



# ASSESSING THE ECONOMIC RISKS OF NEW OIL AND GAS INVESTMENTS IN THE BARENTS SEA

CLIMATE CONSTRAINTS, COST EXPOSURE  
AND LONG-TERM VALUE IN A NET-ZERO WORLD



## Executive summary

- The Barents Sea represents a fundamentally different investment environment from the rest of the Norwegian Continental Shelf, characterised by higher structural costs, longer development timelines and greater execution risk.
- All major oil and gas projects developed in the Barents Sea to date have experienced significant cost overruns, materially exceeding those observed in the North Sea and the Norwegian Sea. These overruns reflect persistent structural factors rather than one-off project issues.
- Limited existing infrastructure, particularly for gas export, materially constrains commercial development. Existing LNG (liquified natural gas) capacity is fully utilised for decades, while new pipeline solutions depend on optimistic assumptions regarding resource availability, costs and long-term gas prices.
- Break-even prices in the Barents Sea are structurally higher than in other regions across all project life cycles. For new discoveries and undiscovered resources, break-even oil prices are well above levels consistent with a capital-disciplined investment environment.
- Portfolio-level NPV (net present value) analysis shows that value creation is largely confined to projects already producing or under development. Under lower oil price scenarios, sanctioned discoveries and further exploration become value destructive.
- Undiscovered resources, including acreage close to existing infrastructure, offer limited upside under optimistic price assumptions and show clear downside risk under more conservative scenarios, indicating a high probability of stranded assets.
- The investment case is further weakened by market risk, particularly declining and increasingly uncertain long-term EU gas demand under climate-aligned scenarios, increasing the risk of underutilisation of new export infrastructure.
- Beyond project economics and market fundamentals, Barents Sea developments are exposed to material non-market risks. These include severe nature and liability risk in Arctic operations, uncapped environmental liability under Norwegian law, and elevated geopolitical and security risk related to sabotage and hybrid threats.
- Together, these factors imply higher earnings volatility, increased capital impairment risk and higher costs of capital compared with other Norwegian offshore regions.
- Overall, new oil and gas investments in the Barents Sea present a high-cost, high-risk proposition with limited upside and substantial downside exposure, requiring investors to apply a significant risk premium and carefully reassess capital allocation decisions.

# Introduction

## Why the Barents Sea Matters to WWF

The world is facing a climate crisis driven, with devastating consequences for people and nature, primarily by the combustion of fossil fuels. To meet the goals of the Paris Agreement and limit the most severe impacts of global warming, there is no room for new oil and gas investments. For this reason, WWF works to ensure that Norway refrains from further exploration and development of new oil and gas fields.

The Barents Sea is of particular concern. As part of the Arctic, one of the world's most vulnerable and ecologically important regions, it hosts unique ecosystems and species, including marine mammals, seabirds, and polar bears. Expanding hydrocarbon activities in this remote region significantly increases environmental risk. Oil spills, underwater noise from seismic surveys and shipping, and industrial disturbance threaten fragile ecosystems that are highly sensitive to disruption. Harsh climatic conditions and limited emergency response capacity further amplify these risks. A major accident could have long-term and potentially irreversible impacts on ecosystems, biodiversity, and the livelihoods of Indigenous peoples and northern communities.

## Why this report focuses on profitability

WWF believes that climate and environmental considerations alone justify leaving Barents Sea oil and gas resources undeveloped. However, economic arguments often carry greater weight in decisions made by policymakers, financial institutions, and shareholders.

This note therefore focuses on financial risk. It outlines why the Barents Sea differs fundamentally from other parts of the Norwegian continental shelf, due to higher costs, greater technical and environmental risk, and increased exposure to regulatory and market uncertainty.

The analysis is intended to support investors in asking critical questions of companies operating in, or considering investments in, the Barents Sea. It also serves as a reminder to Norwegian decision-makers, who must assess whether issuing new licenses and shouldering significant investment costs through the petroleum tax system represents a responsible use of public resources in a world that must rapidly reduce its reliance on fossil fuels.

*This report has been produced by WWF Norway, questions about the report can be directed to senior advisor climate and energy Guro Lystad at [glystad@wwf.no](mailto:glystad@wwf.no).*

# Table of contents

- EXECUTIVE SUMMARY ..... 2**
- INTRODUCTION..... 3**
  - Why the Barents Sea Matters to WWF ..... 3
  - Why this report focuses on profitability ..... 3
- PETROLEUM ACTIVITY IN THE BARENTS SEA: STATUS AND OUTLOOK ..... 5**
- RESOURCE POTENTIAL: THEORETICAL VOLUMES VERSUS INVESTABLE OPPORTUNITY ..... 6**
- COST PERFORMANCE IN THE BARENTS SEA..... 8**
  - Structural factors behind cost overruns in the Barents Sea ..... 9
- BREAK-EVEN LEVELS AND INVESTMENT ECONOMICS ..... 10**
  - Portfolio-level profitability and exploration risk ..... 11
  - Case study: Wisting ..... 12
- GAS EXPORT CONSTRAINTS AND PIPELINE RISK IN THE BARENTS SEA ..... 13**
  - Mismatch between long-term supply investments and climate-aligned demand ..... 15
- NON-MARKET RISK EXPOSURE: ENVIRONMENTAL AND GEOPOLITICAL FACTORS ..... 17**
  - Nature, climate and liability risk in the Barents Sea ..... 17
  - Geopolitical risk and security costs: sabotage risk to Barents Sea infrastructure ..... 18
- REFERENCES ..... 20**

## Petroleum activity in the Barents Sea: status and outlook

Petroleum production on the Norwegian Continental Shelf is divided across three main provinces: the North Sea, the Norwegian Sea, and the Barents Sea. Of these, the Barents Sea is the least developed region, yet it is frequently described by Norwegian authorities as the area with the greatest remaining resource potential<sup>1</sup>.

Exploration in the Barents Sea began in 1980, when parts of the southwestern Barents Sea were opened for petroleum activity. The southeastern Barents Sea, bordering Russia, was opened in 2013, while the northern Barents Sea remains closed to petroleum operations<sup>2</sup>. Although some Norwegian political actors advocate opening these northern areas, such a move would have significant geopolitical implications, as the area lies outside Norway's exclusive economic zone. In 2015, Russia formally protested proposals to make blocks outside Norway's economic zone available for exploration, arguing that this would violate the Svalbard Treaty<sup>3</sup>. Given the current geopolitical environment, it appears unlikely that Norwegian authorities will seek to provoke a Russian response by opening these areas to petroleum activity.

