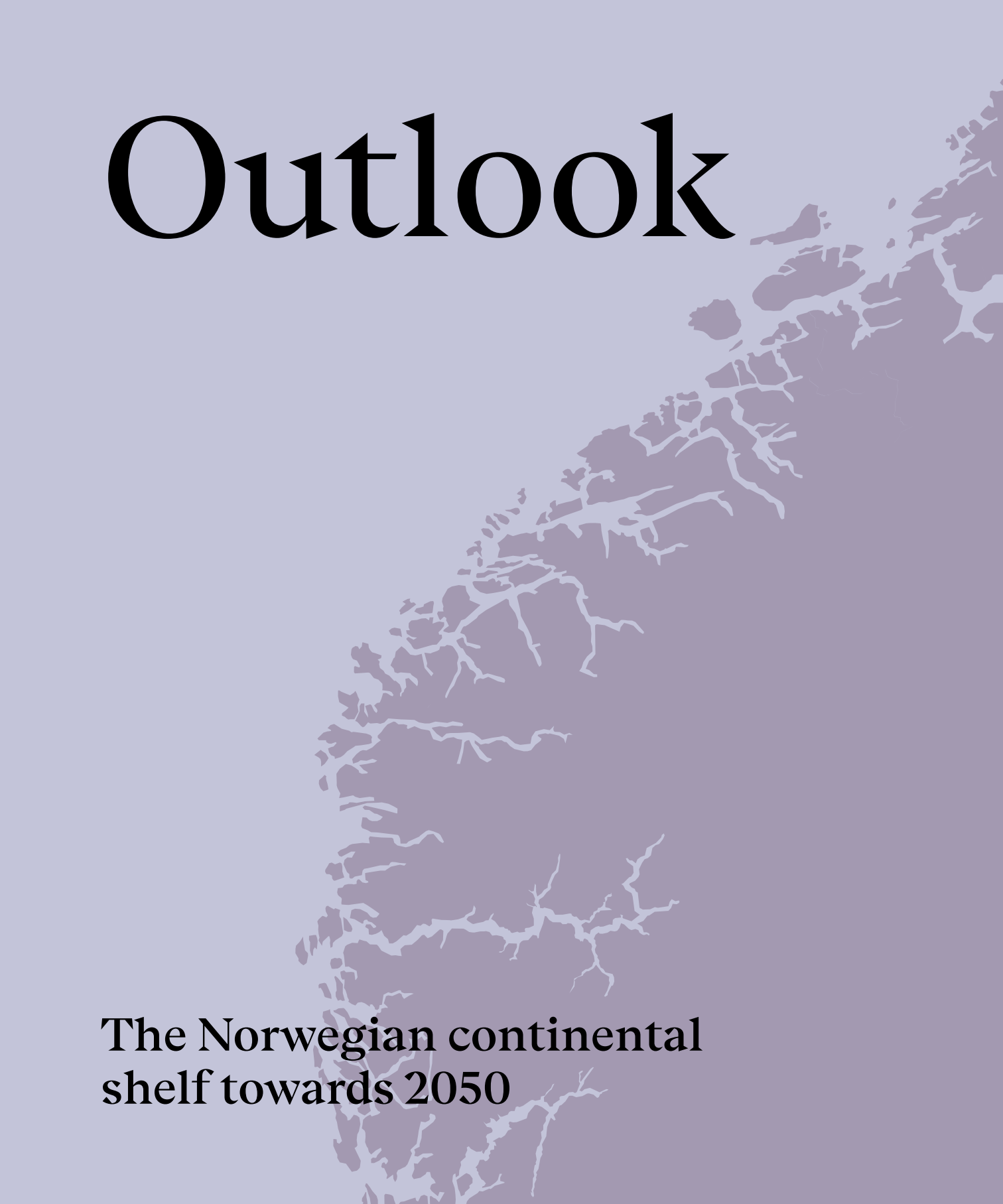


Outlook



**The Norwegian continental
shelf towards 2050**

This report is KonKraft's contribution to the debate on how we can ensure the competitiveness of the Norwegian continental shelf through to 2050.

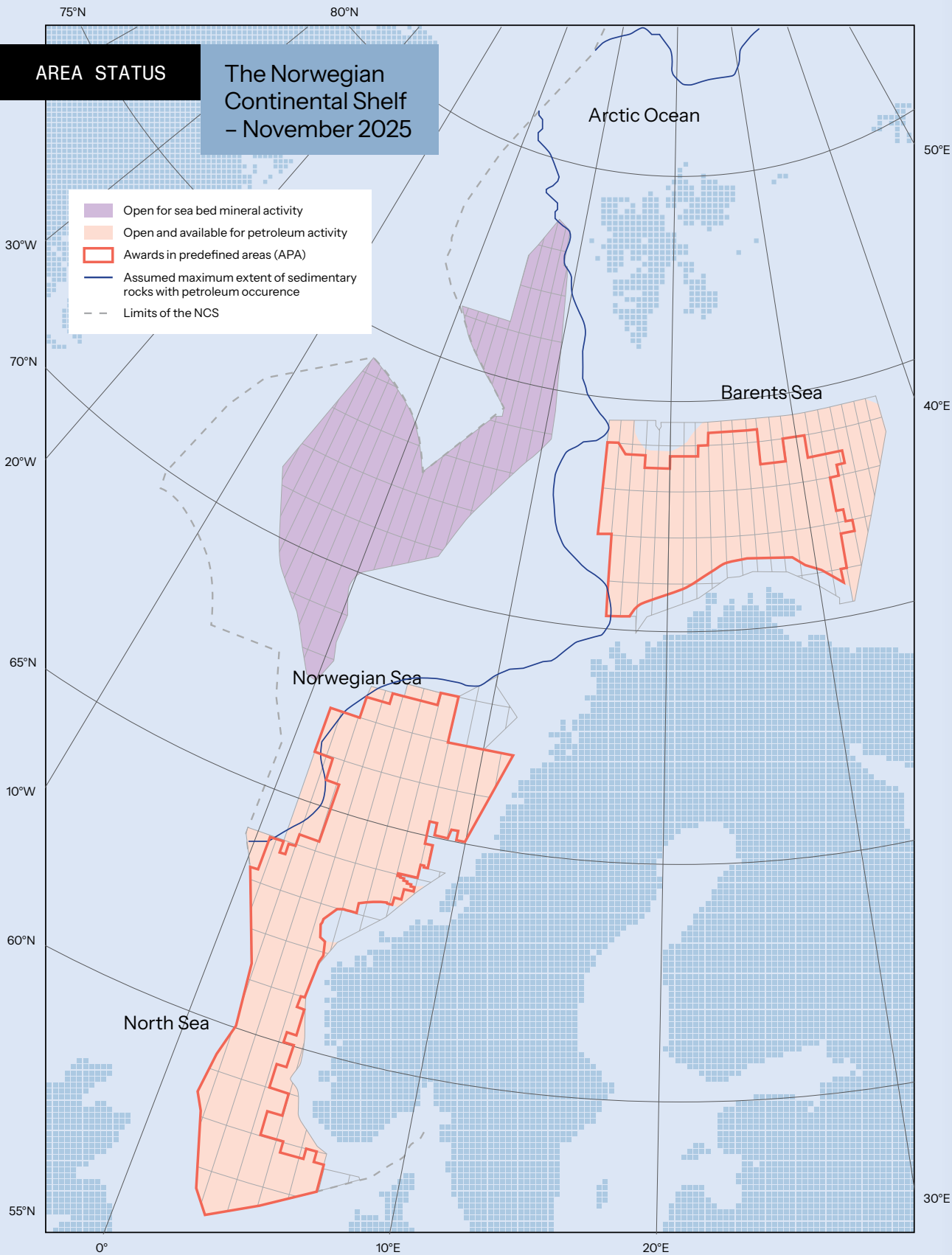
By maintaining oil and gas production and developing new offshore industries, Norway can continue to supply energy to Europe and the rest of the world, while also creating value, jobs and wider economic benefits across the country.

