

Industry Note

Equity Research

December 15, 2021

Metals & Minerals

Uranium Weekly: Spot Market on Verge of Exceeding 100Mlbs

The Ux Consulting (UxC) weekly spot price indicator, published earlier this week, declined to US\$43.00/lb (down US\$2.00/lb), -4.4% versus the previous week. Year-to-date, total spot-market volume of 97.1 million pounds is the highest annual volume on record. The previous annual record for the spot market was 92.3 million pounds in 2020. UxC expects that a further +/-5 million pounds could be transacted in the spot market before year-end, resulting in total spot-market volume exceeding 100 million pounds.

Spot market volume has seen a step change higher since 2018. Between 2005 and 2017, annual volumes in the spot market were generally between 40 million-50 million pounds and the annual average volume over the 12-year period was ~43 million pounds (Exhibit 1). Since 2018, spot market volume has lifted significantly, averaging ~86 million pounds per year, or double the average of the previous 12 years. We believe that a combination of producer buying and fund purchases has been behind the surge in volume. Interestingly, 2017 marked the lowest annual average spot uranium price since 2004, at just \$22.06/lb.

Often, the biggest pushback against focusing on volumes in the spot market is that a lot of the volume would typically be "churn", or the same pounds being traded among multiple parties. However, for 2021, this may not be as accurate as it once was. Between fund-buying, producer purchases, purchases by pre-development uranium companies, and the activities of the Sprott Physical Uranium Trust (SPUT), we estimate that between 55 million-60 million pounds of uranium have been removed from the market this year, a large portion of which is permanently sequestered.

So far, the increasing activity in the spot market has not translated into significantly higher volumes in the term market. Year-to-date in 2021, UxC is quoting total term-market volume at ~70 million pounds, which is exactly in line with the average annual volume since 2013. That being said, UxC believes that the rise in the spot price since the arrival of SPUT has led to many nuclear utilities reviewing forward coverage positions as they watch the uranium supply/demand balance tighten into the end of this decade, and that could lead to some re-entering the contract market earlier than they had previously planned.

Although still early, we believe that a uranium contracting cycle appears to be underway, with fund-buying in the spot market pushing utilities into the term market. Increasing price volatility, tightening supply in the spot market, and an increasing realization that long-term supply is under threat following a decade-long bear market, are all contributing to nuclear utilities becoming more concerned about security of supply. We expect continued upward pressure on spot and term uranium prices in the coming months.