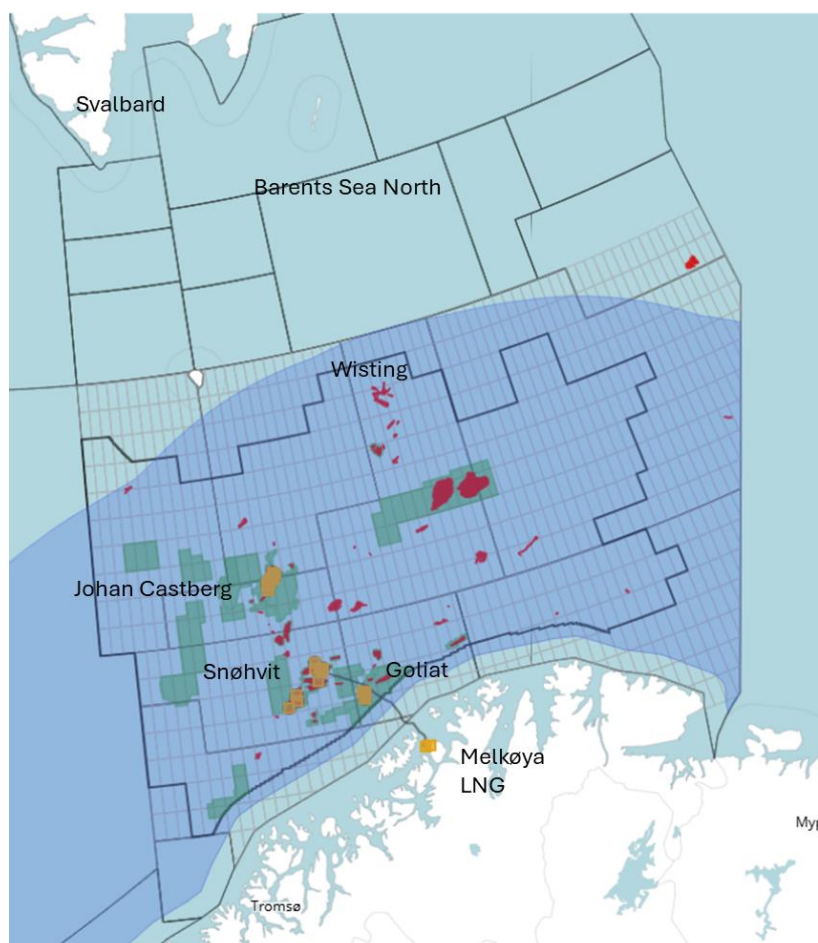


Figure 1: Map of the Barents Sea, yellow fields are producing fields, red fields are discoveries, green squares are active exploration licenses, the dark blue line shows all available area to apply for in the APA round for 2025, the light blue shadow shows the Norwegian economic zone. Map made at [Barentswatch.no](http://Barentswatch.no)

The Barents Sea is often characterised as a frontier region. This is, however, only partly accurate. The region has seen exploration activity for more than 45 years, with more than 184 exploration wells drilled to date. Notably, 42% of all discovered resources in the Barents Sea were found during the period from 1980 to 1990<sup>4</sup>.

Despite substantial exploration activity, few discoveries in the Barents Sea have been developed. The Snøhvit gas field came on stream in 2007, followed by the Goliat field in 2016 and the Johan Castberg field in 2025, both primarily oil developments with associated gas. The time from discovery to start-up for these projects averages nearly 18 years, significantly above the approximately 13-year average lead time for developments on the Norwegian Continental Shelf as a whole<sup>1</sup>.

Looking ahead, investment activity in the Barents Sea is limited. Planned developments mainly consist of small tie-back projects linked to Johan Castberg, as well as the Snøhvit Future project. The largest remaining discovery in the region is the Wisting oil field, located around 300 kilometres offshore. If developed, Wisting would become the northernmost producing oil field in the world. In 2022, Equinor postponed the investment decision for Wisting due to insufficient project profitability but has indicated that a revised investment decision may be considered in 2027<sup>5</sup>.

Interest in the Barents Sea was considerably higher during earlier licensing rounds. In the 22nd licensing round in 2011, exploration interest was strong, and a total of 35 companies applied for exploration acreage in the Barents Sea<sup>6</sup>. Since then, exploration results have been modest and industry interest has declined. Major international oil companies such as TotalEnergies, Shell and Exxon have withdrawn from exploration and development activities in the region<sup>7</sup>. In the 2025 APA (Awards in Predefined Areas) round, only three companies, Aker BP, Vår Energi and Equinor, were granted five exploration licences in the Barents Sea<sup>8</sup>.

### **Resource potential: theoretical volumes versus investable opportunity**

According to the Norwegian Offshore Directorate (NOD), the Barents Sea holds substantial potential in the form of undiscovered petroleum resources, and its estimates suggest that 62% of all undiscovered resources on the Norwegian Continental Shelf are located in the Barents Sea<sup>9</sup>. However, these figures are not based on what is realistically available for development or commercial extraction.

Approximately 54% of the resources the NOD estimates to be in the Barents Sea are situated in the northern Barents Sea, an area that is not open to petroleum activity and lies outside Norway's exclusive economic zone. This implies that any petroleum activity in this area would be exposed to legal and geopolitical challenges, including potential claims or opposition from other states. As a result, a significant portion of the estimated resource base is not accessible under current regulatory and political frameworks.

---

<sup>1</sup> Average for Barents Sea calculated by WWF, average lead time Norwegian shelf from <https://www.offshorenorge.no/contentassets/2101d366e41142a78aec13bee90187dd/notat-ledetid-norsk-sokkel.pdf>

Furthermore, around 50% of the NOD’s resource estimate for the Barents Sea consists of gas. Given the lack of available gas infrastructure, these resources cannot be processed or commercialised unless new infrastructure is developed. Until such investments are made, these gas resources remain effectively unavailable.

The NOD’s estimates also do not account for technical recoverability or economic viability. Large parts of the remaining resource base are located in remote, ice-prone areas far from existing infrastructure, where some of the highest estimated break-even prices range between 100 and 250 USD per barrel<sup>10</sup>. Under such cost structures, these resources are unlikely to meet return requirements in a capital-disciplined investment environment.

The grey bar in the figure shows an alternative estimate of undiscovered resources produced by Rystad Energy. Unlike the authorities’ figures, Rystad’s estimates incorporate profitability, technical recoverability and the probability of discovery. On this basis, Rystad estimates undiscovered resources at a level 78% lower than the figures reported by Norwegian authorities, highlighting the gap between theoretical resource potential and investable opportunity.

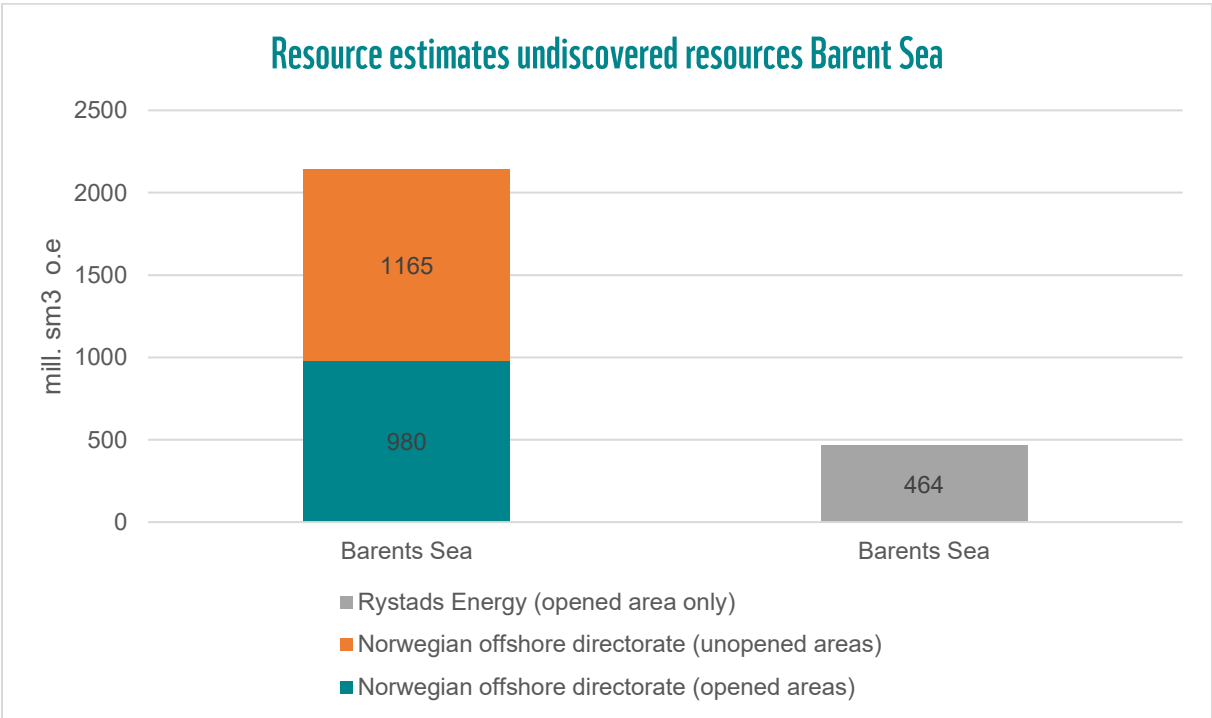


Figure 2: Graph comparing resource estimates for undiscovered resources from the Norwegian offshore directorate and Rystad Energy, Graph made by WWF (data from Norwegian Offshore Directorate and Rystad Energy)

## Cost performance in the Barents Sea

The Barents Sea stands out negatively compared with other regions on the Norwegian Continental Shelf when it comes to cost overruns. The table below summarises the projects that are either in production or under development, showing original approved project costs and final or latest cost estimates. All three producing projects have experienced cost overruns close to 50%, while Snøhvit Future, still under development with a planned start-up in 2029, has reported a cost increase of 14% to date<sup>11</sup>. When the Wisting investment decision was postponed in 2022, estimated project costs increased from USD 7.3 billion (2025 dollars) to USD 11 billion, a rise of 52% between February and November 2022<sup>12</sup>.

