	Long-term
▶ 2018					
▶ November 30	29.10	31.25	Year-end 2016	20.25	30.00
October 29	27.95	31.25	Year-end 2015	34.23	44.00
September 24	27.35	31.75	May 31, 2015 (high)	39.50	50.00
August 27	26.20	31.50	Year-end 2014	35.50	49.50
July 31	25.70	31.50	May 14, 2014 (low)	28.25	49.00
June 30	22.55	29.00	Year-end 2013	34.50	50.00
May 28	22.75	29.00	Year-end 2012	43.50	56.50
April 9	21.00	29.00	Year-end 2011	61.75	64.00
March 26	21.10	29.50			
February 26	21.25	30.00	Pre-Fukushima accident		
January 29	21.88	30.00	March 11, 2011	67.75	73.00
▶ Year-end 2017	22.32	30.67			
December 4 (high)	26.50	31.00			
September 27	20.25	31.50			
June 26	20.10	32.50			
May 29 (low)	19.25	32.50			
May 1	22.50	33.00			
▶ March 27	24.50	33.99			
February 28	22.25	32.50			
February 6 (high)	26.00	32.50			
▶ January 31	24.50	32.50			
Year-end 2016	20.25	30.00			
November 28	18.00	* 33.00			
October 31	18.75	35.50			
September 26	23.75	38.00			
June 27	27.00	40.50			
March 28	29.15	43.50			
* 12-year low					

source: Cameco calculations from the month-end prices published by UxC and TradeTech

After having said in my **Q3 2018 Uranium Market Outlook** that despite the U3O8 spot price having recovered from a low of \$ 18/lb on November 28, 2016 to \$ 26/lb at the end of August 2018, optimism on structural continuation of the recovery should not be overstated, the effect of **Cameco's** announcement on August 21, 2018 that it is seeking 500,000 pounds from uranium producers between the end of this year through March 21, 2019, has not succeeded to break the important resistance level of \$ 30/lb to date.

This resistance level was addressed to by me since 2012 when there occurred a difference of more than \$ 10/lb between the falling spot price and consolidation of the long-term price yet, which has blocked an earlier recovery of the spot price.

With the 500,000 pounds to be delivered by **Cameco** before March 21, 2019, the Company's total need to meet its contractual obligations is said to be 15 million pounds of uranium through the end of 2019.

Referring to my analysis of statistics on the top 10 countries of the world's uranium producers, as well as nuclear power reactors and uranium requirement, it is to be noticed that while the United States in 2017 had a deficit of 18,056 tonnes in supply, this deficit could be covered easily by Kazakhstan's supply of 23,391 tonnes. In addition, there is access to delivery from long-term agreements with other countries, of which Russia in particular.

This actually means that based on current global production and supply, almost all trading doesn't have to be generated by the open market, and as a result could halt a further recovery of the uranium spot price to required economically viable prices above \$ 50/lb.

With existing long-term obligations to dry up in the next few years and to be replaced, it has to be noticed that utilities will be reluctant to offer a high premium for committed long-term deliveries of U3O8, like happened in the period up to year-end 2015, at which time the U3O8 price was \$ 50/lb.

From this perspective, it is also to be considered that the need of uranium to feed the anticipated strong growth of new nuclear reactors in China, Russia and India, can be fully accommodated through secured bilateral agreements rather than through the non-transparent open market.

By **Kazakhstan** playing a dominant role producing 40% of total world uranium production, representing a surplus in supply of 24,575 tonnes and together with a **Canadian surplus of 12,447 tonnes** and **Australia 6,315 tonnes in supply** to provide global uranium demand, which now comes for account of the **United States**, showing a deficit of 24,575 tonnes.

Based on a new future energy strategy in the U.S., with the goal to be less dependent on foreign supply of uranium from percentage of around 7% only, this will result in decreasing imports and support higher local U.S. production.

Q4 2018 - Uranium Market Outlook

Page

▶ General market comments	1
▶ Content summary	3
▶ World largest carbon dioxide emitters	4
▶ World nuclear power reactors & uranium requirements	5
▶ World top 10 uranium producing countries	6
▶ Paris Climate Agreement confirms essential contribution of nuclear energy to limit global warming.....	7
▶ United Nations report reiterates increased need for nuclear power	7
▶ COP24 clashes over Paris Agreement	8
▶ China and Russia to dominate international sales new nuclear plants	9
▶ Rio Tinto sells entire 68.62% interest in Namibian Rössing mine to CNNC of China	10
▶ European Union fails as leader in profiling itself as a leader on promoting action on climate change	10
▶ Phasing out Germany's nuclear reactors in conflict with EU energy policy	11
▶ Kazatomprom Company Profile	12
▶ Restructuring JV Inkai between Kazatomprom and Cameco	13
▶ Cameco 's project strategy focused on Tier-one Cigar Lake and JV Inkai projects	14
▶ Market valuation of the world's listed uranium producers	18
▶ Geographical overview of the world's highest valued exploration and development countries	19
▶ United States dominates global energy markets	20
▶ U.S. leadership on climate change not affected by withdrawal from Paris Climate Agreement	21
▶ Call for U.S. government to revitalize its uranium industry	21
▶ U.S. uranium mine production in 2017 55% less than in 2016	22
▶ U.S. uranium in-situ leach plants	22
▶ US Congress approves US\$ 1.2 billion budget for nuclear energy	23
▶ Energy Fuels and Ur-Energy hold pioneer role in revitalizing U.S. uranium production	23
▶ Energy Fuels Company Profile	24
▶ Ur-Energy Company Profile	27
▶ Peninsula Energy Company Profile	29
▶ UEC prevented from technical default in 2019 and Company Profile	32

World's largest carbon dioxide emitters

Country	2007	2010	2015	2016	2017	Growth rate in %		Share 2017 (in %)
						2017	2007-2017	
China	7,215	8,105	9,163	9,114	9,233	1.6	2.8	27.6
United States	5,881	5,508	5,214	5,130	5,086	-0.5	-1.3	15.2
European Union	4,223	3,934	3,488	3,499	3,542	1.5	-1.6	10.6
India	1,366	1,662	2,146	2,251	2,344	4.4	7.1	7.0
Russia	1,528	1,490	1,496	1,511	1,525	1.3	-0.2	4.6
Japan	1,266	1,182	1,197	1,181	1,177	-0.1	-0.7	3.5
South Korea	546	610	656	665	680	2.5	2.4	2.0
Other	8,054	8,583	9,492	9,667	9,857	-1.9	2.2	29.5
Total world	30,079	31,074	32,852	33,018	33,444	1.6	1.3	100.0

Total by region

North America *	6,476	6,202	6,161	6,121	-0.4	-0.9	18
South & Central America	1,187	1,359	1,327	1,310	-1.0	2.3	4
Europe	4,407	4,028	4,061	4,152	2.5	-1.5	12
CIS **	2,232	2,195	2,212	2,213	0.3	0.3	7
Middle East	1,746	2,031	2,058	2,112	2.9	3.6	6
Africa	1,079	1,168	1,184	1,205	1.9	2.5	4
Asica Pacific	1,395	1,587	1,601	1,633	2.3	3.1	49
							100

* including Mexico

source: BP Statistics Review of World Energy 2018

** former Soviet Union

Comments:

With **China, United States, European Union, India** and **Russia**, as the world's top 5 largest carbon dioxide emitters, together accounting for two-thirds of total emission, this means that the goals set by the Paris Climate Agreement have a symbolic character only.

It is passed by that CO₂ emission from industry and traffic, represents more than 50% of total emission. This is accounted for by the direct link with the status of economic growth of industrial and major emerging countries, which are mostly committed to fossil fuels for the long-term. Despite strong contribution of renewables and nuclear energy generation, this applies to **China, India** and **Russia** in particular.

In addition, small emerging countries in their beginning stages of economic growth are not in a position to contribute to the transition goals set by the Paris Climate Agreement.

WORLD NUCLEAR POWER REACTORS & URANIUM REQUIREMENTS

Country	Reactors operable		Under construction		Planned		Proposed		Uranium required in tonnes		
	2017	2010	2017	2010	2017	2010	2017	2010	2017	2010	
USA	98	104	2	1	14	9	28	22	18,996	19,538	
Canada	19	18	0	2	2	3	0	3	1,592	1,675	
France	*	58	58	1	1	0	1	0	1	9,502	10,153
Spain		7	8	0	0	0	0	0	0	1,275	1,458
Sweden		8	10	0	0	0	0	0	0	1,188	1,537
Germany	**	7	17	0	0	0	0	0	0	1,480	3,453
Belgium		7	7	0	0	0	0	0	0	987	1,052
Netherlands		1	1	0	0	0	0	0	1	82	107
UK		15	19	0	0	11	4	2	9	1,772	2,235
Russia		37	32	6	10	25	14	22	30	5,380	4,135
Ukraine		15	15	0	0	2	2	11	20	1,944	2,031
China		45	13	13	26	43	37	136	120	8,289	2,875
South Korea	***	24	21	5	5	0	6	6	0	4,730	3,804
Japan	****	5	55	2	2	0	12	3	1	662	8,003
India		22	19	7	6	14	18	28	40	843	908
Subtotal		368	354	29	41	84	106	236	247	58,722	62,964
Other		83	88	25	21	67	37	101	84	6,292	5,682
Total world		451	442	54	62	151	143	337	331	65,014	68,646

* **France** generates 71.6% from its electricity from nuclear energy. To be more balanced through an increase of renewables, this share may be reduced to 50% or approximately 40 reactors by 2025

** Up until 2011, **Germany** obtained 25% of its electricity from its 17 nuclear reactors, but nuclear energy phased out in 2011 when 8 reactors shut down immediately and currently 7 remaining reactors to be closed by 2019

*** **South Korea's** 2017 elected government has introduced strongly opposed nuclear phase-out plans by 2040; nuclear production to drop from 31% today to 22% by 2030

**** Up until 2011, **Japan** was generating some 30% of electricity from its 55 reactors and this was expected to increase to at least 40% by 2017. The project now is for two-thirds of this from a depleted fleet. Currently, 42 reactors are operable, with 9 having restarted since; 17 reactors are currently in the process of restart approval

New plants coming online are largely balanced by old plants retired. Over 1996-2016, 80 reactors were retired as 96 started operations. The reference scenario in the 2017 edition of [The Nuclear Fuel Report](#) has 140 reactors closing by 2035 and 224 new ones coming online, to include 22 Japanese reactors

New plants coming online are largely balanced by old plants retired. Over 1996-2016, 80 reactors were retired as 96 started operations. The reference scenario in the 2017 edition of [The Nuclear Fuel Report](#) has 140 reactors closing by 2035 and 224 new ones coming online, to include 22 Japanese reactors

