

Offshore drilling in the Arctic Ocean



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Growing interest

While the debate around drilling in the Arctic Ocean has been ongoing since the 1970s, there has been a recent surge in interest as exploitation of the substantial natural oil and gas resources in the Arctic continental shelf is now being considered as a potentially viable option.

Proven offshore oil and gas fields have been found along Russia's vast Arctic shelf in the Barents, Pechora and Kara Seas. The Norwegian Arctic is viewed as a possible source to replace declining outputs from the mature fields in the North Sea. Oil and gas exploration licences have been issued by Greenland, Canada and Iceland, with more licences anticipated in the immediate future. Russia, Canada and Norway have been growing their icebreaker fleets and shore-based infrastructure to support activities in the emerging Arctic economy. They, along with the United States, Denmark, Finland and Sweden, have geographical claims to the Arctic continental shelf. In 2007, Russia even sailed a submarine to the North Pole, where it planted a titanium flag. The industry's interest in the Arctic Outer Continental Shelf is understandable in light of the significant resource potential it has to offer. Nearly 13% of the world's undiscovered oil reserves and 30% of its undiscovered gas reserves lie north of the Arctic Circle, according to a US Geological Survey. Those estimates don't even include so-called unconventional oil and gas deposits such as hydrocarbons found in shale rock or methane hydrates on the sea floor.

The environment

The difficulties posed by the remote and harsh Arctic environment create a very unique set of operating circumstances for even the most advanced operator. Icebergs and Arctic storms can shear apart offshore drilling units, large tankers and support vessels. As a result, human and environmental disasters are highly likely. The difficulties of remoteness cannot be underestimated. In Alaska, co-ordinating a response to an oil spill or capsized vessel could take days or weeks, whereas in the other 49 US states,

response times for a similar incident are measured in hours. The lack of preparedness was dramatically highlighted in Shell's 2012 Alaska Offshore Oil and Gas Exploration programme. After seven years of planning and an estimated \$5bn investment, the programme was abandoned following a series of technical, safety and procedural failures, culminating in the grounding of the Kulluk rig near Kodiak, Alaska.

The risks

Below, we highlight some of the unique additional risks involved in offshore drilling in the Arctic Ocean:

1. Remoteness and lack of adequate infrastructure

The areas around the Beaufort and Chukchi Seas lack even the most basic infrastructure such as roads, ports, airports, hospitals, and basic housing and shelter that would be necessary to support the people involved in a response to a pollution, blowout, sinking, grounding or human-error incident. The nearest permanent Coast Guard facility is more than 1,000 miles away in Kodiak, Alaska. The lack of response vessels in the area would significantly delay any emergency response. At present, the US operates just one functional ice-breaking vessel. Even when sourced and mobilised, the effect of the extreme environmental conditions on vessels and equipment thereon remains largely untested and unproven.



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2. Weather

Extreme and unpredictable weather conditions prevail even during the summer months. Factors such as extreme cold, extended periods of darkness, hurricane-strength storms, sea ice and pervasive fog will hamper regular operations involved in exploratory drilling and sea transport to varying extents, and could create significant difficulties and delays to emergency responses.

3. Climate change

While melting sea ice is one of the factors that have piqued interest in the region, opening sea routes for extended periods and creating longer seasonal ice-free periods, it is also a reflection of an unstable environment that is rapidly transforming in response to climate change. The Arctic region is warming at around twice the rate of the rest of the globe. Further, the current rates of carbon dioxide emissions are drastically increasing the acidity of the Arctic Ocean, which is particularly susceptible to the effects of carbon dioxide due to cool water temperatures and low levels of salinity. So the already limited scientific knowledge we have in the region is constantly shifting, rendering planning for industrial activities unpredictable and uninformed.

4. Lack of scientific knowledge

The rare and fragile species that have survived and flourished in the harsh Arctic environment remain largely a mystery. The impact of a significant oil spill or blowout on these is unpredictable based on the limited studies and research into the ecosystem. A 2010 US ecological report concluded that major gaps exist in Arctic science and research that would be required to adequately prepare for drilling in this challenging environment.

5. No unified or coherent legislative structure

Despite the dangerous conditions, outside of domestic waters, the Arctic has no mandatory requirements for those operating in or passing through international waters in the region. There are no designated shipping lanes or requirements for ice-strengthened hulls to withstand the extreme environment, ice navigation training for ships' masters or even the production and carriage of updated navigation and ice charts. At present, domestic regulatory regimes are set by the eight individual Arctic states. The domestic regimes are complemented by numerous voluntary measures, most notably those provided by the Arctic Council, comprised of representatives of the Arctic states, indigenous peoples, and observer states

and organisations. Industry bodies have also recognised the need for specific Arctic best practice guidelines. The absence of a mandatorily applicable regime setting minimum standards for operating in Arctic waters, together with a predictable legal and limitation regime, creates another layer of risk for operators and their insurers.

Conclusion

The purpose of this article is not to take a view as to the industry's readiness to embark upon exploratory offshore drilling in the Arctic Ocean. There are undoubtedly significant energy and mineral resources out there, and with so many powerful border nations, competition to claim and profit from the area seems inevitable. However, there has been an acknowledgement by some of the major oil and gas operators, including Total, Statoil (and arguably Shell, in its decision to abandon its 2012 drilling campaign), that the decision to pursue Arctic exploitation will eventually be an economic one. The costs of exploration are only the tip of the iceberg, with massive investment in infrastructure required to deliver the oil and gas to the consumer markets. The insurance industry as a whole will look closely at the additional risks and liabilities involved in operations in these new frontiers. The private insurance sector has warned of a "unique and hard-to-manage risk" in responding to an oil spill in highly sensitive environments. P&I underwriters will continue to strive to support their member's operations in all frontiers; however, the difficulties posed by the unique Arctic environment will require a detailed and tailored risk analysis so that the member and club are adequately prepared for all eventualities.