### Project cost changes in the Barents Sea (constant 2025 USD)

Project	Project approved	Original cost estimate (2025 USD bn)	Latest cost estimate (2025 USD bn)	Total change (2025 USD bn)	Total change (%)
Snøhvit Future	2023	1.43	1.62 (project is under development)	0.19	14%
Johan Castberg	2018	5.81	8.38	2.57	43%
Goliat	2009	4.10	6.48	2.29	56%
Snøhvit LNG (field+LNG plant)	2002	6.76	10.00	3.24	47%

Figure 3: Table comparing cost overruns in the Barents Sea, data compiled by WWF from the annual state budget from the Ministry of Energy

Development costs in the Barents Sea have consistently been significantly higher than in the North Sea and the Norwegian Sea, and all major Barents Sea projects to date have experienced substantial cost overruns. When these overruns are compared with all petroleum projects developed in the North Sea and the Norwegian Sea over the past twelve years, Barents Sea projects stand out clearly. Average cost overruns in the Barents Sea are close to 40%, compared with approximately 12% in the North Sea and just 2% in the Norwegian Sea.

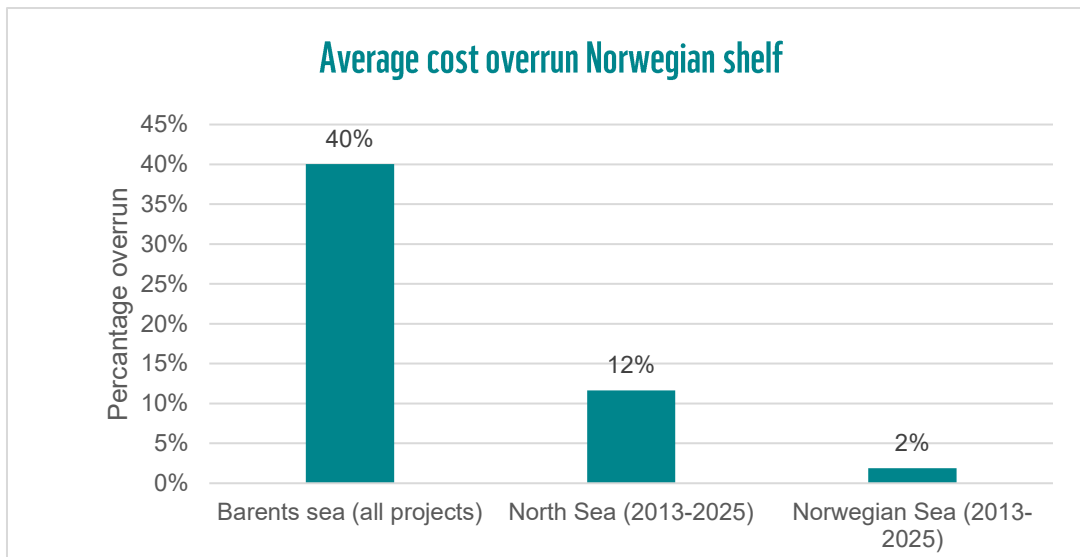


Figure 4: Average cost overrun for all four projects for the Barents Sea, and the average of all projects finalized between 2013 and 2025 in the North Sea and Norwegian Sea, data compiled by WWF from the annual state budget from the Ministry of Energy

### Structural factors behind cost overruns in the Barents Sea

These outcomes reflect a set of largely structural factors, geological uncertainty, harsh climate, long distances, infrastructure gaps, regulatory requirements and supplier market constraints, which taken together imply that elevated costs and execution risk are likely to persist unless underlying conditions change materially.

The Barents Sea remains a relatively immature petroleum province with higher subsurface uncertainty than the southern Norwegian continental shelf. Fewer proven discoveries and lower discovery density increase the risk that projects turn out smaller or more complex than initially assumed, raising unit costs and exposing developments to downside risks when reservoir performance falls short of expectations. This geological risk profile has repeatedly translated into revisions during the development phase<sup>13</sup>.

Harsh Arctic operating conditions further increase costs. Low temperatures, icing risk and extended periods of darkness necessitate specialised equipment, stricter safety procedures and more robust designs. Shorter effective construction and operating seasons raise the likelihood of weather-related delays. At the same time, only a limited number of rigs and vessels globally are suitable for Arctic operations, creating capacity constraints and higher day rates compared with more benign regions<sup>14</sup>.

A defining cost driver is the lack of existing infrastructure. Unlike the North Sea and Norwegian Sea, where new fields can often be tied back to established platforms, pipelines and onshore bases, Barents Sea developments largely require stand-alone solutions. The absence of gas export pipelines means gas must be reinjected or processed via dedicated LNG facilities, significantly increasing capital requirements. The Snøhvit project illustrates this dynamic, having to carry the full cost of its own LNG plant<sup>15</sup>. In addition, long distances to shore and support hubs increase logistics,

transport and emergency preparedness costs, resulting in a structurally higher cost base and greater sensitivity to delays or scope changes<sup>16</sup>.

Supplier-side factors add further risk. Activity in the Barents Sea has been intermittent, limiting the development of a competitive local supply chain. Equipment and services often have to be sourced from afar, and during industry upcycles this has led to capacity shortages and price inflation. Given the smaller pool of Arctic-capable resources, particularly drilling rigs, Barents Sea projects are especially exposed to supplier market tightness<sup>17</sup>.

Environmental and safety regulations are also more stringent in the north, reflecting the ecological sensitivity of Arctic waters. Requirements for zero discharges, enhanced oil spill preparedness and seasonal restrictions on seismic and drilling activities increase both costs and planning risk. Policy uncertainty, including changes to fiscal terms or environmental rules, can further complicate long-term investment decisions.

In the absence of shared infrastructure and accumulated experience, developers have frequently relied on bespoke, capital-intensive technical solutions. Projects such as Snøhvit, Goliat and Johan Castberg have been characterised by complex designs, new technology and project modifications during execution, factors that typically increase costs and execution risk relative to more standardised developments in the North Sea<sup>18</sup>. With only a handful of producing fields to date, the Barents Sea has also lacked the learning effects and established best practices that have improved cost control in mature provinces.

Taken together, these factors imply thinner margins and materially higher downside risk for Barents Sea developments. Recent cost escalation at projects such as Wisting, where estimated investments increased sharply, underscores that these challenges have not diminished. From an investor and policy perspective, this suggests that new Barents Sea projects are likely to require persistently high oil and gas prices to remain economically viable. The evidence to date points to cost challenges that are fundamentally structural, and therefore likely to persist for future developments.

## Break-even levels and investment economics

When comparing average break-even costs across regions, the Barents Sea stands out with significantly higher levels than other areas, both for fields already in production and for those currently under development. For discovered but not yet sanctioned fields, break-even prices are high across all regions. This largely reflects Norway's temporary petroleum tax package introduced in 2020, which provided highly favourable incentives for project development and led to the sanctioning of most discoveries that had previously been uneconomic.

With the tax regime now reverted to its ordinary framework, there is a very limited pipeline of commercially viable discoveries left to develop on the Norwegian continental shelf. For yet-to-be-discovered resources, the Barents Sea also exhibits

materially higher break-even levels than the North Sea and the Norwegian Sea, with an estimated average break-even price of around USD 142 per barrel<sup>19</sup>.