World Top 10 uranium producing countries

	Production	2017 in %	Production					2010 in %
	in tonnes U	world total	in tonnes U					world total
	2017		2016	2015	2014	2013	2010	
Kazakhstan	23,391	39	24,575	23,800	23,127	22,451	17,803	33
Canada	13,116	22	14,039	13,325	9,134	9,331	9,783	18
Australia	5,882	10	6,315	5,672	5,001	6,350	5,900	11
Namibia	4,224	7	3,315	2,993	3,255	4,323	4,496	8
Niger	3,449	6	3,477	4,116	4,057	4,518	4,198	8
Russia	2,917	5	3,004	3,055	2,990	3,135	3,562	7
Uzbekistan (est)	2,404	4	2,404	2,385	2,400	2,400	2,400	4
China (est)	1,885	3	1,616	1,616	1,500	1,500	827	2
USA	940	2	1,125	1,256	1,919	1,792	1,660	3
Ukraine (est)	550	1	<u>1,005</u>	<u>1,200</u>	<u>926</u>	<u>922</u>	<u>850</u>	<u>2</u>
Top-10 total	58,758	99	60,875	59,418	54,309	56,722	51,479	96
Others	773	<u>1</u>	<u>1,137</u>	<u>1,100</u>	<u>1,908</u>	<u>2,648</u>	<u>2,192</u>	<u>4</u>
Total world production tU	59,531	100	62,012	60,518	56,217	59,370	53,671	100

source: WNA

World's leading uranium mining companies

	tonnes U	%
KazAtomProm *	12,488	21
Cameco	9,155	15
Orano (previously Areva)	8,031	13
Uranium One	5,102	9
CNNC & CGN **	3,897	7
ARZ	2,917	5
Rio Tinto **	2,558	4
Navoi	2,404	4
BHP Billiton	2,381	4
Energy Asia *	2,218	4
General Atomics/Qusar	1,556	3
Sopamin	1,188	2
Paladin Energy	970	2
Other	4,666	7
World total	59,531	100

Mining method	tonnes U	%
In-situ leach (ISL)	29,492	50
Underground and open pit *	27,350	46
By-product *	2,689	4
	59,531	100

* considering Olympic Dam as by-product rather than in underground category

* recently completed acquisition of 40.04% share in *Energy Asia* and 16.02% in *JV Khorasan* from *Energy Asia*

** CNNC to buy entire 68.62% share in *Rio Tinto*'s Rössing Mine, Namibia

► **Paris Climate Agreement confirms essential contribution of nuclear energy as the only large-scale source to limit global warming**

On 4 November 2016, the Paris Climate Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) entered into force, dealing with greenhouse gas emissions mitigation, adaptation and financing starting in the year 2020.

The aim of the convention is holding the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognising that this would significantly reduce the risks and impacts of climate change.

The contribution that each individual country should make in order to achieve the worldwide goal are determined by all countries individually and called "nationally determined contributions (NDCS)".

The contribution should be reported every 5 years and are to be registered by the UNFCCC Secretariat. Countries can cooperate and pool their nationally determined contributions.

With 195 countries having adopted the first-ever universal climate agreement on 12 December 2015 and entered into force on 4 November 2016, which sets out a global action plan to put the world on track to avoid dangerous climate changes by limiting global warming to 1.5C, executing the plan is jeopardized by a variety of national directives in many countries to cut CO2 emission through the transmission of electricity generating from fossil fuels to renewable energy and also recognizing the essential contribution of nuclear energy as the only large-scale alternative to replace fossil fuels.

In other words, it will not be possible to change the current mix of energy sources of major industrial countries, applying both to the United States and Europe, in particular Germany and emerging countries, led by China, India and Russia, with most of these countries heavily dependent on coal energy as the dirtiest energy provider.

In this respect, it is noteworthy that the Kyoto Protocol in 2009, which targets a 20% cut in CO2 emission by 2020, did not result in any improvement to date and the situation actually worsened due to the rise of worldwide industrial output, with the United States and China the biggest climate contaminants.

On the side line of the Paris Agreement it is good to learn that nuclear energy remains an essential component in the action plan, thereby recognizing that in the Western world the share of nuclear energy is approximately 30% of total world consumption and approximately 11% worldwide. With China and India representing only 2.6% and 3.5% respectively of national electricity consumption, these two countries have ambitious plans to multiply the share of nuclear energy in total consumption. In addition, a growing number of emerging countries have planned construction of nuclear plants to diversify their pallet of energy providers.

In this respect, it is noteworthy that the disaster of Tsjernobil in 1996 was due to human failure and the Fukushima disaster in March 2011 to be accounted for by a "tsunami" that followed the heavy earthquake as a combined one-time disaster, and since then not having recognized that today's new generation of nuclear reactors meets the highest possible safety requirements.



United Nations report reiterates increased need for nuclear power

A large increase in the use of nuclear power would help keep global warming to below .5 degrees, according to United Nations report published on October 8, 2018. The intergovernmental Panel on Climate Change (IPCC) special report -Global Warming of 1.5 degree – was commissioned by governments at the Paris climate tables in December 2015 and will inform the COP 24 summit in Katowice, Poland this week.

Under all scenario's compatible with 15 degrees outlined in the report, the contribution of nuclear power increases.

An increase in the use of nuclear power can be realized through existing mature nuclear technologies or new options. “There are large differences in nuclear power between models and across pathways. One of the reasons for this variation is that the future development of nuclear can be constrained by societal preferences assumed in narrative underlying the pathway.

Some 1.5 pathways no longer see a role for nuclear fission by the end of the century, while other project 200 EJ year of nuclear power in 2100”.

An increase in the use of nuclear power can be realized through existing mature nuclear technologies or new options, the report says, referring to Generation III/IV reactors, breeder reactor, new uranium and thorium fuel cycles, small reactors or nuclear cogeneration.

“Even through historically scalability and speed of scaling of nuclear plants have been high in many nations, such rates are currently not achieved anymore. In the 1960s and 1970s, France implemented a programme to rapidly get 80% of its power from nuclear in about 25 years, but the current time-lag between the decision date and the commissioning of plans is observed to be 10-19 years” the reports days.

In a statement to accompany the report, the IPCC said limiting global warming to 1.5 degrees compared to 2 degrees “would require rapid, far-reaching and unprecedented changes in all aspects of society”. It adds “With clear benefits to people and natural ecosystems, limiting global warming to 1.5 degrees compared to 2 degrees could go hand in hand with ensuring a more sustainable and equitable society”.

One of the key messages that comes out very strongly from this report is that we already see the consequences of 1 degree C of global warming through more extreme weather rising sea levels and diminishing Arctic sea ice among other changes” said Panmao Zhai, Co-Chair of IPCC Working Group.

The report highlights a number of climate changes impacts that could be avoided by limiting global warming to 1.5 degrees compared to 2 degrees, or more.

For instance, by 2100 global sea level rise would be 10 cm lower with global warming of 1.5 degrees compared with 2 degrees.

The likelihood of an Arctic Ocean free of ice in summer would be once per century with global warming of 1.5 degrees, compared to at least once per decade with 2 degrees.

Coral reefs would decline by 70-90% with global warming of 1.5 degrees, whereas more than 99% would be lost with 2 degrees.

The report was prepared under the scientific leadership of all three IPCC working groups:

- **Working Group I** assesses the physical science basis of climate;
- **Working Group II** addresses impacts, adaptation and vulnerability;
- **Working Group III** deals with the migration of climate change

► **Outcome COP24 conference in Poland clashes over Paris Agreement “rule book” when global climate enters into force in 2020**

Having said that the outcomes of the COP24 annual climate conference in Katowice, Poland have mostly agreed on starting a new climate regime under which all countries will have to report their emissions – and progress in cutting them – every two years from 2024, the agreement only has a symbolic character, however.

At the heart of talks in Poland was the Paris Agreement “rule book”, which was mandated in 2015 to be finalized by the end of the COP24. The rule book is the detailed “operating manual” needed for the Paris Agreement to enter into force in 2020, but lacking committed hints at the need for more ambitious climate pledges before 2020, with countries failing to agree the rules for voluntary market mechanism and clashing over how to recognize the Intergovernmental on Climate Change (IPCC) special report on 1.5°C and weather to clearly signal the need for greater ambition to stay below this temperature limit.

As a result, part of the process has been pushed onto next years’ COP25 in Chile.

► **China** and **Russia** to dominate international sales of nuclear plants

Russia intends exports of crude oil and gas. to make nuclear power plants a major revenue earner alongside exports of oil and gas. The country is stepping up its overseas sales of nuclear power plant, with state-run nuclear energy company **Kazatomprom** agreeing in July of this year to cooperate in building what would be the first nuclear plant in Central Asia and reaching an accord with **China** to build a plant in that country.

Russia accounts for 67% of the world's nuclear plant deals currently in development. By 2030 **Rosatom** aims to increase its overseas sales to two-thirds of total sales from 50% currently.

Vladimir Putin's government is looking to expand Russian influence through nuclear diplomacy tying with **China** – which is promoting its own nuclear plants – for the status of nuclear energy supervisor.

Rosatom's CEO Alexey Likhachev reported that Rosatom has signed contracts to build 35 nuclear power reactors, 67% of the world market for projects currently in progress, including government-to-government agreements with total overseas orders of \$ 133.4 billion, up 21% from a year earlier. It targets \$ 150 billion to \$ 200 billion in orders in 2030.

Rosatom proposed the Uzbekistan project last December, signing a document on nuclear energy cooperation; Uzbekistan subsequently announced that it had agreed to the construction of 2 reactors with 1,200 megawatts of generating capacity each and a 28-year commissioning plan. The plant will likely be built in Navoi, near to the border with Kazakhstan.

During a visit by resident Putin to **China** in June, **Rosatom** entered into a framework agreement to cooperate in nuclear plant construction, including 4 reactors in Jiangsu and Liaoning provinces.

At a late July summit in South Africa of the so-called BRICS-countries (Brazil, Russia, India, China and South Africa), president Putin appeared to have offered cooperation on nuclear plant projects to South African president Cyril Ramaphosa.

Russia's strength in the field is the all-out support of the government and its ability to rake an overall aspect of a nuclear energy project. The Putin government attaches much importance to nuclear plants seeing them as a globally competitive, technology-intensive industry, with an important role to play in vitalizing Russia's domestic industry, as evidenced by Putin himself successfully pitching Russia nuclear plants to foreign leaders during international summits.

Russia nuclear plants also boost price competitiveness, with the government providing loans to finance the high costs. Not only does the country build the plant, but it supplies fuel, operates and maintains the reactors and dispenses of the used fuel. This makes a deal with Russia attractive for countries that want to build their first nuclear plant, but which lack the operational know-how.

Also **China** made it clear that its policy is to expand overseas nuclear plant deals by building on the technology of other countries, including Russia and France, that have been on the forefront of nuclear plant development. Wang Shoujun, chairman of China's state-owned nuclear energy company China National Nuclear Corp. ("CNNC"), signed a memorandum of understanding with Uganda's energy minister to cooperate nuclear power development.

In May of this year, Wang Shoujun, chairman of China's state-owned nuclear energy company China National Nuclear Corp. ("CNNC"), signed a memorandum of understanding with Uganda's minister of energy to cooperate nuclear power development.

In December 2007, **China** reached a similar accord with Thailand. CNNC is also stepping up cooperation with Saudi Arabia and Argentina.

Expected strong future growth of nuclear demand is not anymore determined by the **US** and **EU**, but by **China**, **Russia** and **India**. Nuclear electricity generating in 2017 in the US was almost five times higher than in China and more than doubled combined nuclear electricity generating from the three emerging countries combined.

In 2017, the **US** and **European Union** required 17,847 tonnes uranium and 17,266 tonnes uranium, respectively, compared with a combined uranium requirement of 16,615 tonnes uranium for **China, India and Russia**.