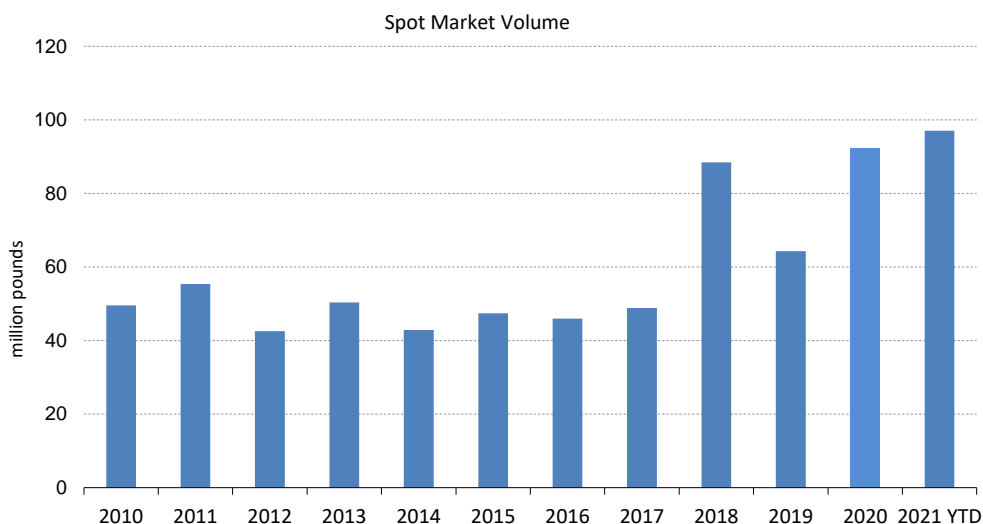
Greg Barnes

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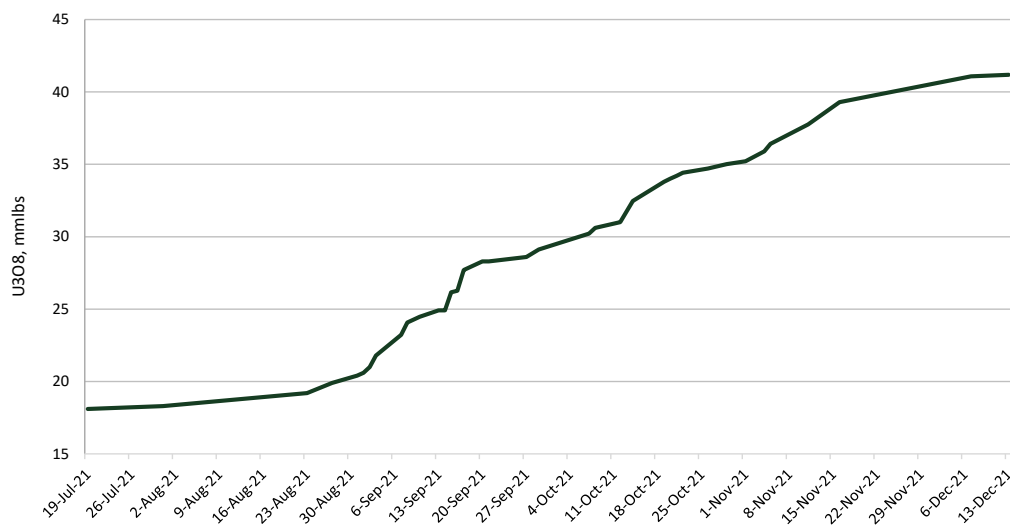
Nicholas Clarke, CFA (Associate)

Exhibit 1. Annual Spot Uranium Market Volume



Source: UxC, TD Securities Inc. estimates

Exhibit 2. Sprott Physical Uranium Trust — Uranium Holdings Since Inception (July 19, 2021)



Source: Sprott Physical Uranium Trust, TD Securities Inc. estimates

Exhibit 3. Sprott Physical Uranium Trust — Share Price Premium to NAV



Inception date: July 19, 2021.

Source: Sprott Physical Uranium Trust

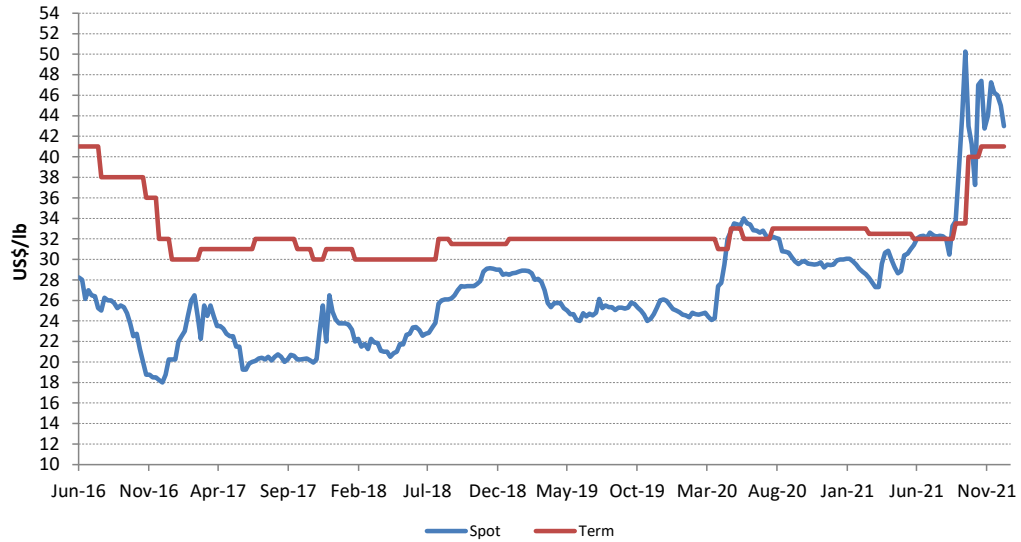
Exhibit 4. Uranium Company Equity Offerings and Uranium Purchases (excluding Sprott Physical Uranium Trust)

