

THE ARCTIC RAILWAY – RISKS AND OPPORTUNITIES

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The growth of the importance of the Arctic region provides Finland an opportunity to change the country's logistic position. A chance arises to move the country from the periphery to the hub of international transport and transit. The Arctic Railway planned to pass through Lapland, would connect Europe to the Arctic Ocean and the Northeast Passage by rail.

If the Arctic Railway would be built, it would bring jobs to Lapland while opening up new business opportunities. However, there is a long way to go before deciding on the start of the construction. Till then, many more details need to be sorted out. Because this is a long term project, it is difficult to evaluate the significance of the investment.

In 2018, the Ministry of Transport and Communications and the Finnish Transport Agency released a report on the Arctic Railway. Five alternative routes lines were included in the comparison. Ramboll Finland Oy analyzed the transport potential and effects of different routes. Norconsult AS carried out similar investigations on the Norwegian side. Based on the analysis the route from Rovaniemi through Sodankylä to Kirkenes, in Norway was chosen as the subject of further investigation and research.

The motivation behind the report was an increased interest in the exploitation of natural resources in the Arctic region. The Arctic Railway could serve as a part of the natural resource transport route to Europe.

Besides, as a result of climate change, the trafficability of the Northeast Passage most likely will improve. This could increase the transport between Asia and Europe on the Northeast Passage and some of these container shipments could go by rail through Finland to Eastern and Central Europe.

The corridor would include the Helsinki-Tallinn railway tunnel and the Rail Baltica from Tallinn to

Poland. It is also estimated that oil and gas products would be transported from the Arctic region, also wood, and minerals extracted in Lapland and Norwegian salmon. The railway would also serve growing tourism.

CONTAINERS AND BULK FREIGHT

Ice and weather conditions in the Arctic marine area are still difficult. According to the Arctic Railway Report, it is unlikely that container transportation between Europe and Asia would move to the Northeast Passage. The importance of the route will remain marginal for the transportation of bulk and unitized freight for a long time.

Even if transport between Asia and Europe via the Northeast Passage would increase in the long term, based on current knowledge, it is not advisable to direct the transport through the Arctic Railway. The goods are considerably cheaper to transport directly from port to port or through the ports of the North Sea than to bring the cargo to Kirkenes and carry them to their destination by rail.

According to the report, the use of the Arctic Railway becomes less favorable if the goods were to be transported further to the south in Europe. Transporting by the Arctic Railway and the planned Helsinki-Tallinn tunnel to the Baltic and East- to Central Europe would be an expensive and unrealistic alternative.

According to Sabina Lindström, Director of the Ministry of Transport and Communications, the Arctic Railway is examined as a separate project in a further study. It will not be linked to the construction projects of the Helsinki-Tallinn Railway Tunnel and the Rail Baltica railway connection planned from Tallinn to Poland, although these connections could have an impact on the demand for transport on the Arctic Railway.

OIL AND GAS

The Arctic Railway would open a new transport corridor to Kirkenes, which opens up a connection to the Atlantic, Northeast Passage, and the Barents Region. Various project plans for the exploitation of oil and gas resources in the Barents Region are estimated at approximately EUR 140 billion.

Most shipments of natural resources in the Barents Region involve oil and gas. Sea transport is a more cost-effective option for these shipments than rail transport. This is why shipments to Finland's oil refineries are best handled by sea transport, and particularly to those refineries located on the coast. At current costs, it would not be financially viable to transport oil and gas products through Finland by rail to Central or Eastern Europe.

Sea transport unrivaled affordability is demonstrated by the exemplary calculation, where crude oil is transported from a drilling rig in the Barents Sea to the Neste refinery in Sköldvik port, Porvoo. The cost of direct shipping per tonne of oil would be less than one-third compared to the option of loading oil on railway wagons in Kirkenes and transported by rail.

Oil and gas production in the Arctic marine region requires a large variety of investment goods. Transportation through Finland will not be financially viable unless there are significant changes in either rail and sea transport costs or technical development.

WOOD AND MINERALS

If realized, the rail link between Rovaniemi and Kirkenes would provide a new alternative for the transportation of the extractive industries and bioproducts of Eastern Lapland.

Kevitsa mine is a large copper and nickel mine in Sodankylä. The mine transports about 250,000 tonnes of nickel and copper concentrate by road to Kemi, where the concentrate is loaded onto trains. If the Arctic Railway would be built, the mine would have a direct rail link from the mine to Kemi and Harjavalta.

The Norwegian company Yara has long been planning to open a phosphate mine in Sokli, Savukoski in Eastern Lapland. The project has been on hold, because, according to Yara, opening the mine has not been financially viable. However, in 2019 the feasibility study has been restarted.

If Yara opens the mine, the company would carry the concentrated phosphate and iron concentrate for further processing to its production plants in Norway. The concentrate could be carried by car to Sodankylä and loaded there to train. For cost reasons, the phosphate concentrate would probably be transported to Kirkenes, iron ore to Kokkola or Oulu.

