

Industry Note

Equity Research

April 15, 2020

Metals & Minerals

Uranium Weekly: Spot Price In Backwardation

Ux Consulting's (UxC) weekly price indicator rose to US\$29.50/lb (+US\$1.80/lb) this week, as reported on the evening of Monday, April 13. Subsequently, on Tuesday, the daily spot price increased to \$31.38/lb. The spot price, based on Tuesday's quote, is now trading above UxC's March month-end term price of US\$31.00/lb — this marks the first time since January 2011 (before the Fukushima accident in March 2011) that uranium's pricing structure has moved into backwardation. The spot price has now increased 30% over the past month and is up 27% year-to-date.

Backwardated pricing suggests that the spot market has tightened dramatically over the past several weeks following the curtailment of production at Cameco's Cigar Lake mine and a 4,000tU production cutback at Kazatomprom's operations for this year. We are currently forecasting that the uranium market will register a 24mm lbs deficit in 2020, which only assumes a four-week shutdown at Cigar Lake. On Monday evening, Cameco reported that it has extended the closure of Cigar Lake for an indeterminate period (the company has also suspended its guidance for the year).

UxC reported that March saw the most ever spot transactions for a single month (76 transactions for 9mm lbs U3O8e) and the high volume of transactions has continued into April, with 30 transactions completed month-to-date for 5.8mm lbs U3O8e. UxC reported that spot transactions in April have been dominated by producers buying to cover production shortfalls.

Over the past several years, we believe that fungible surplus uranium inventory has hovered in the range of between 60-80mmlbs U3O8 and was being drawn down at a relatively modest rate of anywhere between 5-10mmlbs per year. If our 24mmlbs supply deficit estimate is correct, it would mark a notable acceleration in inventory draw-down and bring forward supply tightness. We note that inventory tends to become less available as prices increase — with holders less inclined to sell in anticipation of higher prices.

Over the near term, the upward pressure on the spot uranium price is likely to continue, given the increased uncertainty about the timing of a resumption of production at Cigar Lake. We continue to believe that the timing of the restart will be influenced not only by the relaxation of COVID-19 restrictions, but also by commercial considerations (e.g. higher long-term contractual pricing). A faster-than-expected return to production would likely reverse the current rally quickly; however, we believe that producer supply discipline, combined with utilities becoming more concerned about security of supply, could put some legs under the rally. The catalyst that would lead us to become more positive on the outlook would be the return of utilities to the term contract market and a meaningful move higher in the term price.

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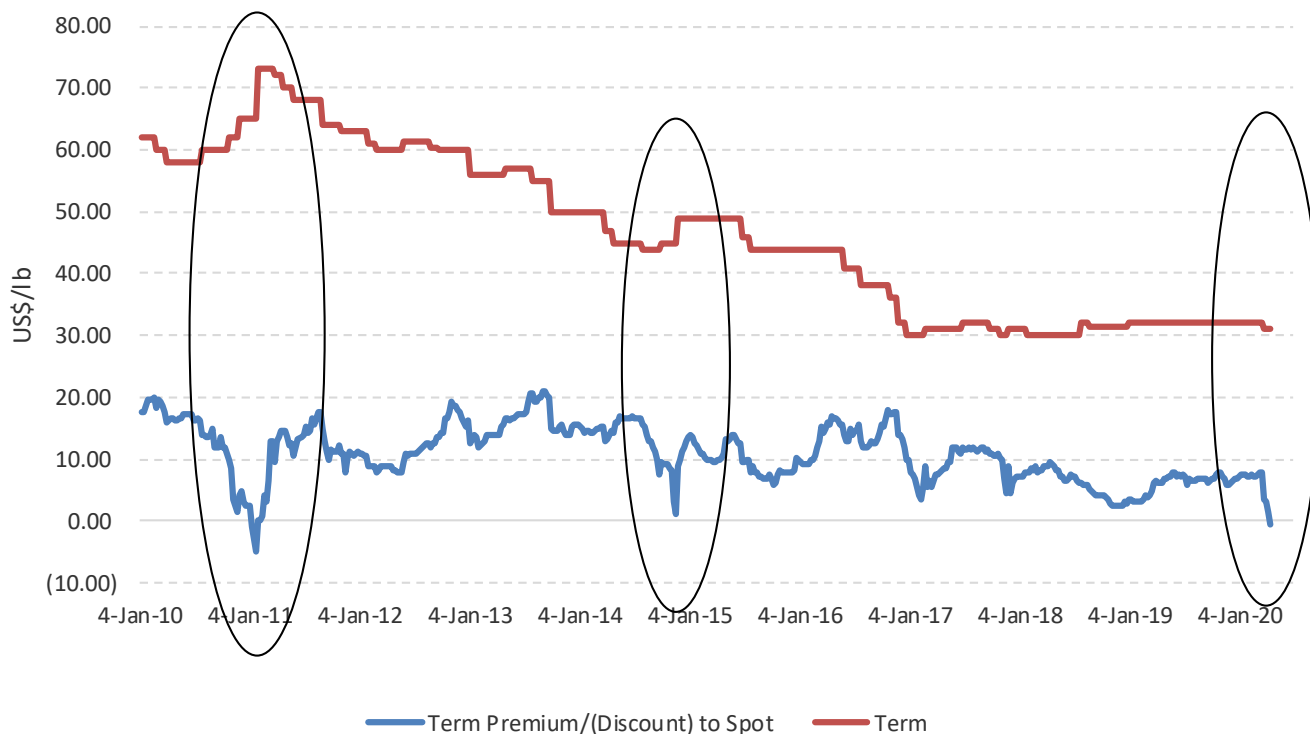
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Industry Note