Outlook

The Norwegian continental
shelf towards 2050

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This report has been prepared by the KonKraft partnership. KonKraft is a collaborative forum for the Norwegian Shipowners' Association, Offshore Norge, the Federation of Norwegian Industries, the Confederation of Norwegian Enterprise (NHO), the Norwegian United Federation of Trade Unions, Styrke and the Norwegian Confederation of Trade Unions (LO). KonKraft aims to help shape national strategies for the petroleum sector and works to maintain the competitiveness of the Norwegian continental shelf, ensuring that Norway remains an attractive destination for investment from the Norwegian and international oil and gas industry, including suppliers and the maritime industry. This report has been approved by the Council, KonKraft's highest governing body.

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August 2026



Continued high value creation and employment

The war in Ukraine and the closure of the Strait of Hormuz as a result of the war in the Middle East have affected the entire global economy. The International Energy Agency (IEA) has described the disruption to oil and gas supplies as the greatest threat to global energy security ever seen. The long-term consequences remain unclear, but the situation demonstrates very clearly just how important political stability is to the world’s energy supplies.

Stable and predictable operating conditions have been an important prerequisite for the competitiveness of the Norwegian continental shelf for several decades. They have helped support oil and gas production with low greenhouse gas emissions, high levels of value creation and substantial revenues for all of society.

Ever since Norway’s oil industry first took off, its development has been marked by long periods of major discoveries and field developments in the form of platforms, production facilities and extensive infrastructure. This activity has helped create a world-leading supply industry and a network of shipyards along the Norwegian coast. What’s more, Offshore Norge’s economic impact analysis shows that the oil and gas industry supports more than 200,000 jobs across the country.

The continental shelf is now entering a more mature phase, marked by a shift from major field developments towards smaller discoveries tied to existing fields and infrastructure. The main challenge now is to moderate the expected decline in future production – not least in order to help safeguard Europe’s energy security. At the same time, significant undiscovered resources still remain on the Norwegian continental shelf. The potential is especially large in the Barents Sea, which is the least developed part of the shelf. Oil and gas will remain important to Europe – Norway’s most important market – both as sources of energy and as industrial inputs in the run-up to 2050. Even in a scenario where the EU and the UK meet their climate targets, demand for oil and gas will exceed Norway’s production capacity over the coming decades.

If we are to uphold and maintain value creation, industrial development, activity levels and employment, and to preserve Norway’s position as a stable energy supplier to Europe, we need to change. More needs to be done faster, better and more simply, while still maintaining high standards of safety and emergency preparedness for people and the environment. Cooperation and partnerships will become even more important. The framework conditions must support continued exploration, development and production. The way in which we manage our shared petroleum resources must now be adapted for a new era.

At the same time, we must also work to develop new industries on the Norwegian continental shelf. There is considerable potential for offshore wind, carbon storage and seabed minerals, and the development of these industries will be crucial if we are to meet our climate targets, limit global warming and succeed in the energy transition.



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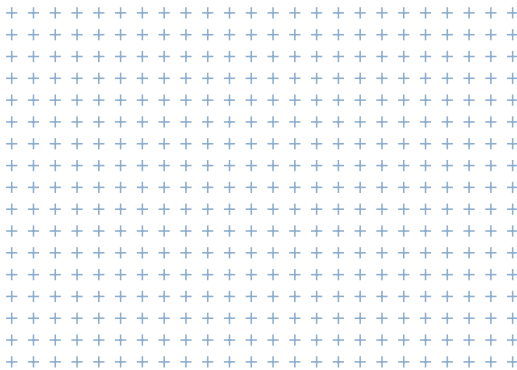


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Key points



In just a few years, Norway’s role as a secure and reliable supplier of low-emission energy has gone from being important to becoming critical to Europe’s long-term security and competitiveness. The Norwegian continental shelf will be crucial to the EU and UK’s energy security and security of supply in the decades ahead. There will be a long-term need for oil and gas, at the same time as new low-emission energy industries emerge and greenhouse gas emissions are reduced.

The Norwegian continental shelf is maturing, and oil and gas production is expected to peak within the next few years. At the same time, there is good reason for optimism. After more than fifty years of activity on the Norwegian continental shelf, over 40% of the estimated resources have yet to be produced. Although the time of many major discoveries and field developments may be largely behind us, significant opportunities remain. In the future, activity on the Norwegian continental shelf will increasingly focus on maximising value from existing fields, developing smaller discoveries near existing infrastructure, improving efficiency and further reducing emissions. This will require a new approach to the continued development and management of the Norwegian continental shelf from stakeholders across the entire value chain, as well as from political decision-makers and the authorities. At the same time, the Norwegian continental shelf is competing for capital, expertise and capacity in an international market. The framework conditions, cost levels, lead times and availability of efficient infrastructure must therefore all work collectively to make Norway an attractive location for commercially viable projects.

More efficient exploration, development and operations, as well as new forms of collaboration, faster decision-making and greater standardisation, will all be key to success. This applies to both existing and new areas. At the same time, safety must be maintained for personnel, the environment and equipment.



For Norway to remain a reliable energy supplier and for the Norwegian continental shelf to maintain its competitiveness through to 2050, KonKraft believes that we must have the following foundations in place:

Working on the Norwegian continental shelf must be safe	The offshore industries must maintain a high standard of health, safety and working environment (HSE). The political framework underpinning this is based on the Norwegian model, cooperation with the authorities and fit-for-purpose legislation.
Predictability for investments and long-term framework conditions	The framework conditions must remain stable, and companies must be able to make investment decisions with a low level of political risk. This condition is essential to unlocking value-creating activities and forms the very foundation for investment in technology development and new value chains.
Long-term spatial planning	Access to attractive, fit-for-purpose areas is a fundamental condition for all offshore industries. This means the regular allocation of new areas for oil and gas exploration and carbon storage, as well as suitable areas for offshore wind development, and good areas for seabed mineral extraction.
An effective climate and environmental policy	The oil and gas industry must reduce greenhouse gas emissions from oil and gas production to near zero by 2050. This means the oil and gas industry will be treated on an equal footing with other industries and afforded a similar degree of predictability to implement greenhouse gas reductions.

