

# OCEAN WALL

## Chasing the Dragon: Can Uranium Go East?

*December 2022*

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## THE CURRENT SANCTIONS LANDSCAPE

At the start of December 2022, it was reported that dozens of drums of uranium, both raw and enriched, had arrived at the French port of Dunkirk from Russia. This led to France being accused of aiding Putin's war efforts, and a call for further sanctions to be implemented on Russia that include nuclear fuel.

To date, eight rounds of sanctions from Brussels has seen nuclear fuel remain exempt, and this trend seems likely to continue in at least the short-term. With a total phaseout of all Russian fossil fuels planned by the end of 2027, and shorter-term goals specifically in removing Russian natural gas and coal from the European energy mix, nuclear fuel, and Russian nuclear fuel giant Rosatom, remain absent from the sanctions list.

*"Russian nuclear terror requires a stronger response from the international community [including] sanctions on the Russian nuclear industry and nuclear fuel" – Volodymyr Zelenskyy*

The EU is not alone in their inability to sanction uranium. When the Biden Administration announced US bans on Russian oil, natural gas and coal in March 2022, uranium and Rosatom also remained exempt. The US relies on Russia for 16% of its uranium, and another 30% from Russian allies Kazakhstan and Uzbekistan.

Rosatom's footprint is deep in various aspects of the nuclear fuel cycle, and unlike oil, gas and coal, uranium is not readily available. This largely explains why, to date, Rosatom and Russian nuclear fuel in general has managed to avoid sanctions.

Should Rosatom become sanctioned, or export routes bypassing Russian territory become unavailable due to sanctions, the supply of raw uranium faces an extremely uncertain future.

As we have previously written, the transport and logistics component of the uranium market continues to be a focal point for those studying the sector, as geopolitical risks continue to reshape the landscape of the uranium supply chain.

In our previous [note](#), we delved into the trans-Caspian route (TITR) that has been implemented by the world's largest uranium producer, Kazatomprom (KAP). We concluded that this route does not currently provide sufficient delivery risk mitigation given limited volumes, and ongoing delivery disruption via Azerbaijan.

As such, KAP have continued to explore alternative routes should their primary route via St Petersburg become unavailable. A reminder, while this option remains available to KAP, we expect a wave of sanctions that have been enforced on various other Russian activities to impact the uranium market in the short to medium term. Regardless, there is also the possibility of self-sanctioning from Western end-users who do not want their material to pass through Russian territory.

Most interestingly, our understanding is that only one vessel is currently taking nuclear fuel delivery from St Petersburg, down from 3 this time last year. Our belief, and the opinion of experts who we have spoken to in the industry, is that the final domino could fall and St Petersburg become unavailable as soon as January 2023.

CHINA: THE LOGISTICS OF MOVING URANIUM EAST

One such alternative that KAP have been looking at is China.



Source: Kazatomprom



We wanted to take a deeper look specifically at the Chinese route from Alashankou to Shanghai, and then on to the West.

Primarily, the implementation of an alternative route through China is *“an internal initiative to maintain flexibility in transporting Kazakh uranium.”*

From our discussions with KAP, they are advancing the discussion with good cooperation from their Chinese partners. They do note that the Alashankou to Shanghai route is a bottleneck given Chinese legislation related to moving uranium through China.

Interestingly, while China is on its way to becoming the world's largest consumer of uranium, they have no experience in exporting uranium. As we have previously mentioned, the complexities that arise in uranium transportation are vast. The logistical process of exporting Class 7 material is highly bureaucratic, and involves various bilateral discussions with ports, shipping companies, rail networks and governments at the highest level to successfully implement these routes.

*"I do know the main issue isn't just permitting some specific route but establishing a process for obtaining an export permit for Class 7 material. As you can imagine, the Chinese have imported and stockpiled significant pounds, but they've had little need to "export" it, so the process and permits to transit China with  $U_3O_8$  (in/out from any point) isn't well established."* – Kazatomprom

China have never needed nor wanted to export uranium. The current strategy in China is 'procure or consume', something that comes as little surprise given the scarcity of material in the market coupled with the ambitious Chinese nuclear growth plans.

KAP mentioned that *"there is still work to do and we cannot give any idea of timing quite yet"* regarding the implementation of a nascent Chinese uranium export route. The next stage for KAP would be a pilot shipment to test the route, but this is still a longer-term project.

Theoretically, once the material has reached the Chinese Eastern seaboard, it could be transported to the West coast of Canada or the US to service KAP's Western end-users, however, details are yet to be shared on where this material could arrive.

The point remains that with KAP accounting for 25% of global uranium production, the market remains at risk should St Petersburg become unavailable. KAP do have 6-7 months of attributable production through inventories stored around the world, as well as swap opportunities, loans of material and the likes, but this is a short-term solution to a potentially long-term problem, and their only operating alternative - the trans-Caspian route - has, as we know, experienced delays throughout 2022.

