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QUARTERLY COMMODITY INSIGHTS
BULLETIN



cutting through complexity

Q1 – 2012

Uranium

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Commodity Lead – Uranium

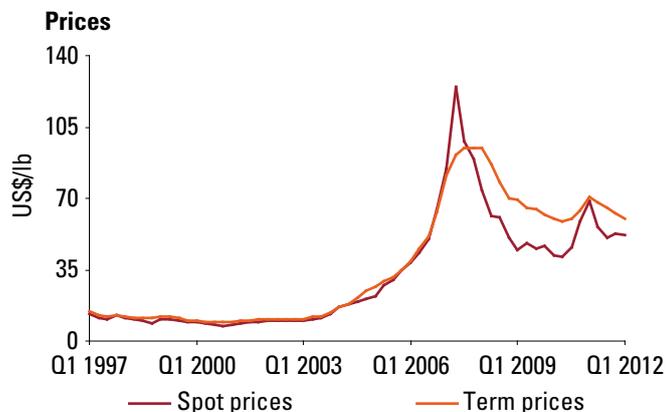
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Commodity outlook

After the Fukushima Daiichi nuclear disaster, the uranium market has finally stabilized, with uranium spot prices trading in the range of US\$51–53/lb during the last two quarters of 2011 and the first quarter of 2012. It seems that they have found a floor at US\$50/lb. According to Deutsche bank spot prices for uranium averaged US\$51.98/lb in the first quarter of 2012, compared to US\$53.00/lb in the fourth quarter of 2011; the average price was significantly down from the US\$68.42/lb witnessed in the first quarter of last year.

Figure 1: Uranium prices over the years



Source: Bureau of Resources and Energy Economics (BREE), UxC, Cameco, KPMG analysis

As mentioned in the last edition of "Uranium Quarterly Commodity Insights Bulletin," dated 19 January 2012, uranium prices are reported on spot and long-term basis; historically, more than 80 percent of the uranium has been sold under long-term contracts, based on long-term prices.

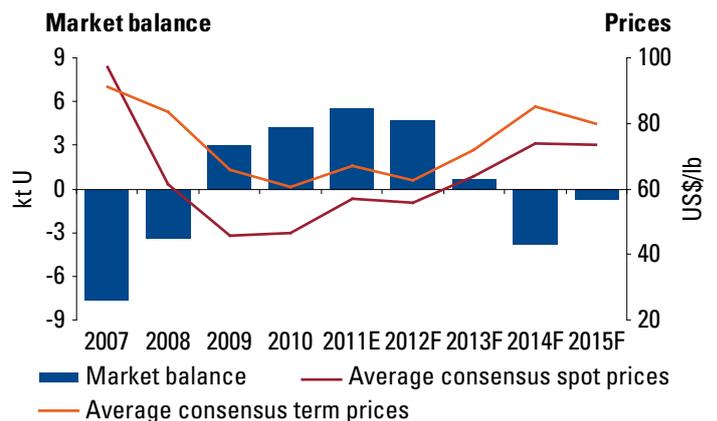
However, according to a report by RBC Capital Markets, with the introduction of new financial industry participants, that are not uranium industry players, the spot market has become more active and has registered a marked increase



in annual volumes and number of transactions. RBC expects that, with time, an increase in the spot market trading could result in an improvement in fundamentals of the spot market, thus increasing the importance of spot prices.

The average spot price of uranium for 2011 settled at US\$57/lb, representing a 21 percent increase over 2010. As per average consensus estimates, the spot prices for 2012 are expected to decline slightly; this is because the market is expected to remain in surplus due to a reduced demand as a result of the closure of reactors in Japan and Germany. However, in the medium term, with the commissioning of new nuclear generating capacities, especially in China, Chinese Taipei, India, Korea and Russia, the uranium market is expected to be in deficit by 2014. As per Resource Capital Research, more than 80 new nuclear reactors are expected to be commissioned by 2017, of which 61 are under construction. According to the World Nuclear Association, 489 (as of 1 May 2012) new reactors are planned or proposed to be operational by 2030, which is seven more than pre-Fukushima; this includes 171 in China, 56 in India, 41 in Russia and 30 in the US. At the same time, the down blending of the Russian nuclear weapons program and selling that uranium for nuclear fuel (HEU agreement) is expected to go offline in 2013, which is expected to remove about 18 percent (24Mlb) off the secondary supply from the market.