With as at July 2018 a combined number of 100 reactors operable, 30 reactors under construction and 82 reactors planned, **China, India and Russia** require annual uranium demand to grow by 14,000 tonnes in the next 5 years.

While the **United States** is anticipated to consolidate a 20% share of nuclear in total electricity generating, in Western Europe nuclear energy generating will come under pressure. This will be potentially offset by the construction of nuclear reactors in Eastern European countries.



Rio Tinto sells entire 68.62% interest in Rössing Mine to CNNC of China

On November 26, 2018 it was announced that **Rio Tinto** has agreed to sell its entire 68.62% stake in **Rössing Uranium**, owner of the Rössing mine in Namibia to **China National Uranium Corporation (CNUC)**, part of China National Corporation (CNNC) for up to US\$ 106.5 million.

Under a binding agreement, the total consideration comprises an initial cash payment of US\$ 6.5 million payable at completion and a contingent payment of up to US\$ 100 million following completion linked to uranium spot prices and Rössing's net income during the next 7 years.

Rio Tinto will also receive a cash payment if **CNUC** sells the Zelda 20 mineral deposit during a restricted period following completion. **The total consideration is capped at a maximum of US\$ 106.5 million.**

Rössing, the world's largest-running open-pit uranium mine, located 12 kilometres from the town of Arandis, 70 km inland from the coastal town of Swakopmund in Namibia's Erongo region, has been in operation since 1976. It has a name plate capacity of 4,500 tonnes U3O8 per year. Its 2017 production was 4.65 million pounds U3O8 (1,789 tU), of which Rio Tinto's share was 3.19 million pounds.

By the end of last year, the mine had supplied a total of 132,610 tonnes U3O8 to the world.

Holding a 68.62% interest, **Rio Tinto** is the majority owner of **Rössing Uranium**. The Namibian government has a 3% shareholding, but has a majority of 51% in terms of voting rights. The Iranian Foreign Investment Company is a passive legacy investor in Rössing Uranium, with a 15% stake. The Industrial Development Corporation of South Africa owns 10%, while local industrial shareholders own a combined 3%.

Separate branches are responsible for **CNNC's** domestic and international uranium mining and exploration activities. CNNC Overseas Uranium Holding's investments include a 25% stake in Namibia's **Langer Heinrich Uranium Mine**, currently under care-and-maintenance.

► European Union, profiling itself as a leader in promoting action on climate change but fails to act accordingly


In March 2007, the European Council endorsed the European Commission's Strategic Energy Review and agreed on a unilateral cut of 20% in EU greenhouse gas emissions by 2020, relative to the 1990 levels. The Council also set a target of meeting 20% of EU energy needs from renewables by 2020, leaving individual countries to decide their own policies in such a way as to allow nuclear power as part of their energy mix to be taken into consideration in allocating individual country targets for renewables.

The European Commission's 2030 Policy Framework for Climate and Energy in January 2014 moved away from major reliance on renewables to achieve emission reduction targets and allows scope for nuclear power to play a larger role. The board is focused on CO2 emission reduction only, not the means of achieving that, and allows more consideration for cost-effectiveness.


The centrepiece is a binding 40% reduction in domestic greenhouse gas emissions by 2030 (compared with a 1990 baseline) which will require not achievable commitments from the 28 EU member states (including UK).

With the 14 EU member states expected to follow the **PINC-named program**, which is in accordance with the current number of 14 countries operating nuclear reactors, but considering the **Brexit, Germany** phasing out its remaining 7 reactors, and **France** to have announced to lower the number of its current 58 to 40 plants, the table below shows that the EU uranium supply would be almost fully dependent on increasing nuclear energy capacity in Eastern European countries. Besides growing political turmoil in some of these countries, these are economically not in a position to carry out a successful transmission from fossil fuels to nuclear energy and renewables.

► Phasing out Germany’s nuclear reactors in conflict with EU energy policy

 **France** has 58 nuclear power plants operated by Electricité de France (EDF) generating 379.1 TWh nuclear electricity in 2017 or 71.6% of its electricity from nuclear energy, due to a long-standing policy based on energy security. To be reduced by renewables, this share may be reduced to 50% or approximately 40 reactors by 2025.

France is the world’s largest net exporter of electricity due to its very low cost of generation and gains over € 3 billion per year from that. The country has been very active in developing nuclear technology Reactors and especially fuel products and services have been a significant export. About 17% of France’s electricity comes from recycled nuclear fuel.

 **Germany’s** electricity production in 2016 was 648 TWh, with demand of 595 TWh and net export of 54 TWh. Of the total generation, lignite provided 150 TWh, hard coal 112 TWh, nuclear 85 TWh.

Until the March 2011 Fukushima accident, Germany obtained 25% of its electricity from nuclear energy, about 14% from 8 reactors phased out. With 43% of electricity coming from coal, the majority of that from lignite, the predominance of coal makes Germany Europe’s biggest emitter. The 2016 increase in renewables generation was the smallest since 2009 of carbon dioxide.

A coalition government formed after the 1998 federal elections had the phasing out of nuclear energy as a featured of its policy. With a new government in 2009 the phasing out was cancelled, but them reintroduced in 2011 when 8 reactors shut down immediately.

European Union: 126 nuclear reactors in 2018 operating in 14 countries, including UK before Brexit

	Operating reactors	Under Construction	Planned	in % of total electricity generating
France	58	1	-	71.6
UK	15	-	11	19.3
Sweden	8	-	-	39.6
Germany	7	-	-	11.6
Spain	7	-	-	21.2
Belgium	7	-	-	49.9
Czech Republic	6	-	2	33.1
Finland	4	1	1	33.2
Hungary	4	-	2	50.0
Slovakia	4	2	-	54.0
Romania	2	-	2	17.7
Bulgaria	2	-	-	34.3
Slovenia	1	-	-	39.1
Netherlands	1	-	-	2.9
Total	126	4	18	

source: WNA

Germany has some of the lowest wholesale electricity prices in Europe and some of the highest retail prices, due to its energy policies. Taxes and surcharges account for more than 50% of the domestic electricity price.

No nuclear reactors operating in 14 EU countries

- Italy
- Portugal
- Poland
- Ireland
- Croatia
- Austria
- Denmark
- Luxembourg
- Greece
- Estinia
- Latvua
- Lithuania
- Malta
- Cyprus



Kazatomprom the world's largest uranium producing country

Kazatomprom the world's largest uranium producer in the world by a significant margin, accounting for 39% of global uranium primary supply in 2017 (equivalent to 12.1 ktU) and one of the world's lowest-cost producers in terms of cash costs compared to other major uranium producing countries, including Canada and Australia.

Kazatomprom operates, through its subsidiaries, JVs and Associates, 26 deposits grouped into 13 mining assets, all of which are located in Kazakhstan. All of the Group's uranium ISR assets are suitable for ISR mining.

The Company is wholly-owned by **Samrik-Kazyna**, which in turn is wholly-owned by the Government of the Republic of Kazakhstan. Kazakhstan further accounts for 65% of the world's measured and indicated resources suitable for ISR.

Kazatomprom has a proven track record as a reliable supplier to the industry for the past 20 years and has established a relationship with the majority of global consumers of civil uranium and high-quality blue chip customer base across Asia, Europe and North America.

The Company supplies to 8 out of 10 largest operators at the nuclear generation capacity globally.

Kazatomprom benefits from a global sales and distribution footprint including a recently established trading operation **Trading House Kazakhstan ("THK")** in Switzerland and a representative office in the United States to serve new categories of customers such as US-based utility companies which prefer to purchase uranium in the spot market.

► Business strategy

Kazatomprom primarily focuses on the mining of uranium. The Company believes that mining, in particular ISR extractive method, is currently the most attractive segment of the nuclear fuel value chain in terms of sustainable profitability and returns of capital, thereby benefitting from a natural competitive advantage in ISR uranium mining. Accordingly, the Group intends to maintain its primary focus on its uranium mining operations, while retaining the optionality to expand presence in other segments of the front-end cycle, as well as its rare metals operations.

Kazatomprom only produces from reserves in Kazakhstan, benefitting from the largest reserve base in the industry, with attributable uranium reserves just under 300 KtU.

On November 13, 2018, the **Kazakh Sovereign Wealth Fund Samruk Kazyna** offered 38.9 million shares at a price of US\$ 11.60 for sale on the London Stock Exchange, representing **15% of Kazatomprom share capital**.

The 15% Offering implied a market valuation of US\$ 1 billion, valuing the whole Company at US\$ 20 billion.

Key Performance financial indicators (in KZT million)	2017	2016
Income from sales of products and services provided	336,517	394,315
Income for sales of uranium production	207,788	268,101
Cost of sales	263,864	283,882
Operating profit	35,521	73,242
Profit for the year	139,154	111,555
Aggregate income attributable to owners of Kazatomprom	138,837	108,014
Cash and cash equivalents	239,936	75,052
Credits and loans	121,703	127,929

(KZT 1 trillion = US\$ 2.970 million)

On December 14, 2018, it was announced that **Kazatomprom** had completed the acquisition of 40.05% share in Energy Asia (BVI) a 16.02% participating interest in the chartered capital of **JV Khorasan-U LLP** from Energy Asia Holdings (BVI).

As a result of the completed transaction **Kazatomprom's** ownership structure of the "**Baiken-U**" LPP, **Kyzylkem LLP** and **JV Khorasan-U LLP** becomes 52.5%, 50% and 50%, respectively.

For the 6 months ended June 30, 2018, the Group's consolidated revenue was KZT 145.0 billion and the profit was KZT 115.0 billion. The **Adjusted EBITDA** amounted to KZT 38.8 billion.

► **Restructuring JV Inkai between Kazatomprom and Cameco effected on January 1, 2018**
Cameco's ownership interest lowered from 60% to 40%

On December 11, 2017, it was announced that the restructuring of Joint Venture Inkai, outlined in the implementation agreement dated May 27, 2016 with **Kazatomprom** and **JV Inkai** will take effect on January 1, 2018. The Inkai operation is an in-situ recovery (ISR) uranium mine in south Kazakhstan.

Under the implementation agreement, **Cameco's** ownership interest in JV Inkai has been adjusted to 40% from 60% and **Kazatomprom's** ownership of JV Inkai to be adjusted to 60% from 40%. A new governance framework for JV Inkai protecting the rights of **Cameco** as a minority owner has taken effect.

The amendment to the Resource Use Contract provides as follows:

- **JV Inkai has the right to increase production to 10.4 million pounds U3O8 per year (Cameco's share 4.2 million pounds)**, an increase from the current licenced production of 5.2 million pounds (Cameco's share 3.0 million pounds).
- JV Inkai has the right to produce from block's 1, 2 and 3 until 2045 (currently the lease terms are to 2024 for block 1 and to 2030 for blocks 2 and 3).
- The current boundaries of blocks 1, 2 and 3 have been adjusted to match the agreed production profile for JV Inkai to 2045.

The loan previously funded by a Cameco subsidiary of JV Inkai to fund exploration and evaluation of block 3 was restructured to provide for priority repayment. Such priority repayment commenced in 2017 and the balance of the loan was US\$ 124 million at the end of the third quarter.

