4. Uranium: Growth Sector, But With Challenges

*Uranium demand driven by reactor restarts and not GDP.* Uranium demand shows no correlation to global GDP. We believe that growth in uranium demand in the near to medium term will be driven by the growth of nuclear power in China, and clarity of the scale and pace of the Japanese reactor restarts.

**Exhibit 24: Uranium Demand vs. Global GDP Growth**

![Graph showing uranium demand vs. global GDP growth](image)

Source: BMO Capital Markets

*Uranium demand to grow at 4% CAGR between now and 2025.* Uranium demand is largely insulated from the current economic environment and the slowdown in Chinese growth, as nuclear power remains a growth industry, driven by nations striving for energy security and low carbon power generation. However, it faces its own unique challenges and opportunities.

*Fukushima has resulted in recent oversupply and downward price pressure.* The suspension of nuclear power generation in Japan post Fukushima has resulted in several years of oversupply. This has placed downward pressure on the uranium price, which is currently testing US$40/lb U₃O₈, a level not broken since 2006. However, we see further sustained price declines as unlikely (but by no means impossible), since: a) several off-take agreements are thought to have floors at US$40/lb (Exhibit 27); and b) approximately ~30% of the cost curve is in negative territory (Exhibits 28–29).

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*Kodees Waran*
*Venkat Nandyal, CAIA*
*BMO Capital Markets Ltd*

See pages 2 and 3 for analyst coverage information.
However, a number of catalysts need to be realized before we see broad-based positive momentum returning to the uranium stocks; the foremost being further clarity on the scale and pace of Japanese reactor restarts. Hence, the timing of the forecast increase in the uranium price is difficult to determine.

**Uranium demand is forecast to grow and outstrip supply.** Uranium is a growth market, although recent oversupply makes the timing of the expected price increase difficult to determine. However, uranium should be relatively well insulated from the current economic environment relative to other more leveraged commodities for the following reasons:

- Worldwide, there are 435 nuclear reactors in operation with 67 currently under construction, 164 ordered or planned and a further 317 proposed.
- Using our forecasts, this results in operating nuclear capacity growing from 341GWe to 589GWe by 2025, a CAGR of 4%.
- This translates to uranium demand growing from 180M lb U₃O₈e in 2012 to 298M lb U₃O₈e by 2025 including buffer inventory building (Exhibit 25).
- We forecast supply and demand remaining tight but broadly in balance through 2018 with a sustained deficit emerging thereafter (Exhibit 26).
- Uranium prices need to increase to stimulate a supply response, but several years of oversupply have generated excess inventories making the timing of the price response difficult to forecast.

**Uranium negatives could have mid-term positive consequences.** The suspension of nuclear power generation in Japan post Fukushima has resulted in oversupply. Coupled with the declining cost of enrichment this has resulted in downward pressure on the uranium spot price, which has slid to US$40.75/lb from US$50/lb U₃O₈ in July 2012.

We see price support at current levels and further price declines as unlikely (albeit not impossible) with restarts in Japan likely in the second half of 2013 and a number of producer’s off-take agreements thought to have floor pricing at US$40/lb.

See pages 2 and 3 for analyst coverage information.
Price support seen at US$40/lb due in part to floors in off-take agreements.

**Exhibit 27: Spot Uranium Price (US$/U₃O₈)**

Source: BMO Capital Markets

**Incentive pricing for new production estimated at US$70–$80/lb.** We believe that sustained low prices could result in a greater shortfall in the long term. If anything, the current low uranium price environment is likely to make the supply-demand outlook more acute with production increasingly likely to fall short of expectations. We estimate the incentive price for new production to fill the shortfall in 2018 and beyond to be US$70–80/lb U₃O₈; with a minimum of five years required to develop a new mine after a go-ahead decision is made, prices need to be higher by the end of this year for the supply deficit to be met.

