

# Some Thoughts on the Sustainability of the NSR



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# NSR as an International Trade Route?

## Transport Safety

Russian nuclear icebreaker escort; Russian ice pilots; transport by ice-class vessels (Arc4); NSR admittance criteria and Polar Code requirements. Additional support infrastructure needed

## Predictability & Punctuality

Attractiveness of NSR for transits is low due to the lack of predictability. Regularity of a year-round supply of goods is no less important than the cost of transportation



# NSR as an International Trade Route?

Oil Tanker Vladimir Tikhonov



## Cargo Transport Westward & Eastward

Prerequisite for increased growth of transit shipping on the NSR is the availability of cargo transport in both east and west directions

## Economy of Scale

Limited number of vessels with adequate ice class represent a limitation on the utilization of the NSR; makes NSR vulnerable to competition from much larger vessels going via the Suez or Cape

# NRS's Demonstration Voyages 2010-2013

Suezmax Tanker  
Vladimir Tikhonov  
162 360 dwt



LNGC Ob River  
84 682 dwt



LNGC Arctic Aurora  
84 604 dwt



Tanker Propontis  
117 055 dwt



Tanker SCF Baltica  
117 153 dwt



Bulk Carrier Nordic Odyssey  
75 603 dwt



# NSR's Plan for Sustainable Usage

Administration  
& Management



Transport  
Services



Infrastructure System

# NSR's Sustainability Plan

## A. NSR's Administration & Management

### 1. «The NSR Authority»

- New organization that oversees all NSR's activities, services and marketing; determination of tariff rates
- Providing analysis of current transport market conditions and economic realities
- Providing analysis of NSR efficiency and route optimization
- Development strategy and implementation plan to promote commercial activities; predicting future demand for NSR traffic, cargo volume, and subsequent demand for icebreaker assistance and other support services
- Online multi-language (Russian, English, Chinese) information portal for commercial shipping



# NSR's Sustainability Plan

## A. NSR's Administration & Management

### 2. Transport Fees

For vessels with a gross tonnage from 40 001 up to 100 000

Table 9 – Tariffs for the summer-autumn navigation period

| Vessel's ice strengthening class | Tariff rate in Russian rubles per unit of vessel's gross tonnage |                         |                         |                         |                         |                         |                         |
|----------------------------------|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
|                                  | Pilotage within 1 zone   | Pilotage within 2 zones | Pilotage within 3 zones | Pilotage within 4 zones | Pilotage within 5 zones | Pilotage within 6 zones | Pilotage within 7 zones |
| Her                              | 446,84   | 536,21                  | 625,58                  | 714,95                  | 804,32                  | 893,68                  | 893,68                  |
| Ice 1                            | 312,79   | 375,35                  | 437,91                  | 500,46                  | 563,02                  | 625,58                  | 625,58                  |
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| Ice 3                            | 268,11   | 321,73                  | 375,35                  | 428,97                  | 482,59                  | 536,21                  | 536,21                  |
| Arc 4                            | 223,42   | 268,11                  | 312,79                  | 357,47                  | 402,16                  | 446,84                  | 446,84                  |
| Arc 5                            | 221,19   | 265,42                  | 309,66                  | 353,90                  | 398,14                  | 442,37                  | 442,37                  |
| Arc 6 – Arc 9                    | 218,95   | 262,74                  | 306,53                  | 350,32                  | 394,12                  | 437,91                  | 437,91                  |

Table 10 – Tariffs for the winter-spring navigation period

| Vessel's ice strengthening class | Tariff rate in Russian rubles per unit of vessel's gross tonnage |                         |                         |                         |                         |                         |                         |
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| Arc 4                            | 558,55   | 670,26                  | 781,97                  | 893,68                  | 1005,40                 | 1117,11                 | 1117,11                 |
| Arc 5                            | 552,97   | 663,56                  | 774,15                  | 884,75                  | 995,34                  | 1105,94                 | 1105,94                 |
| Arc 6 – Arc 9                    | 547,38   | 656,86                  | 766,33                  | 875,81                  | 985,29                  | 1094,76                 | 1094,76                 |
| Icebreaker 6 - Icebreaker 8      | 541,80   | 650,16                  | 758,52                  | 866,87                  | 975,23                  | 1083,59                 | 1083,59                 |

| Категория судов  | 1 зона | 2 зоны | 3 зоны | 4 зоны | 5 зон  | 6 зон  | 7 зон  |
|------------------|--------|--------|--------|--------|--------|--------|--------|
| Ледоколы         | 446,84 | 536,21 | 625,58 | 714,95 | 804,32 | 893,68 | 893,68 |
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- The tariffs need to be known well in advance for transit voyages, but currently the tariff can not be determined in advance as the fee depends on the exact number of navigational zones (7) were icebreaker escort will be needed
- Tariffs need to be dependent on the type of cargo (and subsequently the type of vessel). Transportation cost in the overall cost of delivering goods to consumers may be very different for different type of cargo
- Determine tariffs on the main types of cargo on the basis of competitiveness in relation to traditional routes (Suez Canal/Panama)