While break-even estimates for undiscovered resources are inherently uncertain and highly dependent on eventual field size and project design, they nonetheless illustrate a clear structural disadvantage for the Barents Sea. The elevated cost level is primarily driven by limited existing infrastructure, meaning that many developments would need to be stand-alone projects rather than being tied back to established production hubs.

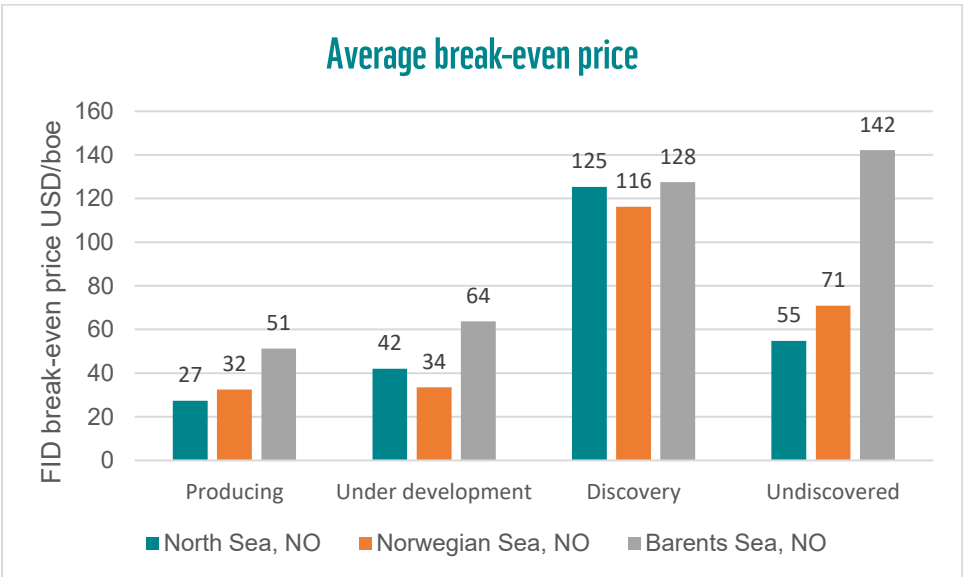


Figure 5: Average break-even price per area and lifecycle, calculated at the time of the final investment decision (FID) using a 10% discount rate, calculations done by WWF, data extracted from Rystad Energy

### Portfolio-level profitability and exploration risk

The figure below illustrates the net present value (NPV) of the Barents Sea portfolio from 2026 onwards, broken down by project life cycle.

As expected, projects already in production or under development show positive NPVs, as most of the capital expenditure has already been incurred. In contrast, sanctioned discoveries assumed to be developed in the Barents Sea turn value destructive under a lower oil price scenario of USD 35 per barrel<sup>2</sup>.

Undiscovered resources are divided into expected value within active exploration licences, largely located close to existing infrastructure, and resources in acreage that has not yet been awarded. For active licences, estimated returns are only marginal at USD 70 per barrel and turn negative at USD 35 per barrel. For undistributed acreage, exploration activity exhibits clearly negative NPVs under both the USD 70 and USD 35 scenarios. Taken together, the analysis indicates that

<sup>2</sup> The selection of assets used in the NPV calculations are only those that are deemed profitable under a 70 USD/bbl scenario, where the same portfolio is used for the 35 USD/bbl scenario, but allowing for an earlier shutdown if variable costs exceeds revenues. This differs from the break-even selection in figure 5 where assets with higher break-even prices also were included.

further exploration in the Barents Sea is structurally value destructive across price scenarios, with limited upside and substantial downside risk.

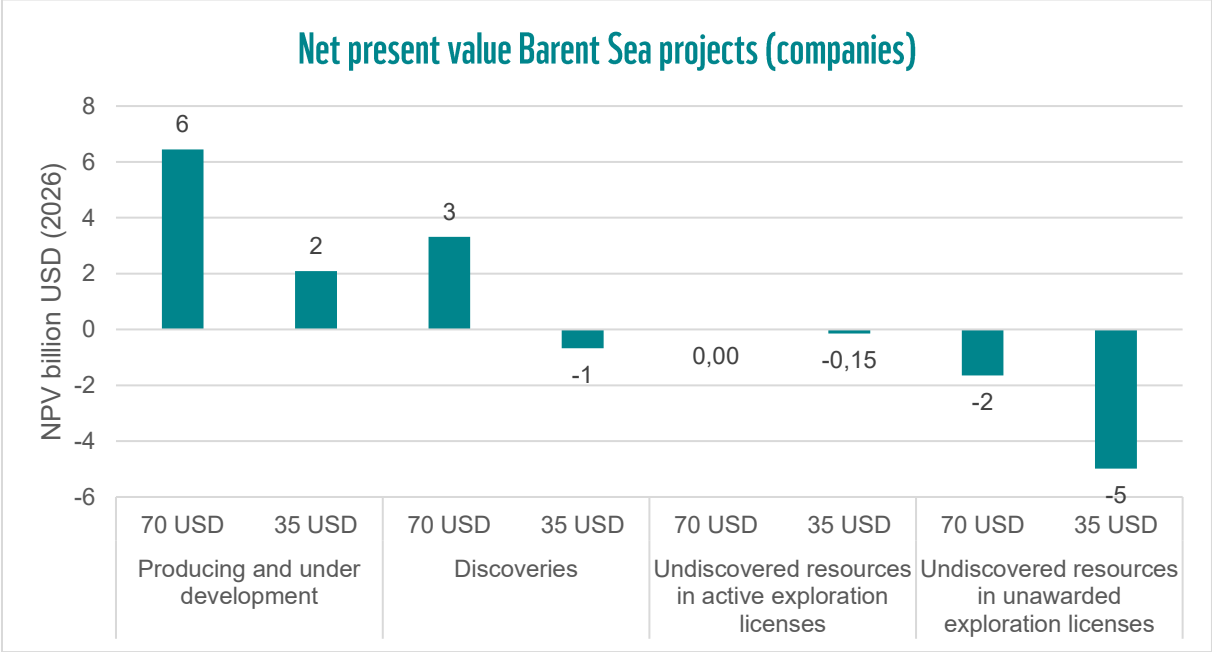


Figure 6: Net present value per lifecycle in two flat price scenarios (70 and 35 USD), using a 10% discount rate for the timeperiod 2026-2070. Calculations by WWF, data from Rystad Energy

**Case study: Wisting**

The largest remaining discovery in the Barents Sea is the Wisting field where Equinor is the operator and holds a 35% equity stake, alongside Aker BP (35%), Petoro (20%) and INPEX Idemitsu Norge (10%).

In 2022, Equinor decided to postpone the final investment decision (FID) for Wisting after concluding that the project did not meet its profitability requirements, despite the highly favourable petroleum tax incentives in place at the time<sup>20</sup>. While Equinor initially indicated that an investment decision could be taken in 2026, this has now been further deferred to 2027.

Wisting represents a material investment risk for Equinor and its partners. Equinor has stated an ambition for a break-even level of around USD 35 per barrel for new projects<sup>21</sup>, whereas Wisting is estimated to require a substantially higher oil price, with break-even estimates around USD 44 per barrel<sup>3</sup>.

The chart below illustrates the expected net present value (NPV) of Wisting under two oil price scenarios (USD 70/bbl and USD 35/bbl), as well as under a scenario with a 40% cost overrun on capital expenditures. Under the lower oil price scenario, the downside risk for investors, including the Norwegian state, is significant.

While some may argue that an oil price of USD 35 per barrel appears unlikely given current market conditions, it is important to note that Wisting is not expected to start production until around 2033, with peak production projected in 2035, approximately nine years from now<sup>22</sup>. For context, the average oil price in 2016 was USD 43.7 per barrel<sup>23</sup>. Moreover, today’s high oil prices could accelerate the energy transition, increasing uncertainty around the sustainability of elevated oil prices towards 2050.

