

Arctic transit: Northern Sea Route

The potential for commercial shipping

The appeal of a regular trade route from Europe to Asia crossing the Arctic Ocean has been recognised since the fifteenth century. But it is only in the past few decades that this tantalising prospect has become realistic.

The last two years have seen moves to explore the potential of the Northern Sea Route (NSR) as a summer season trade lane to and from the booming Asia markets. Russia's NSR is a set of sea routes from the Kara Gate to the Bering Strait. The NSR is navigable along its entire length during the summer and early autumn, depending on the ice conditions. As the sailing distance from a north European port to the Far East using the NSR is approximately 40% shorter than using the Suez Canal, it is no surprise that the commercial potential for this route is in the spotlight.

Open to foreign shipping

During the Soviet Union era the NSR was a very important national waterway and powerful icebreakers were built to assist merchant ships to reach the various ports in the region. The Russian government opened the route to foreign vessels in 1991 and the first non-Russian flagged vessel used it that summer.

However, after 1993, volumes of domestic and transit traffic plummeted, partly because government subsidies dried up. By 1998, transit traffic had stopped altogether. It was not commercially viable under the economic and climatic conditions of the time according to a joint Russian-Norwegian-Japanese research report (INSROP) in 1999.

In 2009, with near record low levels of sea ice in the Arctic, two German vessels were the first foreign flagged ships to sail the NSR from east to west. The voyage sparked renewed international interest in the route.

In 2010, Russian nuclear-powered icebreakers enabled four transit voyages, moving 111,000 tonnes of goods to the Asia-Pacific region. And 2011 saw a huge rise in transit traffic. Some 34 vessels and 820,000 tonnes of cargo travelled the route as the further retreat of sea ice doubled the summer transit period to a record 20 weeks, compared to 2009.



MV Nordic Barents and icebreaker, 50 Years of Victory, in 2010.

Demonstrating the advantages

"Various shipping and charter companies are pushing the boundaries on the NSR to achieve faster transit times with larger vessels, demonstrating the potential of using the route," says Boris Ozerov, Lloyd's Register's Russia Marine Manager. "One driver is the future development of Russia's Arctic hydrocarbon resources that will need transport to global markets."

In 2010, the Norwegian company Tschudi Shipping and Denmark's Nordic Bulk Carriers transported 41,000 tonnes of iron ore concentrate from northern Norway to China on the MV Nordic Barents. Based on this, Tschudi Arctic Transit publicised possible savings of 20.5 days to Yokohama, Japan and 16 days to Shanghai, China using the NSR compared to the Suez Canal, for a vessel sailing from Kirkenes in Norway or the Russian port of Murmansk.

"The 2011 transit season began unusually early," says Desmond Upcraft, Ice & Cold Operations Manager, Lloyd's Register. "In late June Russia's largest independent gas producer, Novatek, chartered the ice-classed panamax tanker *Perseverance* to carry 60,000 tonnes of gas condensate from northwest Russia to China. Conditions allowed the tanker to sail north of the New Siberian Islands. This route is deeper which allows larger ships to use the NSR. Two months later, using this deeper northern route, Sovcomflot's suezmax tanker *Vladimir Tikhonov* became the largest vessel to complete the NSR, taking 120,000 tonnes of gas condensate from northern Norway to Thailand." Nordic Bulk Carriers used the NSR again in 2011, when

it chartered the bulk carrier *Sanko Odyssey* to take the largest iron ore shipment yet, some 72,000 tonnes from Russia to China. At the time the company proclaimed "This historic sea route has got it all; it is safer, shorter and thereby more eco-friendly. Said in another way - it is good business. The fuel savings alone add up to approximately 750 tons. There is no doubt in our minds that the opening of the NSR has great commercial potential for both cargo and shipowners."

