



Arctic Drilling: an update on our engagements

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The Arctic is emblematic of a question investors are increasingly asking themselves: is it possible to excuse mid- to long-term risk for the sake of maximizing short-term profits? As it is both one of the most pristine and sensitive regions on Earth and sitting atop valuable hydrocarbon reserves, it occupies a key intersection of potential short-term economic opportunity with major long-term environmental and social risk.

Arctic ice cover is already diminishing, and with it are the barriers companies have historically faced in extracting the region's oil and gas. More Arctic hydrocarbon exploration and production would create more warming-inducing local pollution and greenhouse gas emissions from global use of the hydrocarbons, further decreasing the ice cover and leading to a vicious cycle. Moreover, a remote Arctic oil spill could also spell disaster for the region's biodiversity and its millions of inhabitants, as current clean-up technology remains largely inadequate to handle such events.

Four years after our first study, [*Offshore Oil In The Arctic: Should Investments Be Frozen?*](#), the Arctic's hydrocarbon resources are attracting more attention than ever from oil majors and governments seeking to exploit them. The United States recently issued new licenses for exploration and production in the Arctic offshore and is considering opening more waters for drilling. Norway has just narrowly avoided making similar decisions.

So, the Arctic is plainly at risk. Mirova has been engaging on the subject since 2014, when it began discussions with fossil fuel companies holding licenses to explore the Arctic offshore. Through an initiative with about 20 other investors, it has encouraged companies to increase transparency around their activities in the region, elaborate on the economic reasoning behind these activities, and to commit to moratorium of offshore drilling in the region.

In 2016, Mirova's engagement efforts began to address policymakers as well, encouraging the creation of an unlimited moratorium on all hydrocarbon exploration activities in unsovereign Arctic waters, development of a common framework across the region for increased environmental protection, and stricter, more uniform operational standards for existing licenses.

These efforts have been well-received by civil society, the press, and to some extent, the financial sector. In 2017, Natixis, Credit Agricole, Societe Generale, and BNP Paribas' announced that they would no longer finance fossil fuel exploration and production in the Arctic. However, expanded public support will be the crucial next step to produce concrete positive effects in the region.

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As mentioned in our 2014 publication *Offshore Oil In The Arctic: Should Investments Be Frozen?*, the oil and gas industry may be inclined to pursue further development in the region, provided it will be able to face the technological challenges posed by harsh operating conditions, especially far offshore exploration (Mirova, 2014).

Four years later, Mirova has carried out extensive engagement with companies operating in the Arctic to request greater disclosure of financial and operational risks as well as a firm commitment to improve protection of the region through a self-imposed moratorium of exploration activities in offshore, ice-covered areas. Nevertheless, we are convinced that without a strong signal from international policymakers, climate change, the potential disappearance of the Arctic permafrost in the summer months, and low ice levels in the winter may attract further investments and pave the way for accelerated exploration in offshore waters.

1. Oil and Gas Extraction in the Arctic

Arctic sea ice has decreased in every season and every successive decade since 1979, and Arctic sea ice cover in 2016 was the second-lowest ever recorded. Between 1979 and 2012, average sea ice cover declined by 3.5%-4.1% each decade (IPCC, 2013). If global temperatures are kept below a 1.5°C increase, it is unlikely that the Arctic will ever become ice-free, but under a 2°C scenario there is a 1-in-3 chance that this would occur by the end of the century (Screen & Williamson, 2017).

This poses a direct risk to the fragile and unique Arctic ecosystem, where sea ice is the foundation for the region's life; its disappearance could have tragic, irreversible effects. Algae, for example, grow on the underside of sea ice. It is eaten by krill, which is then eaten by fish, which is then eaten by seals. Less sea ice would remove the bottom rung of this hierarchy, leading to consequences throughout the entire food chain – including for humans. Impacts on the four million people living in the region could be significant if local communities are fragmented and their ability to hunt is reduced.

Nonetheless, melting sea ice could present opportunities for some. Shipping routes might open (see Appendix 2), but more crucially, the Arctic holds vast oil and gas resources. The region's fossil fuel reserves are estimated at approximately 90 billion barrels of oil, 1669 trillion cubic feet of natural gas, and 44 billion barrels of natural gas liquids (USGS, 2008). This amounts to almost 30% and 13% of the world's undiscovered gas and oil, respectively.