Equity Research

April 15, 2020

Exhibit 1. Spot Price in Backwardation Puts Upward Pressure on Term Price



Source: UxC, TD Securities Inc. estimates

Exhibit 2. Uranium Mine Suspension Tracker

Operation	Company	Location	Annual Production (mm lbs)	Percent of Global Annual Mine Production	Suspension Duration	Potential Lost Production (mm lbs)
Cigar Lake	Cameco/Orano	Canada	18	12.5%	Undetermined	1.5/month
Rossing	CNNC/CGN	Namibia	4	2.8%	21 days	0.25
Husab	CNNC/CGN	Namibia	10	6.9%	21 days	0.6
Ranger (1)	ERA	Australia	3.1	2.2%	n/a	n/a
Kazakh ISR (2)	Kazatomprom	Kazakhstan	59	41.0%	3 months	10.4

Notes:
 (1) ERA has maintained 2020 production guidance at 2.65-3.53 mm lbs U3O8, but travel restriction could impact production

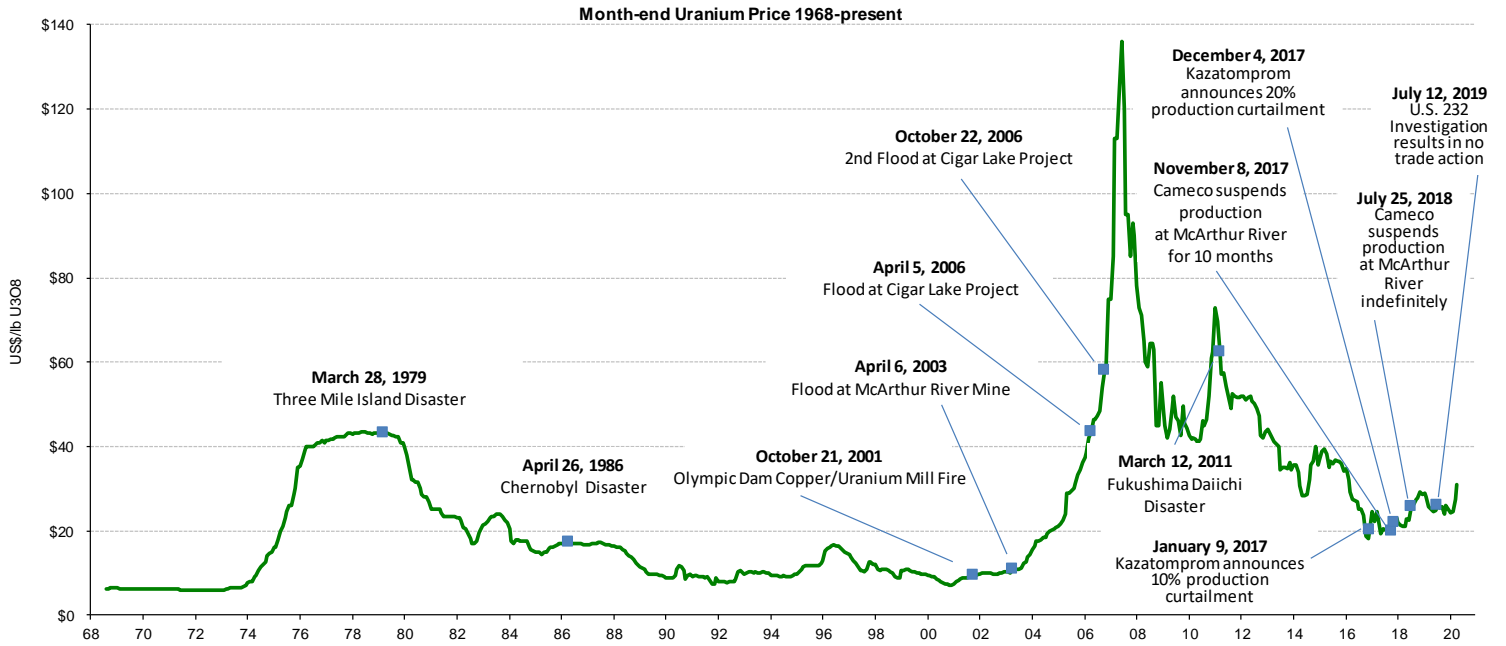
Source: Company reports, UxC, TD Securities Inc. estimates

