

World Nuclear Fuel Cycle

We were fortunate enough to attend the WNFC conference in London today. Representing their respective companies were industry pioneers across the entire nuclear fuel cycle. From brand name miners to global nuclear organisations, we were able to better understand the environment those operating in the nuclear supply chain are currently experiencing.

The key themes discussed were as follows:

- Utility Inventories
- Enrichment & Conversion
- Supply & Demand Mechanics
- Transportation

Please see below our curated notes on what was a fascinating day for the uranium and nuclear energy sector.

WNFC Summary:

Quote of the day: “I have spent 37 years in this wonderful uranium and nuclear energy industry. We’ve gone through all the highs and lows; I have to say we are probably in the most exciting phase in the nuclear energy industry’s history in these years that lie ahead of us.” – Scott Melbye, Uranium Royalty Corp & VP, Uranium Energy Corp

Utility Inventories

EU Inventories:

- 10/17 utility owners in Europe each have less than 1500 tonnes of uranium inventories, quite a few of them less than 500 tonnes
- EU stocks on aggregate equate to 2 years supply but many individual utilities fall far short of this ESA-prescribed benchmark (20 months)

US utilities:

- Average inventories per respondent was 1329 tUe (16 months)
- Ownership is concentrated and in the hands of 40% of utilities
- 23,564 tUe of buffer stocks distributed across the front-end supply chain – about 16 months’ worth of supply

US suppliers:

- Between 2018-2020, inventories of enriched uranium or UF₆ have halved
- Preliminary conclusion is that US utilities may have limited capability to independently manage a protracted supply disruption
- Supplier inventories in Natural Uranium, UF₆ and EUP in 2020 is about half compared to 2016-2019
- Strategic inventories held by DOE are a potential short-term backstop

Japanese Inventories:

- Japanese owned materials represent one of the largest sources of surplus inventories globally
- Inventories held in Japan are relatively illiquid and will be used for domestic consumption

Constellation:

- “We don’t live and die in the spot market like others...I’m not sure how those guys sleep at night”
- As a US based utility, we have kept lower inventories than European and Asian peers. This is likely to change but now is not the right time to start building inventories.

Summary:

- US utilities might start to think about strengthening inventories like their European and Asian peers.
- The recommended inventory volumes should feed reactors for 20 months. European and US utilities are far short of this benchmark.

Enrichment/Conversion

When asked about potentially moving into or expanding conversion/enrichment services...

Kazatomprom:

- We have a value in uranium production, and access to all other components of the nuclear fuel cycle.
- If at some point in time conversion becomes very interesting, we would consider it, but we are not currently planning to do anything with it.

Urenco:

- Longer term enrichers can add capacity, Western fuel cycle players are sensitive to market signals.
- Enrichment is highly regulated and requires significant capital investment.

Cameco:

- As far as conversion and enrichment is concerned; if bifurcation goes ahead, we will consider it.
- If we can get the GLE piece going which has conversion capabilities in tails, that would be another source, but we do not have the options someone like Orano has (GLE is 51% owned by Silex Systems).

Orano:

- On adding additional enrichment or conversion capacity, depends on sanctions for the fuel cycle components.
- If there are no sanctions, there might be voluntary sanctions. We are not going to expand capacity based on pure industrial risk, we are a commercial operator and will expand based on contracts alone.

Urenco:

- The fuel cycle relies on a well-functioning and highly interconnected global supply chain.

- Near term disruptions can be addressed by one-off (e.g. inventories) and reoptimizing to fully employ capacity.

URC:

- “I think as an industry we really need to focus on how do we ramp up our uranium conversion, enrichment and fabrication to meet the outcome of whatever this horrible event [war in Ukraine] is...so that we can be self-sufficient and not be held hostage to any other country and we have energy independence.”

Supply vs Demand

Kazatomprom:

- “The gaps arise in second half of 2022”
- Five JVs with Rosatom are all operating normally. Depends on types of sanctions and if they come. If there is disruption, we would need to use our largest shareholder – the Kazakh government - and potentially change the share structure.
- Currently operating at 80% capacity, with the option to go to 100% and then to 120%.
- Budenovskoye asset can produce 15m lbs (+-20%) by 2026 and can become the biggest mine in Kazakhstan and the world.
- Kazakh government officials have made clear the positions we have. Kazakhstan is a home for all producers, we are going to help the market and make sure utilities don’t suffer.
- The spot market cannot be trusted for long-term security of supply for utilities. We are seeing more and more interest from financial institutions from all parts of the world.