The size of these resources has proven tempting for both governments and fossil fuel companies. The Arctic States (see Appendix 1) have allowed oil and gas exploration and production in the region without developing a unified set of regulations for the industry. And while all companies involved in hydrocarbon exploration and production face a myriad of sustainability concerns, like maintaining high worker safety standards, reducing local environmental impacts, and more, the harsh geological and meteorological features of the Arctic exacerbate the hazard. Companies operating in the region, especially offshore, must therefore pay particular attention to their environmental and social risk management practices.

3.5-4.1%

Average decline per decade in Arctic sea ice coverage between 1979 and 2012

(IPCC, 2013)

30%

Share of the world's undiscovered **gas** likely to be found in the Arctic

(USGS, 2008)

13%

Share of the world's undiscovered **oil** likely to be found in the Arctic

(USGS, 2008)

Figure 2: Arctic map of Mirova's investor statement



Moratorium and Limits on Exploration Rights

- International waters
Request that governments establish an international moratorium that permanently prohibits offshore oil exploration.
- Territorial waters or exclusive economic zones (EEZs)
Request that governments consider their commitments to reduce greenhouse gas emissions before renewing current licences or granting new exploration licences;
For current licences, establishment of more consistent, stricter regional regulations on operational criteria.

Company Commitments to Offshore Drilling

- Summer sea ice (September 2016)
- Winter sea ice (March 2016)
- Unfrozen sea water
Request that companies commit to a de facto moratorium on offshore drilling in Arctic sea ice.
- Identified exploration sites (partial data)
Request that companies publish the quantity and locations of licences held and their expiration dates;
Inform investors and other stakeholders of their intentions for use of these licences.

Respect and Preservation of Biodiversity Areas

- Areas of heightened ecological importance
Terrestrial Marine
Request that governments establish measures protecting areas of heightened ecological importance as defined by the CAFF;
Request that companies commit to banning all hydrocarbon exploration in areas of heightened ecological importance as defined by the CAFF, whatever their legal status, on the basis of a precautionary approach.
- Arctic Council Member States
- Indigenous Peoples granted Permanent Participants status on the Arctic Council
- Boundary for Conservation of Arctic Flora and Fauna (CAFF)
- Canadian and US 5-year moratoria on granting new gas and oil exploration permits in Arctic waters

Sources: Centre for Borders Research (BRU), Durham University; National Snow and Ice Data Center (NSIDC), University of Colorado Boulder; the CAFF. Cartography: Agnès Skierne, 2017.

1.1 Offshore Drilling Risks

Specific challenges are present in the case of offshore drilling: ice formation and floating icebergs during the winter and summer, respectively.

In case of icebergs and ice floes, operators have multiple options to prevent collisions and damage. Monitoring and management systems allow companies to predict large movements in ice on open waters, so they can either move the platform or the ice to avoid impact. For example, fragments of ice floating towards the platform can be identified so that ice management vessels can steer the frozen fragments away or break them down further. Anticipating such movements depends on constant observation through live radar, satellite images, aerial photographs, and navigation charts.

Then, even if projects' average distance from shore (currently 150km) was extended to enable a near-complete appraisal of the circumpolar region, existing infrastructure is largely incapable of safely transporting hydrocarbons over such long distances in the extreme Arctic environment.

Altogether, potential ice formation, iceberg impacts, and insufficient transportation infrastructure lead to sizeable environmental concerns: to what extent are operators able to respond to an accident with limited local infrastructure and harsh conditions? How can they ensure adequate, continuous management of their environmental and social risks during such short operational time frames? What if the ice management systems are not enough to prevent mishaps? How can these companies minimize their negative effects on the region's biodiversity?

Shell's 2016 attempt to drill in the Chukchi Sea built on proven gravity-based structure technology to face heavier and larger ice loads in open water. It was the first of its kind, at over 240km from the Alaskan shore and considerable ocean depth. The company abandoned the exploration after disappointing exploration results, but only after it cost the company over \$7 billion (Macalister, Shell abandons Alaska Arctic drilling, 2015).

1.2 Onshore Drilling Risks

Onshore Arctic exploration and development projects benefit from significantly lower overall risk exposure than their offshore counterparts. Though they too suffer from harsh working conditions stemming from very low temperatures, operations can continue into the winter since there is no pack ice, and oil spills are accessible to clean-up teams.

