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CLIMATE CHANGE AND THE LIMITS FOR THE DEVELOPMENT AND COOPERATION IN THE ARCTIC

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SCOPE AND OBJECTIVE

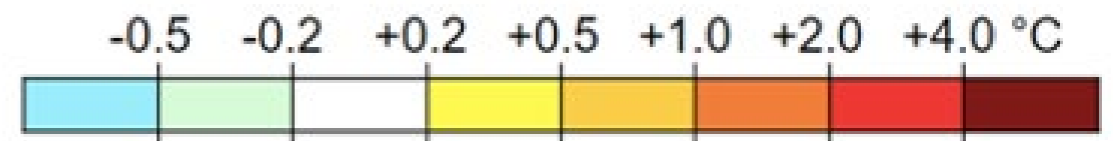
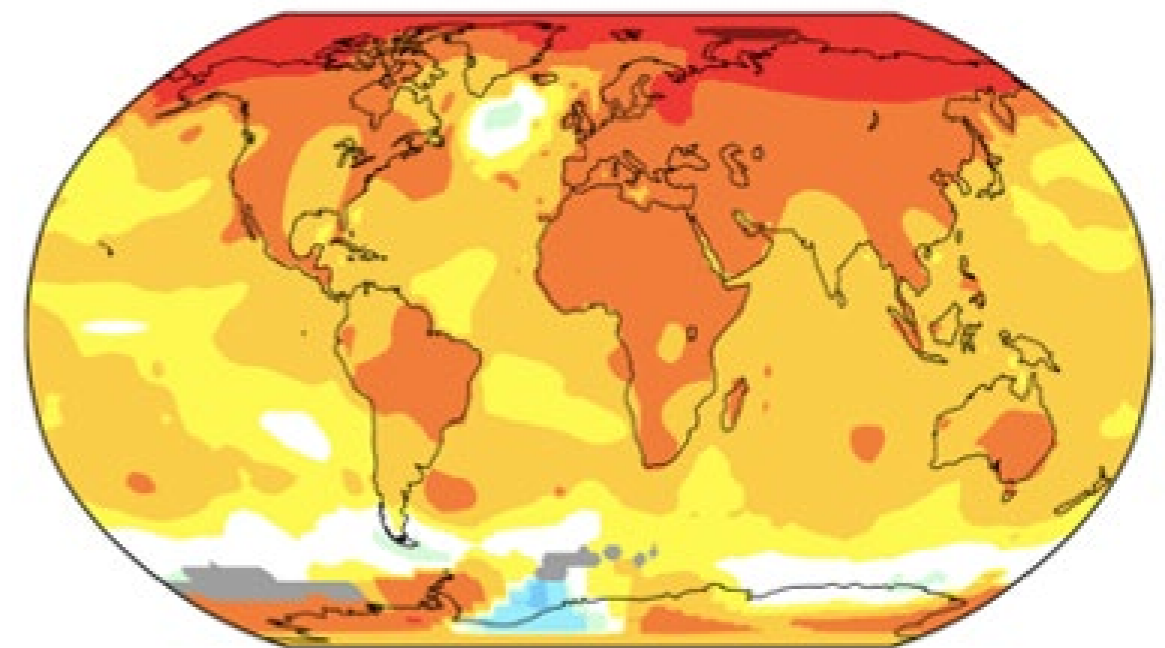
- Revise the role of climate change in the future development of the Arctic region, cooperation between main actors and the perspectives of implementing domestic and foreign Arctic policy of Russia
- **IN FOCUS: Climate change** itself vs. **global reaction to climate change**, i.e. low-carbon transition as one of the main drivers for rethinking Arctic development prospects

Presentation partly based on the results of the report by HSE University “**Russian Policy in the Arctic: International Aspects**” by *Daria S. Boklan, Vasili B. Kashin, Anastasia B. Likhacheva (main author), Igor A. Makarov, Ilya A. Stepanov (main author), Dmitry V. Suslov (main author)*



UPSIDE OF THE WARMING ARCTIC

- The rise of the Arctic surface temperature has been twice as fast as the world average
- The area of the September ice has been decreasing at a rate of 13% per decade and has decreased by almost half compared with the 1980s



Source: NASA's Scientific Visualization Studio, Key And Title By Uploader (Eric Fisk). URL: https://Data.Giss.Nasa.Gov/Gistemp/Maps/Index_v4.html (Accessed: 23.07.2021)