Company	Date Equity Offering and/or Uranium Purchase Announced	Equity Offering (US\$ millions)	Uranium Purchased or Planned to Purchase (million pounds)	Estimated Average Price of Uranium Purchases (Planned or Actual) (US\$/lb)
Yellow Cake	25-Feb-21	140.0	3.90	28.78
Denison Mines	15-Mar-21	86.3	2.50	29.61
Uranium Energy	17-Mar-21	30.5	1.40	29.00
Boss Energy	29-Mar-21	46.0	1.25	30.15
Uranium Energy	6-Apr-21	12.0	0.71	31.70
Uranium Participation Corp. ¹	3-May-21	66.4	1.78	30.50
Uranium Energy	20-May-21	n/a	0.20	30.00
Yellow Cake	11-May-21	n/a	0.34	29.15
Western Uranium & Vanadium	2-Jun-21	n/a	0.13	31.50
Yellow Cake	16-Jun-21	88.0	2.00	32.23
Uranium Royalty Corp.	15-Sep-21	n/a	0.30	38.17
Uranium Royalty Corp.	19-Oct-21	n/a	0.40	45.00
Yellow Cake	26-Oct-21	150.0	3.00	46.74
Total/Average		619.2	17.90	33.25

1. TD estimate for pounds purchased and average price

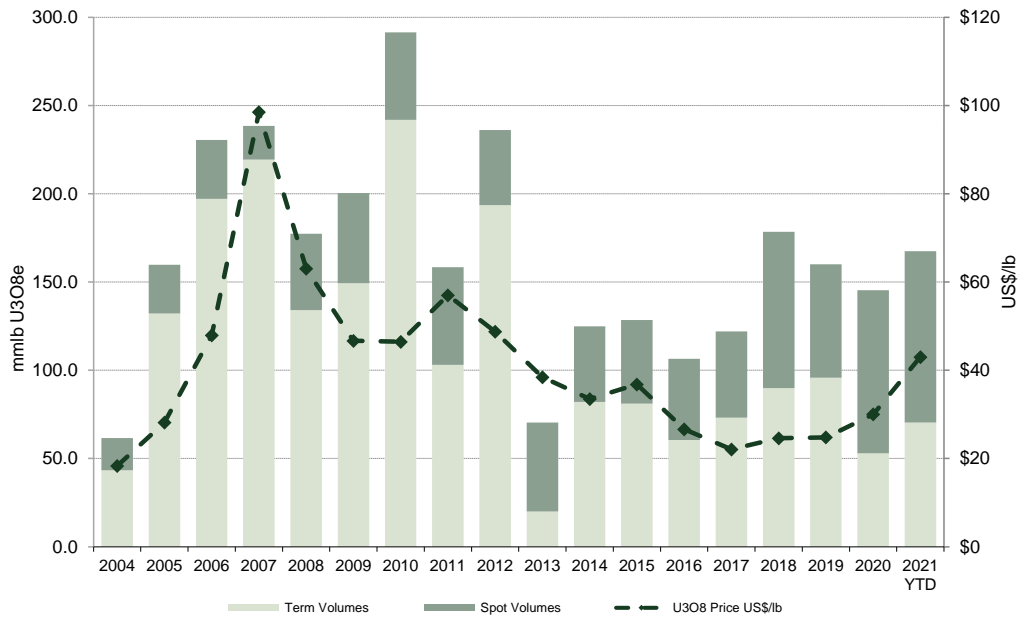
Source: Company reports, TD Securities Inc. estimates