The Norwegian model

The Norwegian model has been, and will remain, the backbone that ensures the competitiveness of the Norwegian continental shelf, supporting high levels of value creation and world-leading HSE practices and standards. The industry has developed through tripartite cooperation between employers, employees and the authorities.

A high level of productivity is essential to competitiveness in a country such as Norway, with its high costs and high standard of living. Productivity growth is possible because the industry is innovative, and because the Norwegian model fosters continuous learning among the workforce and close links between employees and management.

The core of the Norwegian model is:

The welfare state and its universal welfare benefits

Economic governance through monetary and fiscal policy

An organised labour market with coordinated wage formation

In Norway, the social partners, the government, parliament and key institutions all work together to safeguard a sustainable welfare society. This way of working together and organising society is known as the Norwegian model. The way the different elements of the Norwegian model work together has been crucial to maintaining high levels of employment, low levels of inequality and a competitive business sector.



Penguins FPSO, Dogger Bank B and DolWin epsilon in Haugesund. Photo: Øyvind Sætre / Aibel

KonKraft's recommendations for a competitive Norwegian continental shelf towards 2050

Oil and gas

KonKraft recommends that Norway facilitate oil and gas production on the Norwegian continental shelf in line with the Norwegian Offshore Directorate's high scenario¹. Even in a market where Europe meets its climate targets, Europe will still need this volume of oil and gas. Reliable supplies of low-carbon oil and gas from Norway will therefore remain important to Europe's energy security – both today and in 2050. This will require a long-term, cross-party plan for petroleum activities that supports the following:

¹ [Scenarios, The Norwegian Offshore Directorate](#)

Predictable, fit-for-purpose and competitive framework conditions

Stability in the petroleum tax regime is essential to maintaining investment appetite on the Norwegian continental shelf. At the same time, the framework conditions must be adapted to a more mature continental shelf, where commercially viable resources are increasingly smaller, more time-critical and dependent on the efficient use of existing infrastructure. Costly, ill-suited requirements and regulations must be removed. The petroleum sector should not face a higher overall carbon price than other sectors, and the carbon tax should be reduced as the price of emissions allowances rises.

More efficient, fit-for-purpose processes

There is a need to improve regulations and standards, shorten processing times, strengthen cooperation, streamline processes, and ensure that reporting requirements are adapted to individual projects and the development of more advanced technology. This applies to the award and relinquishment of licences, drilling, development and production, and the decommissioning of fields.

Access to attractive and suitable areas

Access to attractive and suitable areas is essential to the continued exploration and development of the Norwegian continental shelf. This means continuing and expanding the Awards in Predefined Areas (APA) system to cover all available acreage currently open for petroleum activities. At the same time, consideration should also be given to making previously opened areas that have already undergone environmental impact assessment available again, while further knowledge must also be gathered on areas that have not yet been opened.

The potential of marginal discoveries close to existing infrastructure must be realised

The window for developing many marginal discoveries is beginning to close. There is therefore an urgent need to ensure predictable, commercially viable access that allows for the utilisation of existing infrastructure before it is phased out. This will help unlock remaining resources while maintaining high standards of safety and environmental protection, with a lower overall footprint than new developments.

Predictability for further emission cuts on the shelf

The Norwegian continental shelf is entering a critical phase of investment and development in long-term oil and gas production with a low carbon footprint. The industry must be given the predictability it needs to deliver further emissions reductions when developing new fields.

Political support for the continued development of the oil and gas supply industry and associated value chains

This is important for maintaining jobs throughout all of Norway and contributes to the development of sustainable solutions, innovation and competitiveness both on the Norwegian continental shelf and in export markets.

Offshore wind



The decisions taken during the current parliamentary term will determine whether Norway has sufficient power and a competitive industrial foothold heading into the 2030s and 2040s. A targeted offshore wind initiative can strengthen the power balance, provide the electricity needed by households and industry, help bring down electricity prices, reduce emissions, create jobs and build export opportunities. This will require an offshore wind strategy that combines momentum with predictability and gives Norwegian businesses a sound basis for investing, innovating and scaling up.

In order to realise the potential of Norwegian companies to develop offshore wind in Norway, access to sufficient labour and the ability to build on transferable expertise from the oil and gas industry and maritime sector will be key². The rapid acquisition and development of experience specific to offshore wind, through both a domestic market and international projects, will also be crucial. This will require standardisation, automation and investment in the necessary production capacity, as well as a significant scale of development in markets close to Norway.

The authorities should consider a comprehensive package of measures that combines tax and financing instruments (for example) with measures to reduce risk during the licensing and implementation phases. They should also commission the Norwegian Water Resources and Energy Directorate (NVE) to identify one or two new areas on the Norwegian continental shelf for fixed-bottom offshore wind, and take steps to provide a sound basis for deciding whether to proceed with a potential hybrid project in the south-west area. In addition, provisions should also be made for a competitive auction for support for a floating offshore wind project area by 2030.

The organisations behind KonKraft are keen to emphasise that the development of offshore wind must be based on the Norwegian labour market model. This means requirements for responsible business practices, good pay and working conditions, a high proportion of skilled workers and apprentices, and strong levels of employee participation. The development of new offshore industries must not come at the expense of health, safety and the environment on the Norwegian continental shelf, and it will require sound processes for developing regulations and framework conditions. This is essential to safety, quality and recruitment.

² [*Offshore Wind Market Development and Potential 2024, Menon Economics*](#)

Carbon storage



Norway can be a strategically important partner for the EU in its plans to establish a carbon capture and storage capacity of 50 million tonnes per year by 2030. The industry is therefore working actively at present to develop a sustainable carbon storage industry on the Norwegian continental shelf by developing and maturing flexible solutions that will allow for the gradual scaling of storage capacity offered. The carbon storage exploration licences currently being matured have the potential to store more than 60 million tonnes of CO₂ per year.

Establishing competitive carbon storage on the Norwegian continental shelf will, over time, require the development of large-scale storage sites that can deliver economies of scale and low storage costs per tonne of CO₂ stored. This will also require operators to work actively to identify cost-effective solutions by maturing new technologies and applying best practice to operations and maintenance. Norwegian storage operators should also consider cooperating on infrastructure for receiving CO₂ from the EU.

In order to establish a viable carbon storage industry on the Norwegian continental shelf, the Norwegian authorities must help create a predictable framework for investment. The regulatory framework must be developed through cooperation between the social partners and adapted to the actual risks associated with carbon storage, while the fiscal framework must provide for the predictable, full depreciation of investment costs.

