

The Oil and Natural Gas Resources of the Arctic: The problems and future prospects for development

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Summary

The Arctic is attracting the attention of the world's oil and natural gas firms. Besides the five coastal nations (the United States, Canada, Denmark, Norway, and Russia), there are more than 20 other contenders for the resources of the Arctic, including the economic giant, China. The main reason is the large predicted hydrocarbon resources in this region.

Different countries around the world periodically publish data on the hydrocarbon resources of the Arctic, but these estimates vary considerably. Such a variance in estimates arises, firstly, from the fact that until recently geological surveys of the Arctic, and in particular of the Arctic shelf, were practically impossible. Even today geologic exploration of the continental shelf is at the initial stage of development, in so far as modern technology still does not permit drilling at great depths in difficult climatic conditions. Therefore, the available estimates for hydrocarbon reserves and resources in this region are anticipated rather than substantiated.

This fact fully applies to Russia's Arctic shelf also. Currently the task immediately ahead for the Russian Federation is of acquiring new data on geological structures and resources for the least-surveyed eastern Arctic, taking into account all the problems which the world's major oil and gas companies have run up against in the Arctic.

As regards the land in the Arctic, where Russian specialists have already been working for more than 40 years, its degree of development is considerably high. In particular, approximately 90% of Russia's natural gas is produced in the Arctic within the Yamal-Nenets Autonomous Okrug.

The development of the hydrocarbon resources of the Arctic shelf, however, is associated with a series of natural and climatic, technological, environmental, economic, and other problems. The development of the Arctic shelf is incredibly complex, and expensive, and no one is able as yet to eliminate the risks completely.

A special potential hazard is the accumulation of gas hydrates on the Arctic shelf. Global warming may give rise to the dissolution of the hydrates. The methane released at that time would lead to future warming. In this way a self-accelerating feedback process may begin.

Therefore, many specialists in Russia quite reasonably consider that we can get by without the Arctic shelf deposits for many years, that in this case there is no need to be in a hurry, and it is better to approach matters very carefully, selecting effective and the least dangerous technologies. At the same time, there is no doubt of the necessity for active geologic exploration of the entire Arctic shelf, in order to know what Russia actually possesses, and the economic feasibility (the profitability of projects), the availability of technologies, and the questions of the safe development of hydrocarbon resources will decide the order of priority for operations in the various Arctic targets for development.

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