Figure 2: Market balance vs. price

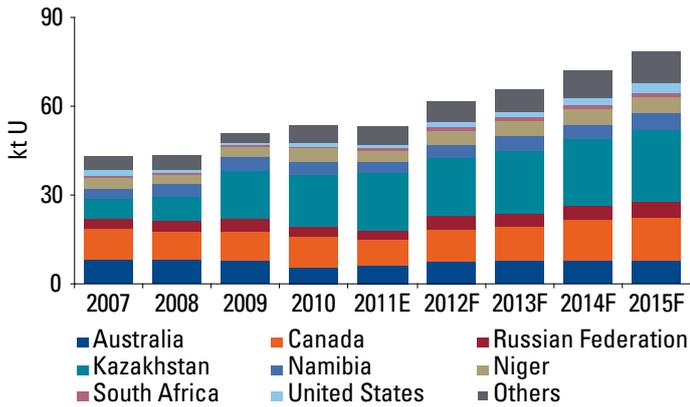


Source: JP Morgan, RBC Capital Markets, KPMG analysis

While spot prices have stagnated due to disruptions in Japan and their after effects, the long-term uranium prospects remain bullish; the average long-term consensus price estimate is at US\$65/lb and is expected to reach US\$80/lb by 2015.

Supply and demand

Figure 3: Primary uranium production — Kazakhstan to drive the market

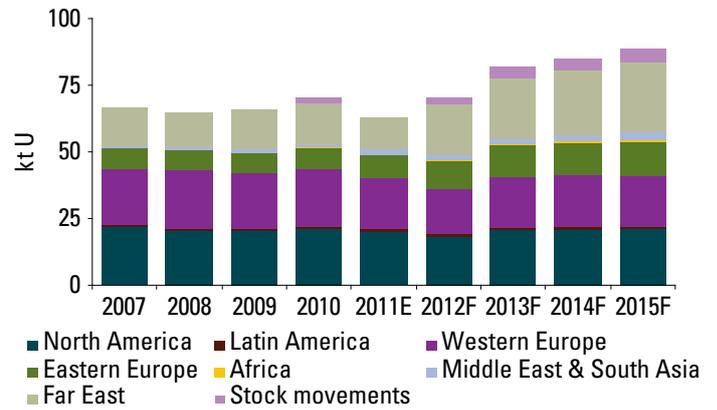


Source: BREE, JP Morgan, World Nuclear Association, KPMG analysis

According to the World Nuclear Association, the global uranium mine production declined slightly, by 0.3 percent, to reach 53.5kt U in 2011. The decline was due to the lower output in Canada, Namibia and Russia, which was partly offset by higher output in Kazakhstan.

- Kazakhstan remained the world's largest producer of uranium in 2011, contributing 36 percent of the global supply from mines. With a total production of 19.5kt U in 2011, the country missed its target of 19.6kt U by a small margin. Analysts expect the production to increase steadily, at 4–5 percent, over the next few years, to reach 22.5kt U by 2014. However, at the current price levels, Kazakhstan might lack incentive to develop new conventional uranium projects.
- Production in Namibia declined by 27 percent in 2011, on account of lower production from Rio Tinto's Rossing mine (lower grades coupled with maintenance shutdowns). This decline was partly offset by the expansion at Paladin's Langer Heinrich mine. However, the outlook for 2012 is positive, with expectations of a 25 percent increase in the production levels, underpinned by commissioning of Paladin's Langer Heinrich Stage 3, Areva's Trekkopje pilot plant achieving higher capacity, and higher grade access at Rossing mine.
- Closure of McClean Lake mine in Canada resulted in lower production in 2011. The production has been forecast to increase at an average of 13 percent per annum, to reach 14.8kt U by 2015, mostly due to the commissioning and ramp up of Cameco's Cigar Lake.
- Apart from the primary mining production, secondary sources have also played an important role in supplying uranium to the world. Secondary sources include spent nuclear fuel, down-blended highly enriched uranium (HEU) from nuclear weapons and mixed oxide fuels; these sources have been fulfilling, on an average, about 30% of the world's uranium demand over the last 5 years. However, the proportion is expected to decline in the coming years, with HEU closing in 2013 and production from mines increasing.

