

# Industry Note

Equity Research

November 25, 2020

Metals &amp; Minerals

## Uranium Weekly: Mine Supply Under Pressure

**Ux Consulting's (UxC) weekly price indicator increased slightly this week to US\$29.50/lb (from US\$29.20/lb).** UxC also reported that three-year and five-year U3O8 forward prices were flat on a week-over-week basis at US\$32.50/lb and \$35.00/lb, respectively. According to UxC, spot market interest has been limited in November and is likely to remain muted through December. UxC also noted that utility requirements for 2021 are "quite low"; however, we expect that producers buying will increase into 2021, with Cameco buying to meet sales commitments and Kazatomprom purchasing to rebuild inventory levels.

**We estimate that uranium mine production for 2020 will be at its lowest in 12 years (at ~120Mlbs) after COVID-19 related production curtailments at Cameco's Cigar Lake mine and Kazatomprom's operations in Kazakhstan (Exhibit 1).** We expect that production should rebound in 2021 to ~130Mlbs, largely due to the restart of Cigar Lake in September. However, mine production next year will be negatively affected by the closure of the ERA's Ranger Mine at the end of 2020 (annual production 3-4Mlbs) and the end of production at Orano's COMINAK operation in Niger at the end of Q1/21 (annual production 2-3Mlbs).

**BHP also announced recently that it will not move forward with a brownfield expansion plan (BFX) for its Olympic Dam operation (which was in place of the abandoned and much larger Olympic Dam Expansion (ODX) plan).** The BFX plan would have increased copper production to ~300kt per year and uranium to 15Mlbs per year (from 200kt and 10Mlbs currently). Although BHP's revised plans for Olympic Dam are not related to the uranium price, lower long-term production from the mine is a positive development for the uranium market, given that its output is typically sold into the spot market.

**Our forecasts indicate that global uranium mine production will rebound to ~160Mlbs by 2025/2026, assuming that MacArthur River resumes production in mid-2023 and Kazatomprom lifts its 20% production curtailment within the next several years.** At this point, however, we have no visibility into a restart at MacArthur River, and Kazatomprom has indicated that it will continue its 20% production curtailment through 2022. A spot uranium price below US\$30/lb and a term price in the mid-US\$30/lb range are not yet sending the necessary pricing signals to primary uranium producers.

**We believe that the catalyst that could support the next up-leg in spot and term prices would be a meaningful return of utilities to the term contracting market.** UxC and Cameco have noted a recent pick-up in term contracting interest from both U.S. and non-U.S. utilities, and we understand that off-market activity has been trending higher. That being said, term contracting activity for 2020 is on track to be the lowest since 2013 (Exhibit 2).

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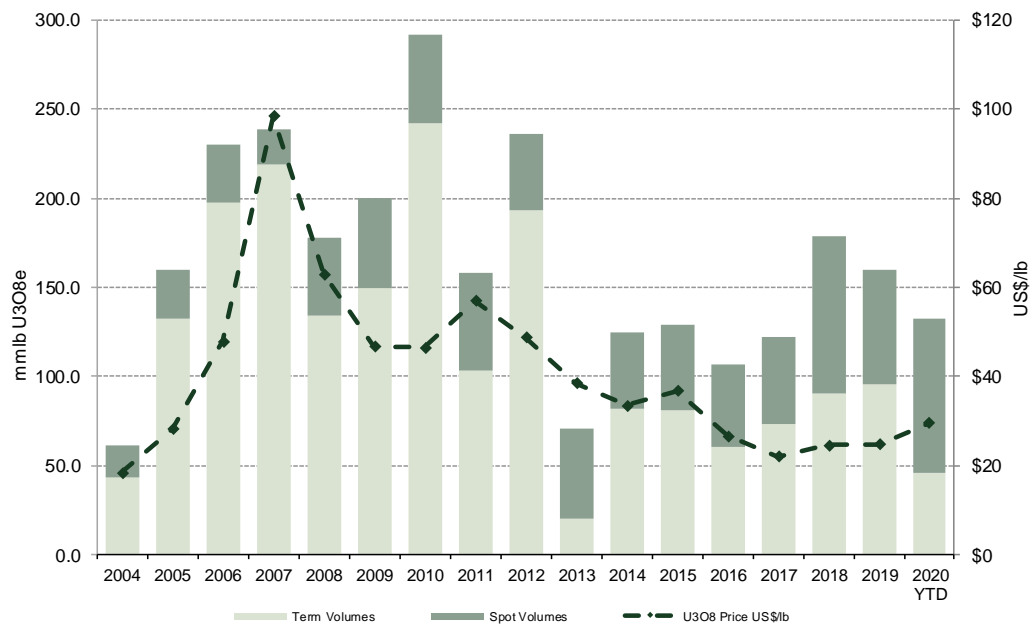
Joel Brown, P.Eng. (Associate)