In relation to Norwegian emissions, a scheme should be developed for the government co-financing of storage capacity procurement³ on commercial terms. Furthermore, a commercial basis must also be established for investment in carbon capture for Norwegian emissions. This means putting in place mechanisms to address uncertainty around the profitability of carbon capture in Norway, assuming that the CCS value chain is realised – for example through an auction-based scheme. It will be important to ensure that Norwegian carbon storage sites do not face less favourable competitive conditions than storage sites elsewhere in Europe.

³ See Section 6.5 of [The Oslo Economics report commissioned by the Ministry of Energy](#), and pp. 69–70 of the [Norwegian Environment Agency's report on climate measures in Norway 2026](#)

Seabed minerals

The seabed minerals industry builds on established expertise, regulatory frameworks and technology from the offshore and maritime industries. High environmental standards, with the industry ensuring responsible and sustainable resource extraction with a low environmental impact, will be essential to its success. The further development of mature offshore technology for exploration, environmental monitoring and production will also be important to the development of the industry.

The development of a Norwegian seabed minerals industry will require the detailed geological and geophysical mapping of the area opened on the Norwegian continental shelf. This mapping should be carried out through industrial cooperation, to include the sharing of environmental data. This will require close cooperation and data sharing between researchers, the authorities and the wider industry in order to build expertise, ensure environmentally responsible extraction practices, and protect vulnerable and representative areas in line with international obligations. In order to support recruitment and development, it is important that vocational colleges, university colleges and universities work together to develop the relevant education and training programmes.

Developing an integrated value chain for seabed minerals will require political stability in the form of established licensing processes that enable exploration, mapping and, potentially, extraction. The opening process should be gradual and predictable, with framework conditions that make investment attractive. This will require support for the development of offshore mineral activities through further resource mapping, data collection, the development of industrial and environmental knowledge, and early-stage research and development. In addition, funding must also be allocated to the Norwegian Offshore Directorate for studies and for the resource and environmental mapping of the seabed in the outer part of the economic zone on the Norwegian continental shelf.

As in the oil and gas industry, the supply industry and the domestic market onshore will be key to generating wider economic benefits and fomenting activity across the country.

A changing continental shelf

Production on the Norwegian continental shelf has been at around today's level for 30 years now – and this is much longer than many had expected. The industry is working to maintain this high level of production over the next ten years as well. But maintaining production will become increasingly challenging as several of the major fields on the Norwegian continental shelf enter a period of declining output. This comes at a time when production from the Norwegian continental shelf is more important to Europe than ever before. Maintaining oil and gas production from the Norwegian continental shelf is therefore both more important and also more challenging than ever before.

Considerable value remains from giant fields to marginal discoveries

For fifty years already, oil and gas from the Norwegian continental shelf have underpinned industrial development, energy security and prosperity, and the shelf can continue to play a central role in the decades ahead.

The Norwegian continental shelf currently comprises around 100 producing fields and a substantial portfolio of installations that together form the backbone of Europe's most important energy-producing region. An extensive, robust and reliable network of infrastructure has been developed, enabling production to remain at a high plateau for more than 30 years. This has generated substantial value and significant revenues for society and supports more than 200,000 jobs across the country⁴.

The most important success factor has been the combination of high levels of exploration activity and the ability to extract an ever-greater share of the resources from developed fields. An ability to continue finding new resources, extract more from existing fields, and bring production to market both faster

and at lower cost will be key to the future success of the Norwegian continental shelf. A diverse range of companies operating on the shelf has also helped maximise value creation through sound commercial solutions and continuous technological development.

Figures from Offshore Norge⁵ show that, over the past two decades, the average time from discovery to production on the Norwegian continental shelf has been six to seven years (lead time), while a number of fields have been brought on stream significantly faster than this. This demonstrates that exploration and development on the Norwegian continental shelf can deliver profitable production within a relatively short timeframe and contribute to Norway's energy supplies to Europe.

⁴ [Economic impact analysis, Offshore Norge](#)

⁵ [Lead Times on the Norwegian Continental Shelf, Offshore Norge](#)



The Gjøa platform. Photo: Anne Lise Norheim / © Vår Energi

THE UTILISATION OF EXISTING GAS INFRASTRUCTURE IS ESSENTIAL

Gas from fields in the Norwegian Sea is transported by pipeline to Nyhamna and then through the Langeled pipeline to Easington in the UK, which receives volumes equivalent to one third of the country's gas consumption. From there, the gas enters the UK gas network and is used for heating homes, power generation and industry.

Most of these fields are in a late-life phase, with lower production and reservoir pressure. This means that volumes through this export chain will fall over time. Without new gas resources nearby, this part of the export system will gradually weaken. Nyhamna will remain a very important export hub for the next 10-15 years, but gas flows will increasingly come from mature fields with declining levels of production, and this will need to be offset through a combination of measures and new tie-backs.

The Easington terminal also forms part of the UK's plans for hydrogen and industrial decarbonisation, including proposals to develop Easington as a low-carbon hydrogen hub connected to new hydrogen infrastructure in the Humber region. New discoveries and fields that can help sustain this infrastructure will be essential to safeguarding the UK's energy security.

The transportation system from production on the Norwegian continental shelf to receiving terminals in Europe

- Receiving terminals
- Platforms
- Processing plants
- Gas pipelines
- Oil and condensate pipelines
- Other gas pipelines

Source: Gassco and norskpetrolem.no

From giant fields to marginal discoveries

The geology of the Norwegian continental shelf has provided unique conditions for oil and gas production. Since the industry's beginnings in the 1960s, Norway has discovered and produced from major fields such as Ekofisk, Statfjord, Gullfaks, Troll and Johan Sverdrup. By 2030, however, several of these giant fields will have passed their peak and entered a mature phase. Looking ahead, the main focus now will be on developing smaller discoveries near existing infrastructure. Although these discoveries are small, their combined value is significant. An analysis by Offshore Norge⁶ shows that they represent a potential of more than 500 million Sm³, which in total exceeds the resources in Johan Sverdrup.

The shift from giant fields to marginal discoveries will change how the industry operates on the Norwegian continental shelf. There will be fewer large-scale developments with development phases that last for many years, and instead more smaller projects that require faster, cost-effective solutions in order to be commercially viable. Previously, there would be six to eight years between

discovery and commencement. Now, it is two to three. In the past, two to three subsea projects were typically tied back to existing installations each year. Today, that figure is six to eight. Significantly shorter development times and lower investment costs mean that the financial risk associated with each individual development will be reduced going forward.

The industry's ability to make marginal discoveries commercially viable and cooperate on the use of existing infrastructure will be crucial, and improvements will be needed at every stage of resource development. This applies to how resources are explored, drilled, developed and operated. The shift also makes it necessary to standardise developments to a much greater extent than before in order to bring discoveries into production more quickly. It will also require companies to work together more intelligently and efficiently, and to collaborate even more closely with suppliers – including at an early stage of the process.

⁶ [Marginal discoveries on the Norwegian continental shelf – status, barriers and opportunities, Offshore Norge](#). The analysis covers undeveloped discoveries larger than 1MSm³ o.e. in resource classes 4F, 5F and 7F.