Industry Note

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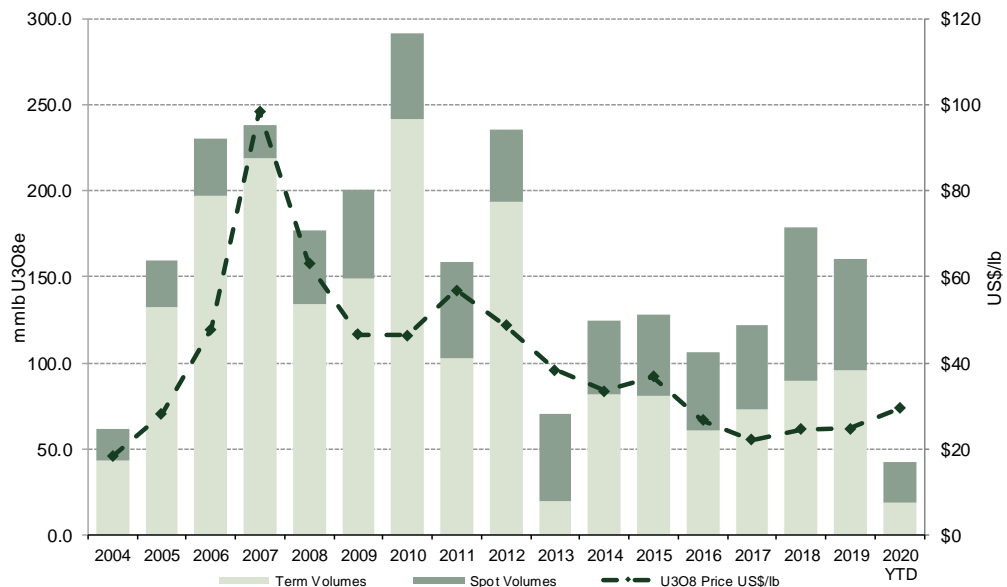
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Exhibit 3. Historical Spot Price and Market-affecting Events (US\$/lb)



Source: UxC, companies, TD Securities Inc.

Exhibit 4. Term Contracting Hit Record Levels Following 2006 Cigar Lake Floods



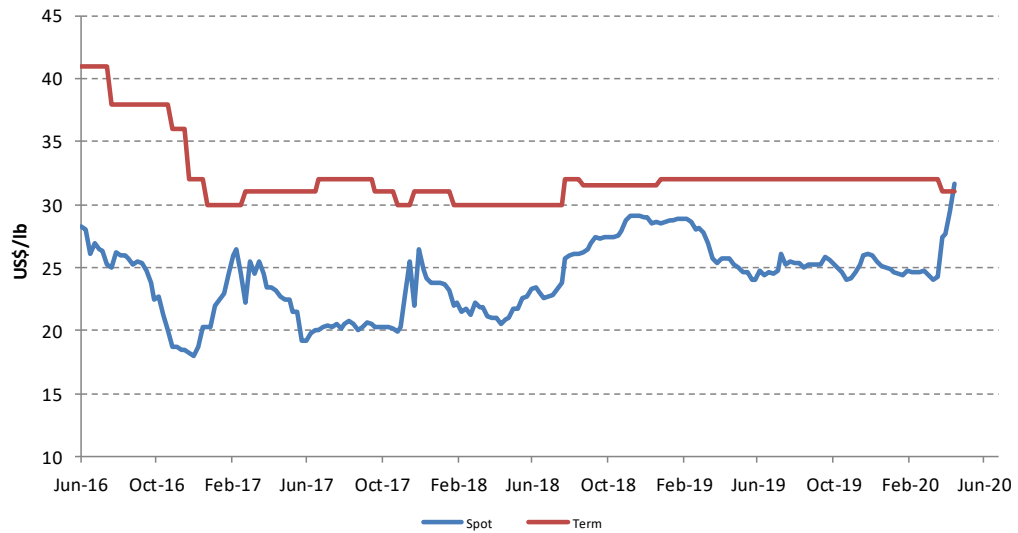
Source: UxC, TD Securities Inc.