## Exhibit 1. World Uranium Mine Supply



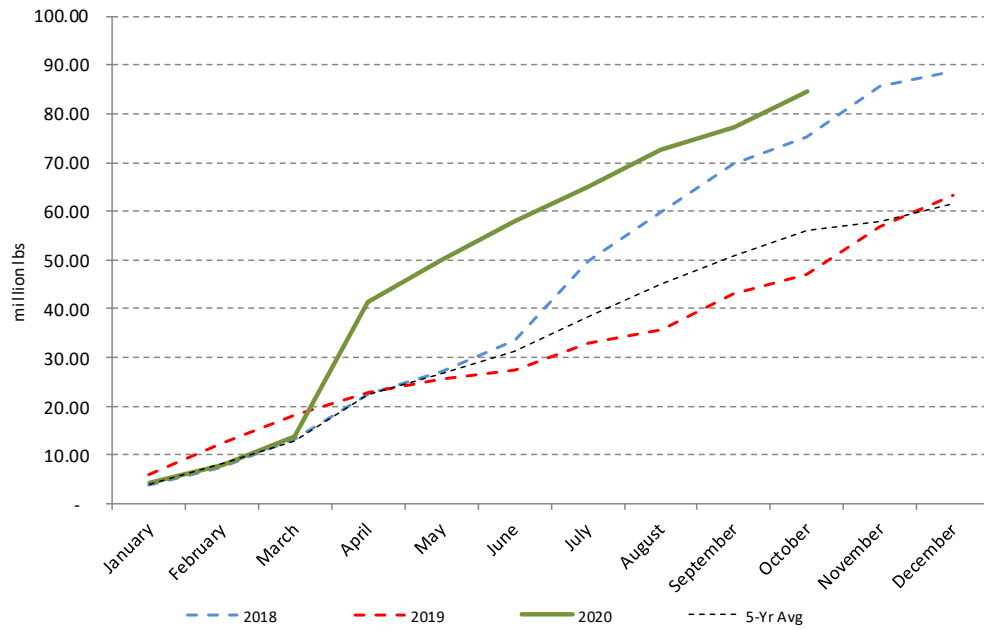
Source: UxC, WNA, TD Securities Inc. estimate