IAEA:

- “US utilities have limited capability to independently manage a protracted supply disruption”

Cameco:

- If there is a drive for the US to have domestic uranium production, we would assess our US assets as options for restart.
- “People, supply chain and inflation” – these are the issues with bringing mines back online
- Inflation costs of US restarts \$80/lb.
- Potash prices from \$180-1000/tonne has attracted a new labour force so finding people when restarts come will be difficult.

IAEA:

- We’re interested in primary supply, but secondary supply has historically filled the gap that cannot be met by primary production.

Constellation:

- There is talk about extending reactor lives from 80-100 years, it’s all about aging management and not out of the question.

WMC: fuel buyer for SPUT

- So far, we have not had an issue buying material and I don’t think we will have. It will just be at a higher price.

Transportation

Kazatomprom:

- “Transportation market has gone crazy. Prices are up 3-4x from pre-covid era. Yes, it is more expensive but to get an accurate comparison we need a couple of years of operational data”
- Found one appropriate route in the Caspian Sea. Previously delivered to Orano on this route in 2018, 6-7 shipments so far, the route is working and its possible to continue using it.

Cameco:

- “Concerned about transport risks, transport insurance, where will we unload it [cargo] and where will it be put”
- Kazatomprom: “No delivery miss, business as usual”

Orano:

- Major issues due to the geopolitical context. There are opportunities for new routes, and adaption is the master word.
- A daily challenge to deal with fluctuations in prices – particularly dealing with different and constantly changing currency rates throughout the supply chain (e.g. Kazakh Tenge)
- Structural risks – safety accidents and denial of shipment
- Cyclical risks – international security context, geopolitical events, and social and political opposition
- Europe – Russian flagged vessels are prohibited except special agreement from states, allowed for some goods including nuclear fuel
- UK – The UK Department for Transport on the 28th Feb issued a ban on Russian vessels and cargo entering UK ports
- USA – No ship that sails under the Russian flag or that is owned or operated by a Russia entity will be allowed to dock in a US port or access US shores

Disclaimer

This email is intended solely for the addressee(s) and may be legally privileged and/or confidential. If received in error please delete it and all copies of it from your system, destroy any hard copies of it and contact the sender. Any unauthorised use or disclosure may be unlawful. The accuracy or completeness of this email is not guaranteed. Any opinion expressed in this email may not necessarily reflect the opinions of Ocean Wall Limited. Any personal information contained in this e-mail is provided solely for the purpose stated in the message. All emails may be monitored in accordance with legal requirements contained in Regulation of Investigatory Powers Act, Data Protection Act, Telecommunications Regulations Act and Human Rights Act.

This email is not an offer or a solicitation to buy or sell any security. It should not be so construed, nor should it or any part of it form the basis of, or be relied on in connection with, any contract or commitment whatsoever. It is not an advertisement to an unlimited group of persons of securities, or related financial instruments. The email does not constitute a personal recommendation and the investments referred to may not be suitable for the specific investment objectives, financial situation or individual needs of recipients and should not be relied upon in substitution for the exercise of independent judgement. Past performance is not necessarily a guide to future performance and an investor may not get back the amount originally invested. The stated price of any securities mentioned herein is not a representation that any transaction can be effected at this price. Ocean Wall Limited, or its respective directors, officers, employees, and clients may have or take positions in the securities or entities mentioned in this document.

Each email has been prepared using sources believed to be reliable, however these sources have not been independently verified and we do not represent it is accurate or complete. Neither Ocean Wall Limited, nor any of its partners, members, employees or any affiliated company accepts liability for any loss arising from the use of the Report or its contents. It is provided for informational purposes only and does not constitute an offer to sell or a solicitation to buy any security or other financial instrument. Ocean Wall Limited accepts no fiduciary duties to the reader of this email and in communicating it Ocean Wall Limited is not acting in a fiduciary capacity. While Ocean Wall Limited endeavours to update on a reasonable basis the information and opinions contained herein, there may be regulatory, compliance or other reasons that prevent us from doing so. The opinions, forecasts, assumptions, estimates, derived valuations and target price(s) contained in this material are as of the date indicated and are subject to change at any time without prior notice.

The views expressed and attributed to the research analyst or analysts in the email accurately reflect their personal opinion(s) about the subject securities and issuers and/or other subject matter as appropriate. Information that is non-factual, interpretive, assumed or based on the analyst's opinion shall not be interpreted as facts and where there is any doubt as to reliability of a particular source, this is indicated.

Ocean Wall is authorised and regulated by the Financial Conduct Authority.