► **Inkai Mineral Reserves and Mineral Resources of the Inkai operations as of January 1, 2018 are:**

- Proven and Probable Reserves 378.76 million tonnes grading 0.032% U3O8, **containing 269.6 million pounds U3O8 (Cameco's share 107.9 million pounds U3O8)**
 - Measured and Indicated Resources 51.81 million tonnes grading 0.025% U3O8, **containing 32.0 million pounds U3O8 (Cameco's share 12.8 million pounds U3O8)**
- Inferred Resources 116.39 million tonnes grading 0.029% U3O8, **containing 75.0 million pounds U3O8 (Cameco's share 30.0 million pounds U3O8)**

Compared to mineral reserves reported as of December 31, 2016, **Cameco's** share of JV Inkai Mineral Reserves increases by approximately 62 million pounds U3O8. Measured and Indicated Mineral Resources decrease by nearly 68 million ponds U3O8 and Inferred Resources decrease by nearly 56 million ponds U3O8.

Kazatomprom and **Cameco** have also completed a feasibility study to evaluate the design construction and operation of a uranium refinery in Kazakhstan with the capacity to produce 6,000 tU annually as uranium trioxide (U3O). A formal joint decision has not been made as to whether the refinery will be built.

On May 23, 2018, **Kazatomprom** and **Belarus** signed a memorandum of cooperation in the peaceful uses of nuclear energy. The memorandum provides for the exchange of experience in the development and adoption of legislation and technical documentation for the construction of a nuclear power plant, as well as for other uses of nuclear energy, the Belarus Energy Ministry said.

Belarus is building its nuclear plant using the Russian VVER-1200-2006 design. The first unit is scheduled for commissioning in 2019, with the second unit to be brought into line in 2020. The Ostrovels plant will give 2,340 MWe net capacity on line.



Cameco's project strategy focused on Tier-one Cigar Lake and JV Inkai projects

Cameco's adjusted strategy is to focus on its Tier-one assets and profitably produce a phase aligned with market signals in order to preserve the value of these assets and increase long-term shareholder value and do that with an emphasis on safety, people and the environment.

Due to an oversupplied market and the resulting weak market conditions, the Company has undertaken number of deliberate and disciplined actions with the focus on preserving the value of its lowest cost assets, on maintaining a strong balance sheet, on protecting and extending the value of its contract portfolio and on efficiently moving the Company in a low price environment.

Cameco continues to adjust its actions in accordance with the following marketing framework:

- First, the Company will not produce from its tier-one assets to sell into an oversupplied spot market and will not produce from these assets unless it can commit its tier-one pounds under long-term contracts that provide an acceptable rate of return for its owners.
- Second, the Company intends to build up an inventory of excess uranium. Excess uranium serves to contribute to the sense that uranium is abundant and creates an overhang on the market, and it ties up working capital on its balance sheet.
- Third, in addition to its committed sales, the Company will capture demand in the market where it thinks it can obtain value. The Company will take advantage of opportunities the market provides, where it makes sense from an economic, logistic and strategic point of view. These opportunities may come in the form of spot, mid-term or long-term demand and will be additive to the Company's current committed sales.
- Fourth, once the Company captures demand, it will decide how to best source material to satisfy that demand. Depending on the timing and value of its inventory volumes, this means the Company will be active buyers in the market in order to meet its demand obligation and
- Finally, in general, if the Company chooses to source material to meet demand by purchasing it, the Company expects the price of that material will be more than offset by the leverage to market prices in its sales portfolio over a rolling 12-month period.

Cameco's focus will continue to be on maximizing cash flow, while maintaining its investment-grade rating so it can self-manage risk, including being in a position to retire its 2019 debt maturity when it comes true.

► Cameco's strategy in action

In July 2018, the Company announced the extended shutdown of **McArthur River/Key Lake**, which resulted in the permanent layoff of approximately 520 site employees. As a result of the layoffs the Company incurred \$ 27 million in severance costs, which were expensed directly to cost of sales in the third quarter.

In addition, as a further cost cutting measure, the Company announced a reduction in the corporate office workforce of approximately 150 positions, resulting in severance costs of \$ 13 million, being expensed as part of the Company's administrative costs for the quarter.

In conjunction with the production suspension at McArthur River/Key Lake, Cameco has drawn down its inventory by 17.2 million pounds since the beginning of the year, freeing up significant working capital.

In addition, the Company has begun the necessary purchasing to meet its delivery commitments in 2018 and 2019. Since the end of July, the Company has secured 2.9 million pounds.

Cameco has been successful in securing long-term purchase agreements for more than 7 million pounds of uranium concentrates for future delivery through 2028.

The deliveries are heavily weighted to the years 2025 through 2028, **with the Company having long-term sales commitments to deliver about 150 million pounds of uranium concentrates.**

To the end of the third quarter, under the agreement with its partner **Orano** (formerly Areva), **Cameco** has delivered 1.4 million pounds of uranium concentrates out of a total of up to 5.4 million pounds. Orano is obligated to repay the Company in kind, with uranium concentrates no later than December 31, 2023.

Long-term contracts usually call for delivery to begin more than 2 years after the contract is finalized, and use a number of pricing formulas, including the contract, and market referenced prices (spot and long-term indicators) quoted near the time of delivery.

► **Cameco's U3O8 production expected to almost half in 2018**

In 2017, **Cameco's** uranium production was 23.8 million pounds of U3O8. Quarterly production was 6.9 million pounds in Q4 – 3% lower than in 2016 due to the curtailment of production at the US operations, lower production at Inkai and from McArthur River / Key Lake.

The Company achieved ramp-up to full annual production at the Cigar Lake mine of 9.0 million pounds U3O8, but on the other hand announced the temporary production suspension at McArthur River / Key Lake commencing in 2018; removing 18 million pounds of U3O8 from the market. This was followed by a decision announced in July 28, 2018 the decision to suspend full production at McArthur River and Key Lake for an indeterminate duration.

	2017	2016	2018 plan
Uranium production (Cameco share) <i>(in million pounds U3O8)</i>			
McArthur Lake / Key River	11.2	12.6	0.1
Cigar Lake	9.0	8.7	9.0
Inkai	3.2	3.4	3.4 *
Rabbit Lake	-	1.1	-
Smith Ranch - Highland	0.3	0.9	- **
Crow Butte	0.1	3.0	- ***
Total	23.8	29.7	12.5
* production at the mine and mill is temporarily suspended			
** based on reduced ownership from 60% to 40% in JV with Kazatomprom (60% as at Jan.1, 2018)			
*** production cease in 2018			

► **Sale commitments**

Net earnings (loss) normally brand with revenue, but in recent years have been significantly influenced by impairment charges due to the continued weakness in the uranium market.

During Q4 2017, **Cameco** recorded a \$ 184 million write-down of its US assets.

Cameco closed the agreement with its Kazakh partner Kazatomprom and **JV Inkai** to restructure and enhance JV Inkai and successfully implemented operational changes at its mining operation resulting in capital and operating cost savings.

At the end of 2017, **Cameco** had commitments to sell almost 150 million pounds of U3O8 with 39 customers worldwide in its uranium segment and over 40 million kilograms as UF6 conversion with 31 customers worldwide in its fuel services segment.

The annual average sales commitments over the next 5 years in the Company's uranium segment is 22 million pounds, with commitment levels through 2020 higher in 2021 and 2022.

The 5 largest customers account for 55% of commitments: Americas 41%, Asia 39% and Europe 20%.

► Exploration expenditures 2018

In the third quarter of 2018, **Cameco**'s uranium exploration expenses were C\$ 5 million, a decrease of \$ 3 million compared to the third quarter of 2017.

Exploration expenses for the first 9 months of the year decreased by C\$ 7 million compared to 2017, to \$ 17 million, due to a planned reduction in expenditures.

Cameco and junior partner CanAlaska Uranium recently agreed on the 2019 work program for **West McArthur**, which property is located right next to **Cameco's McArthur River Uranium Deposit**. The work program will focus in extending the footprint of the three uranium mineralized discovery holes completed in 2017 and 2018.

Having already suspended production at **McArthur River / Key Lake** for an intermediate duration, not having seen the improvement needed in the uranium market, **Cameco** has made the decision to suspend production for an indeterminable duration. The Company will not produce its tier-one assets to deliver into an oversupplied spot market and until it is able to commit its production under long-term contracts that provide an acceptable rate of return.

As a result of the layoffs at **McArthur River / Key Lake** and corporate office, **Cameco** expects to incur between C\$ 40 million and C\$ 35 million in severance costs in Q3 2018.

The Company's joint venture partner Orano (formerly Areva), has agreed to extend the suspension and its repayment of up to 5.4 million pounds of U3O8. Orano is now obligated to repay **Cameco**, in kind, no later than December 31, 2023.

► Updated 2018 outlook

Cameco's consolidated revenue is expected to be between C\$ 1.89 billion and C\$ 2.14 billion for the year. In its **uranium segment, delivery volumes** are expected to be between 34 million and 35 million pounds U3O8, revenues of between C\$ 1.55 billion and C\$ 1.64 billion, an average realized price of C\$ 48.10 (US\$ 36.82) per pound U3O8 and its average unit cost of sales between C\$ 40 per pound and C\$ 42 per pound.

In addition to its committed purchases the Company expects to purchase an additional 2 million pounds to 4 million pounds of uranium to meet its delivery commitments and maintain its target inventory.

Cameco expects expenditures of C\$ 80 million; and cash provided by operations for 2018 is now expected to be between 20% and 30% higher than in 2017 (C\$ 596 million).

Cameco's contribution to gross profit is expected to be 81% from its uranium segment and 19% from its fuel services segment.

► 2019 Outlook for production, delivery volumes and purchases

In 2019, in its uranium segment, Cameco expects to equal its 2018 production of 9 million pounds U3O8 and has committed to purchase between 5 million and 6 million pounds and deliver between 25 million and 27 million pounds U3O8.

In addition to its committed purchases, the Company expects to purchase additional 9 million pounds of U3O8 to meet its delivery commitments and maintain its target inventory.

► Financial results for the first 9 months of 2018

Cameco's production volumes for the first 9 months of the year were 60% lower than in the previous year, mainly due to planned lower production from **McArthur River / Key Lake** as the operation moved into care and maintenance in the first quarter and a change in reporting for the **JV Inkai**.

Equity earnings from this investee (40% share **Cameco** – 60% Kazatomprom) were \$ 6 million in the first 9 months.

Uranium revenues in the first 9 months increased 8% due to a 7% increase in sales volumes from 21.0 million pounds U3O8 to 22.5 million pounds U3O8.

Total cost of sales (including D & A) increased by 21% from \$ 764 million in 2017 to \$ 926 million, mainly due to a 13% increase in the unit cost of sales and a 7% increase in sales volume for the first 9 months.

The increase in the unit cost of sales compared to last year was mainly due to increased costs associated with the suspense of production at **McArthur River / Key Lake** and US ISR operations. The cost of purchases have decreased from the same period in 2017.

The net effect was a \$ 90 million decrease in gross profit from C\$ 179 million to C\$ 89 million.