<sup>3</sup> FID breakeven price with a 10% discount rate according to Rystad Energy

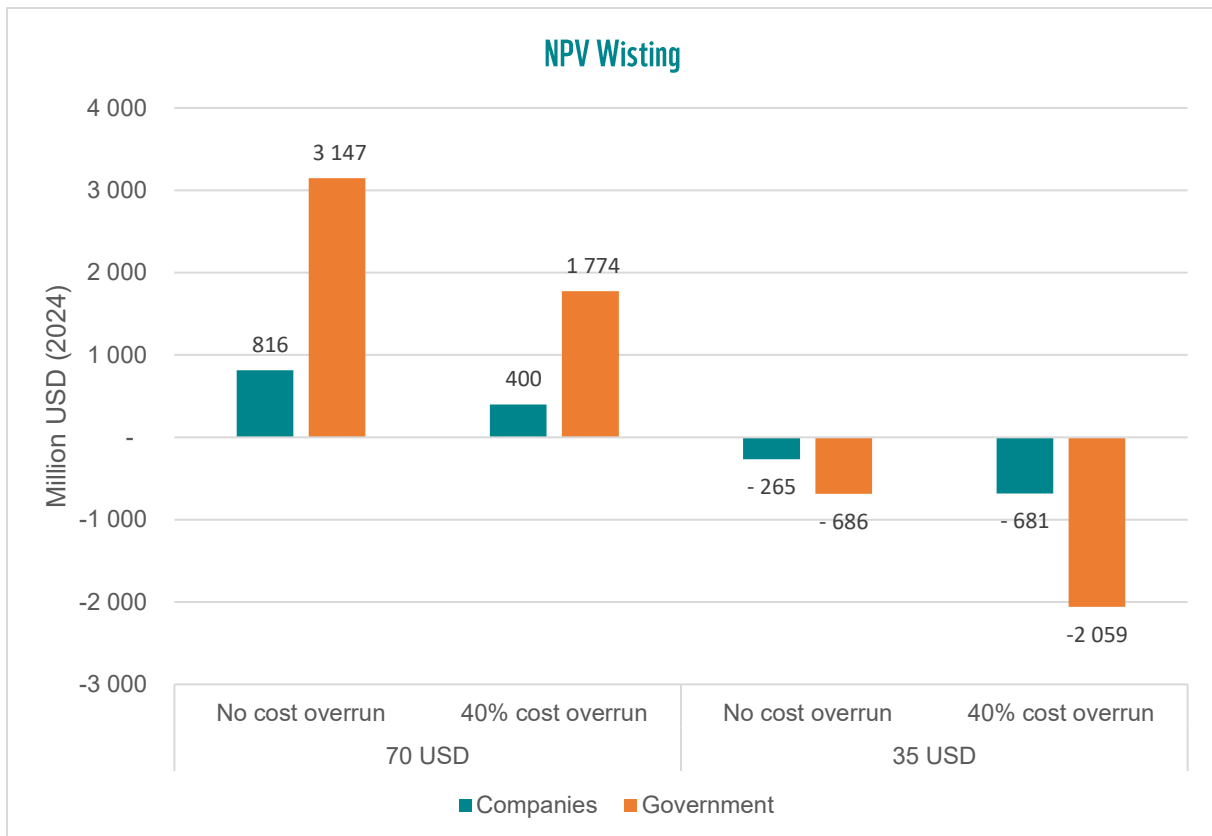


Figure 7: Net present value for the Wisting field, companies and government take (tax income only), using estimated cash flow between 2026 and 2070 with a 10% discount rate applied, calculations by WWF data from Rystad Energy

## Gas export constraints and pipeline risk in the Barents Sea

As previously noted, gas processing capacity relevant to Barents Sea developments is effectively committed to at least 2050 by production from already sanctioned and producing fields. This creates a structural constraint for any new gas discoveries in the region.

Whether a new Barents Sea gas export pipeline moves forward will ultimately be decided by the dominant upstream players: Equinor, Vår Energi and Aker BP. To date, Vår Energi and Aker BP, together with Gassco, have actively promoted the project, while Equinor has adopted a more cautious position. Equinor has repeatedly stated that current discoveries do not demonstrate gas resource volumes of sufficient scale or certainty to justify a new export pipeline. However, additional discoveries could alter this assessment, and Equinor has not ruled out participation over a longer time horizon<sup>24</sup>.

Despite this uncertainty, Gassco, the operator of Norway's gas transport system, published a study in 2023 concluding that a gas pipeline connecting the Barents Sea to the Norwegian Sea, combined with new onshore processing infrastructure, could be commercially viable. On this basis, Gassco recommended that oil companies pursue a large-scale area solution. However, the analysis rests on several highly questionable assumptions<sup>25</sup>.

First, Gassco's resource base relies heavily on the Norwegian Offshore Directorate's estimates of undiscovered gas resources. As discussed earlier, multiple indicators suggest these estimates are optimistic, particularly given declining discovery sizes,

limited exploration success, and geological constraints in large parts of the Barents Sea.

Second, Gassco estimates a pipeline investment cost of approximately USD 5 billion (2023 dollars), with annual operating costs of around USD 66 million (2023). Experience from recent Barents Sea developments suggests a significant risk that actual costs would substantially exceed these estimates, given the region's history of cost overruns and harsh operating conditions.

Third, Gassco assumes a development timeline of roughly seven years from final investment decision to start-up. Even if a pipeline were approved in 2026, this implies first gas no earlier than 2033, and quite possibly later. The economic analysis assumes a technical and commercial lifetime of 25 years, meaning the pipeline would need to operate near full capacity until at least 2058 to achieve acceptable returns.

Crucially, Gassco's profitability calculations are based on the fixed gas price level prevailing in 2023. This is a highly problematic assumption, as European gas prices in 2023 remained abnormally elevated following Russia's invasion of Ukraine in 2022 and the ensuing energy crisis. These price levels are widely recognised as temporary and not representative of long-term fundamentals, which is also reflected by the fact that current gas prices following the Iran war is at a much lower level than the gas prices in August 2022.

As illustrated in the figure below, historical EU gas prices compared with the IEA's STEPS, APS and NZE scenarios show that the constant price level assumed by Gassco lies well above projected prices in all three scenarios. In other words, the gas price required for pipeline profitability materially exceeds IEA-aligned expectations for the European market.