# NSR's Sustainability Plan

## A. NSR's Administration & Management

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| Категория судов  | Зона 1 | Зона 2 | Зона 3 | Зона 4 | Зона 5 | Зона 6 | Зона 7 |
|------------------|--------|--------|--------|--------|--------|--------|--------|
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- Establish a system of tariff discounts for regular users, discount on large transported volumes, and on return passages in ballast
- Tariff discount for passage in convoy compared to individual sailing
- Tariffs should be tied to the cost of bunker oil and to conditions on the freight market
- If significant changes occur in the cost of bunker and in the freight market then some correction factor needs to be applied to NSR tariffs to increase the competitiveness of the route under those conditions compared to Suez



# NSR's Sustainability Plan

## A. NSR's Administration & Management

### 2. Transport Fees

For vessels with a gross tonnage from 40 001 up to 100 000

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| Vessel's ice strengthening class | Tariff rate in Russian rubles per unit of vessel's gross tonnage |                         |                         |                         |                         |                         |                         |
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| Класс усиления ледового класса судна | Пилотажа в пределах 1 зоны | Пилотажа в пределах 2 зон | Пилотажа в пределах 3 зон | Пилотажа в пределах 4 зон | Пилотажа в пределах 5 зон | Пилотажа в пределах 6 зон | Пилотажа в пределах 7 зон |
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- The tariffs system introduced in 2014 is cumbersome and difficult to understand. Drastic changes in the tariff system over a short time period has a negative impact on NSR users
- To attract commercial transit shipping on the NSR we need to build up a fair and stable tariff system for a period of 15-20 years. This is needed so NSR users can assess the overall economy of new ice-class vessels from the start
- Users also need an official online information resource to quickly be able to calculate tariffs for icebreaker assistance and ice pilotage

# NSR's Sustainability Plan

## A. NSR's Administration & Management

### 3. Predictability & Planning Ahead

- Before a voyage a detailed assessment and forecasting of ice conditions and other operational conditions on route needs to take place and presented to NSR users
- Minimize the risk of sailing delays due to sea ice
- Currently the beginning and end of summer-autumn navigation depends on the actual sea-ice conditions and vary from year to year, making planning voyages in advance difficult
- Official sea-ice forecasts for NSR are only available for the summer-autumn period. Systematic information about sea-ice conditions needs to be made available on a year-round basis



# NSR's Sustainability Plan

## B. NSR's Transport Services

### 1. Icebreaker Services



- Icebreakers and ice pilot services are key elements of the NSR's support infrastructure
- Sufficient icebreaking capacity needs to be available to assist vessels in transits and to keep the route open during pre-scheduled navigational period regardless of the sea-ice conditions and remove the risk of delays
- For NSR transits insurance companies commonly require icebreaker escorts due to limited other support infrastructure. But, in practice shipowners do not have a guarantee for receiving such a service on time at the moment
- Russian icebreakers are since 2014 primarily engaged in Arctic oil and gas projects

# NSR's Sustainability Plan

## B. NSR's Transport Services

### 2. Ice-Class Cargo Vessels



- Establishment of a fleet of high ice-strengthened cargo ships and specialized vessels operating in the harsh Arctic environment on a year-round basis
- The question is whether these ships will be icebreaking carriers in their own right and capable of independent ice operations or will require icebreaker support

# NSR's Sustainability Plan

## B. NSR's Transport Services

### 3. Port Operations



- Modernization of Russian Arctic ports with deep-draft access; refuge and salvage operations; cargo handling and passenger/crew facilities
- Insurance companies are concerned about the cost for mobilizing a salvage operation - possibilities, cost and delivery time of spare parts, including wreck removal
- Of vital importance for the NSR is to facilitate access to Russian ports, for loading and discharging, along the route for non-Russian flagged vessels with the purpose to create round voyage possibilities

