

Industry Note

Equity Research

September 18, 2018

Metals & Minerals

Uranium Weekly - Highest Spot Price Since June 2016

Ux Consulting's (UxC) spot uranium price indicator increased \$0.40/lb this week to \$27.40/lb (+1.48%), the highest reported weekly spot price since June 2016. Since the uranium spot price bottomed in December 2016, we have seen a couple recoveries in the spot price fizzle out as the spot price indicator approached the previous resistance level of ~\$26.50/lb (Exhibit 2).

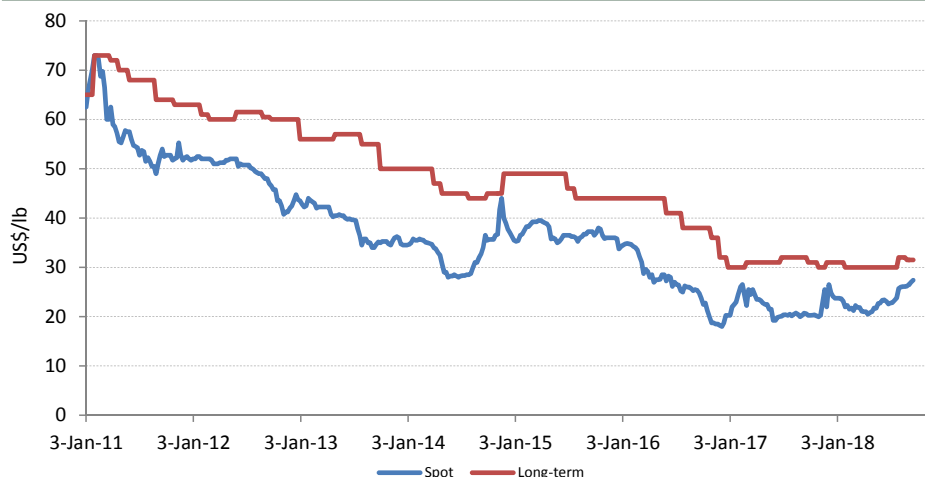
Spot price should continue to trend higher, but patience is required - We expect that the spot uranium price will continue its modest upward trend and that should eventually lead to higher term prices. However, the progress could be slow, in our view, given a number of factors, including the presence of available inventory (although how much is hotly debated), the continued supply of uranium into the market via enrichment underfeeding, and, perhaps most importantly, the uncertainty created by the Section 232 investigation in the United States.

Spot activity remains elevated. According to UxC, spot volume last week was ~1.5 million pounds under eleven transactions. YTD spot market volume now totals 64.9 million pounds; over the past five years, volume to this point in the year has averaged ~33.2 million pounds.

U.S. utility interest in term market remains lackluster - No new formal term interest or contract awards reported this week. UxC's reported YTD term contract volumes now total 57.4mmllbs over 19 transactions, which compares to 63.2mmllbs over 26 transactions at this time last year. There are currently several non-U.S. utilities and entities active in the term market targeting deliveries in 2019-2029.

Based on our supply/demand forecast, we estimate that the uranium market will remain in a slight deficit through 2020. We expect that the combination of lower supply and Cameco's purchasing activity in the spot market will force uranium prices higher. Our uranium price forecast for 2018/2019/2020/2021 is US\$25.57/lb, US\$35/lb, US\$40/lb, and US\$45/lb, respectively.

Exhibit 1. Spot and Term Uranium Prices



Source: Ux Consulting; TD Securities Inc.

