

Sébastien de Montessus, Executive Vice President, Mining, AREVA

How could we secure the sustainability of uranium mining business in a growing market?

We would like to take this opportunity to share with you some identified key trends in the uranium mining industry and to try to answer this question: what could we do, as uranium suppliers and utilities, to ensure the long-term sustainability of the uranium mining business in a growing market?

In the coming years, we are expecting a strong increase in demand for natural uranium, driven by the so-called “nuclear renaissance”. To meet this demand, producers will have to increase their production volumes from about 42 000 tU pa to more than 100 000 tU pa by 2030. This production growth will require a lot of capital expenditure (CAPEX) to extend current mines and develop new mines.

However, mine and milling plant set-up becomes increasingly expensive while funding is more difficult to obtain in the current credit crunch period. At the same time, mining activity has been impacted by strong inflation of its production costs. Lastly, even if there are large reserves of uranium, its extraction will become more expensive and more difficult in the next 20 years, and there is no reason to foresee, in the same period, any reduction in environmental regulation and associated costs.

These elements should incentivise producers and utilities to better share issues to ensure the long-term sustainability of the uranium mining industry.

1. Higher CAPEX required for the development of new mines will limit the number of started projects

CAPEX required for a mill has grown significantly in the past years driven by the increase of raw materials costs used in these units, mainly steel, and also by the high backlog of companies building milling plants. In addition, the average size of mines is rising. We estimate the share of mines with a yearly production above 1500 t pa will jump from 35% of the worldwide production in 2010 to more than 45% in 2020. This will lead to higher CAPEX per unit mine.

At the same time, it becomes more difficult to get financing for new projects due to the financial crisis. Investors are more reluctant to take risks in financing new projects, especially from newcomers in the mining business. The impacts observed on the projects are:

- More difficult access to credit
- Lower return on investment due to higher long-term interest rates.

To reduce their exposure, investors are looking for investments where they are confident about:

- The financials of the supplier. They need to be strong enough to support the large size of the project
- The operational excellence of the supplier. They need to have demonstrated a strong track record in the development, ramp-up and exploitation of mines, and also, maybe, in depleted mines closure and remediation.

In such a market, securing a large backlog is critical but also implies a careful screening of the suppliers. A contract is not worth much if the producer is not able to deliver the expected volumes on time.

Consequently, we already see and may see more often in the coming years projects delayed or cancelled by producers, especially those which recently entered the uranium mining business, attracted by its supposed high level of profitability.

2. Costs of uranium mining are rising

First, it may be worth recalling what the cost structure of a mine looks like. When we mention the cost of a mine it does not only include direct costs such as mining, transportation and processing but many others costs as well, such as:

- Non-cash cost (capital amortization)
- Royalties and taxes
- Remediation costs after mining
- Future exploration and development costs.

All mines have been impacted by a high inflation of all these costs due to the increased demand for commodities. All miners are looking to increase their production rapidly. So, there is fierce competition to secure workforce, materials, chemicals, energy, etc.

Uranium is even more impacted by the strong pressure on its mining costs than its production; volumes are very low compared to other commodities such as iron ore, nickel, copper, etc in countries like Australia, Canada, South Africa, etc.

For example, the need for experts has pushed wages (which represent on average 40% of the cash costs) through the roof. In addition, as most chemicals used are imported and then transported to the mining site, uranium mining has a high sensitivity to energy costs and so is strongly impacted by high petrol and gas costs.

Despite ongoing action to improve productivity and operational efficiency, results have not been sufficient to compensate for an average 15% pa inflation.

This tension on mining has a twofold consequence:

- Increase of operating costs as mentioned above
- Delay of ramp-up of new mines. For example, procurement of tyres for the mining equipment will remain difficult: it could take up to two years to get new tyres, while there were some shortages in sulphuric acid. Scale becomes a critical factor to secure procurement and negotiate good terms to limit cost inflation.

As a consequence, initial production costs of most projects have been revised upwards and are still on a rising trend.

3. If uranium resources are available in large quantities, new mines will be more difficult and more expensive to exploit

Uranium resource sufficiency is not really a concern for the decades to come. At current consumption levels, uranium resources should be able to cover needs in the long term.

The mines that will start production before 2020 are already identified. However their estimated costs of

production are regularly re-stated upwards. We can state that the vast majority of new mines will have higher production costs than incumbent mines for all the reasons mentioned above, and certainly above current estimates.

As the most easily recoverable ore to exploit has been identified and related mines are already in activity, mines that will come in to operation after 2020 will be more expensive to exploit because of technical and geographical constraints.

- Technical: on average ore will be deeper and of lower grades
- Geographical: levels of royalties and taxes asked by most countries where uranium is extracted is strongly increasing.

4. A better sharing of issues within the industry is necessary to ensure its long-term sustainability

Firstly, uranium suppliers and utilities need to work on better market organisation to secure at any time alignment between production and demand. And the critical action for us is to improve the pricing mechanisms so that uranium price reflects the actual cost of production to sustain uranium exploration and exploitation.

Secondly, we should think about a new way to define index.

Finally, we need to reinforce our coordination and actions to share our best practice in terms of sustainable development and social responsibility to improve public trust.

Uranium suppliers and utilities permanently need to take part in the debate and communicate widely about the low impact of nuclear on greenhouse gas emissions and the high control end-to-end on the fuel supply chain. This is done well at the WNA level; however, some specific actions are yet to be taken by the uranium mining industry on some specific but critical issues.

In conclusion, we believe it is the responsibility of all of us to secure the uranium mining industry. We tend to behave as if we were following a smooth trend, but we are indeed currently at a cross-roads.