The past decade has shown a substantial growth of interest in the Arctic region. Technological development, emerging information on resource potential in the Arctic shelf made the world draw special attention to the Arctic as potentially the world’s largest resource storehouse. At the same time, making use of the Arctic Ocean and the shift of global center of economic activity towards Asia increased the region’s transit capabilities. These capabilities are tied to the increased sound exploitation of the Northern Sea Route (NSR), development of which will be, on the one hand, triggered by the strategic interests of both Arctic and non-Arctic states, problems existing on traditional routes and, on the other hand, hindered by harsh navigation conditions, infrastructure and institutional barriers. Russia needs to overcome, as well as by the transformation of Asian socio-economic model and the gradual development of the alternative international transport routes.

Transit turnover and number of vessels navigated through the NSR

After gradual growth during 2010-2013, both the turnover and the number of vessels dropped in 2014 to 200 million, navigation season, frequency of supplies, type of vessel etc. Larger share in total transportation costs is taken by three major cost components: fuel costs, capital costs and transit fees.

On the one hand, these costs decrease due to time saving. On the other hand, severe weather conditions and higher qualification requirements lead to higher crew costs in comparison to alternative routes. Some estimates list 10% higher costs in the Suez Canal route crew costs for the same amount of days in the sea [4].

Navigation via the NSR imposes additional risks which should be considered in the insurance premium. Factors determining its value are crew qualification to navigate in Arctic waters, the proximity of rescue units and ports in case of the accident, icebreakers’-ship-ship pimping, natural factors (mistiness, ice cover over the route). According to some estimates, total insurance costs for the NSR navigation are 50% higher than those for southern routes. Higher insurance premia are also necessary for cargo transportation via the NSR [7].

NSR Cost efficiency compared to Suez Canal route (SCR)

To measure the NSR cost efficiency, it is necessary to consider six main cost components. The components depend on the set of inputs (cargo type, port of arrival, port of departure, navigation season, frequency of supplies, type of vessel etc.). Larger share in total transportation costs is taken by three major cost components: fuel costs, capital costs and transit fees.

What is more, fuel cost calculations require consideration of both the type of fuel and its consumption rate. For instance, fuel is added to the vessel’s tanks in the Arctic at a significantly higher rate due to the fact that Arctic ice requires more propulsion power and, consequently, more fuel consumption. About 15% increase in fuel consumption per kilometer, primarily, due to additional weight of the vessel as a result of icebreaking [2].

Main outcomes

Advantages: distance reduction, absence of piracy risks and traffic problems, potential for economies of scale

Disadvantages: lack of infrastructure, administrative barriers, high transit fees.

What is more, the NSR development does not look optimist in the short run. Slowdown of the Euro-Asian trade growth, western sanctions against Russian energy companies in the Arctic, decrease in oil and gas prices and, as a consequence, in bunker fuel prices are not favorable for the NSR development.

However, in the long run the development of the NSR will be triggered by strategic national interests both of Arctic and Asian states. This implies that at the initial stage the project can develop (considering governmental support from different states) even with the negative net income of transporters.