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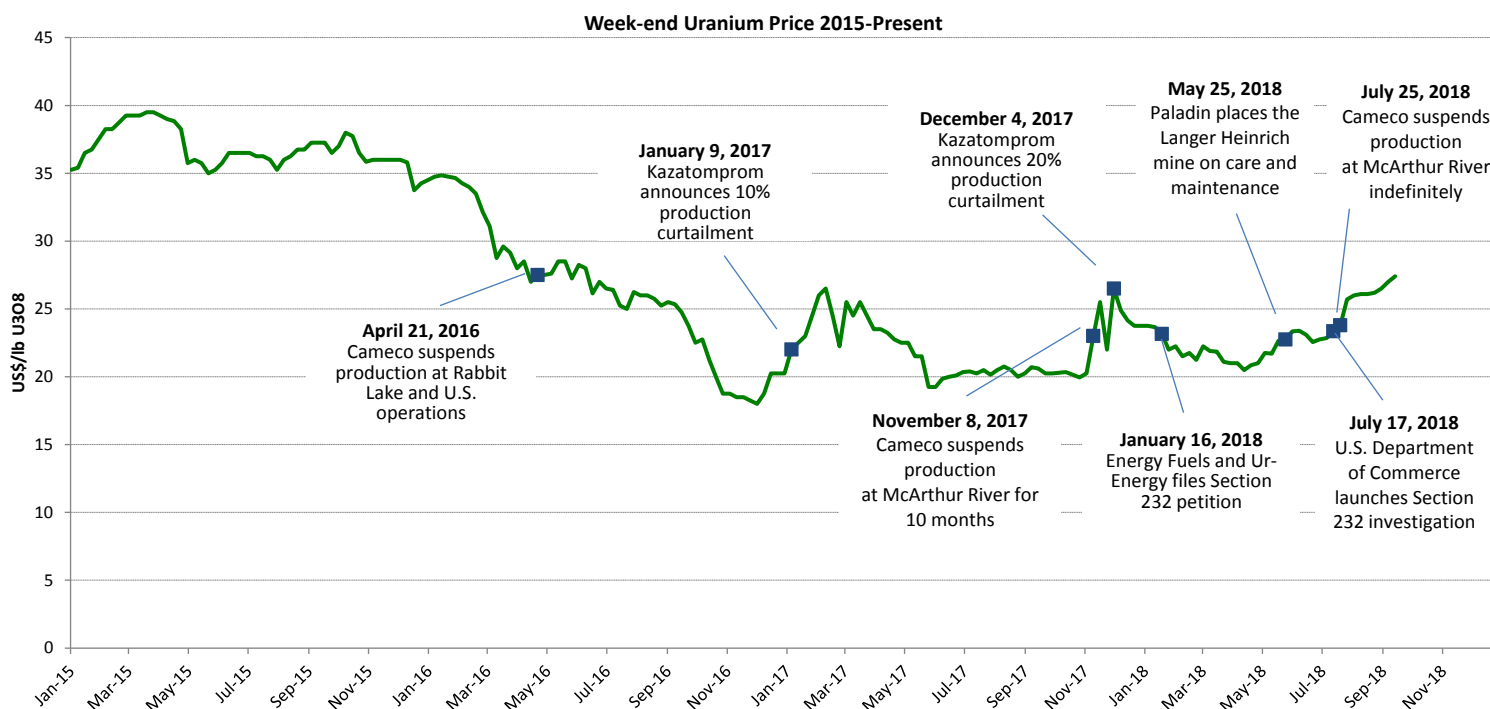
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Exhibit 2. Catalysts and uranium price reaction



Source: Company reports; TD Securities Inc.

Industry News:

U.S. Congress ups Nuclear R&D funding in 2019 - The Nuclear Energy Institute (NEI) reported September 13 that the U.S. Congress approved its energy and water spending package for fiscal 2019, which includes \$1.33 billion in funding for the Department of Energy’s (DOE) nuclear energy research, development and deployment programs (R&D), an increase of \$121 million over fiscal 2018. The bills also include \$323.5 million in funding for DOE’s Reactor Concepts Research and Development program, an increase of \$86.5 million in 2019. The bills also increase funding for the Versatile Test Reactor program, which would create a sodium-cooled fast reactor to test advanced technology reactor components and materials, from \$35 million to \$65 million. In a major development for the nuclear fuel cycle sector, the spending bill provides \$20 million in funds for the High-Assay Low-Enriched Uranium (HALEU) program, which could be used to fuel advanced reactors. Furthermore, the bill includes \$75.6 million for the Accident Tolerant Fuel (ATF) program, unchanged from last year’s funding level. Regarding U.S. Nuclear Regulatory Commission (NRC) activities, the bill reduces NRC fee recovery by \$10 million to \$780 million, a result of ongoing regulatory efficiencies. NRC is also required to submit a detailed plan to license ATF; prepare a report describing approaches to permitting digital instrumentation and control systems; provide quarterly reports to Congress on its right-sizing commitments; and expresses an expectation of “concrete proposals” in 2019 to reflect savings achieved under the NRC’s Transformation Initiative. (Source: Ux Weekly)