## POTENTIAL ROUTE FOR EXPORTING URANIUM VIA CHINA

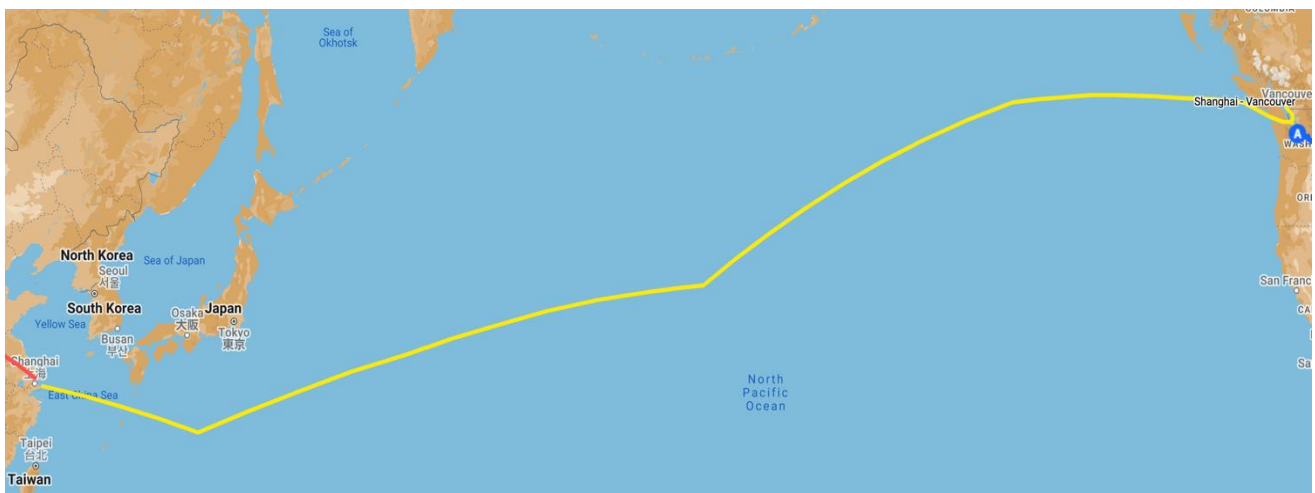
Should KAP overcome these bureaucratic hurdles and successfully implement a route to the West via China, we have mapped out how this might look in practice.

From the Kazakh mines in southern Turkistan, the material would move by rail to the Alashankou Warehouse, a storage facility that we already know has the permits and licenses for handling Class 7 material.

From Alashankou, the material would be taken by rail down to Shanghai, a 3,700km trip that we estimate would take two weeks at average cargo rail speeds.

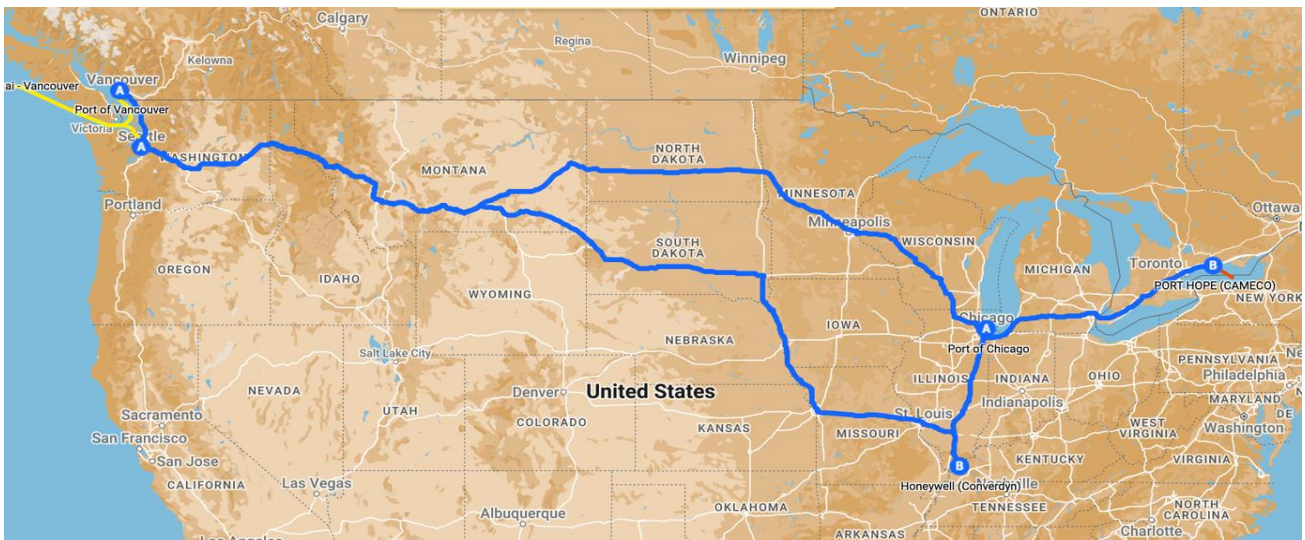


From Shanghai, the material would be loaded onto vessels for shipment to the West coast of the US and Canada.