- **Increased transport potential** of the Arctic (e.g. the Northern Sea Route), extension of the navigation period (from July to October)
- **Increased accessibility of the Arctic resources**
- The most promising Arctic areas for economic development: the Barents Sea, the Beaufort and the Kara Sea, the eastern and western coasts of Greenland (Kjartan et al. 2017)

DOWNSIDE OF THE WARMING ARCTIC

Climate-related environmental and economic security risks:

- forest fires
- adverse changes in the habitat of animals and plants
- coastal erosion
- the world Ocean level increases -> a threat to the livelihood of millions of people across the globe
- **thawing of permafrost** - > destruction of housing, transport and energy infrastructure, critical damage to ecosystems; formation of methane funnels and natural emissions of the methane -> boost in global climate change

Risks of increased economic activity:

- pollution of soils, groundwater, rivers and seas with heavy metals, petroleum hydrocarbons, other toxic substances
- the disruption of the habitat and migration of birds and ungulates, etc.
- adverse effects for the Arctic indigenous population
- disruption of the marine animals' habitat
- risks of liquid hydrocarbon spills
- emissions of toxic pollutants from the fossil fuels combustion



POLITICAL IMPLICATIONS OF THE ARCTIC “OPENING”

- Increasing accessibility of the Arctic, as well as the dependence of the whole world on climatic processes in the region, are used by non-Arctic countries to get involved in the Arctic agenda (growing number of the AC observers, Chinese White Book, Arctic strategies of the EU countries, etc.)
- Formation of new international institutions in the Arctic (the Polar Code 2017, International Governmental Scientific Forum of 20 Countries Interested in Arctic Research 2016, the Agreement on the Prevention of Unregulated Fishing on the High Seas in the Central Arctic Ocean 2018)
- Intensification of the “spillover” of the rivalry between the United States and Russia and the United States and China to the Arctic: erosion of legal regime of the Arctic

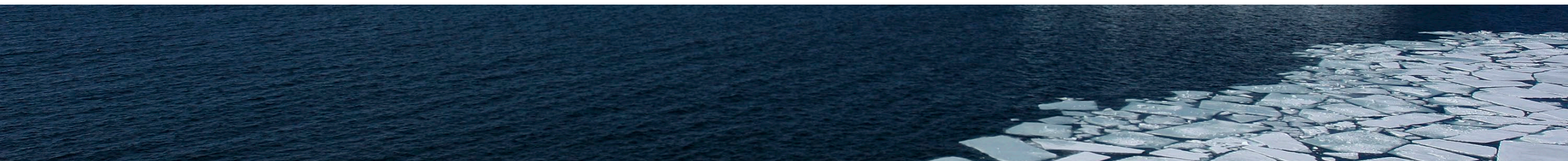
Growing institutional, security and military risks of the warming Arctic





GLOBAL LOW CARBON TRANSITION

- The Paris Agreement, adopted in 2015 and ratified by 197 countries, - the commitment of the global community to reduce greenhouse gas emissions and implement climate change adaptation programs
- The decarbonization of the world economy becomes self-replicating, and government climate policies are complemented by a growing number of corporate climate change mitigation initiatives
- Targets to achieve carbon neutrality by 2050 have already been outlined by such largest economies as the EU, USA, UK, Japan, Republic of Korea, Canada, Mexico, and South Africa. China is planning to achieve carbon neutrality by 2060





DEMAND FOR HYDROCARBONS - 1

- Slowing growth of demand for fossil energy sources (and the reduction of the energy demand in developed countries) given growing competitiveness of carbon-free or low-carbon energy sources. While in the 2000s the global demand for fossil fuels grew at an average rate of **2.4%** per year, in 2010-2018 **1.3%** per year, in the period 2019-2040 it will grow at a rate of **0.5-0.9%** per year