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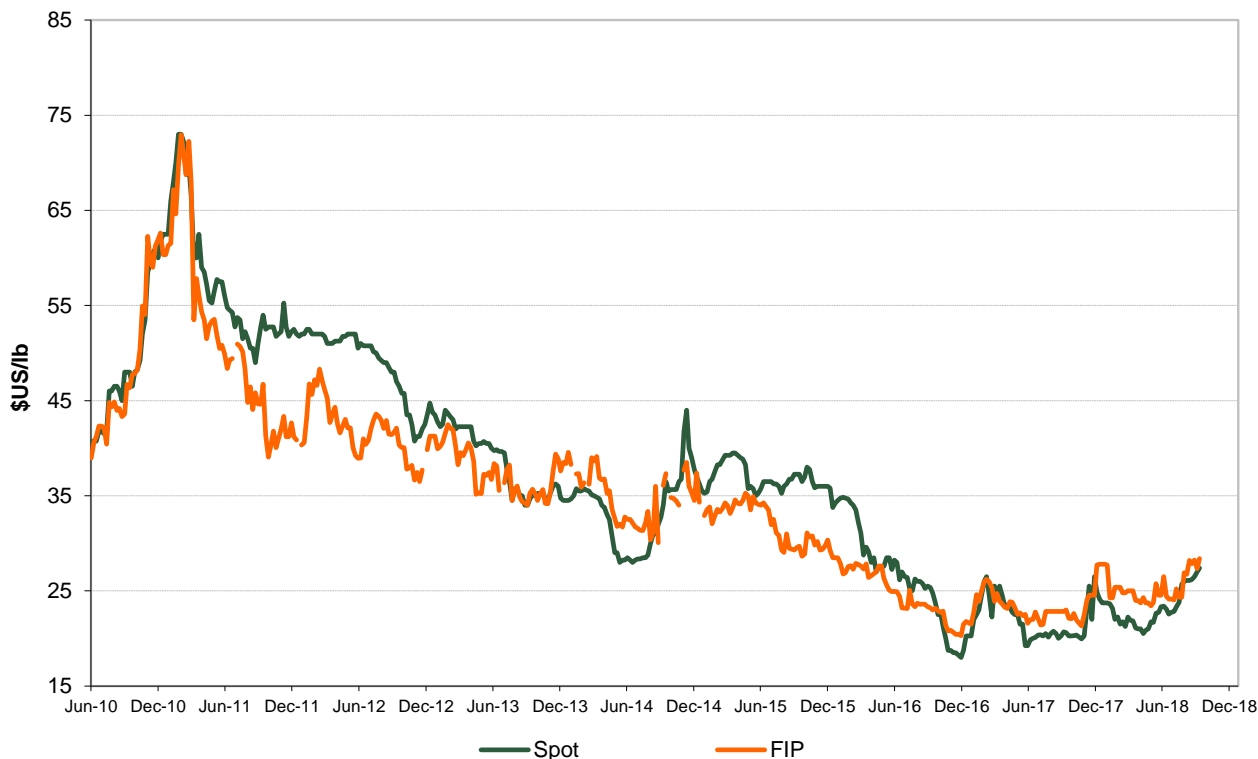
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France’s new environment minister says existing units need to close if new EPRs are built - France’s new Environment Minister, François de Rugy, who replaced Nicolas Hulot, has stated that older reactors would need to close at a faster rate if additional European Pressurized Reactors (EPRs) are built. However, he also said that the government has not yet decided whether to build additional EPRs beyond the unit nearing completion at the Flamanville nuclear power plant. “If we want to build new EPRs, it would mean that we would have to close old plants even more quickly,” said de Rugy as quoted by Montel. Before the government decides on whether to build new EPRs, EDF would need to demonstrate the viability of the technology. In late August, Les Echos stated that a government report recommended that France build six new EPRs, with construction starting in 2025, and an objective of bringing the first new unit online in 2035. The French government is still seeking to reduce its nuclear capacity from the present level of approximately 75% of electricity generation to an eventual level of 50%. This autumn, more information regarding possible future reactor closures could be available with the release of a draft energy plan. De Rugy has stated that France’s Nuclear Safety Authority will identify which reactors could close based on which units would need the greatest investment to prolong their lifespans. (Source: Ux Weekly)