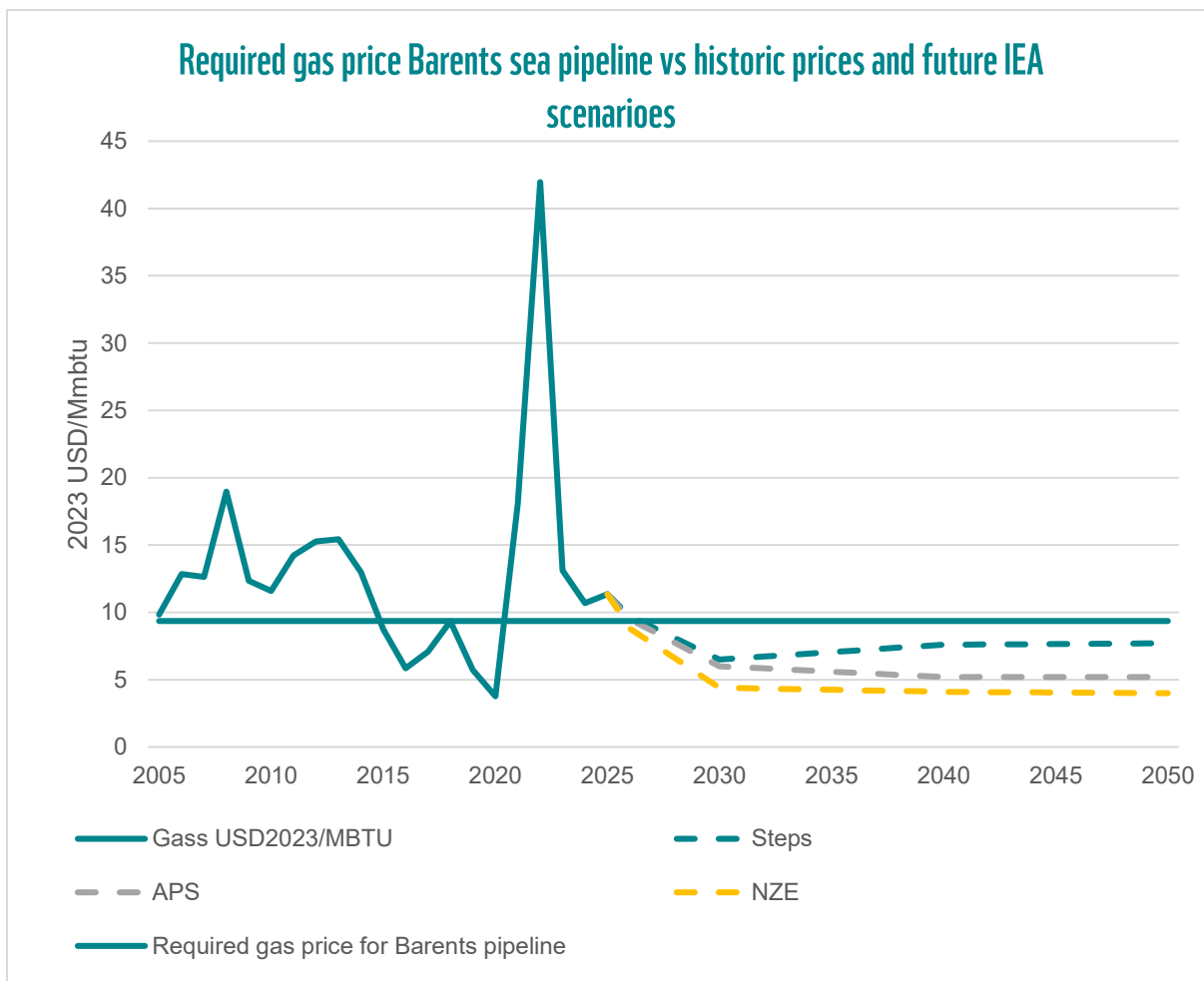


Figure 8: Graph showcasing historic gas prices adjusted to 2023-values, required gas price for new pipeline converted to USD/mmbtu and price scenarios from IEA 2024 for EU gas in Steps, APS and NZE scenario. Source: World bank, IEA, Gassco and norskpetroleum.no (conversion factors)

### Mismatch between long-term supply investments and climate-aligned demand

For a Barents Sea gas pipeline to be commercially viable under these conditions, the EU would need to commit to long-term gas offtake contracts spanning 20–25 years. This appears highly unlikely at a time when EU policy is explicitly focused on reducing fossil fuel dependence and accelerating electrification, energy efficiency, and renewable energy deployment.

Virtually all Norwegian gas production is sold to the EU and the UK, making European gas demand a critical determinant of long-term value and risk for Norwegian upstream assets. Recent data already points to a sharp structural shift. EU natural gas consumption declined by approximately 20–23 per cent between 2021 and 2024 reaching the lowest levels since the late 2000s<sup>26</sup>.

Across all EU climate-aligned scenarios consistent with the bloc’s binding 2030 target and the proposed 90 per cent net emissions reduction by 2040, long-term fossil gas demand falls sharply<sup>27</sup>. Under the European Commission’s proposed 2040 target, EU fossil gas demand declines by more than 70 per cent from current levels, even when allowing for flexibility through international carbon credits<sup>28</sup>. Consistent findings from EU Gas Insight show that supply exceeds demand well before 2030 in scenarios

aligned with REPowerEU, the IEA Announced Pledges Scenario (APS), and more ambitious decarbonisation pathways, pointing to a structural oversupply rather than a future security-of-supply gap<sup>29</sup>.

As illustrated by Strategic Perspectives' interactive modelling tool (figure 9), projected EU gas demand in 2040 can largely be met through imports via existing North Sea infrastructure. Against this backdrop, constructing a new Barents Sea gas pipeline, which would require sustained full-capacity utilisation until the mid-2050s to be commercially viable, represents a substantial investment risk. Even under relatively conservative policy assumptions, electrification, energy efficiency gains, renewables deployment, and increasing use of biogas and biomethane drive a sustained contraction in fossil gas demand.

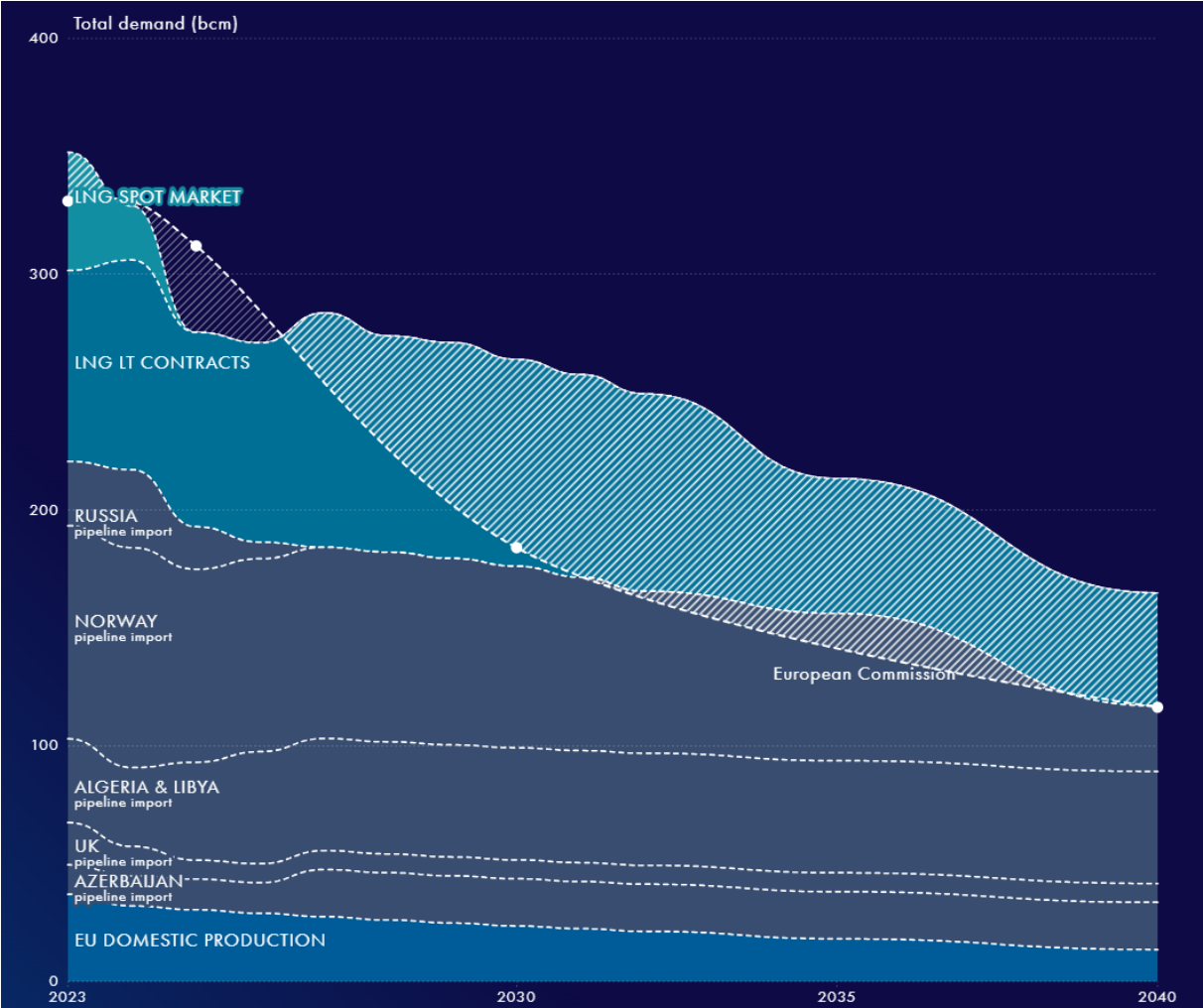


Figure 9: Screenshot from Strategic Perspectives interactive tool: EU gas insight, showing accumulated gas supply from different sources compared to demand in EU REpower trajectory

Taken together, the evidence indicates that new Barents Sea gas developments and a potential export pipeline would enter service into a shrinking and increasingly uncertain market; even if Norwegian production declines more slowly than EU demand, incremental volumes would face a high risk of underutilisation, margin compression, and stranded asset exposure as EU climate targets are implemented.