Sakatti copper and nickel mine is being planned in Sodankylä. The mining company Anglo American is the majority shareholder. The Sakatti mine project is in the environmental impact assessment phase, and the assessment is expected to be submitted to the authorities for processing within 2019. If Sakatti mine is opened, both the ports of the Bothnian Bay and the port of Kirkenes could be used for its transportation.

According to Metsähallitus' estimation, the Arctic Railway could also be used to transport raw timber. However, large-scale bioproduct mill investments planned in Lapland, Boreal Bioref in Kemijärvi and Polar King in Kemi, would significantly change raw wood flows in the north.

Total production of Boreal Bioref, planned for Kemijärvi, would be about 0.5 million tons per year, and the main product would be softwood pulp. The main market area for softwood pulp is in China. The products would be transported there mainly by ships, some on trains along the Trans-Siberian route. If the Arctic Railway is realized, shipping could be directed to the harbor of Kirkenes in addition to the ports of the Bothnian Bay.

Metsä Fibre in Kemi is studying whether to modernize its existing pulp mill or replace it with a new bioproduct mill. The new mill, Polar King, would be the largest wood processing plant in the northern hemisphere and thus would greatly affect the raw wood flows.

FISH FROM NORWAY

In 2017, Norway brought 50,000 tonnes of salmon to Finland. Also, Norway exported 320,000 tonnes of salmon to the Baltic countries, Poland and Russia, partly through Finland. The amount was even higher before the trade sanctions imposed on Russia. Through Finland, transports concentrate on road VT 21, which runs from Kilpisjärvi via Kolari to the south. The traffic volume of this road has increased significantly in recent years.

Theoretically, rail transportation could be a competitive alternative if the transport could be carried out in block trains and refrigerated transport. Trucks also should be used at both ends for connecting transportation.

According to the Norwegian forecast by 2060, a maximum of 370,000 tonnes of Norwegian export and import shipments could be transferred to the Arctic Railway to Kirkenes. Train wagons would be mainly loaded with fish, industrial and refrigerated products.

PASSENGER TRAFFIC

Passenger traffic can also benefit from the Arctic Railway. It can be a new attraction for tourism in Lapland and Northern Norway. The problem for the operator is the strong seasonality of tourism. Passenger traffic – mainly tourist traffic – would probably be generated for the track over the long term. Tourist traffic is currently highly seasonal, but will probably become more year-round in the future.

In the Finnish Transport Agency's cost model, they calculated under which conditions the passenger transport would be commercially viable. Based on the study, it is very unlikely that this amount of passenger traffic could be generated at the ending point of the railway.

The most significant passenger potential of the Kirkenes route would most probably come from the Rovaniemi–Sodankylä section. Passenger transport could be arranged so that one IC train from Helsinki could continue from Rovaniemi to Sodankylä in the morning and return in the evening. This solution would lead to much lower running costs than operating a rail connection along the entire Arctic Railway. "THE ARCTIC RAILWAY CAN BE A NEW ATTRACTION FOR TOURISM IN LAPLAND AND NORTHERN NORWAY. SEASONAL TOURIST TRAFFIC IS EXPECTED TO EXPAND TOWARDS YEAR-ROUND IN THE FUTURE."

BENEFITS: EMPLOYMENT AND BUSINESS

- Building the track would bring jobs and increase business activity. During the construction phase in addition to not only the workforce but also machinery, equipment, and building materials would be needed. There would also be a demand for construction-, transport, maintenance- and other services.
- Increasing labor income would increase demand for goods and services, which would also contribute to employment.
- The input-output model has been used in the report. Those who made the calculation emphasize that the effects on employment and regional economy can only be predicted at the magnitude level.
- According to the calculation, the construction of the Arctic Railway between Rovaniemi and Kirkenes would employ directly and indirectly about 20,500 people.
- The province's own companies and workforce can make the most of the construction work. In practice, a lot of workers would come from elsewhere. Thus, the construction of the track would employ immediately and indirectly approximately 12,000-14,000 Laplanders.
- Some of the employed people would only be employed part-time. Thus, the number of person-years would be less than the number of people in employment. In 2016, part-time workers accounted for 15 percent of all Finnish employees.
- Increasing employment and business activity would increase municipal tax revenue. According to the calculation, the additional accumulation would be around EUR 37-43 million.
- In the long term, the Arctic Railway would significantly improve Lapland's accessibility. Improved and more competitive logistical connections could potentially contribute to the profitability of investments in the Arctic.

- It is also noteworthy that rail transport is by far the most environmentally friendly mode of transport. According to a report by a consultancy firm D-mat, the train on four hundred kilometers produces less than a kilo carbon dioxide emissions. During the same distance, the car's emissions are about 90 kilos, the ship is over 130, and the jet is over 200 kilo. In both freight and passenger traffic, the environmental impact will become increasingly important in the future, which will have an impact on the choice of mode of transport alongside the costs.
- As environmental awareness grows among tourists, better accessibility of Lapland by rail, both from the north and from the south, could be a major competitive factor in tourism in the future.