**Even existing supply looks shaky at current prices.** The outlook presented above is predicated on our long-term uranium price forecast of US$70/lb; at the current spot uranium price, around 30% of global uranium production is estimated to be in negative territory on a total cost basis (cash costs, plus depreciation and royalties) (Exhibit 30). Should prices remain suppressed for an extended period of time, it is possible that some producers could begin to struggle.

**Exhibit 28: 2013 Uranium Cash Cost Curve (US$/lb U₃O₈)**

Source: BMO Capital Markets

**Exhibit 29: 2013 Uranium Total Cost Curve (US$/lb U₃O₈)**

Source: BMO Capital Markets; Total Costs = Cash Costs + Depreciation + Royalties

See pages 2 and 3 for analyst coverage information.
Differentiated Commodities: Each Marching to its Own Drummer

Exhibit 30: Percentage of 2013 Uranium Production Above Spot Price (%)

<table>
<thead>
<tr>
<th>Uranium Price (US$/lb U3O8)</th>
<th>60</th>
<th>55</th>
<th>50</th>
<th>45</th>
<th>40</th>
<th>35</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of 2013 Production</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash Costs &gt; Uranium Price</td>
<td>1%</td>
<td>5%</td>
<td>6%</td>
<td>6%</td>
<td>6%</td>
<td>19%</td>
<td>26%</td>
</tr>
<tr>
<td>Total Costs &gt; Uranium Price</td>
<td>9%</td>
<td>14%</td>
<td>19%</td>
<td>19%</td>
<td>30%</td>
<td>40%</td>
<td>53%</td>
</tr>
</tbody>
</table>

Source: BMO Capital Markets

Risks to outlook. The shale gas boom is the biggest threat, but the forecast growth in new nuclear power is primarily out of Asia and the Middle East. China is the main area of growth with installed capacity expected to grow to 106GW by 2025 from 13GW in 2012. Although China’s economic growth appears to be slowing, the country is still facing well-publicized pollution issues. In theory, China has double the shale gas reserves of the U.S. However, they are technically more difficult and expensive to recover due to geological and access restrictions.

The scale and pace of reactor restarts in Japan has a material influence on uranium demand. The cost of energy generation is a significant headwind to Japanese manufacturing recovery given the devaluing of the yen, and the reliance on fossil fuel plants previously used during nuclear reactor downtime. We forecast Japan returning to two-thirds of its pre-Fukushima nuclear capacity with restarts commencing in H2/13.

Cameco is our top pick. We currently cover five unrestricted uranium stocks of which three are producers. Given the difficulty in predicting the timing of the expected price response, Cameco remains our top pick due to its robust balance sheet as well as the earnings protection offered by its contract book.

CCO appears to be the most expensive on a relative valuation basis and on our price forecasts. However, it has historically always traded at a substantial premium to the peer group due to its larger size and market share. CCO is trading on a P/NPV of over three times on a spot price basis (Exhibit 31). It last traded at similar multiples in 2010 when the uranium market was in a strong upward trend. On an implied uranium price analysis (Exhibit 32), all of the producers except ERA are trading at a premium to the uranium price. For Cameco, this is in part a product of the valuation of its non-uranium mining assets not being flexed with the uranium price.

Exhibit 31: P/NPV on BMO Forecast and Spot (X)

<table>
<thead>
<tr>
<th>P/NPV (X)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.0</td>
</tr>
<tr>
<td>3.0</td>
</tr>
<tr>
<td>2.0</td>
</tr>
<tr>
<td>1.0</td>
</tr>
<tr>
<td>0.0</td>
</tr>
</tbody>
</table>

Source: BMO Capital Markets, N.B. BMN and DML valued on an EV/lb of resource basis, they therefore show no price sensitivity

Exhibit 32: Implied Uranium Price (US$/lb U3O8)

<table>
<thead>
<tr>
<th>Implied Uranium Price (US$/lb U3O8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>78</td>
</tr>
<tr>
<td>67</td>
</tr>
<tr>
<td>33</td>
</tr>
</tbody>
</table>

Source: BMO Capital Markets

See pages 2 and 3 for analyst coverage information.

BMO Capital Markets