

Investment needed to unlock NSR potential



The LNG is transported from Sabetta with very large LNG DAT (Double Acting Tankers) with a huge icebreaking capacity and (inset) the Yamal LNG gas production plant under construction.

There are few indicators that use of the Northern Sea Route (NSR) through the Arctic will grow dramatically for larger goods and logistics flows in spite of the potential for it to be the fastest route for Asia–Europe liner traffic. Today’s absence of substantial container liner traffic will probably remain the case for the next decade or two, unless there is a big effort to make a change says [Mårten Sandblom](#), Regional Marine Loss Control Manager, AIG



The Northern Sea Route (NSR) is a shipping route connecting Asia to Europe, offering the shortest way between East and West. It runs through a series of passageways from the Barents Sea to the Bering Strait where the

Arctic weather is harsh and ice formations are unpredictable. However, for the NSR to become a realistic alternative option for liner traffic, investment is needed.

Presently, the Suez Canal and the Silk Train Route are the most used Asia-Europe routes for container transit, while the NSR remains substantially unused. According to the Suez Canal Authority, nearly 19,000 ships passed through the canal during 2020.

This equates to approximately 50 vessels per day, with half of the tonnage from container ships. In contrast, there were only 64 transit voyages across the NSR last year; and just two were made by container ships. The remainder carried cargo headed to infrastructure projects or from extracted natural resources.

One key reason for the disparity between the NSR and other routes is thick Arctic ice and the few ice strength container vessels that can make the voyage.

The world's largest Finnish Swedish 1A class 3600 TEU ice-breaking vessels are already in use in the Baltic. State-owned Russian company Rosatomflot maintains the world's only fleet of nuclear-powered icebreakers - powerful, fast and free from the difficulty of refueling in the Arctic region. They do help steer other ships through the NSR, but there are not enough of them.

LNG TANKER TRAFFIC

Melting of the sea ice is changing the technical and economic feasibility of year-round NSR transit. Significantly, earlier this year, three Novatek LNG ships demonstrated the promise of an extended navigational season for destination traffic by making the unprecedented trip via the NSR in January, unescorted. The faster shipping time from more than 12,000 miles and 40 days to under 7,000 miles in 20 days reduces costs, and for these LNG ships, lowers carbon emissions by approximately 7,000 tons per round trip.

Destination traffic includes the eastward and westward transport of raw materials and natural resources eg minerals, gas and oil extracted from the natural resource rich Siberia. One such example is the Yamal LNG project, extracting from the Tambeyskoye gas field and processing at an LNG plant in Sabetta, north-east



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COMPARATIVE TIMETABLES ASIA-EUROPE

Suez route: Shanghai-Hamburg 30-35 days, depending on ports and routing.

Silk route: Shanghai-Hamburg 20 days, depending on congestion on the rail and rail gauge transfer stations at the China-Kazakhstan and Belarus-Poland borders.

NSR route: Shanghai-Hamburg 18 days depending on the ice situation.

of the Yamal Peninsula.

The LNG is transported from Sabetta in very large LNG Double Acting Tankers (DAT) with a huge ice-breaking capacity. They are double acting, meaning that they can go stern first in the ice and are equipped with propellers capable of year-round operation in the NSR. A fleet of 15 vessels transport gas from the Yamal LNG field to both east and west, more eastward in the summer and westward to Europe in the winter.

CONTAINER SHIPPING INTEREST

Translating the LNG tanker successes to container shipping will take considerable investment; however, it may be worth it. Not only is there a potentially significant reduction in time and fuel costs, the NSR is increasingly attractive because of the high freight rates elsewhere.

According to the Freightos Baltic Index (FBX): Global Container Freight Index, rates for a 40-foot container from China to Europe could cost upward of four times

the amount from a year ago. These rate hikes have been fueled by an increased demand for goods, port congestion, reduced airfreight availability and supply chain disruptions associated with the pandemic.