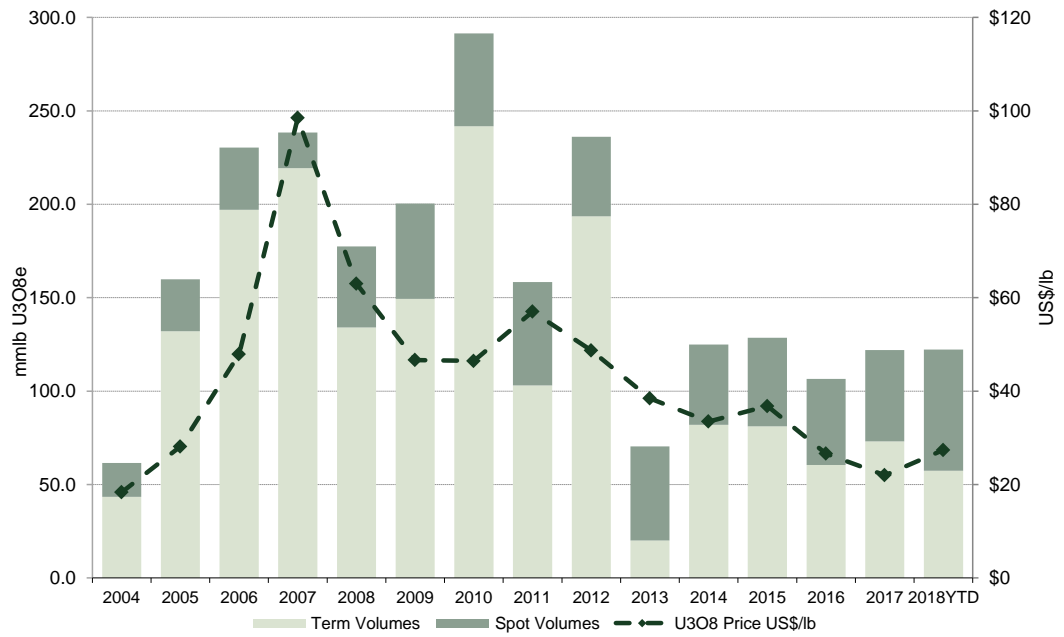
Japanese spent fuel reprocessing plant moves closer to obtaining regulatory approval - Japan’s Nuclear Regulatory Authority (NRA) is moving closer to granting full approval for the Rokkasho spent fuel reprocessing facility. On September 14, NRA members did not voice any objections to the remaining safety measures regarding the risks of natural disasters that were under consideration. Japan Nuclear Fuel Ltd. now anticipates completion of the Rokkasho facility in 2021, which represents a delay of over 20 years compared to the original schedule. (Source: Ux Weekly)

Exhibit 3. Fund Implied Uranium Price (FIP) and Spot Uranium Price



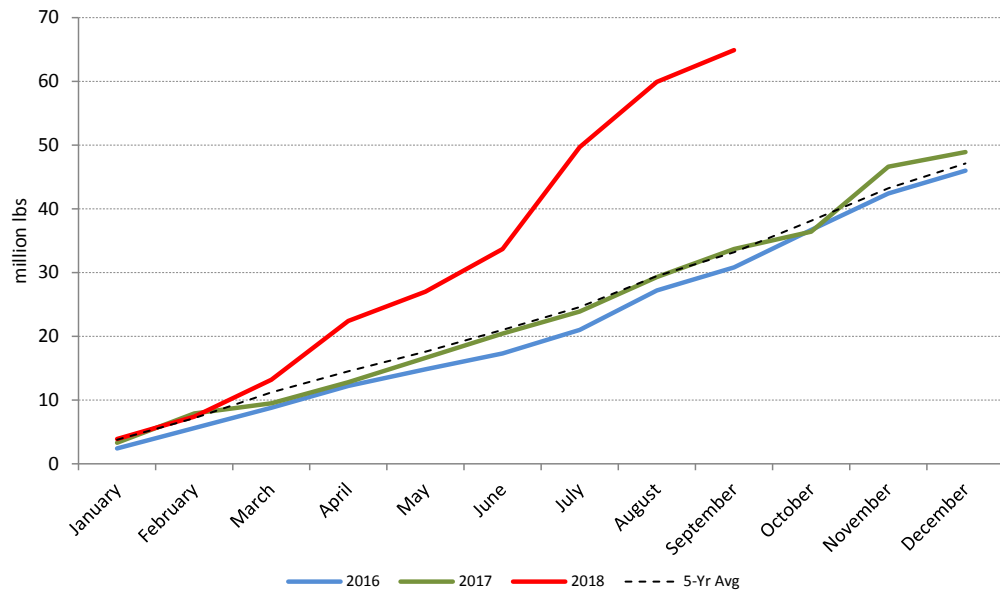
Source: Ux Consulting; TD Securities estimates