Cost benefit calculation

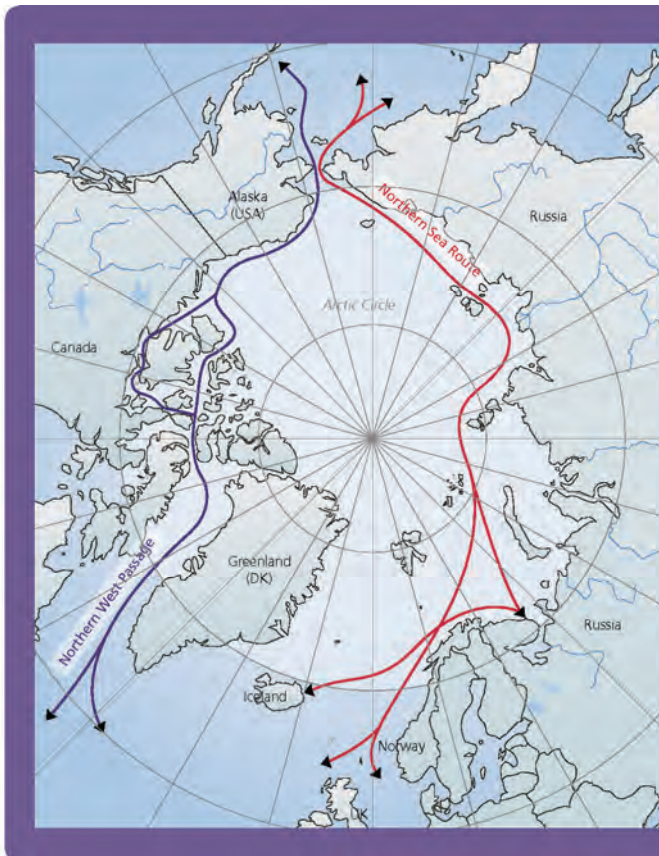
A lot has changed since the INSROP study in the 1990s. Reductions in voyage times and some dues -let alone in greenhouse gas emissions - have shifted the economics of the NSR, though the equation is still finely balanced.

"You will need a transit permit," says Upcraft, "and pay qualified ice pilots, additional insurance

premiums and Russian icebreaker fees. Some of these direct costs could be offset, as if the voyage was via the Suez Canal, there would be canal transit fees, piracy insurance and possibly the cost of installing anti-piracy equipment"

But there are indirect costs too. "Vessels operating on the NSR during the summer season need to have an ice class acceptable to Russia's Administration of the NSR (ANSR) and meet other Russian regulatory requirements," says Ozerov. "The issue of a permit is not routine - in practice a survey may need to be carried out by an ANSR inspector."

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What about the Northwest Passage?

The Northwest Passage (NWP) has not seen the same development as the NSR. There is seasonal traffic on the NWP; one operator is Northern Transportation Company Limited (NTCL) and a reduction in ice conditions would no doubt lengthen its operating season. For transit traffic, although the route has been opened up by the retreat of the sea ice, the conditions are different. Large areas of the NSR had no, or very little sea ice, in the summer of 2011. But hazardous multi-year ice, 3–6 metres thick, was still found in the NWP.

The contested sovereignty claims over the waters complicates transit shipping through the NWP and the considerable investment needed in escort vessels and infrastructure needs to make economic sense for government. Interest is growing however. Quebec's government in particular, is looking to exploit mineral resources in Northern Quebec. Under its Plan Nord programme it is investigating transshipment, ice-classed vessels, and icebreaking capacities.

The type of cargo shipped will also have a bearing on the transit viability of the route. Only 22 of the 34 vessels that transited in 2011 carried cargo and 15 of these transported liquid cargo, mainly gas condensate. A 2005 study funded by the Institute of the North concluded it is technically possible for container traffic to use the NSR but did not look at the economic feasibility of the concept. If Russia continues to develop its Arctic hydrocarbon resources, we may see liquefied natural gas (LNG) being shipped along the NSR. To achieve this, the industry will need to develop dedicated high-tech Arctic LNG carriers.

The Arctic Marine Shipping Assessment (AMSA) 2009 Report highlighted the need for comprehensive economic studies of the Arctic sea routes, including the NSR, and this is still the case.

Russia's plans

The Russian government has announced its intention to transform the NSR into a commercially viable route from Europe to Asia. It is improving safety and communication by building 10 new bases for search, rescue and communication along the route. A new law on the NSR is in the pipeline, part of which will clarify tariffs for icebreaker assistance and other services. Investment is also needed in the ageing nuclear icebreaker fleet. In October 2011, it was reported that construction would begin in 2012 on four new icebreakers, worth €18 billion, and two others are planned. Three of the six will be nuclear powered.

Key global transport route of the future?

One key influence on the future transit use of the NSR is the perceived hurdle of complying with Russian requirements and uncertainty on icebreaker fees and other dues. Companies will want assurance on these before they invest in the route. The demands faced by the maritime shipping industry to reduce carbon emissions may yet emerge as one of the drivers for developing the route: but the environmental consequences of increased shipping in the region also need to be considered.

The AMSA 2009 Report concluded that "the uncertainties and complex interactions of many driving forces of trans-Arctic navigation require significant research. While it may be technically feasible to cross the Arctic Ocean today ... the operational, environmental and economic implications and challenges for routine trans-Arctic voyages are not yet fully understood".

The competitiveness of the NSR will increase as the Arctic ice recedes and the summer transit period lengthens - and forecasts for this retreat are constantly being revised. But its future as a viable transit route is less clear cut.

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