## Exhibit 2. Term Contracting Volumes Lagging in 2020



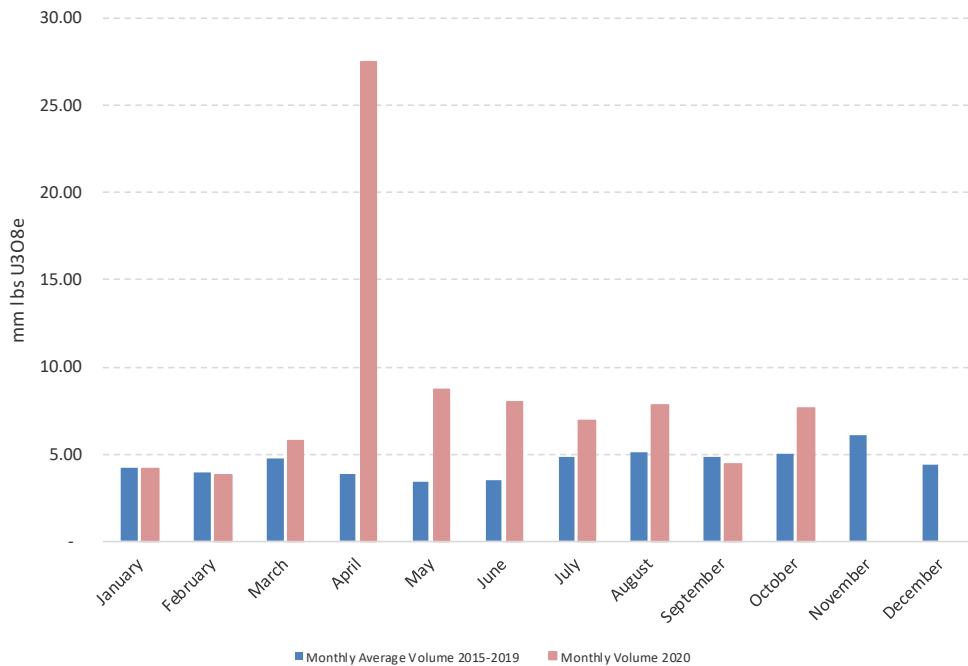
Source: UxC

**Exhibit 3. Historical vs. 2020 Cumulative Monthly Spot Volumes**



Source: UxC

**Exhibit 4. Monthly Average Spot Volumes**



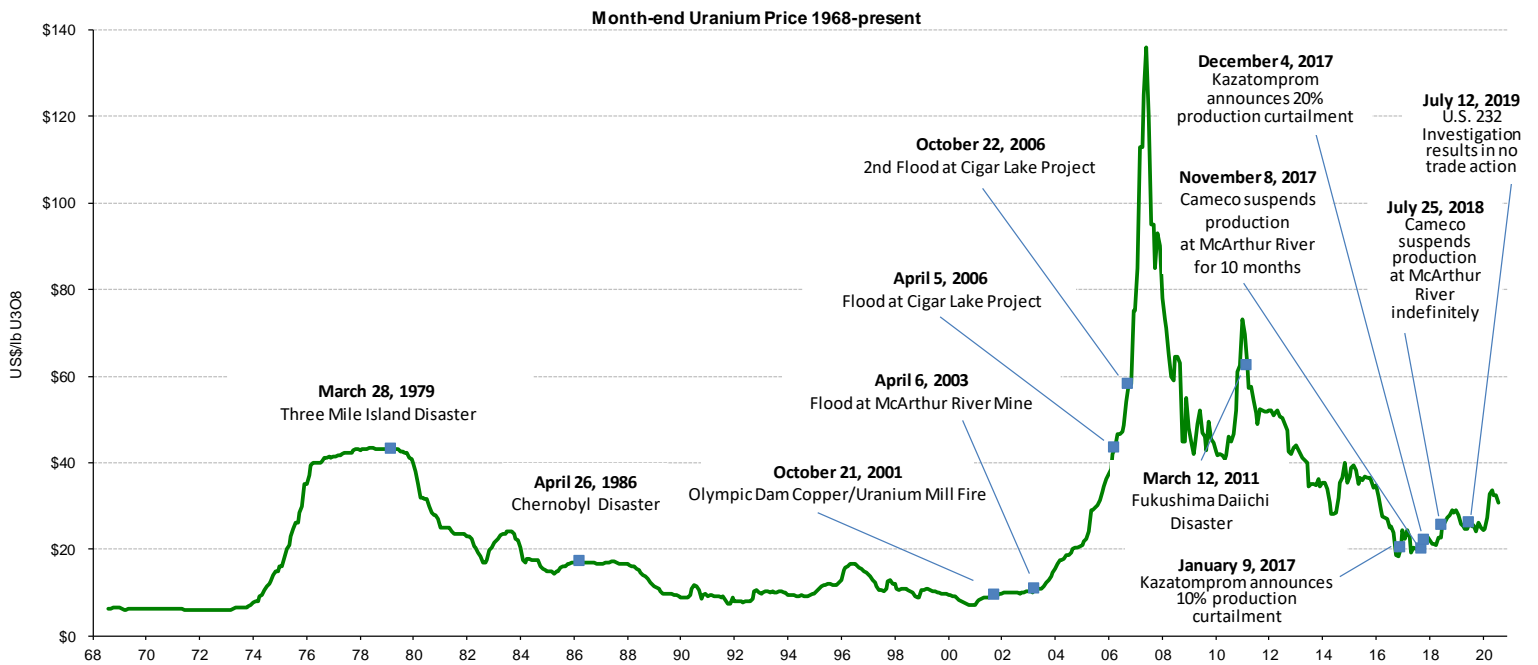
Source: UxC