Mtoe (% in total consumption)	World			Europe		
	2019	2040: scenarios		2019	2040: scenarios	
		Stated Policies	Sustainable Development		Stated Policies	Sustainable Development
Coal	3775 (26%)	3314 (19%)	1295 (10%)	271 (14%)	114 (7%)	51 (4%)
Oil	4525 (31%)	4832 (28%)	3006 (23%)	617 (32%)	406 (25%)	218 (15%)
Natural Gas	3340 (23%)	4321 (25%)	2943 (23%)	495 (26%)	438 (26%)	271 (19%)
Nuclear	727 (5%)	896 (5%)	1126 (9%)	241 (12%)	182 (11%)	219 (15%)
Renewable	2039 (22%)	3721 (22%)	4649 (36%)	315 (16%)	534 (32%)	682 (47%)
Total	14406 (100%)	17085 (100%)	13020 (100%)	1939 (100%)	1674 (100%)	1441 (100%)
Mtoe (% in total consumption)	North America			Asia Pacific		
	2019	2040: scenarios		2019	2040: scenarios	
		Stated Policies	Sustainable Development		Stated Policies	Sustainable Development
Coal	302 (11%)	88 (3%)	29 (1%)	2894 (47%)	2824 (36%)	1095 (18%)
Oil	992 (37%)	855 (33%)	465 (24%)	1542 (25%)	1781 (23%)	1157 (19%)
Natural Gas	905 (33%)	967 (38%)	518 (27%)	702 (11%)	1252 (16%)	1056 (18%)
Nuclear	251 (9%)	179 (7)	215 (11%)	172 (3%)	416 (5%)	533 (9%)
Renewable	254 (9%)	483 (19%)	722 (37%)	813 (13%)	1598 (20%)	2149 (36%)
Total	2704 (100%)	2571 (100%)	1949 (100%)	6123 (100%)	7872 (100%)	5989 (100%)

DEMAND FOR HYDROCARBONS - 2

- Tightening climate policy and green technologies development will have the most detrimental effect on **coal** consumption. Its share in the global energy balance will continue to decline rapidly.
- Unlike coal, the dynamics of **oil** demand is less sensitive to the tightening climate policy. The oil demand is less elastic in price compared to the demand for other types of fossil fuels and is mainly determined by volumes of oil use in the transport sector
- **Natural gas** will be in the most demand among three types of fossil fuels – primarily due to the increase in its consumption in developing countries.





CLIMATE-ENERGY TRENDS' NEXUS: WHAT DOES IT MEAN FOR THE ARCTIC?

- Global climate change does not turn the Arctic into a promising region for the extraction of energy resources and international transit contrary to the point of view prevailed in the 2000s.
- Decarbonization of global energy as a structural factor in the development of energy markets, restrains the long-term growth in the energy demand, the price level is unlikely to return to the values of the late 2010s.

Fears (or dreams) of high oil, gas, and coal prices are a thing of the past. The world has entered an era of broad technological and inter-fuel competition. For all areas of consumption, there are many promising competing solutions that are ready to offer an alternative promptly and win back the market when the prices of the dominant fuel increase” (Makarov et al. 2019).

- Demand for energy resources will continue to grow the fastest in Asia, but even there, energy consumption is to peak in the coming decades
- The transformation of global energy markets increasingly calls into question the feasibility of developing hydrocarbons at the Arctic continental shelf. In the coming decades, the demand for gas in both Europe and Asia will be fully covered by extraction from traditional, primarily gas, continental fields, developed, for example, within the framework of the Russian Yamal LNG and Arctic LNG-2 projects and may be few additional ones

CLIMATE-ENERGY TRENDS: WHAT DO THEY IT MEAN FOR ARCTIC SHIPPING

- The prospects for the development of international shipping in the Arctic – through the Northern Sea Route (NSR) that runs along the Russian coast – are also directly dependent on the ongoing transformations in the global energy markets
- The share of bunker fuel costs lies in the range from 36 to 57% of total transportation costs
- The higher the price level for bunker fuel, which is directly related to oil prices, the higher is the commercial attractiveness of the northern short transport routes compared to the longer southern ones
- The peak of transit traffic on the NSR was in 2013, when 71 vessels passed through the NSR during the whole year. As a comparison, this is less than the number of ships passing through the Suez Canal daily





HIGHLIGHTS

1. Climate change and - more importantly - global reaction to climate change alter patterns of development and cooperation in the Arctic
2. Climate change trigger environmental and economic risks together as well as bring new institutional and military challenges
3. Contrary to the point of view which prevailed in 2000s, climate change does not turn the Arctic into a promising region for producing energy resources or international transit
4. Need to rethink Arctic development priorities in Russia. Plans for further economic expansion in the region (extensive development) hardly meet the objectives of sustainable development of the region.



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