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



Source: UxC, TD Securities Inc. estimates

Exhibit 6. Spot and Term Volumes



Source: UxC, TD Securities Inc. estimates

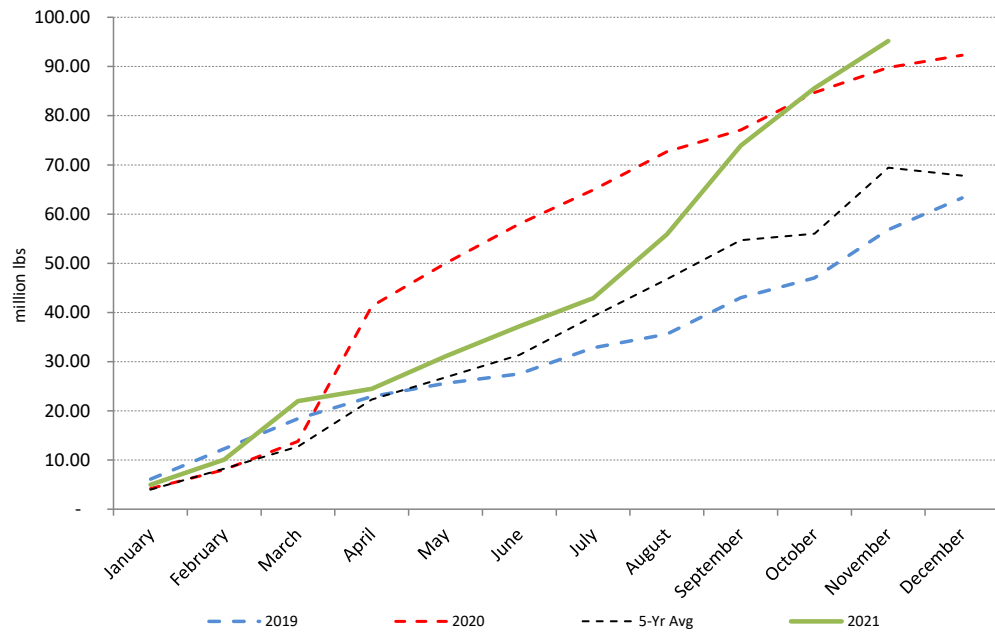


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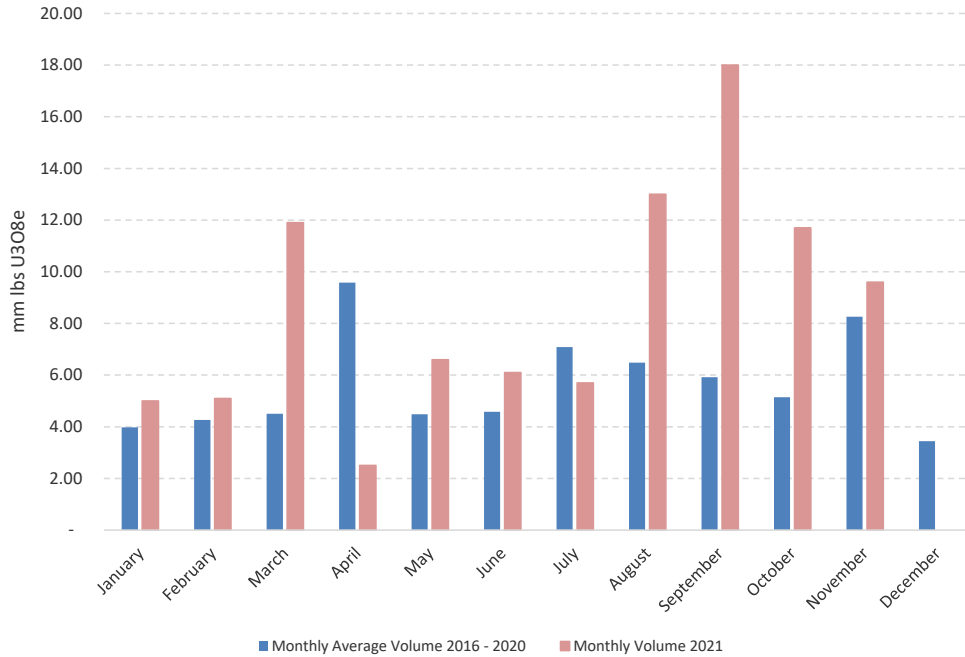
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Exhibit 7. Historical vs. 2021 Cumulative Monthly Spot Volumes



Source: UxC, TD Securities Inc. estimates

Exhibit 8. Monthly Average Spot Volumes



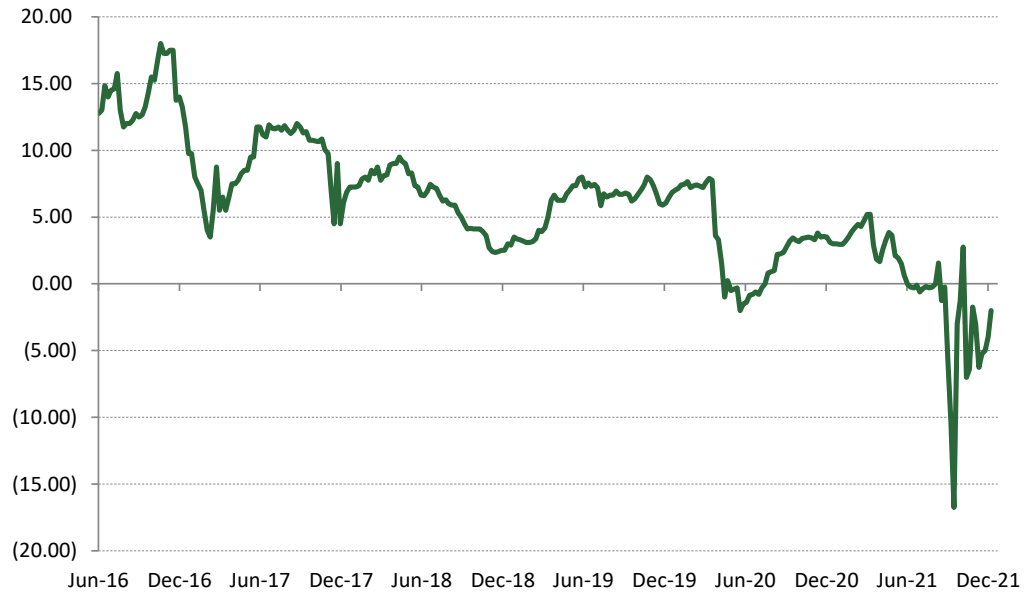
Source: UxC, TD Securities Inc. estimates