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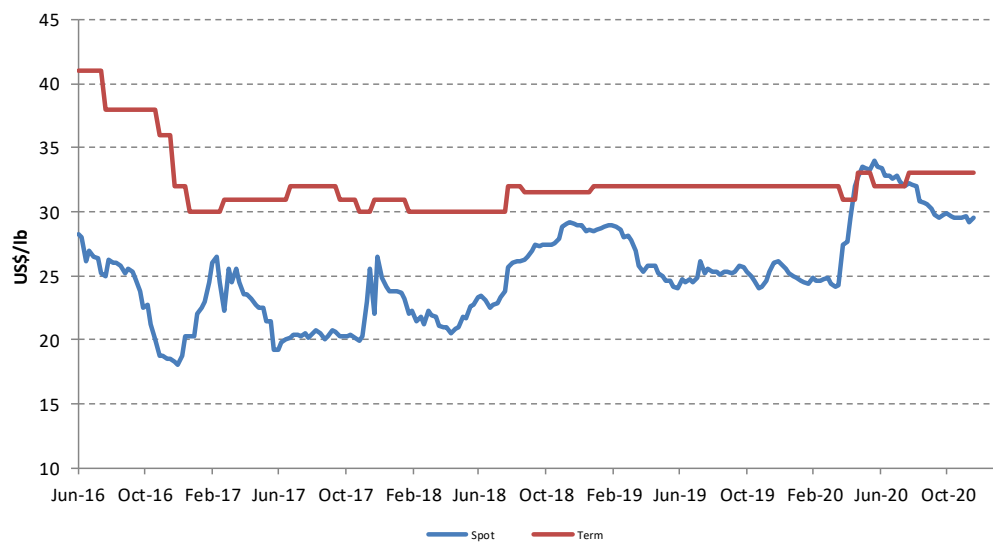
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**Exhibit 5. Historical Spot Price and Market-affecting Events (US\$/lb)**



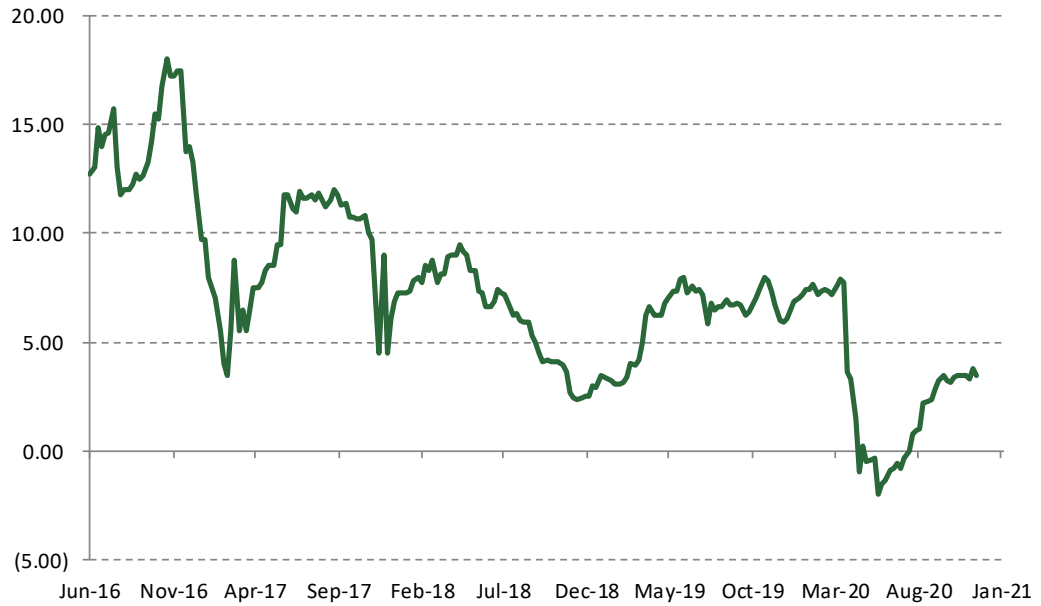
Source: UxC, companies, TD Securities Inc.