Financial statements (in C\$ million)	September 30 2018	September 30 2017
Uranium *		
Revenue	1,014	9.43
Cash operating cost	445	179
Gross Profit	89	179
Cash costs per pound	C\$ 24.60	C\$ 19.50
Total cost per pound	C\$ 32.70	C\$ 29.29

Consolidated statements of financial position as at (in C\$ million)	September 30 2018	September 30 2017
Assets		
Current assets of which:	2,047.9	2,135.6
<i>Cash and cash equivalents</i>	485.6	-
<i>Inventories</i>	544.8	949.8
Non-current assets	5,838.6	5,643.1
Total assets	7,886.5	7,778.7
Liabilities		
Current liabilities	957.4	411.0
Non-current liabilities	2,094.8	2,508.1
Total liabilities	3,052.2	2,919.1
Shareholders' equity:	4,834.3	4,859.7

MARKET VALUATION OF THE WORLD'S LISTED URANIUM PRODUCERS

(in US\$ million)

Country focus	Company Name	November 30 2018	Year-end 2017	Change in %	Year-end 2016	Year-end 2015	Year-end 2014	Year-end 2012	Year-end 2011	Year-end 2010	Change % 2017 / 2010
Canada	Cameco	4,688	3,630	29	4,112	4,865	6,477	7,744	7,306	15,866	-77
United States	Energy Fuels	1) 294	133	121	109	134	121	123	167	158	-16
	Uranium Energy	2) 233	276	-16	132	105	160	218	253	421	-34
	Ur-Energy	3) 121	99	22	76	138	110	101	96	303	-67
	Peninsula Energy	4) 48	81	-40	75	85	113	122	122	158	-49
Australia	ERA (68% Rio Tinto)	5) 113	367	-69	164	136	549	676	663	2,165	-83
Namibia	Paladin Energy	6) 256	67	281	111	300	489	902	1,118	3,649	-98
	Total	5,753	4,573	26	558	764	1,421	2,019	2,252	6,696	-32
	U3O8 spot price	29.10	22.32	30	20.25	34.23	35.50	43.50	51.75	62.50	-64
	U3O8 long-term price	31.25	30.67	2	30.00	44.00	49.50	56.50	64.00	65.00	-53

1) completed takeover of Uranerz on June 19, 2018; also vanadium recovery operations from company's White Mesa Mill, Utah

2) ISR production commencement in November 2010; stopped production since 2014; also uranium activities in Paraguay; acquired North Reno Creek Project, Wyoming from Energy Fuels in April 2018

3) ISR production commenced 1n August 2013

4) first ISR production commenced in December 2015

5) Rio Tinto sells entire 68.62% interest in Rising Mine, Namibia to CNNC of China

6) CNNC Overseas Uranium Holding of China decided on August 21, 2017 not to exercise a potential option to acquire Paladin's 75% interest in the Langer Heinrich Mine in Namibia and retains 25% interest

MARKET VALUATION OF THE WORLD'S MOST ADVANCED LISTED URANIUM DEVELOPMENT COMPANIES

(commercial production target <5 years)

(in US\$ million)

Country focus		Nov.30 2018	Year-end 2017	Change in %	Year-end 2016	Year-end 2015	Year-end 2014	Year-end 2012	Year-end 2011	Year-end 2010	Change in% 2017/2010
Canada	Denison Mines	341	305	12	276	261	491	428	464	1,248	-76
	UEX	50	89	-44	54	27	58	131	145	456	-80
Australia	Boss Resources	69	42	64	38	-	-	-	-	-	-
	Toro Energy	47	63	-25	58	102	124	119	98	151	-58
Spain	Berkeley Energia	38	202	-81	165	65	41	74	66	- x	x
Namibia	Deep Yellow	1) 68	48	41	37	9	22	86	89	379	-87
	Bannerman Resources	38	40	-5	18	14	19	29	62	- x	x
Niger	GoviEx Uranium	2) 59	70	-15	35	5	39 *	-	-	-	-
Botswana	A-Cap Resources	32	34	-6	50	7	14	-	364	-	-
	Total	742	893	-17	731	490	808	867	924	2,385 x	-63

x not included in year total

* listing date June 20, 2014

1) strategic relationship with an affiliate of the Sprott Group completed on October 28, 2016 and concurrently an initial A\$ 1.42 million investment at A\$ 0.004 per share (after share holding a 15% equity interest in Deep Yellow; announced a strategic earn-in agreement with JOGMEC of Japan in March 2017 to earn a 39.5% interest in the Nova Venture within 4 years

2) bought African uranium assets in Zambia, Mali and Namibia from Denison Mines in consideration of 25% of GoviEx' shares; current equity interest 18.65%

Geographical overview of the world's highest valued uranium exploration and development companies

Traditional countries (13)

(market capitalization in million as at November 30, 2018)

Canada (7)	C\$	United States (2)	US\$	Australia (4)	A\$
NexGen Energy	992.6	Laramide Resources 1)	48.4	Boss Resources	69.0
Denison Mines	453.7	Azarga Uranium 2)	34.4	Toro Energy	64.8
Fission Uranium	310.9			Vimy Resources	25.0
UEX	66.7			Energy Metals	21.0
Fission 3.0	37.8				
Skyharbour Resources	28.4				
Iso Energy 1)	23.2				

notes Canada:

1) 75.6 % owned by NexGen Energy from spin-off

notes US:

1) also advanced-stage uranium projects in Australia
2) Merger between Azarga Uranium and URZ Energy effective from July 3, 2018

Geographical overview of the world's highest valued uranium exploration and development companies

Emerging countries (10)

(market capitalization in million as at November 30, 2018)

AFRICA (5)		SOUTH AMERICA (3)		EUROPE (2)	A\$
Namibia (3)	A\$	Peru (1)	C\$	Berkeley Energia (Spain)	51.7
Deep Yellow	92.5	Plateau Energy Metals x	70.0	Aura Energy (Sweden) x	21.4
Bannerman Resources	52.0				
	C\$	Argentina (2)		x uranium-vanadium project representing one of the world's largest undeveloped vanadium resources; also major uranium development project in <u>Mauretania</u> .	
Forsys Metals	39.2	Blue Sky Uranium xx	19.2		
	C\$	U3O8 Corp. xxx	6.0		
Niger (1)	C\$	x combined uranium-lithium project; name change from Plateau Uranium effective March 16, 2018			
GoviEx Uranium x	79.0	xx combined uranium-vanadium project			
	A\$	xxx combined uranium-vanadium project; also uranium assets in <u>Colombia</u> and <u>Guyana</u>			
Botswana (1)	A\$				
A-Cap Resources	43.6				

x bought African uranium assets in Zambia, Mali and Namibia from Denison Mines in consideration of 25% of GoviEx' shares;



United States dominates global energy markets

Most of the uranium loaded into US nuclear power reactors is imported. During 2016, owners and operators of US nuclear power reactors purchased 50.6 million pounds of uranium.

About 11% of the uranium delivered to US reactors in 2016 was produced in the United States and 89% came from other countries. Nearly half of these purchases originated from 2 countries, Canada (925%) and Kazakhstan (24%), providing 17 million pounds and 11 million pounds of uranium respectively, followed by Australia (20%) and Russia (14%).

► Fossil fuels remain to have most influence on Trump's energy policy

On December 18, 2017, President Trump unveiled his National Security Strategy (NSS), which unveiled organizing principals to guide U.S. foreign policy and has been welcomed by foreign policy experts as a large balanced strategy that could service the Trump administration well if enacted.

Although the energy part of the report is provocatively titled "Embracing Energy Dominance", a closer reach reveals a reasonable vision of energy policy grounded in a self-consistent case for why economic strength and energy security underpin national security.

The NSS energy strategy aims to support allies and partners, encouraging North American energy cooperation, and tempers the definition of energy dominance suggested elsewhere, asserting that such dominance arises from America's central position in the global energy system as a leading self-sufficiency producer, leading consumer and innovator.

For example, the strategy calls for reducing regulatory barriers to energy production by putting more than 10 million acres of land in Alaska on the auction block for oil and gas companies.

Alaska is not the only place where Trump's plan to drill has met with tough market realities. The Administration has taken steps to open millions of acres to oil drilling across the country and off the coast of the U.S. from using the tax reform bill as a vehicle to open drilling in the Arctic National Wildlife Refuge to considering most of the waters of the U.S. coasts for oil exploration. But analysts and key industry players say it remains uncertain how much of it will actually be developed to produce oil and gas.

With oil prices having remained too low until recently to poor billions into exploring vast new areas offshore, in the Arctic and Alaska, would be a risky investment for drilling, the recent rise of Brent-oil price to a 3-year high of \$ 70 is more than helpful to bring the U.S., the world's largest oil producer, in a position to stress the country's "Energy dominance" to the rest of the world.

No matter the market conditions, Trump's presidency has largely been a win for America's oil and gas industry. Regulations have been cut back, oil companies could soon have unprecedented access to land long out of their reach and perhaps most significantly, at least in the short term, oil companies by and large received a massive tax cut. Trump's Environmental Protection Agency initially entertained a plan from oil reforms to upend regulations requiring them to blend ethanol into their gasoline – then rejected it after a backlash from the ethanol industry.

Trump and others in his administration have criticized renewable energy as expensive and dependent on government support.

But the White House has not sought the repeal tax breaks expected to provide \$ 12.3 billion to the renewable energy firms by 2020, which other Republicans continue to support.

Fossil-fuel firms clearly have more influence on policy under Trump and easier access to decision makers. Their policy victories include rollbacks of regulation limiting emissions of carbon, methanol and other pollutants; the opening of Alaska's Arctic National Wildlife Refuge to drilling; and the lifting of a coal-mining moratorium on federal lands.

Over the last decade France has exported up to 70 TWh net each year and Electricité de France (EDF) expects net exports to continue at 55-70 TWh/yr, principally to Italy, the UK, Switzerland, Belgium, Spain and Germany.

► US leadership on climate change not affected by withdrawal from Paris Climate Agreement

The **United States** is the world's largest producer of nuclear energy, accounting for more than 30% of world-wide nuclear generation of electricity. The country's 100 nuclear reactors produced 805 billion kWh in 2016, 19.7% of total electricity output.

In 2016, total US electricity generation was 4,079 TWh (billion kWh) net, of which 1,380 TWh (34%) of it from gas, 1,240 TWh (31%) from coal-fired plant, 805 TWh (19.7%) from nuclear, 266 TWh (6.6%) from hydro, 226 TWh (5.5%) from wind and 117 TWh (3.2%) from other renewables.

Annual electricity demand is projected to increase to 5,000 TWh in 2030.

Following a 30-year period in which few new reactors were built, it is expected that 4 more new units will come online by 2021, these resulting from 16 licence applications made since mid-2007 to build 24 new reactors.

Government policy changes since the late 1990s have helped pave the way for significant growth in nuclear capacity.

President Trump's decision to withdraw from the Paris Climate Agreement on climate change has been branded as an infamous inhumane decision in the fight of slowing the effects of climate change through cutting down on greenhouse gas emissions. Withdrawal from the agreement does not change the position of the US as world leader in the development of global clean energy, however, thereby to be recognised that clean energy not only comprises renewable energy but also nuclear energy as the only large-scale CO2 emission free electricity generator.

In this respect, it is absurd to watch that China, once an obstructive force in the United Nations climate talks, as the world's largest CO2 emitter with 73% of its electricity generated from coal, has set itself up as the global new leader to combat air pollution and has signed an agreement with the state of California to cooperate on clean emission trading and other climate-positive effects.

Consequently, nuclear energy and renewable energy in the US adds up to 1,414 TWh from clean energy or 35% of total electricity generating.