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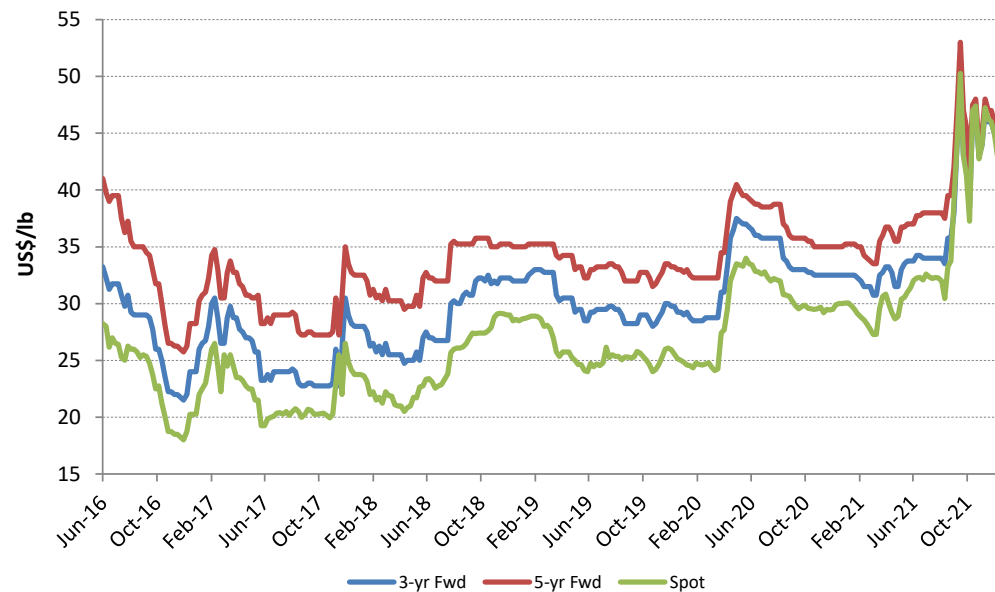
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Exhibit 9. Uranium Term Price Premium to Spot (US\$/lb)