The much shorter lead time via the NSR compared with the Suez Canal creates a great advantage. The NSR could even compete with the Silk Road rail route in lead time, given the increased pressure on this route because of congested border passage and the need for a mid-transit transfer of containers from one train to another because of a rail gauge change.

GEOPOLITICAL INDICATORS?

To tackle the shortage in icebreaking capacity, the Kremlin's newest vision set a target for increasing the shipping

volume on the NSR to 90 million metric tons by 2030 and 130 million metric tons by 2035. Rosatomflot also cites the expansion of its nuclear ice-breaking fleet underway, adding three new nuclear ice-breaking ships.

But it's not just Russia with interest in the NSR and the area's rich resource deposits. Currently, the Arctic is stage to contradicting and overlapping claims among Russia, the US, Canada, Finland and Sweden. China continues to operate its rail route as a competitive option; however, with concerns for security along the Silk Route and route congestion, China's interest in NSR could also become accelerated. It is yet to be seen how these and other factors impact investment, NSR growth and transport route dominance.

HEIGHTENED RISK

Any voyage has its risks. However, a voyage using the Northern Sea Route requires a different way of thinking and planning. Limited experience in the area equates to a hefty exposure for insurers, and insurance availability will most likely only be for specific individual voyages, at least for now.

Marine loss control engineers can be invaluable in helping to assess the heightened and unique risks of the NSR. The following core areas need to be considered:

- > Overall physical security of the ship and its contents – extreme weather, limited visibility and unpredictable ice floes all contribute to a higher risk for physical damage. Container ship cargo securing methods and standards will now need to consider the severity of the NSR's waters, intensifying any existing risk for container collapse or loss;
- > Emergency planning to minimise environmental harm will need to become a more integral part of any damage mitigation process because of the sensitivity of the area and the lack of disaster assistance resources. A good first step to ensure safety, is adherence to what is known as the Polar Code;

FORWARD-LOOKING MODEL

There is a lot of work ahead for container liner shipping to become the norm in the Northern Sea Route. The following framework is one option.

Route: In a model of two ports in Asia (e.g. Shanghai and Busan) and two ports in Europe (e.g. Hamburg and Rotterdam), a loop could be made in 36 days. On this basis, weekly sailings of a fleet of five vessels are needed. Six vessels on a 42-day loop could add ports eg Tokyo, and "spare days" for winter transit. Daily sailings can be achieved with a fleet of 35-40 vessels.

Ships and Fees: The ice classed container vessels needed would have to be built to a size larger than ever before eg 10,000 TEU and meet the draft requirements to pass shallow water in the north. In addition to new ships, stable transit and ice-breaker service fees would need to be established.

Other Considerations: Sailing in the Arctic brings new risks for the ship and crew, including heightened safety requirements, considerations regarding geopolitical issues in the area and environmental risk management guidelines. Insurers will have limited underwriting experience in this area, and will need to look at individual voyages to assess specific risks.



The LNG arctic gas tank under construction



- > During planning, the experience level, skills and roles of the crew will also need to be carefully assessed. Consideration of the remoteness of the NSR and the scarcity of medical or search and rescue assistance can impact the human and physical resources needed for these voyages; and,
- > Initial delays that are almost certain to occur from the difficulties of navigation, limited visibility and the risk of equipment becoming frozen and inoperable can be disruptive to port and supply chain schedules. Owners and operators will need to be continually trained on the nuances of their equipment and the NSR to gain experience for handling potentially unique adverse events. Throughout the NSR, communication can be difficult and "help is on the way" could mean long wait times. This is likely to be the case until further development of detailed charting, communication and repair capabilities.

For container shipping to become a more viable and economically feasible option, there is a lot of work ahead for the maritime and insurance industries, with increased understanding of the risks and the rewards, as well as building out the components of a strong infrastructure.

Billions of dollars will need to be invested in shipbuilding, infrastructure and training. However, as more traction and use of the NSR develops, with predictability and economic value solidifying, the challenges may become fewer and container shipping across the NSR may become the trend of the future.