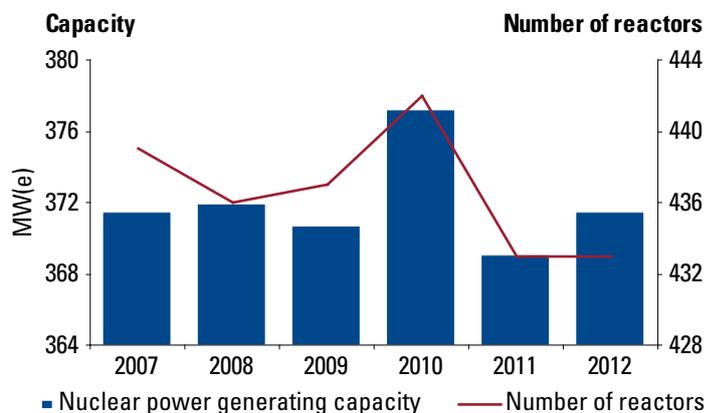
Figure 4: Global consumption of uranium, 2007–15F



Source: JP Morgan, World Nuclear Association, KPMG analysis

- Following the earthquake and tsunami in Japan in 2011, a major nuclear accident happened at the Fukushima nuclear reactor, resulting in closure of four units at the facility. Subsequently, all the nuclear power plants were closed for a comprehensive safety assessment.
- Due to reactor closures in the middle of the year in Japan and some parts of Europe (Figure 5), the consumption of uranium declined by 11 percent in 2011, to reach 62.9kt U. This decline was partly offset by the commissioning of five reactors because, at the time of commissioning, a reactor typically requires more uranium, compared to when it is in the steady state.

Figure 5: Nuclear capacity and number of nuclear reactors



Source: BREE, World Nuclear Association, KPMG analysis
Data as of May 2012

- In July 2011, Japanese Government announced that the idle nuclear power plants can resume operations only after successfully undergoing stress tests for even more severe earthquakes and other potential disasters. Some power plants have already undergone stress tests but still require approval of local authorities to resume operations. Consequently, most of these plants are unlikely to resume operations over the next few months. Along with this, closure of nuclear capacity in Germany is also expected to exert downside pressure on uranium demand. However, recently Japanese Government announced that it is planning to restart two nuclear reactors to deal with expected power shortages in the peak summer period.

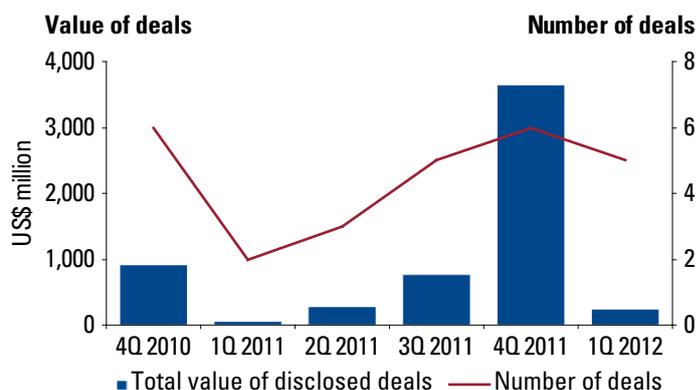
- China is expected to be the main contributor to the growth of global uranium consumption. As of May 2012, it had 15 nuclear reactors with a capacity of 11.88 GWe (estimated to contribute about 2.5% of the total electricity demand in 2011). In the short term, the 12th Five year plan (2011–15) is expected to add 25 GWe to the existing nuclear capacities. Additional reactors are planned to increase the nuclear capacity to at least 60GWe by 2020, then 200 GWe by 2030 and 400 GWe by 2050.
- In the remaining parts of Asia, excluding Japan and China, the demand for uranium is expected to increase considerably over the coming years. India is expected to drive the demand in this region, with 20 nuclear reactors expected to be added under the current five-year plan ending in 2017; this includes 10 pressurized heavy water reactors of 700MW each and 10 light water reactors of 1000MW each, which would require a substantial quantity of uranium.
- A key issue facing the industry today is that of the potential impact of shale gas on the nuclear power. Shale gas is much cheaper in terms of building and fueling a large power plant; however, uranium has its advantages of being green and more environment friendly. Thus, shale gas is expected to play an important role in the power sector, but its substitution of uranium as a power source might be limited.