## Non-market risk exposure: environmental and geopolitical factors

Beyond project economics and market fundamentals, Barents Sea developments are also exposed to material non-market risks that can directly affect cash flows, asset values and access to capital.

### Nature, climate and liability risk in the Barents Sea

Oil and gas developments in the Barents Sea are associated with elevated nature- and climate-related risks that carry potentially material financial implications for operators and investors. The region forms part of the Arctic, one of the world's most environmentally sensitive and ecologically important marine areas, hosting vulnerable ecosystems and species, including marine mammals, key fish stocks and threatened seabirds. Industrial activity in this remote and climatically challenging environment inherently increases environmental risk, particularly from oil spills, physical disturbance and underwater noise from seismic surveys and maritime traffic<sup>30</sup>.

The consequences of accidents are exacerbated by Arctic operating conditions. Periods of darkness, ice, extreme weather and limited local emergency response capacity significantly reduce the effectiveness of mitigation efforts. A major incident in the Barents Sea would therefore be likely to result in long-lasting, and potentially irreversible, ecological damage, with spillover effects for coastal communities and nature-dependent industries.

These risks are increasingly reflected in international policy signals. The European Union has repeatedly argued for a moratorium on Arctic oil and gas development, citing environmental vulnerability, climate risk and growing economic and geopolitical uncertainty<sup>31</sup>. Several financial institutions and pension funds have also developed their own Arctic policies<sup>3233</sup>. Such developments indicate a broader shift in how Arctic petroleum activity is assessed by policymakers, regulators and financial markets.

The most acute financial exposures arise in the event of a major accident, particularly an oil spill in difficult-to-access waters. In Arctic conditions, a severe spill may escalate rapidly due to limited infrastructure and delayed response. Risk assessments from comparable Arctic regions indicate that, under worst-case scenarios, combined clean-up, damage and restoration costs can reach several billions of dollars over a relatively short time horizon<sup>34</sup>.

Industry insurance providers have warned that a large Arctic oil spill could exceed the financial scale of Deepwater Horizon, which resulted in total liabilities for BP of 65 billion USD<sup>3536</sup>. Historical precedents such as Deepwater Horizon and Exxon Valdez demonstrate that even comprehensive insurance and compensation schemes do not fully shield companies or public authorities from substantial residual losses<sup>37</sup>.

Legal and regulatory exposure further amplifies the risk profile. Under Norwegian law, petroleum operators are subject to strict, uncapped liability for pollution damage,

based on the polluter pays principle<sup>3839</sup>. There is no statutory limit on liability for blowouts or offshore oil spills, and companies may be held fully financially responsible for clean-up, environmental remediation and compensation claims, irrespective of fault. In addition to direct environmental costs, companies may face administrative sanctions, fines, civil claims from affected industries such as fisheries, and requirements to fund long-term ecosystem restoration measures. Regulatory scrutiny in northern waters has increased in recent years following assessments that emergency preparedness has been insufficient relative to risk<sup>40</sup>.

Beyond national regulation, expectations related to disclosure and management of nature- and climate-related financial risk are tightening. International frameworks such as the Taskforce on Climate-Related Financial Disclosures (TCFD) and the emerging Taskforce on Nature-related Financial Disclosures (TNFD) encourage investors and companies to systematically identify, assess and disclose exposure to environmental risks<sup>4142</sup>. Over time, inadequate consideration of such risks may translate into increased legal exposure, tighter regulatory oversight and reputational challenges.

From an investor perspective, major environmental incidents in the Barents Sea represent a significant reputational and market risk. Experience from past disasters shows that serious environmental damage can trigger sharp, immediate declines in share prices, suspension of dividends, asset sales and higher capital costs<sup>43</sup>. A large Arctic incident would likely also lead to higher insurance premiums and more restrictive coverage terms for Arctic operations. Several financial institutions and insurers have already reduced or withdrawn exposure to Arctic fossil fuel projects, reflecting both risk considerations and reputational concerns.

In sum, oil and gas development in the Barents Sea entails a complex and interconnected risk landscape. Financial outcomes are closely linked to exposure to nature and climate risk, the robustness of emergency preparedness, and the ability to manage legal and reputational consequences in the event of environmental harm. For investors, this implies a higher likelihood of downside risk, increased volatility and the need to price in potentially large, uncertain future liabilities.

### **Geopolitical risk and security costs: sabotage risk to Barents Sea infrastructure**

The geopolitical risk environment in the Barents Sea has deteriorated markedly. Hybrid warfare and sabotage, particularly linked to Russian capabilities, are now assessed as a persistent and credible threat to oil and gas infrastructure in the region. Proximity to Russia and the increasing strategic importance of the High North make the Barents Sea structurally more exposed than other parts of the Norwegian Continental Shelf. As a result, operators and investors face higher underlying risk and rising costs related to security, surveillance and preparedness<sup>44</sup>.

Since Russia's full-scale invasion of Ukraine in 2022, longstanding assumptions about Arctic stability have been replaced by a far less predictable security environment. Norwegian security authorities assess sabotage against critical offshore infrastructure as likely. Russia possesses advanced underwater capabilities, including specialised vessels and submersibles designed to map and potentially damage subsea cables and pipelines, with bases in close proximity to the Barents

Sea. Incidents such as the 2022 Nord Stream pipeline explosions and the earlier disruption of the Svalbard fibre-optic cable have shifted these risks from theoretical to plausible scenarios within a typical investment horizon<sup>4546</sup>.

Hybrid attacks operate in the grey zone between peace and war, often with unclear attribution and limited scope for direct military response. While relatively low-cost for the perpetrator, such actions can have disproportionate economic and operational consequences for affected assets. For Barents Sea projects, this translates into a structurally elevated threat level that must be reflected in project economics and risk assessments.

The tightened security environment has direct cost implications. Operators are required to increase spending on preventive measures, including enhanced monitoring systems, access control, maritime surveillance, emergency exercises and closer coordination with defence and security authorities. These measures raise operating costs and, in many cases, capital expenditure, while also increasing requirements for redundancy and operational robustness<sup>47</sup>.

The financial impact of a successful sabotage incident could be significant. An attack may result in immediate production shutdowns, extensive repair needs and substantial revenue losses. For a typical Barents Sea development, daily losses from halted production could amount to tens of millions of NOK, depending on volumes and commodity prices. Repair or replacement of damaged subsea infrastructure may reach multi-billion NOK levels, particularly given water depth and harsh weather conditions. Experience from the Nord Stream sabotage demonstrates an additional risk: insurance coverage may be denied if damage is classified as an act of war, potentially leaving companies to absorb losses directly on their balance sheets<sup>48</sup>.

Regulatory and legal exposure is also increasing. Norwegian authorities are expanding the application of the Security Act to critical energy infrastructure, imposing stricter requirements for security planning, compliance and reporting<sup>49</sup>. This entails higher compliance costs and greater exposure to regulatory intervention. Internationally, both NATO and the EU have prioritised protection of subsea infrastructure, which may lead to additional operational and disclosure requirements over time.

For investors, these developments imply heightened reputational and capital market risk. The Barents Sea is already viewed as a high-cost, high-uncertainty frontier region relative to the rest of the Norwegian shelf. Elevated geopolitical risk reinforces this perception. Even without a successful attack, increased attention to sabotage risk may lead to higher insurance premiums, tighter lending terms and a higher cost of capital for all operators in the region. Several international oil majors have already reduced or exited their Barents Sea exposure, reflecting these dynamics.

