

Yamal 2040: Scenario "Gas Boom"

Part of the Blue-Action Research Project

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The Yamal region in 2040: Gas Boom

- In the early 2020s, **several large-scale climatic disasters** shook the world and motivated the international community to increase efforts in climate change mitigation.
- **Demand for LNG** in general and Yamal LNG in particular is steadily **on the rise** until 2040. LNG is promoted as a **transition fuel** and is widely used for shipping.
- In a gradual process starting in 2030, a **consensus on Crimea** is reached: the Crimea situation is accepted as a political reality and **sanctions are lifted** in exchange for Russian efforts to normalize its relation with Ukraine.
- In Yamal, **Arctic LNG 2**, the **Altai Pipeline**, and **Yamal-EU II** are **fully operational** by 2037.
- **New technologies** allow consumers from different parts of the world to monitor the way Yamal gas is produced. The **Russian government and Yamal businesses are under pressure to reduce environmental impacts** of Yamal's petroleum development and to increase corporate social responsibility programs.

Impact of climate change

- By 2040, the effects of climate change in Yamal have not been as severe as many expected. However, the mean temperature still has increased by 3°C.
- Precipitation has increased slightly.
- Coastal erosion is at a steady 1-2 meters per year.
- Yamal is still subjected to extreme weather events and uneven permafrost thawing.
- Heat waves still occur in the summer leading to droughts with temperatures over 30°C.
- The erratic distribution of permafrost thawing is a troubling development for reindeer herders, as the ground releases enormous amounts of mercury that makes its way into the food-chain.
- Climate change related air quality problems are prevailing, especially in urban areas.

Workshop participants:

- Environmental NGOs
- Indigenous peoples' rights NGOs
- Local community
- Oil and gas business
- Consulting
- Media
- Scientists



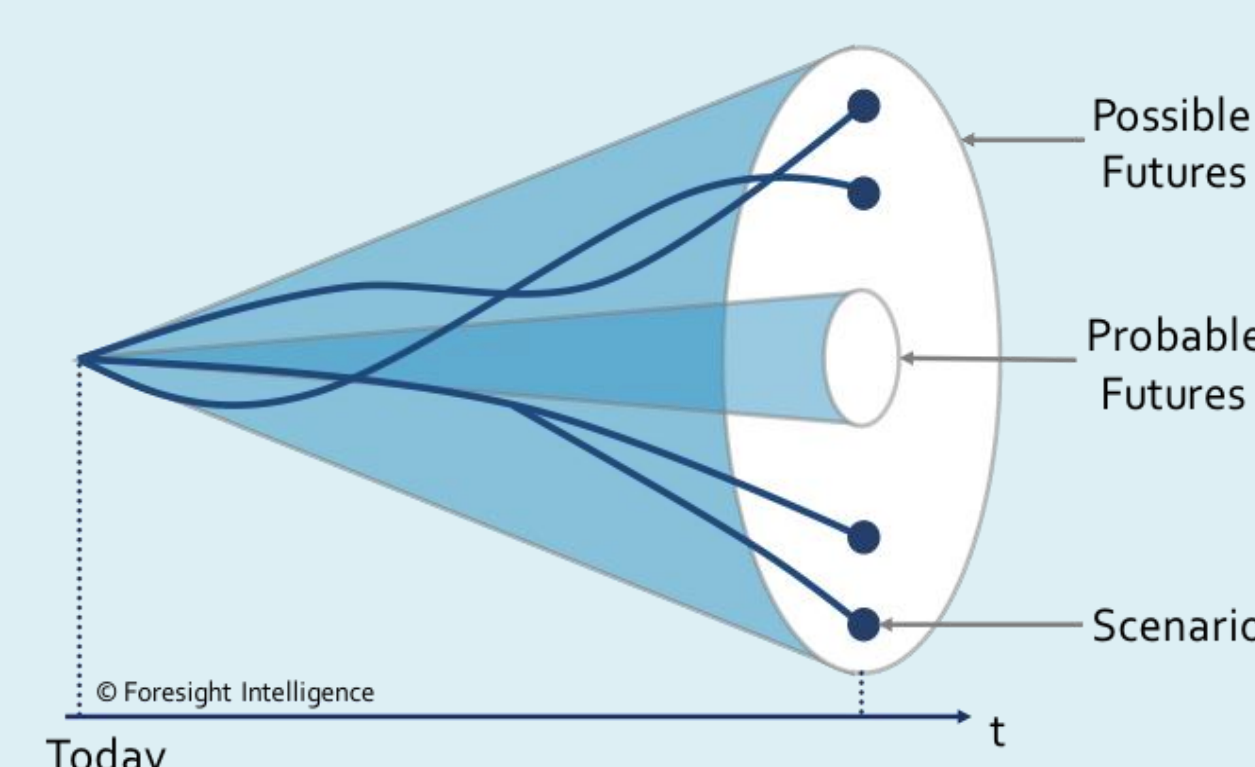
Photo: Julia Baronina, IMEMO



Photo: Liza Udilova, Greenpeace

Foresight & Scenarios

- Foresight is systematic thinking about uncertain futures
- Strategic foresight is action-oriented foresight
- Scenarios are (strategic) foresight tools, created in a structured communication process with a diverse group of experts
- A scenario is a comprehensive description of:
 - a possible future situation, composed of consistent parts
 - a plausible trajectory that leads to a certain situation.



Creating Scenarios

- To reduce uncertainties and help stakeholders to proactively prepare for alternative futures, we developed three scenarios.
- Scenarios were co-designed by stakeholders and scientists at three workshops.
- Scenarios were developed in a structured group process using the method of Strategic Foresight.

The Yamal region in 2018

- Considerably affected by climate change
- At the core of petroleum development in Russia producing more than 80% of Russia's natural gas
- Population of the Yamal region is 534.000 people. 8% of them are indigenous (Nenets, Khanty, Selkup)
- The future of the Yamal region is highly uncertain due to substantial climatic, environmental, economic, social, political, and legal changes in the years and decades to come



Map by Stasyan117/Wikipedia

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