Industry Note

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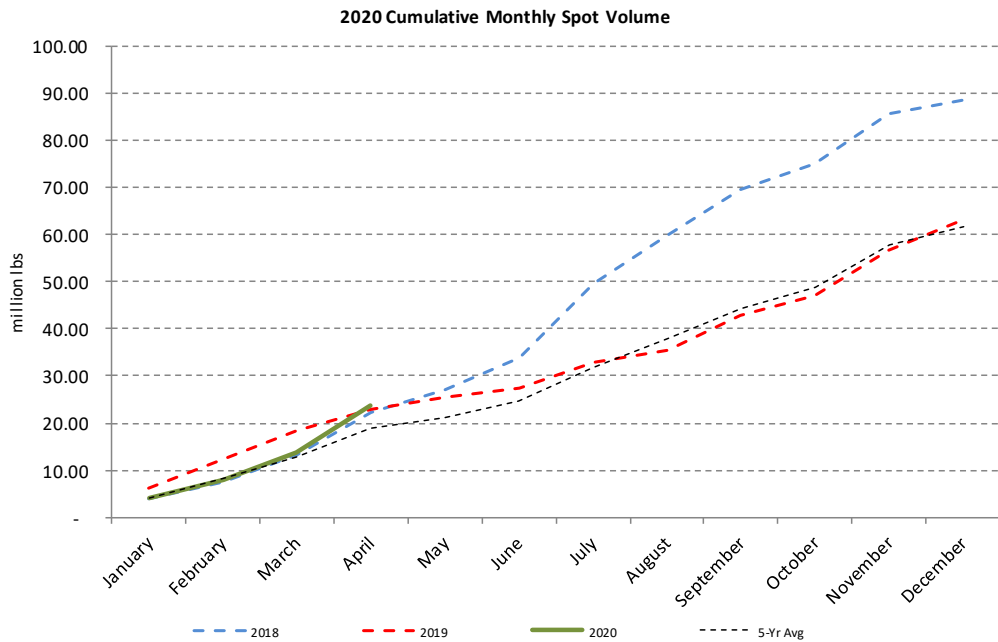
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Exhibit 5. Spot and Term Uranium Prices (US\$/lb)



Source: UxC

Exhibit 6. Cumulative Monthly Spot Market Volume



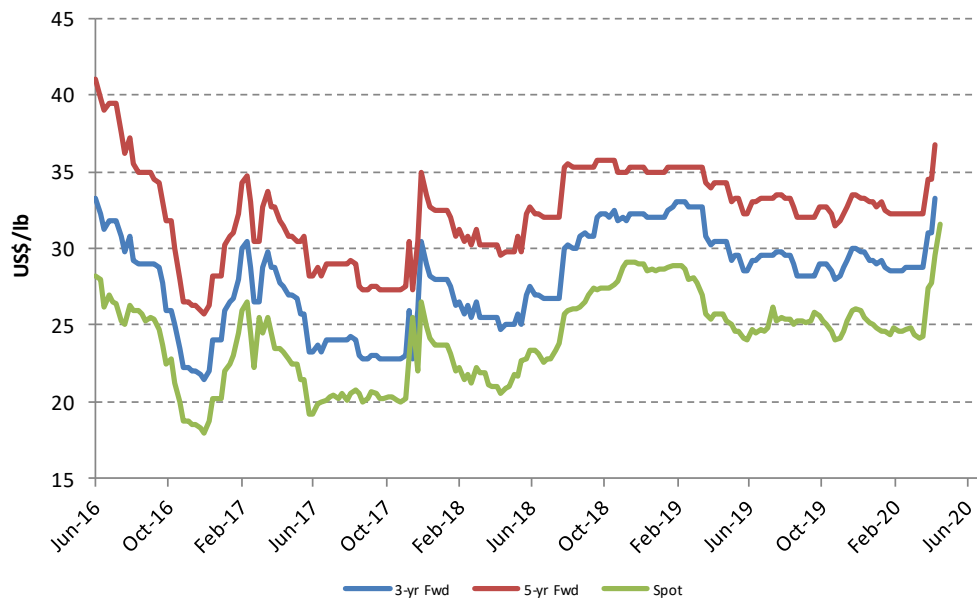
Source: UxC

Exhibit 7. Uranium Term Price Premium to Spot (US\$/lb)