In sum, the geopolitical environment in the Barents Sea requires investors to price in a significant security and risk premium. Continued access to capital will depend on operators' ability to demonstrate robust risk management, credible security preparedness and resilience to operational, legal and financial shocks in an increasingly unstable security landscape.

## References

*WWF has used data purchased from the Rystad Energy database in several of its analyses. Rystad Energy has not been involved in the preparation of this report. WWF is solely responsible for all content contained herein.*

- <sup>1</sup> <https://www.sodir.no/aktuelt/publikasjoner/rapporter/ressursregnskap/ressursregnskapet-2025/>
- <sup>2</sup> <https://www.norskpetroleum.no/en/exploration/exploration-policy/>
- <sup>3</sup> <https://e24.no/norsk-oekonomi/i/wEBpLM/russland-protesterer-mot-oljeboring-i-svalbard-sonen>
- <sup>4</sup> <https://www.norskpetroleum.no/leting/leteaktivitet/#ressurstilvekst-per-havomrade>
- <sup>5</sup> <https://www.finansavisen.no/energi/2026/01/20/8321967/equinor-utsetter-beslutningen-for-wisting-feltet-til-2027>
- <sup>6</sup> <https://safe.no/36-selskaper-i-22-konsesjonsrunde/>
- <sup>7</sup> [www.nrk.no/rogaland/gigantene-forlater-norsk-sokkel\\_-\\_-det-bor-bekymre-1.13432236](http://www.nrk.no/rogaland/gigantene-forlater-norsk-sokkel_-_-det-bor-bekymre-1.13432236)
- <sup>8</sup> <https://www.sodir.no/fakta/utvinningstillatelser/konsesjonsrunder/tfo-2025/>
- <sup>9</sup> <https://www.sodir.no/aktuelt/publikasjoner/rapporter/ressursrapporter/ressursrapport-2024/>
- <sup>10</sup> Rystad Energy database
- <sup>11</sup> Data from Prop 1 S 2004-2025 from Ministry of Energy
- <sup>12</sup> [Wisting-anslagene har økt med 50 prosent siden februar | Tu.no](http://Tu.no)
- <sup>13</sup> [– Minst 30 prosent dyrere å utvinne i Barentshavet | Tu.no](http://Tu.no)
- <sup>14</sup> [Dette er de største utfordringene med oljeutvinning i Barentshavet | Tu.no](http://Tu.no)
- <sup>15</sup> [Åpner for gassrør til Barentshavet – det kan koste 53 milliarder kroner | Tu.no](http://Tu.no)
- <sup>16</sup> [Dette er de største utfordringene med oljeutvinning i Barentshavet | Tu.no](http://Tu.no)
- <sup>17</sup> [– Minst 30 prosent dyrere å utvinne i Barentshavet | Tu.no](http://Tu.no)
- <sup>18</sup> [Nok en milliardsprekk for Johan Castberg | DN](http://DN)
- <sup>19</sup> Data extracted from Rystad Energy database
- <sup>20</sup> <https://www.dn.no/marked/energi/equinor/olje/equinor-utsetter-omstridt-oljeprosjekt-etter-kostnadssprekk-og-skatteinstramning-betydelig-risiko-for-ytterligere-okninger/2-1-1350584>
- <sup>21</sup> <https://www.dn.no/energi/equinor/olje-og-gass/equinor-skal-tjene-like-mye-pa-olje-og-gass-i-2035/2-1-1594882>
- <sup>22</sup> Rystad Energy database
- <sup>23</sup> <https://www.norskpetroleum.no/interaktivt-kart-og-arkiv/figurer-og-hurtignedlasting/>
- <sup>24</sup> [Equinor ser foreløpig ikke nok Barents-gass til et nytt gassrør](http://Tu.no)
- <sup>25</sup> [Utkast til BSGI 2019 rapport norsk](http://Tu.no)
- <sup>26</sup> <https://www.enerdata.net/publications/reports-presentations/decline-natural-gas-consumption-eu.html>
- <sup>27</sup> [Rapport-On-thin-ice.pdf](http://Tu.no)
- <sup>28</sup> <https://menon.no/en/projects/eu-demand-for-norwegian-natural-gas-in-2040>
- <sup>29</sup> [EU Gas Insight | Strategic Perspectives](http://Tu.no)
- <sup>30</sup> <https://www.arcticwwf.org/threats/oil-and-gas/>
- <sup>31</sup> [https://ec.europa.eu/commission/presscorner/detail/en/speech\\_24\\_5388](https://ec.europa.eu/commission/presscorner/detail/en/speech_24_5388)
- <sup>32</sup> <https://www.storebrandam.com/en-IE/sustainability/active-ownership/nature-engagement-theme-2024-2026/>
- <sup>33</sup> [https://cdn-group.bnpparibas.com/uploads/file/bnpparibas\\_csr\\_sector\\_policy\\_oil\\_gas.pdf](https://cdn-group.bnpparibas.com/uploads/file/bnpparibas_csr_sector_policy_oil_gas.pdf) stor
- <sup>34</sup> [Arctic oil spill cleanup costs could reach \\$9.4B over 5 years, says risk analyst | CBC News](http://CBC News)
- <sup>35</sup> [Skuld: Major Spill in the Arctic Would Cost More - Offshore Energy](http://Offshore Energy)
- <sup>36</sup> <https://www.theguardian.com/business/2018/jan/16/bps-deepwater-horizon-bill-tops-65bn>
- <sup>37</sup> [Exxon to Pay Record One Billion Dollars in Criminal Fines and Civil Damages in Connection with Alaskan Oil Spill | About EPA | US EPA](http://About EPA | US EPA)
- <sup>38</sup> <https://9pdf.net/document/y963x79d-ansvar-foreureningssskader-kontinentalsokkelen-analyse-ansvarsreglene-petroleumsloven-sj%C3%B8loven-foreureningsloven.html>
- <sup>39</sup> <https://lovdata.no/dokument/NL/lov/1981-03-13-6>
- <sup>40</sup> [Oljevernberedskap](http://Tu.no)
- <sup>41</sup> [Task Force on Climate-Related Financial Disclosures | TCFD\)](http://TCFD)
- <sup>42</sup> [The Taskforce on Nature-related Financial Disclosures](http://Tu.no)
- <sup>43</sup> <https://nypost.com/2010/06/26/stormy-weather-bps-stock-hits-new-low/>
- <sup>44</sup> <https://www.klimastiftelsen.no/publikasjoner/barentshavet-i-spill>
- <sup>45</sup> <https://edition.cnn.com/2025/11/15/europe/russias-nord-stream-pipelines-europe-intl>

---

<sup>46</sup> <https://www.nupi.no/en/publications/cristin-pub/the-subsea-cable-cut-at-svalbard-january-2022-what-happened-what-were-the-consequences-and-how-were-they-managed>

<sup>47</sup> [Responderer på risiko](#)

<sup>48</sup> [Nord Stream Insurers Deny Policies Covered War Risks in UK Lawsuit](#)

<sup>49</sup> [Risiko 2025 - Nasjonal sikkerhetsmyndighet](#)

# A FUTURE IN WHICH HUMANS LIVE IN HARMONY WITH NATURE



© Mark Carwardine



Vi jobber for å stanse naturødeleggelse og skape en framtid der mennesker lever i harmoni med naturen.

sammen for naturen [wwf.no](http://wwf.no)

**WWF Verdens naturfond**, organisasjonsnummer 952330071. MVA og registrert i Norge med reg.nos. © 1989 pandasyμβolet og ® «WWF» registrert varemerke av Stiftelsen WWF Verdens naturfond (World Wide Fund for Nature). Postboks: WWF Verdens naturfond, Postboks 6784 St Olavs Plass, 0130 Oslo. Besøksadresse: Pilestredet 8, 0180 Oslo. Tlf: 22 03 65 00. E-post: [giverservice@wwf.no](mailto:giverservice@wwf.no). Nettside: [www.wwf.no](http://www.wwf.no).