While by far most industrial countries have signed the Paris Climate Agreement, these countries are either in a position comparable to the US that a significant share of total clean energy generation is already available through nuclear energy generation or are obligated to make a full transition right from the beginning, which in practice is unrealistic. This applies to emerging independent countries in Eastern Europe being almost totally dependent on fossil fuels and in particular coal.

► Call for US government to revitalize its nuclear industry

The **US government** should hold a "structured conversation with the country's nuclear industry" on ways to restore and develop the sector, according to an essay from Mark Hibbs, senior fellow of the Carnegie Endowment for International Peace's nuclear programs.

Thereby, he is not only referring to America's nuclear power plant construction industry staggering or even in decline, but also to pressure from loss of know-how and high costs. US nuclear power plant vendors are now challenged by Chinese and Russian exporters, whose governments' view nuclear energy in strategic, not commercial terms.

Through strategic penetration, with both China and Russia having signed memorandums of understanding and other bilateral agreements with potential customer countries, these agreements will provide these two countries, access to strategic decision making in these countries concerning technology, energy and foreign policy for decades to come.

During the last 20 years, while China and Russia built dozens of reactors at home, leading Western vendors virtually stopped constructing new units.

Hibbs warns the USA could “lose its leadership in international nuclear governance” in the face of a future shift towards newcomers and away from established nuclear technology-owning countries and recommends that the Trump administration should discuss with the US nuclear industry what steps the government should take “to enhance US nuclear exports and encourage a level international playing field for ongoing nuclear equipment, material and technology, especially to risk-bearing destinations.

► US uranium mine production in 2017 55% less than in 2016

US uranium mines produced 1.2 million pounds of uranium concentrate (U3O8) in 2017, 55% less than in 2016. The production of U3O8 is the first step in the nuclear fuel production process, preceding the conversion of U3O8 into IFG to enable uranium enrichment, this fuel pellet fabrication process, and finally fuel assembly fabrication.

Six in-situ leach (ISL) mining operations produced solutions containing uranium in 2017, 2 fewer than in 2016.

Total production of US uranium concentrate in 2017 was 2.4 million pounds U3O8, 16% less than in 2016, from 7 facilities: one mill in Utah (White Mesa Mill), and 6 ISL plants in Nebraska and Wyoming (Crow Butte Operation, Lost Creek Project; Nichols Ranch ISR Project, Ross CPP, Smith Ranch – Highland Operation and Willow Creek Project).

Total shipments of uranium concentrate from US mill and ISL plants were 2.3 million pounds U3O8 in 2017, 25% less than in 2016.

US producers sold 1.3 million pounds U3O8 in 2017 at a weighted average price of \$ 41.34 per pound U3O8.

At the end of 2017, reported estimated uranium reserves were 45 million pounds U3O8 at a maximum forward cost of up to \$ 30 per pound. At up to \$ 50 per pound, reported estimated reserves were 182 million pounds U3O8. At up to \$ 100 per pound reported estimated reserves were 362 million pounds U3O8.

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

US uranium in-situ leach plants				
Owner	Name	State	Production capacity pounds U3O8/year	Operating status 2017
Ur-Energy	Lost Creek	Wyoming	2 million	
Peninsula Energy	Lance Projects	Wyoming	375,000	
Energy Fuels	Nichols Ranch	Wyoming	2 million	
Uranium One	Willow Creek	Wyoming	1.3 million	
Cameco	Crown Butte	Nebraska	1 million	suspended in 2018
			Stand-by status	
Uranium Energy	Hobson	Texas	1.5 million	
Energy Fuels	Alta Mesa	Texas	1.5 million	

At the end of 2017, the **White Mesa Mill** in Utah was operating with a capacity of 2,000 short tons of material per day. **Shootaring Canyon Uranium Mill** in Utah and **Sweet-water Uranium Project** in Wyoming were in standby with a total capacity of 3,750 short tons of material per day. One mill is planned for Colorado (**Pinon Ridge Mill**) and one leach plant is planned for Wyoming (**Sheep Mountain**).

At the end of 2017, **6 uranium ISL plants were operating with a combined capacity of 12.2 million pounds U3O8 per year.**

► US Congress approves US\$ 1.2 trillion budget for nuclear energy

On March 23, 2018, it was announced that both houses of the US Congress have approved the Consolidation Appropriations Act 2018, which appropriates some US\$ 1.3 trillion of US treasury funds for fiscal 2019, which begins on October 1, 2018, including US\$ 1.2 billion for nuclear energy, which is significantly more than the US\$ 703 million in the president's fiscal 2018 budget request for the Department of Energy (DOE).

The bill will see the suspension of sales by the DOE of surplus uranium to pay for decommissioning work at the former Portsmouth uranium enrichment plant in Piketon, Ohio. DOE had been transferring 2,100 tU per year of excess uranium not needed for national security in exchange for services at Portsmouth and, also for the down blending of high-enriched uranium, in a process known as "bartering".



Energy Fuels and Ur-Energy hold pioneer role in revitalizing U.S. uranium production



On November 27, 2018, **Energy Fuels** and **Ur-Energy** announced that they recently hosted a team of U.S. Department of Commerce (DOC) Section 232 investigators at 4 uranium mines and mills in Utah and Wyoming. The tour was part of today's high levels of uranium imports in the U.S.

The tour included stops in Utah at **Energy Fuels' White Mesa Mill**, which is the only operating uranium mill in the U.S. and the **La Sal Complex**, which is one of only two underground uranium mines currently operating in North America.

The tour also included visits to two operating in-situ uranium recovery (ISR) facilities in Wyoming: **Energy Fuels' Nichols Ranch ISR Project** and **Ur-Energy's Lost Creek ISR Project**.

The two companies demonstrated to the Commerce team that the U.S. industry can compete in a global market on a level playing field. Jeffrey Klenda, Chair and CEO of **Ur-Energy** said on behalf of both companies "we look forward to the DOC findings and to President Trump using his authority to take action to support a sustainable domestic uranium mining industry".

Experts from the companies highlight that U.S. uranium companies have substantial licensed, permitted and constructed mining and milling capacity that can ramp-up production quickly to meet the demand resulting from a quota that reserves 25% of the U.S. market for domestic uranium producers, led by **Energy Fuels** and **Ur-Energy**, one of the remedies the companies asked the President to consider. U.S. companies have spent considerable resources maintaining these projects in a state of readiness, but it is becoming increasingly difficult to do so.

Without some level of support, licences and permits will be lost and uranium production facilities will go into reclamation, likely never to return in the future.

Besides U.S. companies millions of tons in-ground uranium resources, which are believed can be mined on a substantial basis for decades to come under such a quota remedy, the U.S. Geological Survey also confirmed that the U.S. also has considerable in-ground uranium resources.

These resources will sustain the long-term uranium production needed to support US energy and national security.

Cheap, state-subsidized supplies of uranium from its adversaries are driving free market uranium production in the U.S. to the brink. In 2019, foreign sources are expected to supply more than 99% of the uranium needed to fuel the U.S. nuclear power plants, according to industry estimates. This is a sharp and dramatic increase from as recently as 1987 when imports represented half of U.S. uranium needs.



Top ranked U.S. uranium producer also ready to lead primary vanadium production

Energy Fuels' uranium concentrate is produced from multiple sources:

- Conventional recovery operations of its **White Mesa Mill** including:
 - Processing ore from uranium mines;
 - Recycling of uranium bearing materials that are not derived from conventional ore ("Alternate Feed Materials"; and
- In-situ recovery (**ISR operations**)

In addition, **Energy Fuels** has a long history of conventional vanadium recovery at the Mill when vanadium prices support these activities. The Company has the near-term activity to resume recovery of vanadium.

The **Mill** is licenced to process an average of 2,000 tons of ore per day and to extract approximately 8.0 million pounds of U3O8 per year and has separate circuits to process conventional uranium and vanadium ores as well as Alternate Feed Materials.

In the first nine months ended September 30, 2018, **Energy Fuels** reported total revenues of \$ 28.0 million, compared to \$ 27.1 million in the same period of 2017; total costs and expenses applicable to revenue were \$ 11.9 million (\$ 15.8 million) and improvement of inventories \$ 3.1 million and \$ 2.8 million, respectively. Gross profit in the period was \$ 13.7 million and \$ 8.5 million, respectively.

Total other operating costs and expenses in the first 9 months amounted to \$ 14.1 million against \$ 15.1 million in the same period of 2017, and selling, general and administrative costs were \$ 13.1 million (\$ 14.2 million).

Total operating loss in the first 9 months of 2018 amounted to \$ 13.5 million (\$ 20.8 million) and the Net loss \$ 17.6 million compared to \$ 20.0 million in the same period of 2017.

While no deliveries of U3O8 occurred during Q3 2018, in the 9 months ended September 30, 2018, **Energy Fuels** completed a total of 550,000 pounds of U3O8 sales at a weighted average price of \$ 53.19/lb.

In Q4 2018, the Company expects to complete one delivery of 100,000 pounds of U3O8 under a contract where the price is based on the average spot price per pound of uranium for the five weeks prior to the date of delivery.

It should be noted that all of **Energy Fuels'** existing long-term sales contracts expire following the Company's 2018 deliveries.

Energy Fuels continued fulfilling alternate feed contracts, which resulted in \$ 450,000 of revenue and \$ 2.4 million of deferred revenue during the quarter and \$ 3.1 million of revenues and deferred revenue year - to date. The Company currently has contracts to secure a total value from alternate feed materials of \$ 71.1 million in revenue, deferred revenue of uranium during the full year 2018, and continues to pursue additional alternate feed opportunities.

During the quarter, **Energy Fuels** continued reparation or its planned November 2018 campaigns to recover up to approximately 4.0 million pounds of vanadium from existing pond solutions at the White Mesa mill and commenced its vanadium test-mining program, both aimed at allowing the Company to capitalize on current vanadium market strengthened uranium prices available to US producers.

On September 27, 2018, **Energy Fuels** announced that the Company expects to resume vanadium production at its 100%-owned **White Mesa Mill** in mid-November 2018, producing significant quantities of salable **V2O5** product by the end of December 2018. **When production begins Energy Fuels will be the newest vanadium producer in the world and the only producer primarily producing V2O5 in North America.**

In addition, the Company is currently preparing to conduct a test-mining program that selectively targets high-grade **V2O5** resources at its 100%-owned **La Sal Complex** previously of uranium-vanadium mines in **Utah**, with the goal of significantly increasing productivity and mined grades and reducing mining costs per pound of **V2O5** and **U3O8** recovered.

Energy Fuels' White Mesa Mill located near Blending, Utah, is currently the only facility in the United States capable of reprocessing conventional mined vanadium resources. As a result, no other company in the United States is likely to enter primary vanadium production in the near term, because no other company has access to the Mill at this time.

Starting in November 2018, **Energy Fuels** expects to begin vanadium production from the pond solutions at the **White Mesa Mill**, which the Company estimates contains approximately 4 million pounds of recoverable **V2O5**.

Historically, the Mill has been a significant producer of vanadium and **Energy Fuels** estimates that the Mill has produced about 45 million pounds of **V2O5** since it was constructed in the early 1980s, having last produced over .5 million pounds of **V2O5** mined from the **La Sal Complex** in 2013.

Energy Fuels has spent the last several months retrofitting and upgrading the Mill's vanadium recovery circuit in preparation of this upcoming production run.