Source: UxC

Exhibit 8. Uranium Prices — Spot, 3-year Forward and 5-year Forward



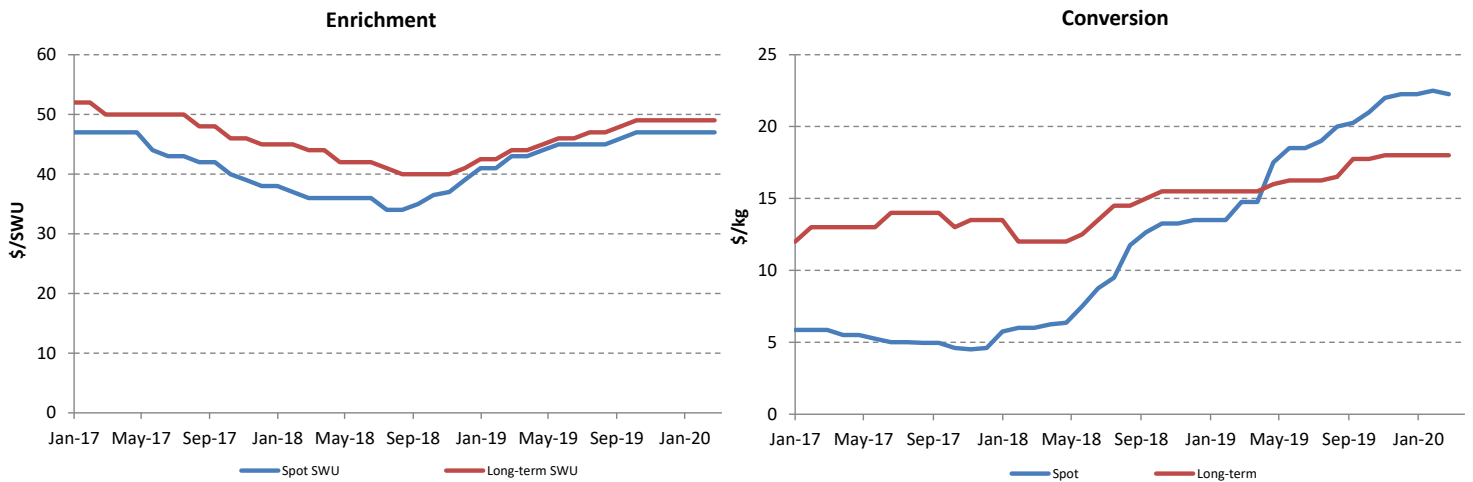
Source: UxC

Exhibit 9. Fund Implied Price (FIP) and Spot Price



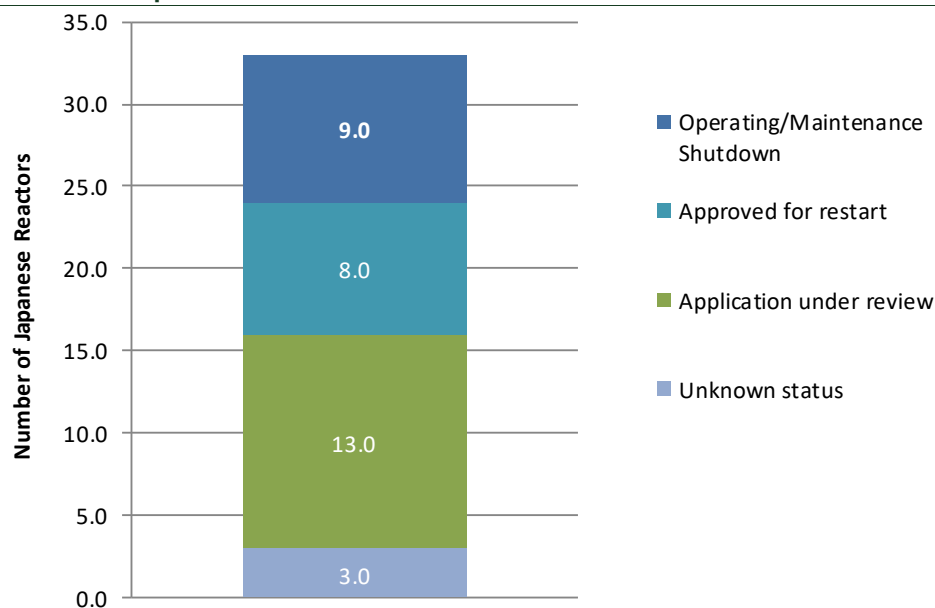
Source: UxC

Exhibit 10. Monthly SWU and Conversion Pricing



Source: UxC

Exhibit 11. Japanese Reactor Status



Source: UxC, Bloomberg, World Nuclear Association

Exhibit 12. TD Securities Uranium Supply/Demand Model

	2012	2013	2014	2015	2016	2017	2018	2019	2020E	2021E	2022E	2023E	2024E
Mine Supply - Western World (mm lbs U3O8)													
Total Mine Supply - Western World	90	93	85	106	104	100	83	85	80	82	82	86	88
Net Eastern Mine Supply (lbs U3O8)	59	60	60	57	62	54	54	55	44	55	60	60	66
Total World Mine Supply (mmlb U3O8)	150	153	145	163	166	154	138	140	124	137	142	146	154
YoY % change	5.9%	2.4%	-5.3%	12.2%	2.1%	-7.6%	-10.2%	1.7%	-11.6%	10.4%	3.8%	2.6%	5.9%
Secondary Supply													
Global underfeeding and tails re-enrichment*	5	15	20	20	18	19	18	18	16	16	15	15	14
Mixed Oxide Fuel (MOX)*	10	8	8	4	5	5	5	6	6	6	6	6	7
US government sales (DOE Proposed)*	5	8	8	7	4	3	2	2	1	0	0	0	0
Additional Russian secondary supply*	24	24	5	2	2	0	0	0	0	0	0	0	0
Other			0	0	0	0	0	0	0	0	0	0	0
Total Secondary Supply (mmlb)	43	55	41	34	29	27	24	26	24	22	21	21	21
Secondary supply as % of global reactor demand	28%	32%	26%	21%	17%	16%	14%	15%	13%	12%	12%	12%	11%