Exploration is essential

According to the Norwegian Offshore Directorate, just over half of the resources on the Norwegian continental shelf have been produced. Production could be maintained at today's level beyond 2035 if the Norwegian authorities continue to provide regular and predictable access to acreage. The Awards in Predefined Areas (APA) scheme is currently the cornerstone of Norway's exploration policy and must remain the main mechanism for awarding acreage. At the same time, all available acreage currently open for petroleum activities must be included in the annual APA rounds.

Several areas on the Norwegian continental shelf have previously undergone a full opening process, including an environmental impact assessment and a decision by the Norwegian Parliament, before then being closed for a variety of reasons. Consideration should now be given to whether technological developments and new knowledge mean that there are no longer grounds for keeping these areas closed.

There are still substantial undiscovered resources^{7,8} on the Norwegian continental

shelf, with the largest resource estimates located in the Barents Sea. The northern Barents Sea has the highest estimate of undiscovered oil resources, while the southern Barents Sea has a similarly high estimate for gas resources. As Figure 1 shows, there may be substantial resources in areas that are not currently open for petroleum activities. It is important for Norwegian society that more information is acquired about these areas – for example, through seismic data acquisition. Better knowledge of the scale of the resources will provide a stronger basis for discussing how to maximise resource utilisation and value creation on the Norwegian continental shelf in the future.

The Barents Sea will be an important part of the future of the Norwegian continental shelf, and oil and gas activity there already takes place under a strict management-plan regime that combines value creation with sustainability. Realising the gas potential of the Barents Sea will require greater exploration activity in the area. New gas discoveries could trigger a need for, and justify the construction of, a pipeline from the Barents Sea connected to the Norwegian pipeline system.

⁷ [Resource accounts and resource report, Norwegian Offshore Directorate](#)
⁸ Undiscovered resources are petroleum resources that have not yet been proven by drilling

Remaining liquids and gas resources

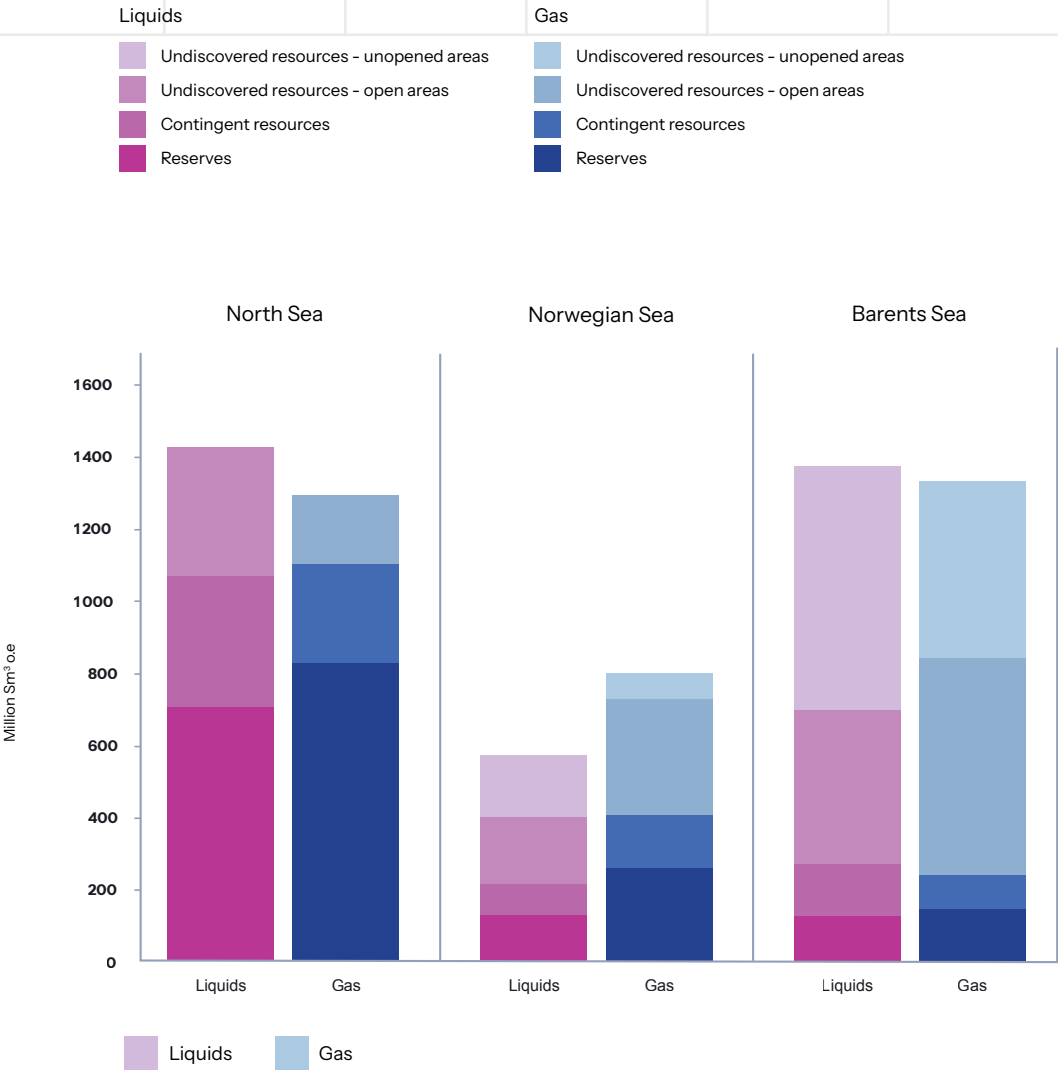


Figure 1. Expected remaining oil and gas resources by sea area and resource class (Source: Norwegian Offshore Directorate)

Regulations must be adapted to a new era

When an increasing share of the value creation comes from smaller discoveries with shorter payback periods, predictable framework conditions become particularly important. The overall regulatory pressure on the Norwegian continental shelf has evolved in step with the industry's activity and the increasing complexity of projects. Although individual regulatory requirements may be well justified, their cumulative effect can lead to longer decision-making processes and higher costs. Today's regulatory framework is designed for projects that take a long time to develop and are, by their nature, able to absorb high development costs. At a time when projects are smaller, more standardised and more time-critical, it is important that regulations, documentation requirements and regulatory processes are coherent and adapted to current realities, while simultaneously remaining within the framework of the Norwegian model and its cooperation between authorities and social partners.

Activities on the Norwegian continental shelf are subject to requirements and regulations that differ from the rules and practices applied in other countries. Many of these requirements have contributed to high safety levels and strong standards, while others impose disproportionately high costs and a significant administrative burden that weakens the competitiveness

of the Norwegian continental shelf. International standards should be considered where their use would not compromise safety, the working environment or environmental protection.