Even so, onshore operations need to account for a host of other operational issues. For example, the structural integrity of pipelines could be compromised during the summer months – especially in the case of rising temperatures – if they are situated on top of thawing permafrost. New onshore facilities also necessitate the construction of an accompanying airfield and roads, since they are typically located far from human settlements. Then, during some parts of the year, roads may face greater structural sensitivity due to weather and climate conditions.

1.3 Accelerating Climate Change

The idea of expanding fossil fuel exploration and production activities already seems to be in direct opposition to the international climate goals set at COP 21. But, it is then even more difficult to reconcile the idea that drilling for more oil in the Arctic is effectively taking advantage of the global warming and sea ice melt caused by our dependence on fossil fuels.

Furthermore, if activity in the region was to increase, more industrial pollution, especially black carbon emissions resulting from increased shipping, may accelerate warming in the region. Black carbon consists of particles emitted by incomplete combustion processes and is particularly present in fumes of nautical transportation. Since it absorbs sunlight efficiently, its presence atop icy surfaces reduces the amount of solar energy reflected to space.

Climate change could thus trigger a vicious cycle whereby the prospect of increasingly tangible economic opportunities could further accelerate ice melting in the region.

2. Mirova's Engagement

For investors, many points remain unanswered about the level of risk incurred by companies wishing to explore the Arctic region, especially in the context of ice-covered marine waters and many operational challenges. Even if the statistical likelihood of an Arctic oil spill is difficult to assess, such an event could result in irreversible damages to the environment and severe consequences for the indigenous people who subsist in the region. Related decontamination costs and potential fines for companies are also difficult to estimate. For investors committed to sustainable development, encouraging the development of new drilling techniques by the oil sector is also contradictory to preservation of biodiversity, as well as opposed to the Paris Agreement commitments to limit greenhouse gas emissions.

Since our first publication on Arctic fossil fuel exploration and production in 2014 (Mirova, 2014), Mirova has initiated engagement with a few target companies detaining offshore exploration licenses in the region. The initiative, in partnership with 18 other investors, was initially aimed at encouraging oil companies to improve transparency in their management of operational risks and to explain the economic reasoning behind their involvement in the Arctic.

After a first assessment of the companies' responses, the engagement moved to a second phase in 2015. Mirova and 23 additional signatory investors invited the target companies to commit to best practices by disclosing their operational and financial risk exposure prior to proceeding to oil exploration in ice-covered Arctic waters. However, the sector's geopolitical and macroeconomic situation was not favorable at the time as oil prices reached all-time lows. Consequently, most companies froze their high-cost extraction projects in the Arctic and the future of their licenses remained unclear.

Within this macroeconomic context and following numerous policy-level commitments aimed at enforcing Arctic protection, Mirova decided to step up its engagement efforts by also addressing policymakers (see Appendix 1 for more information about governance of the Arctic region). In November 2016, at Casablanca's Climate Finance Day, Mirova presented an investor statement asking for better protection of the Arctic, representing 19 international investors with more than 5,000 billion euros of assets under management. It invokes the incompatibility of oil drilling, especially in pristine environments like the Arctic, with the emissions reduction pledges made at COP21. Then, the investor statement was sent to the Arctic Council and a dozen fossil fuel companies with licenses to explore in the Arctic offshore.

For policymakers, it requests:

- The creation of an unlimited moratorium to all hydrocarbon exploration activities in Arctic High Sea areas (like the North Pole);
- For Arctic states to consider national climate change mitigation commitments prior to renewing existing or granting of any additional exploration licenses across their Arctic territories;
- Development of a common framework across the region for increased protection of areas of heightened ecological importance, independent of their legal status using a precautionary approach;
- Stricter, uniform operational standards pertaining to Arctic drilling for outstanding existing licenses.

\$5 trillion

Assets of the international investors that supported Mirova's investor statement in November 2016

For targeted O&G companies:

- Disclose the number and location of the licenses held in the Arctic, along with their expiry dates;
- Inform investors and other stakeholders of the company's intentions to use and potentially extend these licenses;
- Commit to a de-facto moratorium of offshore drilling in Arctic in marine waters covered by ice;
- Ban all hydrocarbon exploration in the regions of the Arctic where ecologically important zones have been identified, independent of their legal status with a precautionary approach.