"THE CONSTRUCTION OF THE TRACK WILL, DIRECTLY AND INDIRECTLY, EMPLOY About 20,500 People. On The other hand, the track Can hamper the reindeer Industry and is seen as a Threat to sámi culture."

CHALLENGES: THROUGH REINDEER PASTURES, COST-INEFFICIENT INVESTMENT

- According to the Ramboll Report, efforts have been made to take into account the valuable nature sites in Northern Lapland when planning the alignment options. As planning goes further, the environmental impact will be assessed more closely.
- The rout can fracture, change or disable pastures, disturb grazing, complicate reindeer herding and cause damage. Changes can weaken the profitability of the industry.
- Changes in reindeer husbandry can have an indirect impact on the related industries, such as meat and reindeer product processing and tourism. According to a Swedish study in 2014, reindeer husbandry in Finland and Sweden generated work for about 15,000 people. About two-thirds of these, that is 10,000 people, work in Finland.
- The route between Rovaniemi and Kirkenes passes through the Sámi region and across six Sámi reindeer herding cooperatives. In the south of the Sámi region, the track crosses or touches the area of the five herding cooperatives. The track also runs through the reindeer herding area in Norway.
- According to the Ramboll Report, the Arctic Railway "can be considered as a cost-inefficient investment concerning known transport needs. The cost-efficiency of Northern Finland's transportation can be improved more cost-effectively by developing the existing transportation network".

"THE TOTAL COST OF THE ROVANIEMI-KIRKENES RAIL LINK IS ESTIMATED AT APPROXIMATELY EUR 2.9 BILLION. FINLAND'S SHARE OF THE COSTS WOULD BE ABOUT EUR 2 BILLION AND NORWAY'S ABOUT EUR 0.9 BILLION."

WORK CONTINUES

Arctic Railway would have a positive impact on employment and the regional economy in Lapland and would create new opportunities for tourism. It is also estimated that the railway would improve Finland's security of supply by creating an alternative link to the Baltic Sea. There would be negative impacts on the environment locally, but as a mode of transport, rail is more environmentally friendly. However, the railway is estimated to hamper reindeer herding in the area.

Based on the mere cost-benefit ratio calculation, the Arctic Railway does not seem to be profitable. This is a large investment with an estimated total cost of around EUR 2.9 billion. Finland's share of the costs would be about EUR 2 billion and Norway's about EUR 0.9 billion. In principle, the project was likely to obtain EU funding for the construction of the trans-European TENT-T transport network, if it appears feasible. China's interest in the construction of the new Silk Road and the Arctic Railway project is also well known

Finland-Norway study group, set up by the Ministry of Transport and Communications, completed its report in early 2019. The task was to prepare a proposal for the further development steps of the Arctic Railway project and to clarify some key issues in the project.

The report did not propose further measures to promote the railway project at the moment. The working group concluded that a rail link to the Arctic Ocean would improve Finland's logistical position, the security of supply and the accessibility of Lapland, but would not be economically viable. Besides, it was noted that the railway would affect Sámi culture and reindeer herding in many ways.

If the planning process was to continue further, it would be necessary to study and plan how the Finnish and Norwegian railway planning processes could be coordinated and the Sámi should be involved in the planning process. It has been estimated that it would take at least 15 years to plan and construct the Arctic Railway.

The Regional Council of Lapland, which rep-

resents 21 member municipalities, has decided to continue the planning of the railway at a provincial level, which means that the rail connection will be included in the regional land use plan of Northern Lapland. Including the connection in regional land use plan is part of preparing for changes in the operating environment, creates prerequisites and thus supports the construction of the railway if further investigations show that it is a viable project. The regional land-use plan for Northern Lapland is expected to be ready by the end of 2020.

In May 2019, Finnish Bay Area Development Oy signed a letter of intent with the Norwegian Sør-Varanger Utvikling development company for the planning and implementation of the Arctic Railway. Their objective is to plan a model, which enables international finance for Arctic Railway.

Peter Vesterbacka, the former marketing chief of mobile gaming giant Rovio, who signed the letter of intent from the Finnish side, pointed out, that previous development plans for the long-discussed project have not considered tourism. He claims that passenger traffic will play an important role in the Arctic Railway, particularly considering that direct flights from Asia will be landing in Rovaniemi. Finnish Bay Are Development Oy is a development company to construct significant infrastructure. Their largest project currently being planned and designed is the Helsinki-Tallinn Tunnel.

The Sámi have strongly criticized how the Arctic railway project has been promoted. According to Tiina Sanila-Aikio, Chair of the Sámi Parliament, the Sámi people must be properly involved in the study process, not just as a commentator. The Arctic railway and its traffic can be a threat to the Sámi culture and traditional livelihood. The railway would split and fragment the lands that are important for reindeer herding, ruining the conditions for practicing reindeer herding according to the reindeer herding cooperatives.

Finnish Bay Area Development Oy and Norwegian Sør-Varanger Utvikling development company committed to examining wider impacts on the environment, society, and economy.