Once production reaches a steady state rate, the Company expects to produce approximately 200,000 to 225,000 pounds of V2O5 per month from the pond solutions for a period of 16 to 20 months, subject to market conditions, costs and recoveries.

Further, the Mill has historically produced a relatively high-purity vanadium product, which acted again, offers the potential to today's market to command a premium above **V2O5** prices. The pond project also offers **Energy Fuels** excellent flexibility, including the ability to turn production on-and-off quickly and at limited cost, in response to evolving market conditions.

White Mesa Mill has never to date attempted to commercially recover vanadium dissolved in the ponds extensive on-site test work indicated that the project has a high probability for success.

In addition, **Energy Fuels** is commencing limited conventional vanadium production at its 100%-owned and fully-licensed, permitted and constructed **La Sal Complex** of uranium/vanadium mines in Utah.

In Q4 2018, Energy Fuels expects to begin a test-mining program to evaluate different approaches that selectively target high-grade vanadium zones, thereby potentially increasing productivity and mined grades for vanadium and **decreasing mining costs per pound of V2O5 and U3O8 recovered**. The test program is expected to take approximately 6 months to complete and is expected to produce approximately 5,000 tons of mineralized material, which would be further tested and analyzed at the **White Mesa Mill**. If the program is successful and vanadium prices remain strong, the Company may continue beyond the planned campaign.

The Company also expects to conduct additional operation and in-fill drilling at the **La Sal Complex** previously, with specific analysis for vanadium, which was not normally done in the past with the goal of expanding and upgrading the vanadium resources at this project.

On October 25, 2018, **Energy Fuels** announced initial results of the test-mining program targeting vanadium at the **La Sal Complex**. After 3 weeks of test mining and evaluation, the Company is discovering areas of high-grade vanadium mineralization that were not previously mined due to the relatively low uranium grades in the material. While the test mining campaign is still in its early stages, the Company provided the following assay result from the initial 420 tons of material mined and sampled to date.

Energy Fuels

Financial statements (US\$ million)	June 30 2018	June 30 2017
Assets		
Current assets	64.94	43.19
Long-term assets, of which:	137.84	142.15
<i>mineral properties</i>	83.54	83.54
Total assets	202.78	185.34
Liabilities		
Current liabilities	9.69	9.90
Long-term liabilities	44.48	45.70
Total liabilities	54.17	55.60
Shareholders' equity	144.74	125.86
Paid-in capital	453.56	430.83
Accumulated deficit	(310.49)	(306.81)
Net Cash flows		
Operating activities , of which:	3.01	(3.97)
<i>depletion, depreciation and amortization</i>	3.15	3.69
Investing activities , of which:	2.93	-
<i>cash received from sale of Reno Creek</i>	2.94	-
Financing activities , of which:	19.46	5.37
<i>repayment of loans</i>	(1.68)	(2.46)
Net change in cash and cash equivalents	25.40	1.40
Cash and cash equivalents		
as at June 30, 2018	64.83	41.53



Ur-Energy's production guidance for 2018 between 250,000 and 300,000 pounds U3O8

During the three months ended September 30, 2018, a total of 80,604 pounds of U3O8 were captured within the Lost Creek plant, 78,441 pounds were packaged in drums and 72,902 pounds of the drummed inventory were shipped to the conversion facility,

In the first nine months **253,860 pounds of U3O8 were captured**, **232,704 pounds drummed** and **220,833 pounds shipped** to conversion facility.

Total cost captured amounted to \$ 11.08 l/b; total cost drummed amounted to \$ 21.64 l/b.

Pounds shipped to conversion facility amounted to \$ 220,83 l/b; cash cost per pound shipped was \$ 0.49.

Ur-Energy purchased 470,000 l/b at purchase costs of \$ 11.48 million in 2018 in the first nine months of 2018.

Cash cost per pound purchased amounted to \$ 24.48 l/b. The Company sold 480,000 pounds U3O8 in the first nine months at an average price of \$ 49.39/lb compared to an average spot price.

The average spot price sold was \$ 48.86 l/b.

The cost per pound sold-product was \$ 67.70; the cost per pound sold-purchased was \$ 24.42. This results in an average cost per pound sold of \$ 25.32.

The U3O8 gross profit in the first nine months was \$ 11.33 million; the gross profit per pound sold was \$ 3.54 l/b. The gross profit margin amounted to 48.2%.

The sales in the nine months ended September 30, 2018 amounted to \$ 23.48 million. Cost of sales were \$ 12.15 million; resulting in a gross profit of \$ 11.33 million compared to \$ 14.32 million in the same period of 2017.

Net profit from operations amounted to \$ 3.41 million against \$ 4.51 million in the same period of 2017.

In June 2018, **Ur-Energy** monetized the present value from portions of agreements with one of its utility customers related to 165,000 pounds of U3O8 to be delivered in 2021. The Company received proceeds of \$ 3.5 million when the transaction was executed, as a result of which net income in the 9 months 2018 increased to \$ 6.2 million compared to \$ 3.5 million in the same period of 2017.

As of September 30, 2018, **Ur-Energy** has cash resources and cash equivalent resources of \$ 11.6 million, an increase of \$ 7.7 million from the December 31, 2017 balance of \$ 3.9 million. The unrestricted cash position was \$ 10.7 million.

► Production guidance Q 4 2018

Ur-Energy's production guidance for Q4 is between 40,000 and 60,000 pounds U3O8 dried and drummed. **Full year 2018 guidance, similar to 2017, estimates production of between 250,000 and 300,000 pounds U3O8.**

UR-ENERGY

Consolidated statement of financial position as at in US\$ million

		Sept.30 2018		Dec.31 2017
Assets				
Current		12.63		9.17
Non-current, of which:		88.67		79.20
<i>mineral properties</i>	43.44		44.68	
Total assets		101.30		88.37
Liabilities				
Current		7.90		7.89
Non-current liabilities		40.04		41.7
Total liabilities		47.94		49.59
Shareholders' equity				
Share capital plus contributed surplus		205.03		196.63
Deficit		(151.67)		(157.85)
Cash flow				
Provided by operating activities , of which:		(1.64)		2.83
<i>net income for the period</i>	6.20		3.50	
<i>gain on monetization of contract</i>	(3.54)		-	
<i>inventory</i>	(7.65)		2.39	
Provided by investing activities , of which:		3.44		(0.19)
<i>proceeds from monetization of contract</i>	3.54		-	
Provided by financing activities , of which:		5.86		(2.05)
<i>issuance of common shares for cash</i>	10.00		1.17	
<i>repayment of debt</i>	(3.65)		(3.44)	
Net change in cash, cash equivalents and restrictive cash		7.64		0.59
Cash, cash equivalents and restricted cash as at September 30, 2018		19.08		9.70



Approval of planned revision to use low pH solution to existing Permit of Mine Lance Projects

In October 2017, **Peninsula Energy (“Peninsula”)** announced the outcome of research initiatives aimed at improving the operating performance at the **Lance Projects** in Wyoming, USA. These outcomes included test results using lower pH solutions (mid acids), which returned increased peak uranium solution grades averaging nearly 1.0 g/L with uranium revenues typically over 90%.

The initial laboratory test uranium recovery results have been confirmed with additional targeted laboratory tests and via geochemical modelling.

To change from an alkaline based mining solution to a low pH solution will acquire the approval of amendment requests for the existing permits and licences, which currently authorize the use of alkaline and oxidant solutions only in the SR process.

Preparation of the permit and licence amendment submissions commenced during the December 2017 quarter and on April 6, 2018 **Peninsula’s** wholly-owned subsidiary Strata Energy, formally submitted a request to the Wyoming Department of Environmental Quality (WDEQ) to amend its existing Permit to Mine (PTM) to allow for the use of a low-pH recovery solution in the Ross Permit Area of the **Lance Projects**, which will be subject to the field trial.

In parallel to the low pH solution permit amendment process, operations at the **Lance Projects** will continue from the currently active operating areas in MU2. As a result of the decision to suspend the majority of alkaline-based production from MU1, **Peninsula’s** production guidance is between 22,500 and 7m500 pounds U3O8 per quarter (an annualized rate of 90,000 to 110,000 pounds).

No further well field development capital expenditures are currently under the existing alkaline ISR operations following the completion of construction of Header House 10.

In September 2018, **Peninsula** announced the results of its low pH Feasibility Study at the **Lance Projects** on the planned transition to and subsequent ramp-up of, low pH operations at the Lance Projects and **incorporates updated 2012 JORC compliant resources of 53.9 million pounds U3O8 at the Ross, Kendrick and Barber production units**.

The **Feasibility Study** assumed the conversion of **22 million pounds of the 38.1 million pounds U3O8 reserves to Indicated category or better**.

On November 8, 2018, **Peninsula** announced that the Wyoming Department of Environmental Quality (WDEQ) has approved a **non-significant revision (NSR)** to the existing **Permit to Mine (PTM)** related to testing low pH lixiviant for suitable as a uranium recovery process. The NSR authorities **Peninsula** to conduct field trials using low pH lixiviant at the **Lance Projects**. The approval follows a submission by the Company to the WDEQ continues to conduct its review of the Company’s requests to amend the existing PTM and **Source Material** and **By-product Licence (SML)**.

Preparation work for the low pH field leach trial is being conducted on site and it is anticipated that the trial will commence in late 2018. The planned trial demonstration comprises both mining and restoration phases and is expected to run for 6 to 8 months.

Peninsula’s production for the September 2018 quarter was 40,920 pounds U3O8 which is an increase of approximately 2,900 pounds U3O8 from the prior quarter. The increase in production is partly the result of the completion of a dried pounds reconciliation by the toll mining contractor for the period of April 2018 to September 2018, as is standard industry practice during the term the toll milling agreements.

A total of 30,835 pounds U3O8 were dried and drummed during the third quarter.

Cash expenditure on production for the quarter was approximately US\$ 2.7 million and US\$ 8.4 million for the first nine months of 2019.

Peninsula had a cash position as at September 30, 2018, including commercial bills, bonds and security deposits of US\$ 13.6 million. Available cash at the end of the quarter was US\$ 7.6 million.

The available cash position decreased during the quarter due to no sales of uranium being recorded, although a sale of 100,000 pounds was made October 1, 2018, with proceeds of US\$ 4.5 million scheduled to be received in early November 2018.

► Sales and Marketing

There were no uranium sales during the September 2018 quarter. A delivery of 100,000 pounds U3O8 was made on October 1, 2018, with sales proceeds from that delivery due to be received in early November 2018. This was the final delivery obligation for the 2018 calendar year.

Peninsula has up to 6.4 million pounds of U3O8 remaining under contract for delivery to major utilities located in the United States and Europe through to 2030 at a weighted average delivery price of US\$ 51-53/lb U3O8.

Within the quantity of 6.4 million pounds U3O8, 4.5 million pounds are committed quantities for delivery through to 2030. Up to 1.9 million pounds U3O8 are deliveries that are optional, at the election of the respective customers, to be delivered between 2021 and 2026.

These contracts provide a substantial earnings stream to **Peninsula** whilst allowing it to preserve significant quantities of planned U3O8 production for contracting during future periods.

Significant portions of the committed deliveries in calendar years 2019 and 2020 can be sourced from other production or market purchases at the Company's election without a price variation.

A total of 225,000 pounds U3O8 have been purchased at a fixed price of US\$ 23.69 per pounds U3O8 and the purchased U3O8 will be received by the Company during the calendar years 2019 and 2020 and are used to meet contract delivery commitments in these two years.