Source: UxC, TD Securities Inc. estimates

Exhibit 10. Uranium Prices — Spot, 3-year Forward and 5-year Forward



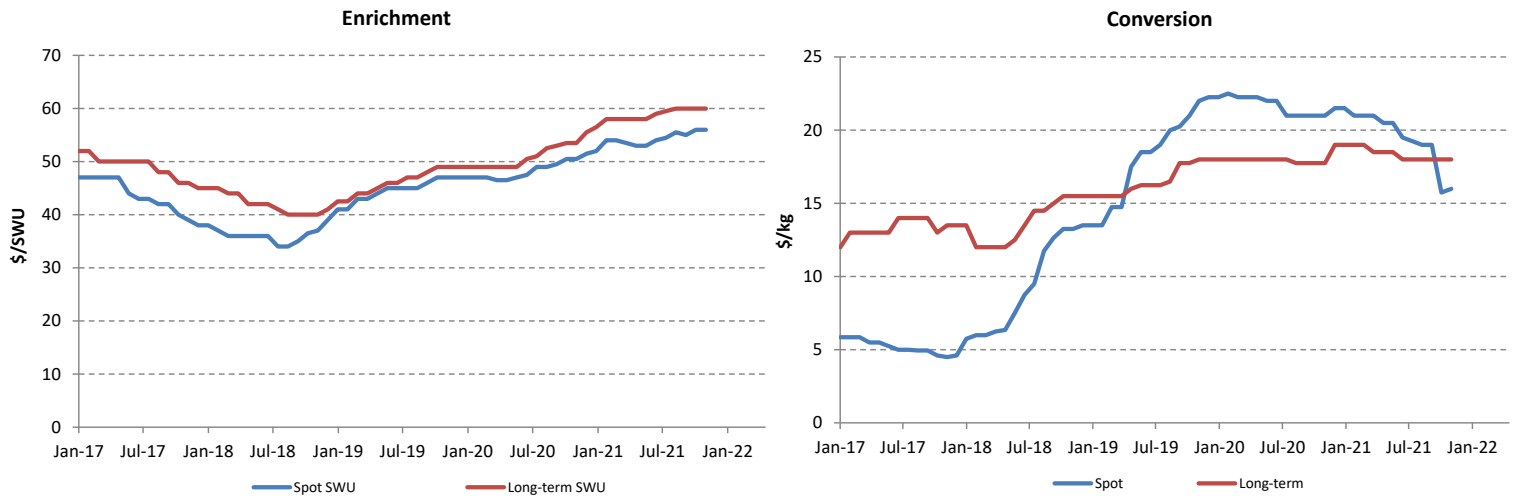
Source: UxC

Exhibit 11. Fund Implied Price (FIP) and Spot Price



Source: UxC, TD Securities Inc. estimates

Exhibit 12. Monthly SWU and Conversion Pricing



Source: UxC, TD Securities Inc. estimates

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Exhibit 13. TD Securities Uranium Supply/Demand Model

	2017	2018	2019	2020	2021E	2022E	2023E	2024E	2025E
Mine Supply - Western World (Mlb U3O8)									
Total Mine Supply - Western World	100	83	85	81	75	80	85	88	86
Net Eastern Mine Supply (lbs U3O8)	54	54	55	44	52	53	60	66	72
Total World Mine Supply (Mlb U3O8)	154	138	140	125	127	132	145	154	158
YoY % change	-7.6%	-10.2%	1.7%	-10.9%	1.9%	4.0%	9.1%	6.8%	2.6%
Secondary Supply									
Global underfeeding and tails re-enrichment*	19	18	18	16	16	15	15	14	14
Mixed Oxide Fuel (MOX)*	5	5	6	6	6	6	6	7	8
US government sales (DOE Proposed)*	3	2	2	1	0	0	0	0	0
Additional Russian secondary supply*	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0
Total Secondary Supply (Mlb)	27	24	26	24	22	21	21	21	21
Secondary supply as % of global reactor demand	16%	14%	15%	13%	12%	12%	12%	11%	11%
Mobilization of Commercial Inventory	7	7	7	7	7	7	7	7	7
Total Supply	187	169	173	156	156	161	173	183	187
Total World Demand									
Total World Nuclear Generating Capacity (MWe) *	358,819	368,571	372,978	374,420	384,508	385,211	389,242	394,906	398,885
Uranium requirements per MWe	472	472	472	472	472	472	472	472	472
Uranium demand (mmlb)	169	174	176	177	181	182	184	186	188
First Core Requirement (2 year lead)	-	-	-	-	-	-	-	-	-
Total World Demand (Mlb U3O8)	169	174	176	177	181	182	184	186	188
YoY % change	1.7%	2.7%	1.2%	0.4%	2.7%	0.2%	1.0%	1.5%	1.0%
Supply / Demand Balance (Mlb)	18	-5	-3	-21	-25	-21	-11	-4	-2
Spot Uranium Price (US\$/lb U3O8)	\$22.12	\$24.82	\$25.94	\$29.52	\$35.24	\$50.00	\$55.00	\$55.00	\$55.00

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

Source: UxC, Bloomberg, World Nuclear Association, TD Securities Inc.

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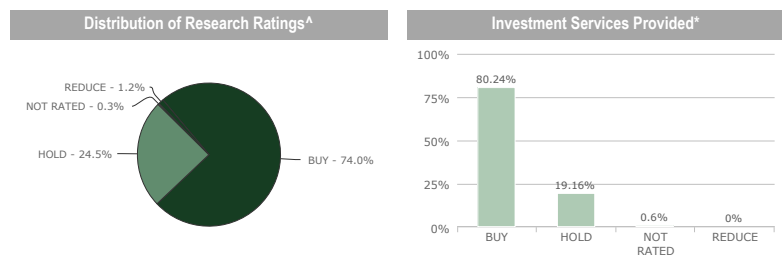
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