**Exhibit 6. Spot and Term Uranium Prices (US\$/lb)**



Source: UxC

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



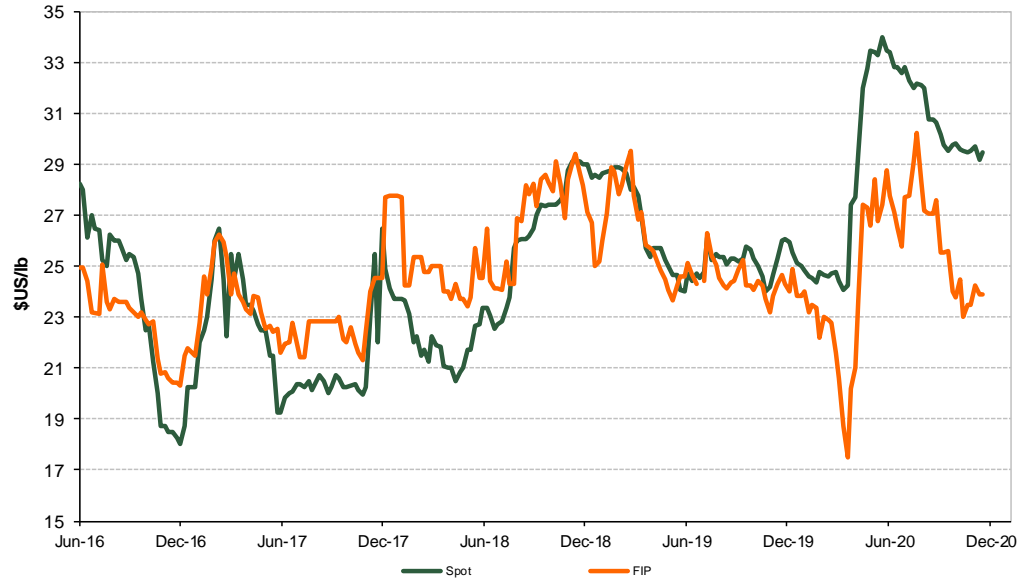
Source: UxC

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



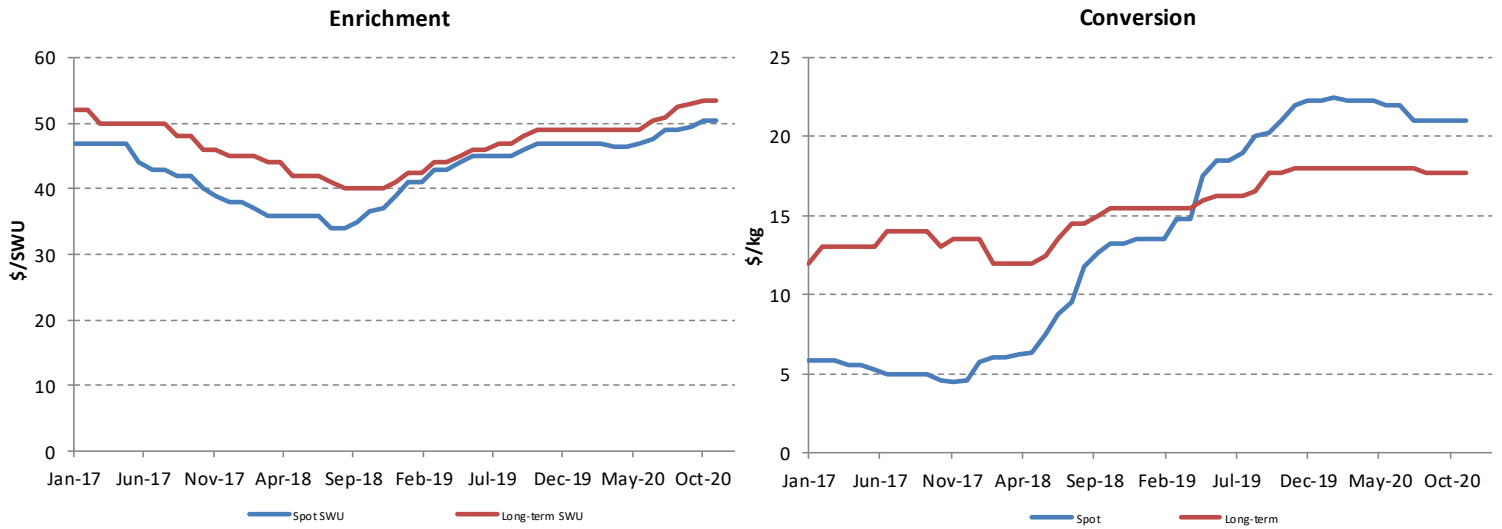
Source: UxC

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



Source: UxC

**Exhibit 10. Monthly SWU and Conversion Pricing**



Source: UxC

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## Exhibit 11. TD Securities Uranium Supply/Demand Model