More effective coordination between different public authorities would help speed up project delivery and improve profitability. In order to strengthen its competitiveness, the EU has launched a wide-ranging effort to simplify its regulatory framework, and this includes the energy sector. Norway should similarly work towards a regulatory framework that simplifies reporting requirements and avoids distortions of competition.

Norway was one of the first countries in the world to introduce a dedicated carbon tax on emissions from offshore oil and gas production, doing so in 1991. When Norway joined the EU Emissions Trading System (EU ETS) in 2008, the cost of emissions allowances was added on top of the carbon tax. The overall carbon price on the Norwegian continental shelf has increased by 160% over the past six years. The equal treatment of sectors is an important principle of climate policy and serves to ensure a cost-effective transition. The petroleum sector should not face a higher overall carbon price than other sectors, and the carbon tax should gradually be reduced as the allowance price rises.



Photo: Tom Haga / Offshore Norge

THE COMPETITIVENESS OF THE NORWEGIAN CONTINENTAL SHELF TODAY

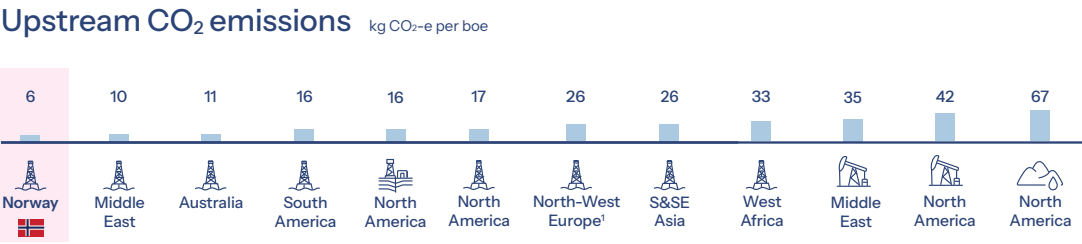
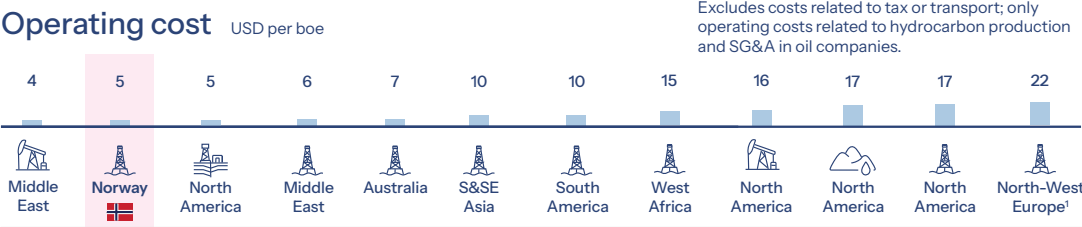
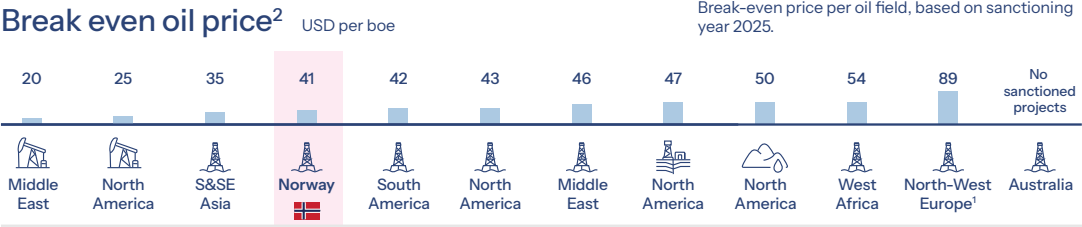
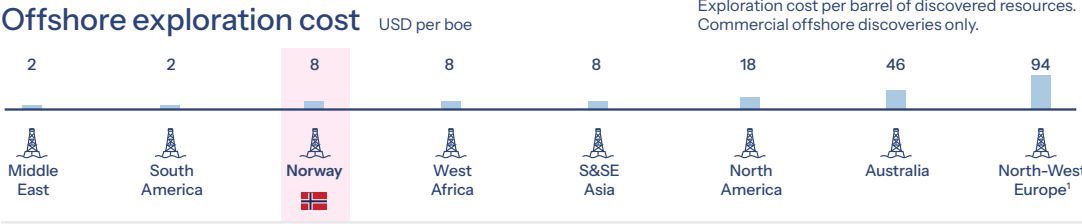
Exploration costs on the Norwegian continental shelf have fallen from around USD 12 per barrel of oil equivalent (boe) in 2015 to a stable level of USD 7–8 per barrel in 2025. This reflects a clear shift towards low-risk exploration near existing fields, with a high probability of discovery. Nevertheless, the marginal cost of exploration on the Norwegian continental shelf remains above the global average of USD 5.3 per barrel of oil equivalent (boe) in 2025.

Resources discovered per well are among the lowest globally, partly as a result of the higher drilling rate in Norway. An increase in discovered resources will be necessary if Norway is to maintain current production levels. Globally, the number of exploration wells is declining, while Norway has increased activity in mature areas from 34 wells in 2022 to 49 in 2025. This strengthens production volumes in the short term, but has only a limited impact over the longer term.

The break-even oil price for sanctioned projects in Norway has risen from around USD 33 per barrel in 2020 to around USD 41 per barrel in 2025 – close to the global average of around USD 44 per barrel. This increase reflects favourable break-even prices for projects sanctioned under the temporary tax regime, as well as cost escalation driven by inflation and supply chain constraints resulting from the increase in activity since 2020.

Norway’s low emissions strengthen the competitiveness of Norwegian oil and gas volumes in the European market. Norway outperforms global peers, with upstream emissions of six kilograms of CO₂e per barrel, compared with a global average that is four times higher. This industry-leading emissions profile is the result of electrification on the Norwegian continental shelf and a strong focus on keeping methane emissions low. Low emissions give Norway a significant commercial and regulatory advantage in a Europe that is placing increasing emphasis on energy security and emissions across the entire value chain.

Indicator and regions



¹Excluding Norway.
² All cash flows are set to 1 July and discounted to 1 January. Annual discount rate 10%. Constant relationship between oil price and other hydrocarbons. Constant cost profiles for all oil prices. Tax benefits from historical investments are not included. Costs from approval date are included.



Figure 2. Competitiveness indicators for oil and gas production across different regions (Source: Rystad Energy)

Research, education and new technology

The offshore industries are particularly dependent on stronger skills in science, technology, engineering and mathematics (STEM). It is a positive development that more and more young people are choosing vocational education and training. At the same time, fewer students are opting for STEM subjects in upper-secondary academic programmes, while pupils in compulsory education lack sufficient skills in mathematics and science. It is therefore important that political strategies for STEM and technology are backed up by concrete measures and sufficient funding.

The petroleum workforce is ageing. NORCE has estimated⁹ that the number of people retiring from the petroleum industry will increase each year, reaching 3,400 in 2035. Petroleum-related activity will therefore require new recruitment. The expertise built up in the oil and gas industry will also be important in developing new industries. Today, oil and gas companies are also active within offshore wind, CCS and hydrogen. According to NORCE, almost

40,000 people work in business units that are active in both oil and gas and the new industries.