Exhibit 4. Spot and term volumes YTD and historical



Source: Ux Consulting, TD Securities Inc.

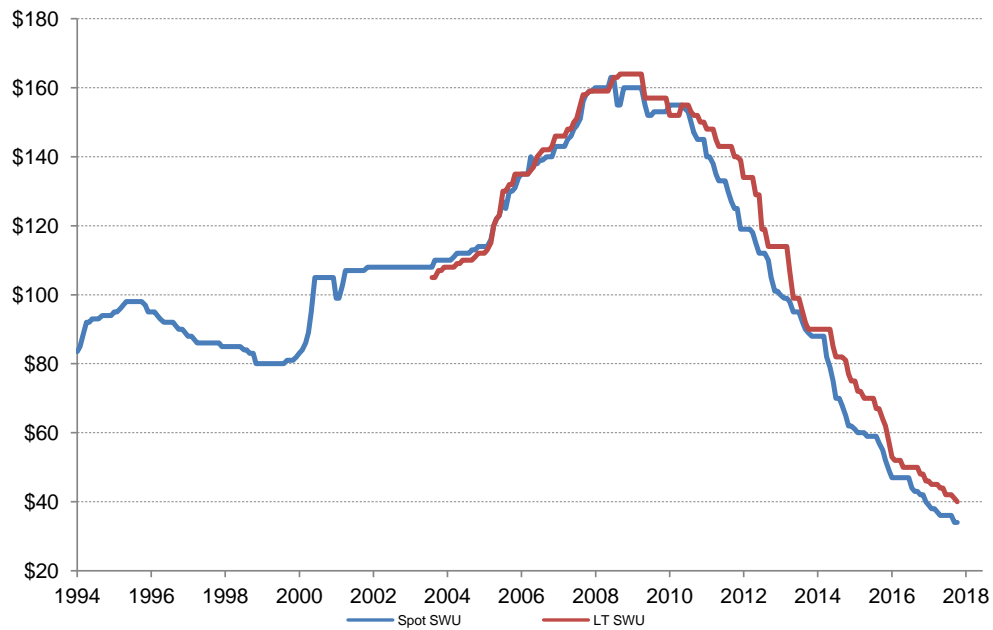
Exhibit 5. Cumulative monthly spot market volume



*2018 spot volumes includes the impact of the Yellowcake IPO

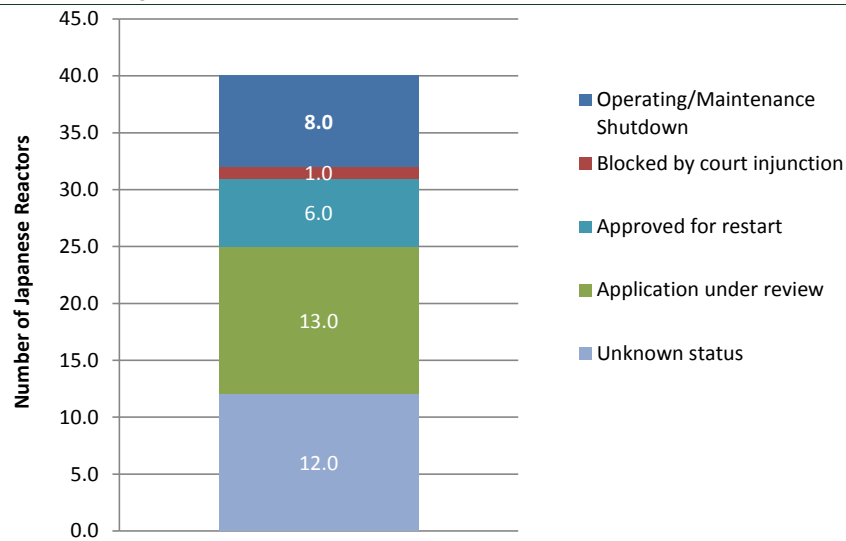
Source: UxC; TD Securities estimates

Exhibit 6. Month-end Spot and Term SWU Prices (US\$)



Source: Ux Consulting, TD Securities Inc.