	2015	2016	2017	2018	2019	2020E	2021E	2022E	2023E	2024E
<b>Mine Supply - Western World (mm lbs U3O8)</b>										
Total Mine Supply - Western World	106	104	100	83	85	75	81	80	85	88
Net Eastern Mine Supply (lbs U3O8)	57	62	54	54	55	44	49	53	60	66
<b>Total World Mine Supply (mmlb U3O8)</b>	<b>163</b>	<b>166</b>	<b>154</b>	<b>138</b>	<b>140</b>	<b>120</b>	<b>130</b>	<b>132</b>	<b>145</b>	<b>154</b>
YoY % change	12.2%	2.1%	-7.6%	-10.2%	1.7%	-14.7%	8.3%	2.2%	9.1%	6.8%
<b>Secondary Supply</b>										
Global underfeeding and tails re-enrichment*	20	18	19	18	18	16	16	15	15	14
Mixed Oxide Fuel (MOX)*	4	5	5	5	6	6	6	6	6	7
US government sales (DOE Proposed)*	7	4	3	2	2	1	0	0	0	0
Additional Russian secondary supply*	2	2	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0
<b>Total Secondary Supply (mmlb)</b>	<b>34</b>	<b>29</b>	<b>27</b>	<b>24</b>	<b>26</b>	<b>24</b>	<b>22</b>	<b>21</b>	<b>21</b>	<b>21</b>
Secondary supply as % of global reactor demand	21%	17%	16%	14%	15%	13%	12%	12%	12%	11%
<b>Mobilization of Commercial Inventory</b>	<b>8</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>	<b>7</b>
<b>Total Supply</b>	<b>205</b>	<b>202</b>	<b>187</b>	<b>169</b>	<b>173</b>	<b>150</b>	<b>159</b>	<b>161</b>	<b>173</b>	<b>183</b>
<b>Total World Demand</b>										
Total World Nuclear Generating Capacity (MWe) *	345,377	351,271	358,819	368,571	372,978	374,420	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	177	181	182	184	186
First Core Requirement (2 year lead)	-	-	-	-	-	-	-	-	-	-
<b>Total World Demand (mmlbs U3O8)</b>	<b>160</b>	<b>167</b>	<b>169</b>	<b>174</b>	<b>176</b>	<b>177</b>	<b>181</b>	<b>182</b>	<b>184</b>	<b>186</b>
YoY % change	3.4%	3.9%	1.7%	2.7%	1.2%	0.4%	2.7%	0.2%	1.0%	1.5%
<b>Supply / Demand Balance (mmlb)</b>	<b>44</b>	<b>35</b>	<b>18</b>	<b>-5</b>	<b>-3</b>	<b>-26</b>	<b>-23</b>	<b>-21</b>	<b>-11</b>	<b>-4</b>
<b>Spot Uranium Price (US\$/lb U3O8)</b>	<b>\$36.89</b>	<b>\$26.57</b>	<b>\$22.12</b>	<b>\$24.82</b>	<b>\$25.94</b>	<b>\$30.86</b>	<b>\$36.00</b>	<b>\$37.50</b>	<b>\$40.00</b>	<b>\$40.00</b>

\* 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, World Nuclear Association, TD Securities Inc.

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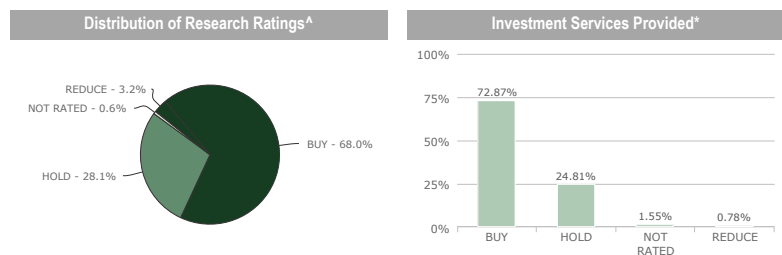
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