As far as we are aware, no uranium has ever been shipped from the West coast to Canadian or US conversion facilities. This nascent route would likely start at either the port of Vancouver, or Seattle. Canada and the US generally do not use rail for transporting Class 7 material, in fact, Canada does not allow any radioactive material on its rail roads. As such, trucking would be the only viable option to transport uranium from the West coast to the either Honeywell or Port Hope conversion facilities.

Each truck can handle around 30,000 lbs of uranium, so a 5m lb shipment would require a fleet of 166 trucks. Then, delivery from Vancouver to Port Hope and Seattle to Honeywell, would cross 9 and 7 separate states respectively which would add another layer of complexity requiring a level of detail beyond the scope of this report.



## DELIVERY TIME

*\*Assuming average cargo speeds of 10 knots, rail speeds of 10 kmph, and trucking speeds factored for layovers*

Katco/Inkai – Alashankou = 1325km (5 days)

Alashankou – Shanghai = 3708km (15 days)

Shanghai – Vancouver = 9019km (20 days)

Shanghai – Seattle = 9194km (21 days)

Vancouver – Port Hope = 3606km (3 days)

Seattle – Honeywell = 4327km (4 days)

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**KAP – Vancouver – Port Hope = 43 days**

**KAP – Seattle – Honeywell = 45 days**

## WHAT ARE THE REALISTIC CHANCES OF THIS ROUTE BEING AVAILABLE?

China has little motivation to allow Kazakh uranium to pass through the country. The Chinese appetite for uranium will have never been seen before in the market, and their current strategy of 'procure or consume' will further reduce willingness to implement a nascent uranium export route to Shanghai and the West.

Given the embryonic stage in which Chinese uranium handling finds itself, they currently have no shipping companies or ports that have experience in handling Class 7 cargo.

However, should the Kazakh and Chinese governments agree a strategic plan that, for example, would allow China to purchase discounted uranium in exchange for Kazakhstan using Chinese railroads and ports for exporting uranium to the West, then things might change.

It would require a government incentive or enforcement to put this plan into action, and our understanding is that China Ocean Shipping Company (COSCO) would be the only viable option for shipping given the fact it is state-owned, and the decision for implementing a Class 7 route would likely come from government authorities.

China has become self-sufficient in most aspects of the fuel cycle. The WNA reports that China aims to produce one-third of its uranium domestically, obtain one-third through foreign equity in mines and JVs overseas, and to purchase one-third on the open market.

While China could have the export route needed to export material from Kazakhstan to Shanghai, KAP hold, to some extent, the uranium needed to fuel China's nuclear growth strategy, the core component of the country's energy transition over the next 35 years.

In addition, Kazakhstan could limit Chinese involvement in JVs for Kazakh uranium mines should they resist in their willingness to implement a uranium export route. As we know, China aims to obtain one-third through foreign equity in mines and JVs overseas, and already have a 49% equity stake in the Kazakh mines of Zhalpak, and Irkol & Smeizbai.

As such, KAP do have some leverage in getting this route implemented.

The next concern is the US-China trade war. The entire reason for implementing a Chinese export route would be to mitigate the geopolitical risk associated with crossing Russian territory. Our belief is that material crossing China poses a similar, while not as severe, level of uncertainty and geopolitical risk, as the US try to balance the scales of trading activity with China.

In fact, an increasing focus of the Biden Administration seems to be on whether, and how, it can decrease its supply-chain dependency and decouple from China. While the material itself would not originate in China, it is something that needs to be considered with this potential route.

## CONCLUSION

While the KAP export route via St Petersburg remains open, its future remains highly uncertain. This seems to be accelerating as currently only a single vessel docks in St Petersburg for nuclear fuel delivery to the West.

The potential Chinese export route has many moving parts and is riddled with the bureaucracy associated with developing a nascent export route capable of handling Class 7 cargo. As we have seen with the TITR, developing a new route is expensive, time-consuming, and often unreliable.

Reliance on material swaps would provide some respite for the KAP order book but this is a short-term solution. With the nuclear renaissance gaining momentum, and the fact that new reactor builds generally contract for uranium seven years prior to completion, the demand side of the market, particularly term contracting, will remain on an upward trajectory.

Supply remains the area of concern. It is our belief that the supply of raw uranium faces an uncertain future, and that Kazakh material for Western delivery could be disrupted as early as January 2023. As such, we believe uranium prices could move significantly higher over the next 6-12 months as delivery risks continue to stack up for Western end-users.

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