Peninsula continues to engage with its existing and potential new customer base regarding possible new long-term uranium concentrate sale and purchase agreements targeting pricing mechanisms that would support increased production scenario under the planned transition to low pH ISR mining at the **Lance Projects**.

► Withdrawal from **Karoo Projects**, South Africa

As previously advised, **Peninsula** has decided to withdraw fully from any further development activities for the **Karoo Projects** in South Africa, in which it has a 74% interest and BEE Groups holding 26%. The Company has suspended all financial support for development activities including progression of mining and prospecting right applications.

Peninsula is working together with its South African partners in the Tasman Lukisa Joint Venture properties and the South African regulators to ensure an orderly exit from the Projects.

The Company is pursuing the sale of the 322 km² freehold farmland in the Karoo Basin, the proceeds of which are projected being sufficient to cover rehabilitation costs.

In August 2018, the South African partners in Lukisa gave their consent to commence with the disposal of freehold land.

Discussions with the Department of Mineral Resources and National Nuclear Regulator regarding the rehabilitation of historical trial mining areas continued.

Peninsula Energy

Consolidated statement of financial position as at in A\$ million

	June 30 2018	June 30 2017
ASSETS		
Current, of which:	16.16	9.65
<i>cash and cash equivalents</i>	9.61	3.76
Non-current, of which:	103.29	151.14
<i>mineral development</i>	56.12	110.74
Total assets	119.45	160.79

LIABILITIES		
Current	25.76	22.34
Non-current liabilities	14.21	5.93
Total liabilities	39.97	28.27

Shareholders' equity:	78.62	131.42
Issued capital and reserves	209.23	187.31
Accumulated losses	(130.61)	(55.89)

Cash flows for the financial year ended

Net cash used in operating activities	(2.35)	(4.70)
Net cash used in investing activities	(11.10)	(35.52)
Net cash provided by financing activities	19.33	18.94
Net increase (decrease) in cash held	5.88	(21.28)
Cash and cash equivalents as at June 30, 2018	9.62	3.76



Company bailed out by Sprott from default in fiscal 2019

Risks related to the Company's 2018 Annual Financial Statements as at July 31, 2018

Evaluating UEC's future performance may be difficult since the Company has a limited financial and operating history with significant negative cash flow and accumulated deficit to date.

UEC's long-term success will depend ultimately on the Company's ability to achieve and maintain profitability and to develop positive cash flow from its mining activities.

UEC has a history of significant negative cash flow and net losses with an accumulated deficit of \$ 245 million as at July 31, 2018.

Historically, the Company has been reliant primarily on equity financings from the sale of its common stock and, in Fiscal 2014 and Fiscal 2013, debt financings in order to fund its operations.

Also, UEC generated revenues from sales of U3O8 during Fiscal 2015, Fiscal 2013 and Fiscal 2012 of \$ 3.1 million, \$ 9 million and \$ 3.8 million, respectively, with no revenues from sales of generated U3O8 during Fiscal 2017, Fiscal 2016, Fiscal 2014 or for any period prior to Fiscal 2012.

UEC has yet to achieve profitability or develop positive cash flow from its operations and does not expect to achieve profitability or develop positive cash flow from operations.

As a result of its limited financial and operating history, including its significant negative cash flow and net losses to date, it is not possible to evaluate the Company's future performance.

On July 31, 2018, UEC had cash and cash equivalents of \$ 6.9 million and a working capital of \$ 4.0 million primarily resulting from the \$ 10 million portion of the Company's long-term debt, representing the principal amounts of the long-term debt due over the next 12 months from July 31, 2018.

Subsequent to July 31, 2018, the Company received \$ 2.6 million from the exercise of stock options and warrants, which substantially improved its working capital position.

UEC may also be required to seek other forms of financing, such as asset debentures or joint venture arrangements, to continue advancing its uranium projects, which would depend entirely on finding a suitable third party willing to enter into such an agreement, typically involving an assignment of a percentage interest in the mineral projects.

On October 1, 2018, UEC closed an underwritten public offering of \$ 20 million with Sprott Resource Lending Partner of approximately 12.61 million units of the Company at a price of \$ 1.60 per unit, with each unit consisting of one common share and one-half of one common share purchase warrant.

Each warrant will entitle its holder to acquire one common share at an exercise price of \$ 2.05 per warrant share exercisable immediately upon issuance and expiring 30 months from the closing of the Offering.

UEC warns that the viability of its mining activities, including the expected duration and profitability of the Palangana Mine and of any future satellite ISR mines, such as the Burke Hollow and Goliad Projects located within the South Texas Uranium Belt and the Reno Creek Project located in the Powder River Basin, Wyoming and its projects in Canada and Paraguay, have many risks and uncertainties.

If UEC become unable to make the scheduled payments or if it does not comply with any or more of the contractual obligations, the Company could be in default which if not addressed or waived, could require accelerated repayment of its indebtedness.

These are key issues on which UEC's business is substantially dependent and as such, the enforcement against any or of all of these assets would have a material adverse effect on its operations and financial condition.

On July 31, 2018, the Company completed all of the covenants under the Credit Facility and **UEC** expects to continue complying with all scheduled payments and covenants during Fiscal 2019, ending July 31, 2019.

Contractual Obligations	Total	Payment Due by Period			
		Less Than 1 Year	1-3 Years	3-5 Years	More Than 5 Years
Long-Term Debt Obligations - Principal	\$ 20,000,000	\$ 10,000,000	\$ 10,000,000	\$ -	\$ -
Long-Term Debt Obligations - Interests and Fees	2,455,185	2,285,185	170,000	-	-
Asset Retirement Obligations	7,275,504	-	-	148,391	7,127,113
Operating Lease Obligations	619,201	235,400	383,801	-	-
Total	\$ 30,349,890	\$ 12,520,585	\$ 10,553,801	\$ 148,391	\$ 7,127,113

UEC's mining activities may change as a result of one or more of these risks and uncertainties and there is no assurance that any ore body that the Company extracts mineralized materials from will result in achieving and maintaining profitability and develop positive cash flow.

Because **UEC's** operations are capital intensive, and the Company will require significant additional financing to acquire additional mineral projects and continue with its exploration and pre-extraction activities on its projects.

UEC's fully licenced Hobson processing Facility is central to all of the Company's projects in **South Texas** including the **Palangana ISR mine**, the permitted **Goliad ISR project** and the development-stage **Burke Hollow ISR project**. Additionally, the Company controls a pipeline of advanced-stage uranium projects in **Arizona, Colorado, New Mexico and Paraguay**, and a large high-grade titanium project in **Paraguay**.

► **Reno Creek – UEC's new flagship project**

In August 2017, **UEC** acquired 100% of the fully-permitted **Reno Creek ISR project**, located in the Powder River Basin of Wyoming. Total consideration paid amounted to \$ 26.83 million, of which \$ 25.55 million referred to mineral rights and properties.

On May 23, 2018, **UEC** announced that it had recently completed the previously announced Purchase Agreement with Uranerz Energy, a wholly-owned subsidiary of Energy Fuels and now holds 100% of the advanced-stage **North Reno Creek ISR Project** located immediately adjacent to and within **UEC's** existing Reno Creek Project permitting boundary of the Powder River Basin, Wyoming. The North Reno Creek leases and claims acquired through this acquisition consolidate **UEC's** land and resource position in the region.

The acquisition increases **Reno Creek's** combined Measured and Indicated resource by 20%, based upon Uranerz's previously reported NI 43-101 Measured and Indicated resources of 3.8 million tons grading 0.056% U3O8 yielding 4.3 million pounds at North Creek.

UEC plans to engage a qualified person to incorporate the North Reno Creek resource estimate into the Company's **Reno Creek Project** and complete an updated technical report under NI 43-101.

► **Valuation of UEC's mineral rights and projects as at October 31, 2018 (in \$ million):**

USA:	
Reno Creek Project	31.53
Anderson Project	9.15
Goliad Project	8.69
Palangana Project	6.28
Workman Creek Project	1.68
Slick Rock Project	0.68
Longhorn Project	0.12
Total USA	58.13

Paraguay:

Yuty Project	11.95
Alta Paraná Titanium Project	1.43
Oviedo Project	1.13
Diabase Project	0.55
Los Cuatros Project	0.26
Accumulated depletion	(3.93)

At October 30, 2018, annual maintenance payments of approximately \$ 1.96 million will be required to maintain respective mineral rights.

It is striking to see that the valuation of the mineral rights and projects for the main part (55%) apply to the recently acquired **Reno Creek Project**, the Company's new flagship project rather than to **UEC**'s basic projects, including **Palangana**, **Goliad** and **Burke Hollow**.

In addition, also considering the geographically disputable diversification to Paraguay, this emphasizes my opinion that **UEC**, at a market valuation of \$ 206 million, is significantly overvalued compared to Energy Fuels (\$ 284 million) and Ur-Energy (\$ 100 million). In contrast to **UEC** these two leading U.S. uranium producers, who are initiators of a revitalization of the U.S. uranium industry, have a steady positive operating cash flow derived from long-term delivery contracts and are included in my shortlist of uranium investment recommendations.

Consolidated balance sheets as at October 31, 2018

Loss from operations		3.21
Assets		
Current assets of which:		26.45
<i>Cash and cash equivalents</i>	9.55	
<i>Short-term investments</i>	15	
Non-current assets of which:		81.60
<i>mineral rights and properties</i>	71.17	
<i>property plant and equipment</i>	7.08	
Total assets		108.05
Liabilities		
Current liabilities , of which:		16.46
<i>current portion of long-term debt</i>	15.00	
Long-term debt		9.48
Total liabilities		25.94
Shareholders' equity:		82.10

Uranium Energy

Financial statements (US\$ million)	July 31 2018	July 31 2017
Assets		
Current assets of which:	8.34	23.59
<i>short-term investments</i>	-	10.00
Non-current assets	81.27	48.59
Total assets	89.61	72.18
Liabilities		
Current liabilities , of which:	12.32	2.45
<i>portion of long-term debt</i>	10.00	-
Long-term liabilities , of which:	14.12	23.59
<i>asset retirement obligations</i>	4.02	3.73
Total liabilities	26.44	26.04
Shareholders' equity:	63.18	46.14
Paid-in capital	308.22	272.84
Accumulative deficit	(245.15)	(227.33)
Net Cash flows		
Used in operating activities , of which:	(12.51)	(10.42)
<i>net loss</i>	(17.83)	(17.87)
Provided by investing activities , of which:	6.26	(11.04)
<i>purchase short-term investments</i>	(21.77)	(16.00)
<i>redemption of short-term investments</i>	31.77	6.00
Provided by financing activities	0.60	26.89
Net cash flows	(5.65)	5.43
Cash and cash equivalents		
beginning of the year	12.58	7.14
end of the year	6.93	12.57

Uraniumletter International • a publication by **Metal Commodities Investment Platform**, the Netherlands • Marino G. Pieterse, Publisher and Editor • Information and investment comments are independently and thoroughly researched and believed to be reliable and in good faith. No guaranty of absolute accuracy can be given, however • Investment decisions are fully made for own risk • Chamber of Commerce 58330445 • www.metalcommodities-ip.com • e-mail: marino.pieterse@metalcommodities-ip.com • tel.+31-251-828247