Mobilization of Commercial Inventory			4	8	7	7	7	7	7	7	7	7	7
Total Supply	193	208	190	205	202	187	169	173	155	166	170	174	183
Total World Demand													
Total World Nuclear Generating Capacity (MWe) *				345,377	351,271	358,819	368,571	372,978	379,182	384,508	385,211	389,242	394,906
Uranium requirements per MWe				464	474	472	472	472	472	472	472	472	472
Uranium demand (mmlb)				160	167	169	174	176	179	181	182	184	186
First Core Requirement (2 year lead)				-	-	-	-	-	-	-	-	-	-
Total World Demand (mmlbs U3O8)	155	170	155	160	167	169	174	176	179	181	182	184	186
YoY % change	0.0%	9.7%	-8.8%	3.4%	3.9%	1.7%	2.7%	1.2%	1.7%	1.4%	0.2%	1.0%	1.5%
Supply / Demand Balance (mmlb)	38	38	35	44	35	18	-5	-3	-24	-16	-11	-10	-4
Spot Uranium Price (US\$/lb U3O8)	\$48.73	\$38.57	\$33.60	\$36.89	\$26.57	\$22.12	\$24.82	\$25.94	\$28.94	\$31.00	\$33.00	\$35.00	\$40.00

* Source: World Nuclear Association - Nuclear Fuel Report 2019-2040 Reference Case

Note - TD LT price assumption starts in 2025; a flat US\$45/lb price is assumed for 2025 and beyond.

Source: UxC, Bloomberg, TD Securities Inc.



Industry Note

Equity Research

April 15, 2020

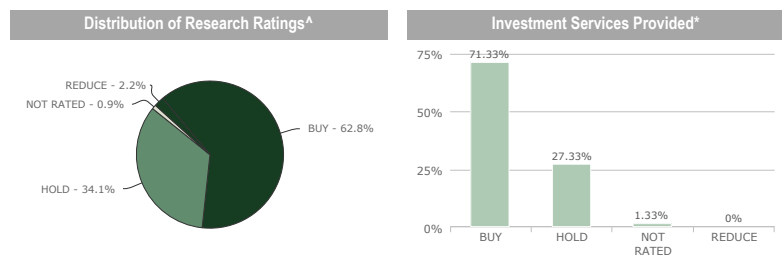
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Industry Note

Equity Research

April 15, 2020

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Industry Note

Equity Research

April 15, 2020

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