The efficient development of the Norwegian continental shelf will also depend on significant research and development activity. Energi2050¹⁰ is a national strategic body for research, development, demonstration and market introduction across the entire

⁹ [Trends in the age and skill profiles of employees in companies serving the petroleum, offshore wind, CCUS and hydrogen industries, NORCE](#)
¹⁰ [Energi2050](#)

energy sector. Towards the end of 2026, Energi2050 will present a strategy that is intended to guide the combined efforts of the authorities and industry within research, development and innovation across the entire energy sector.

The strategy will help to:

- Strengthen safety and security (including the working environment, emergency preparedness and security measures), competitiveness and value creation across the energy sector.
- Ensure long-term knowledge and technology development that will support a sustainable energy transition and secure and efficient energy supply.
- Contribute to the transition towards a low-emission society by 2050.

Norway has a number of energy clusters across the country that bring together companies, research communities and the public sector to promote innovation, transition and value creation in oil and gas and renewable technologies. The further

development and potential consolidation of these energy clusters could strengthen the competitiveness of the Norwegian supply industry, increase exports of energy technology and establish an effective national network with strong international links.

Digitalisation should be used to make relevant data from the Norwegian continental shelf more accessible and easier to use for the authorities, licensees and the supply industry. Better access to quality-assured data on things such as capacity in existing fields, pipelines and processing facilities can reduce uncertainty, shorten early-stage work and provide a stronger basis for decision-making on area development, smaller discoveries and tie-ins to existing infrastructure. Consideration should also be given to how relevant historical project and field data can be made available in anonymised form in order to support better concept studies and faster project maturation.



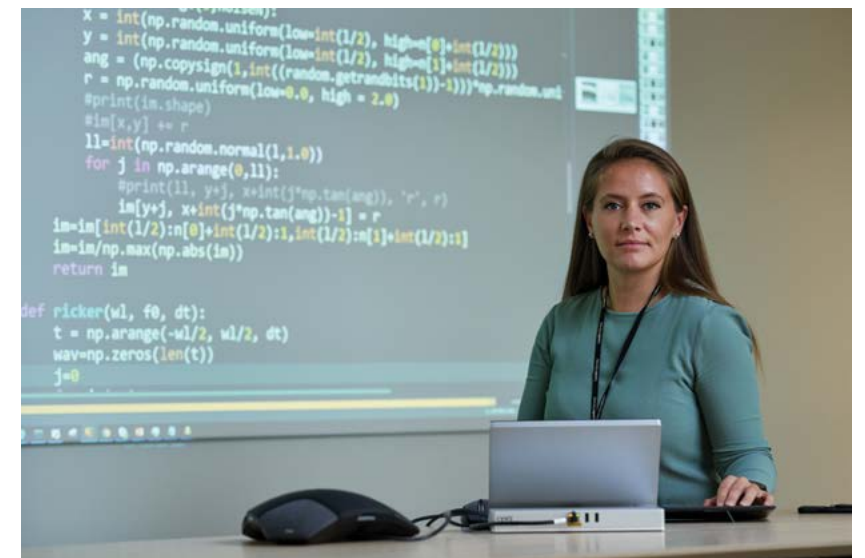
Module lift for Johan Sverdrup. Photo: Øyvind Sætre / Aibel

ARTIFICIAL INTELLIGENCE BOOSTS PRODUCTIVITY ON THE NORWEGIAN CONTINENTAL SHELF

Operations on the Norwegian continental shelf generate vast amounts of data. Using artificial intelligence (AI), the time required to analyse data can be reduced from weeks to just minutes. For example, the repeated failure of a mechanical seal may require the analysis of all relevant technical data in order to identify the fault. Specially trained AI agents can retrieve all relevant documentation, sensor records and maintenance history and, within minutes, analyse the data in order to identify the cause of the failure. Experts can then review the findings and decide what action needs to be taken.

AI is also being used to make oil and gas exploration more efficient. Exploration starts with data. This includes both new data and historical data that may have been collected several decades ago. When all of the information is gathered together, it reaches a scale and level of complexity that the human brain is simply unable to process. The oil and gas industry has long used computers to store and process this data. But the opportunities that have been opened up by artificial intelligence are taking the contribution of computers to a new level.

Time that was previously spent searching for and locating data can now be spent on interpretation and decision-making. Overall, this improves the quality of the work.



Algorithms capable of interpreting seismic data are being developed. Photo: Eivind Røhne / AkerBP

The continental shelf is important to all of Norway

The activities developed on the Norwegian continental shelf are a mainstay of the Norwegian economy. The revenues help fund the welfare state and support jobs across the country. Furthermore, petroleum installations, maritime operations and ports contribute to Europe's overall defence capability, particularly in the High North.

Jobs and economic benefits across Norway

Overall, oil and gas activity currently supports more than 200,000 jobs¹¹. Of these, 26,600 people are employed directly by oil and gas companies, while procurement by oil and gas companies supports around 155,000 jobs in Norway. A further 30,000 jobs are linked to exports by the supply industry.

The offshore industry employs people all across the country, but it is particularly important in coastal municipalities in Rogaland, Vestland, Møre og Romsdal and Finnmark. According to the study entitled Long-term Perspectives on the Norwegian Economy 2024¹², the number of people employed in petroleum activities and the supply industry is expected to fall by around 35,000 between 2024 and 2030, and by just over 70,000 between 2030 and 2060 under the reference trajectory of gradually declining activity in the petroleum sector. For the new value chains – offshore wind, batteries, hydrogen and CCS – Samfunnsøkonomisk Analyse has estimated¹³ that an additional 16,000 people will be needed by 2030 and more than 60,000 by 2050 compared with

today. A strong supply industry is key to generating broad economic benefits from the offshore industry. Today, Norway’s supply industries generate revenues of more than NOK 600 billion¹⁴. If activity on the Norwegian continental shelf declines, the effects will be felt first and most strongly in the supply industry. The supply industry is closely integrated into local communities across the country. Companies large and small provide the technology, goods and services that enable value creation on the Norwegian continental shelf, while also creating jobs, centres of expertise and tax revenues throughout Norway.

In addition to employment in the supply industry and among its subcontractors,

each job in the supply industry typically supports three jobs in the local communities and regions where the industry is established. These jobs are found in both the private and public sectors, including retail, construction and culture. They also help to sustain public services such as kindergartens, schools, municipal services and health and care services. A policy that weakens the predictability and market basis of the supply industry will therefore affect not only the industry itself, but it will also have major consequences for local communities.

The Norwegian continental shelf is now entering a more mature phase, characterised by tail-end production, a growing share of smaller discoveries and tie-backs, and fields in the later stages of their life cycle. This places different demands on the supply industry than during the period dominated by large-scale developments. Cost efficiency, execution capability and technological optimisation are essential to extending production, realising value and making full use of existing infrastructure. The development of export opportunities will also be crucial.