# NSR's Sustainability Plan

## B. NSR's Transport Services

### 4. SAR & Oil Spill Response

Multipurpose Emergency & Rescue Vessel



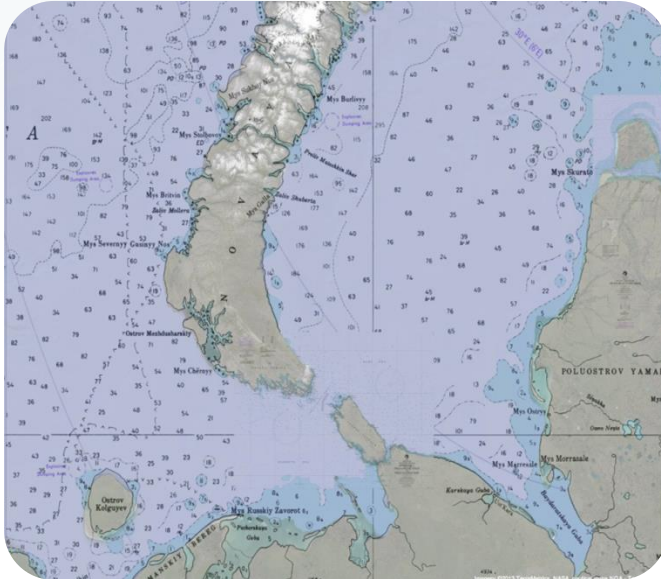
- Development of proper land-based and offshore (floating) infrastructure to be able to respond to emergencies in time and deliver needed assistance and supplies (e.g., medical) and conduct evacuations and oil spill response from remote areas of the NSR
- Insurance companies are concerned about possible pollution clean-up in remote areas of the NSR. The main limiting factor is the remoteness and high costs and unpredictability of on-time delivery and organization of rescue operations
- Russian icebreakers acting as a floating support infrastructure in case of accidents. Subsequently, icebreakers need to be strategically located and readily available to assist and guide transiting vessels

# NSR's Sustainability Plan

## B. NSR's Transport Services

### 5. Navigation & Communication System

- Information Infrastructure: Navigational charts with updated hydrographic and shoreline mapping data; aids to navigation and real time navigation information; marine weather and sea ice forecasts; proper communication systems; and vessel traffic monitoring and reporting systems
- There are no or inadequate maps available of officially recommended transit routes through the NSR indicating water depths and navigational conditions on route
- The navigational manual in English 4151B «Guidelines for the Voyage through the NSR» needs to be updated and published online. The existing version is only available in print and dates back to 1995 (20 years ago). Other critical navigational information (manuals) and charts need to be updated and published in English



# NSR's Sustainability Plan

## C. NSR's Infrastructure System

### 1. New NSR Maritime Transportation & Logistics System

- Design a new NSR integrated transportation and logistics system for reliable and safe cargo transport
- Interactive GIS maps with effective visualization, highlighting various components of the whole transport and logistics system
- Model simulations should be based on various development scenarios and feasibility and sensitivity analyses for different cargo types being shipped, volumes and trade flows, types of vessels being used, transshipment, seasonal or year-round operations, and other factors.
- The new logistics system would be an integrated network of navigable seaways, ports, terminals and offshore structures interconnected with main railroads, airports, roadways, pipelines, and river transport





# NSR's Sustainability Plan

## C. NSR's Infrastructure System

### 1. New NSR Maritime Transportation & Logistics System

- Establish transshipment hubs on either side of the NSR in order to fully utilize specialized Arctic vessels in the most economically efficient way, provide storage, and serve industrial purposes
- These “Arctic shuttles” should not sail for long distances in ice free waters and should deliver their cargo only between two ice-free transshipment hubs
- Non-ice strengthened feeder ships will deliver cargo to and from the transshipment hubs
- One transshipment hub could be located in ice-free waters of the Barents Sea (Murmansk-Kirkenes area) and the other in ice free waters past the Bering Strait in the North Pacific Ocean



# NSR's Sustainability Plan

## C. NSR's Infrastructure System

### 2. Infrastructure Cost Estimates

- Estimating the costs of the various infrastructure components of a new NSR system
- Establishing international cooperation and partnerships for putting the required infrastructure in place



# NSR's Sustainability Plan

## C. NSR's Infrastructure System

### 3. Infrastructure Financing

- The build-up of new infrastructure will take many years and will be costly. Without cost-sharing, the up-front capital costs of establishing proper infrastructure are prohibitive
- Assessment of different funding mechanism in financing long-term capital-intensive infrastructure projects that cross borders within the Arctic
- Perhaps a transnational “Arctic Development Bank” or “Arctic Investment Bank” along the lines of the European Bank for Reconstruction & Development (EBRD), Nordic Investment Bank (NIB) and others
- Explore the use of public-private partnerships (PPPs) between Arctic governments and energy and mining companies and commercial shipping to finance some parts of the needed infrastructure



# Concluding Remarks



NSR's Strategic & Economic Importance to Russia - NSR has the potential of unlocking the natural resource potential of the Russian Arctic

NSR as International Trade Route – A supplementary route for certain types of cargos transported by a fleet of specialized ice-class vessels and assisted by icebreakers on a year-round basis

NSR's Sustainability of Usage – A number of administrative, management, service oriented and infrastructure issues need to be addressed

Future NSR's Transportation & Logistics System – We need to understand what kind of maritime transport infrastructure is needed for safer and more reliable transport on a year-round basis

# Thank You!