Key developments

Ownership changes

In the first quarter of 2012, the total value of announced deals in the uranium industry was US\$244 million, representing a y-o-y increase of three percent from US\$60 million in the first quarter of 2011, as shown in Figure 6. Number of deals announced in the first quarter of 2012 declined from six to five, against the last quarter of 2011. No deal announced in the first quarter of 2012 has been completed to date.

Figure 6: Value of major deals in the uranium industry



Source: Intierra, Mergermarket, KPMG analysis

Table 1: Uranium deals announced in Q1 2012

Date announced	Target	Country (target)	Acquirer	Country (acquirer)	Status	Value of transaction (US\$ million)	Stake (%)
9 March 2012	Curnamona Energy Limited	Australia	Havilah Resources NL	Australia	In progress	9.0	55
3 March 2012	Ezulwini Gold/Uranium Mine	South Africa	Gold One International Limited	Australia	In progress	70.0	100
2 March 2012	Neutron Energy Inc.	US	Uranium Resources, Inc.	US	In progress	3.7	100
2 March 2012	Millennium Uranium Deposit	Canada	Cameco Corporation	Canada	In progress	151.9	28
13 February 2012	Aurium Resources Limited	Australia	Padbury Mining Limited	Australia	In progress	9.7	88

Source: Intierra, Mergermarket, KPMG analysis

Regulatory updates

In the first quarter of 2012, the regulations introduced were mostly targeted at opening up the industry a bit more while controlling the impact of mining activities on the environment and the local population.

Table 2: List of recent regulations in uranium industry

Country	Regulation	Description
Canada	Lifting moratorium on uranium mining	Nunatsiavut government of Labrador officially lifted a moratorium on uranium mining on Labrador Inuit land, in March 2012, following a three-year term.
Australia	Lifting ban on uranium mining in New South Wales (NSW)	The new NSW government has lifted the long-standing ban on uranium mining in the state.
India	Import tax on fuels	Indian Finance Minister, Pranab Mukherjee, announced that fuel imports, including steam coal, liquefied natural gas and uranium, will be exempt from customs duty until 31 March 2014.
US	Ban on uranium	US Interior Secretary, Ken Salazar, is planning to impose a moratorium on new uranium mining claims near Grand Canyon, for a period of 20 years.

Future projects

Table 3: Major uranium projects

Project	Country/Region	Operators	Capex (US\$ million)	Initial production	Capacity
Olympic Dam expansion*	Australia	BHP Billiton	27,400	2018-19	32.0
Cigar Lake	Canada	Cameco	1,824	Mid-2013	18.0
Husab Uranium Project	Namibia	Extract Resources	1,700	2015	15.0
Imouraren	Niger	Areva NC	1,566	2014	11.0
Valhalla	Australia	Summit Resources, Paladin	400	Na	9.0
Trekkopje	Namibia	Areva NC	na	2017	7.1
Kintyre	Australia	Cameco	na	Na	6.9
Four Mile	Australia	Quasar Resources	210	Na	5.1
Mkuju River Project	Tanzania	Uranium One, ARMZ	430	Na	4.2
Valencia	Namibia	Forsys Metals	na	2015	3.0
Dornod	Mongolia	Khan Resources, Priargunsky Mining, Mongolian government	333	2018	3.0
Westmoreland	Australia	Laramide Resources	317	Na	3.0
Mulga Rock	Australia	Energy and Minerals Australia	260	2014	2.6
Dominion Reefs	South Africa	Uranium One	na	2012	2.6
Lake Maitland	Australia	Mega Uranium, JAURD, Itochu	na	2013	2.2
Omahola	Namibia	Deep Yellow	330	2014	2.2
Wiluna Uranium Project	Australia	Toro Energy	250	2013	1.8
Langer Heinrich Stage 3	Namibia	Paladin	127	2012	1.5

Source: Company data, BREE, KPMG analysis

* Sourced from Deutsche Bank estimates presented in a FinancialTimes article

The preceding analysis covers major uranium mining companies and countries.