3. Next Steps

Mirova's investor statement was welcomed in the press and by various stakeholders from civil society, contributing to the growing momentum in favor of a better protection of the Arctic. First steps in this direction were taken in December 2016 by US President Barack Obama and Canadian Prime Minister Justin Trudeau, with a moratorium on granting exploration licenses for their respective Exclusive Economic Zones. The maintenance of these measures is threatened today in the United States by the latest announcements of Trump administration. Norwegian authorities, after opposition of NGOs and a change of government, reversed their previous stance in January 2018, announcing that they do not intend to issue hydrocarbon search and reconnaissance licenses in the next four years and will not allow oil exploration or production in a protected area near the Lofoten Islands and the Vesterålen Archipelago located above the Arctic Circle. Many non-Arctic countries have increasingly committed to a better protection of the area. France, for instance, published its National Roadmap for the Arctic in 2016, outlining its interest in increasing scientific cooperation in the region, as well as implementing a multi-sector, precautionary environmental approach based on the conservation of Arctic marine ecosystems (Republique Francaise, 2016). The financial sector has also demonstrated an encouraging and growing involvement with decisions from Natixis, Credit Agricole, Societe Generale, and BNP Paribas to end financing of fossil fuel exploration and production in the Arctic region. To better protect the area, there remains much to be done.

Mirova, through its CEO Philippe Zaouati, has reiterated its willingness to pursue the Arctic engagement along with other investors, in order to move towards real protection of the area. First, the engagement will be continued through direct dialogue with oil and gas companies operating in the Arctic region. The signatory investors of the statement will continue to monitor how companies improve their transparency around their Arctic activities and their commitments to better protecting the region. Secondly, Mirova will also seek greater international support from additional stakeholders in the financial sector to support the statement and its requests. Finally, Mirova will further engage with public authorities, especially with the French administration and the new Finnish chairmanship of the Arctic Council, to renew its request for strong protection of the Arctic via a moratorium of all oil exploration activities in its ice-covered waters.

Appendix

1. Arctic Sea Shipping Routes

Under a greater-than-2°C scenario, the Arctic may experience greater economic activity as new, more secure shipping routes open up. At present, harsh winter conditions in the Arctic necessitate large investments in order to secure vessels. With the central part of the Arctic Ocean permanently covered by ice, shipping vessels are often led by an icebreaker to clear the route. If ice cover lessens to a severe enough extent, icebreakers and the sizeable operating costs associated with them would be effectively reduced. Then, increased access to shipping routes could also foster investments in hydrocarbon transportation, which would be critical for more extensive development of the Arctic hydrocarbon resources. While oil pipelines (like the U.S. Trans-Alaskan Pipeline System) have facilitated transport of hydrocarbon liquids, there are no viable gas transportation options. If a gas transportation route is established, large volumes of natural gas – not just oil – would be available for export from the Arctic.

Clearly, more accessible transport routes would be favorable for companies seeking to take advantage of the region's hydrocarbon resources. While we recognize the attractiveness of this from companies' operational and cost standpoints, we believe the long-term value of preserving the natural order of this region outweighs any economic benefit. Economic growth in the region, whether due to shipping or oil and gas activities, would have negative impacts on the local ecosystem and, ultimately, global climate stability.

2. Governance of the Arctic

The Arctic region is comprised of five sovereign states: Russia, Norway, Denmark, the United States, and Canada. Together, these states coordinate under a self-regulatory body called the Arctic Council, which aims to preserve national sovereignties in the region. The area is inhabited by over 4 million people that speak over 40 languages.

Beyond the onshore areas falling under each Arctic state's sovereignty, the offshore area of the Arctic is divided into:

- Arctic coastal States' Exclusive Economic Zone (EEZ) refers to areas within a 200-nautical mile limit from the coast, where each State defines its own regulation.
- The High Sea (which corresponds roughly to the North Pole) represents international waters, an unsovereign area. Technically, it belongs to everyone. Extraction activities are currently unrestricted, but they remain technically unfeasible.

In our view, the fact that the Arctic is governed by a group of sovereign nations makes reaching consensus to prevent oil drilling substantially more complicated. Interestingly, this is in direct opposition to the governance of the Antarctic, which is subject to a single, international treaty which explicitly forbids all resource extraction.

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