Exhibit 7. Japanese Reactor Status



Source: Ux Consulting, Trade Tech, TD Securities Inc.

Exhibit 8. TD Securities uranium supply/demand model

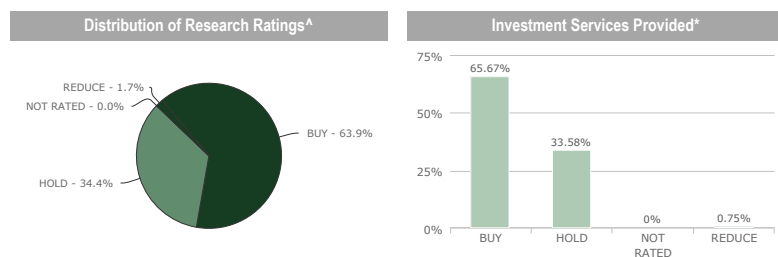
	2011	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E	2021E	2022E	2023E
Mine Supply - Western World (mm lbs U3O8)													
Total Mine Supply - Western World	86	90	93	85	106	103	103	82	86	90	95	106	108
Net Eastern Mine Supply (lbs U3O8)	55	59	60	60	57	62	54	53	56	56	56	56	57
Total World Mine Supply (mmlb U3O8)	141	150	153	145	163	165	157	136	142	146	151	162	165
YoY % change	0.9%	5.9%	2.4%	-5.3%	12.2%	1.1%	-4.5%	-13.7%	5.0%	2.7%	3.5%	7.1%	1.8%
Secondary Supply													
Global underfeeding and tails re-enrichment*	5	5	15	20	20	18	19	18	16	15	15	15	15
Mixed Oxide Fuel (MOX)*	8	10	8	8	4	4.7	5	5	5	6	6	6	6
US government sales (DOE Proposed)*	5	5	8	8	7.3	4.2	3.1	1.6	0.0	0.0	0.0	0.0	0.0
Additional Russian secondary supply*	24	24	24	5	1.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other (commercial inventories)				4	8	7	7	7	7	7	7	7	7
Total Secondary Supply (mmlb)	42	43	55	45	42	36	34	31	28	28	28	28	28
Total Supply	183	193	208	190	205	200	191	167	171	175	180	191	194
Total World Demand													
Total World Nuclear Generating Capacity (MWe) *					345,333	351,251	358,799	369,682	374,838	379,949	382,842	383,809	385,821
Uranium requirements per MWe					464	474	470	470	470	470	470	470	470
Uranium demand (mmlb)					160	167	169	174	176	179	180	180	181
First Core Requirement (2 year lead)					-	-	-	-	-	-	-	-	-
Total World Demand (mmlbs U3O8)	155	155	170	155	160	167	169	174	176	179	180	180	181
YoY % change	-6.1%	0.0%	9.7%	-8.8%	3.4%	3.9%	1.2%	3.0%	1.4%	1.4%	0.8%	0.3%	0.5%
Supply / Demand Balance (mmlb)	28	38	38	35	44	34	22	-7	-5	-4	0	10	12
Historical Spot Uranium Price (US\$/lb U3O8)	\$57.08	\$48.73	\$38.57	\$33.60	\$36.89	\$26.57	\$22.12	\$25.57	\$35.00	\$40.00	\$45.00	\$45.00	\$55.00

* Source: World Nuclear Association - Nuclear Fuel Report 2017-2035

Note - TD LT price assumption starts in 2023; a flat US\$55/lb price is assumed for 2023 and beyond.

Source: Ux Consulting, Bloomberg, TD Securities Inc.

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Current as of: September 18, 2018

^A Percentage of subject companies under each rating category: BUY (covering ACTION LIST BUY, BUY and SPECULATIVE BUY ratings), HOLD, and REDUCE (covering TENDER and REDUCE ratings).

^{*} Percentage of subject companies within each of the three categories (BUY, HOLD, and REDUCE) for which TD Securities Inc. has provided investment banking services within the last 12 months.

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