A decline in activity in the oil and gas industry will entail a structural transition for the supply industry. New offshore industries – such as offshore wind, CCS and, in time, seabed minerals – will become important, but for the foreseeable future, they will not be able to offset the decline in activity in the oil and gas industry on their own. Aquaculture also has significant potential, with maritime and offshore technology and expertise providing an important foundation. It is therefore crucial that Norway maintains the highest possible level of activity in the oil and gas industry in order to sustain jobs and activity, preserve expertise and further strengthen

competitiveness while new industries are being developed both offshore and onshore. If oil and gas production falls very sharply – in line with the Norwegian Offshore Directorate’s low scenario – this will have major consequences for employment all across Norway. This applies both to jobs directly within the industry and to employment in the supply industry and local communities across Norway.

Historically, the Norwegian supply industry has specialised in bespoke, technologically advanced solutions designed for the demanding conditions on the Norwegian continental shelf. This has delivered high levels of quality, safety and reliability, but it has also resulted in high costs. New offshore industries are characterised to a greater extent by serial production, standardisation, global competition and lower margins. The shift from bespoke solutions to serial production will require stable framework conditions, time for knowledge transfer, access to capital and stable domestic markets where new solutions can be tested and developed. This will be crucial to ensuring that value creation in the new offshore industries remains in Norway.

One of the Norwegian supply industry’s key competitive advantages, both within emerging industries and in the continued development of oil and gas activities, is its ability to develop technology and adapt quickly, combined with flat organisational structures. In the Norwegian supply industry, there are short lines of communication between the operator carrying out the work and the engineer who prepares the work package. This has been crucial to maintaining a competitive industry in a high-cost country and will remain key to success through to 2050.

¹¹ [The importance of the oil and gas industry to the Norwegian economy, Offshore Norge](#)
¹² [Meld. St. 31 \(2023–2024\), Long-term Perspectives on the Norwegian Economy](#)
¹³ [Just green transition, Samfunnsøkonomisk Analyse](#)
¹⁴ [Energy industry study 2024, Multiconsult et al.](#)



Construction of Hugin A and Valhall PWP on Stord. Photo: Aker Solutions

Norway has been, is currently, and always will be a maritime nation. The Norwegian maritime industry employs close to 90,000 people in Norway, and Norway is the world's fifth-largest shipping nation by value¹⁵ – excluding the cruise fleet. That makes Norway a maritime superpower. Norway has the world's second-largest and most advanced

offshore fleet and the country has long held a leading position in this segment. The Norwegian continental shelf is by far the most important market for Norway's offshore fleet. Not least, the supply industry and the Norwegian maritime industry are strategically important to national emergency preparedness and the country's defence¹⁶.

¹⁵ [Maritime Value Creation Report 2026, Menon Economics](#)
¹⁶ [The maritime cluster's contribution to national security, Menon Economics](#)

Activity in the north is highly significant

In Northern Norway, petroleum activity generates far wider economic benefits than just oil and gas production alone. In 2024, the industry supported 5,500 full-time equivalent jobs across the region, including direct employment, jobs in the supply industry and employment among subcontractors¹⁷.

Maintaining a high and stable level of activity through to 2050 will help preserve local presence, expertise and industrial clusters that cannot easily be rebuilt again once lost. The petroleum industry and the opportunities in the Barents Sea are therefore important not only for Norway's energy supplies to Europe through to 2050, but also as one of the main drivers of employment, value creation and local revenues across large parts of Northern Norway.

The security situation in Europe has highlighted the strategic importance of Norwegian energy production and the associated supply industry. In addition to contributing to energy security, oil and gas activity in Northern Norway also strengthens European security in two mutually reinforcing ways:

- Oil and gas activity helps sustain permanent communities, employment and public services in strategically important areas, countering depopulation that would otherwise weaken societal resilience, situational awareness and the country's long-term ability to uphold sovereignty and security.

- At the same time, energy infrastructure also supports surveillance, control, emergency preparedness and presence in the High North. Offshore installations, pipelines, terminals and logistics hubs provide advanced surveillance systems, maritime situational awareness and close cooperation with public authorities and the Norwegian Armed Forces. This strengthens the ability to detect and respond to threats and incidents.

Norwegian oil and gas companies operate in close cooperation with national and local authorities and are integrated into total defence and emergency preparedness structures, both onshore and offshore. Protecting critical energy infrastructure is inextricably linked to Europe's overall defence capability and resilience against hybrid threats. Energy installations, maritime traffic, ports and supply chains therefore form part of a broader security ecosystem that strengthens allied situational awareness and supports the work of NATO and the EU by safeguarding shared interests in the High North.

¹⁷ [Economic impacts, Offshore Norge](#)

Ninety percent of the profits from the petroleum sector go towards funding Norway’s welfare system.

The petroleum industry is Norway’s largest industry in terms of value creation, government revenues, investment and export value. The industry is therefore of great importance to the Norwegian economy and to the funding of public welfare services. The management of petroleum revenues ensures that they benefit society as a whole.

The petroleum industry is currently subject to a marginal tax rate of 78%. In addition, the Norwegian state holds a 67% ownership interest in Equinor and has direct ownership interests in various licences through Petoro (the SDFI). This results in a state revenue share close to 90%. State revenues (the State’s net cash flow) have varied over time with production levels and petroleum prices. From 1986, Norwegian gas sales were coordinated through the Gas Negotiating Committee (GFU), but this arrangement was discontinued in 2002 and replaced by company-based gas sales in line with the EU Gas Directive and competition rules. In recent years, the fluctuations in state revenues have been particularly large. During the COVID-19 pandemic in 2020, the state’s net cash flow from petroleum activities was around NOK 140 billion. During the energy crisis in 2022, it was close to NOK 1,500 billion, driven in particular by extremely high gas prices in Europe.

State revenues from petroleum activities are transferred to the Government

Pension Fund Global (GPF), which is currently worth around NOK 22,000 billion. Transfers from the GPF are used to cover the central government budget deficit in accordance with the fiscal rule. By drawing only on the GPF’s expected long-term real return, the fund will remain available for future generations. By keeping current revenues from the petroleum industry outside the central government budget, public welfare services are also largely insulated from year-to-year fluctuations in petroleum prices and activity levels in the industry.

In the longer term, however, public finances face challenges that may be affected by the direction of petroleum policy. Looking ahead, Norway’s demographic composition is expected to change significantly. Large birth cohorts born after the Second World War, combined with a higher life expectancy, mean that population growth is expected to occur almost entirely among older age groups. At the same time, activity and revenues from the petroleum industry will naturally decline. This will put pressure on public finances, and the Ministry of Finance warns that public spending will grow significantly faster than revenues as the 2030s progress. This gap will have to be closed either through lower public spending or higher revenues. Against this backdrop, it makes sense to develop all commercially viable resources on the Norwegian continental shelf in order to meet market demand.

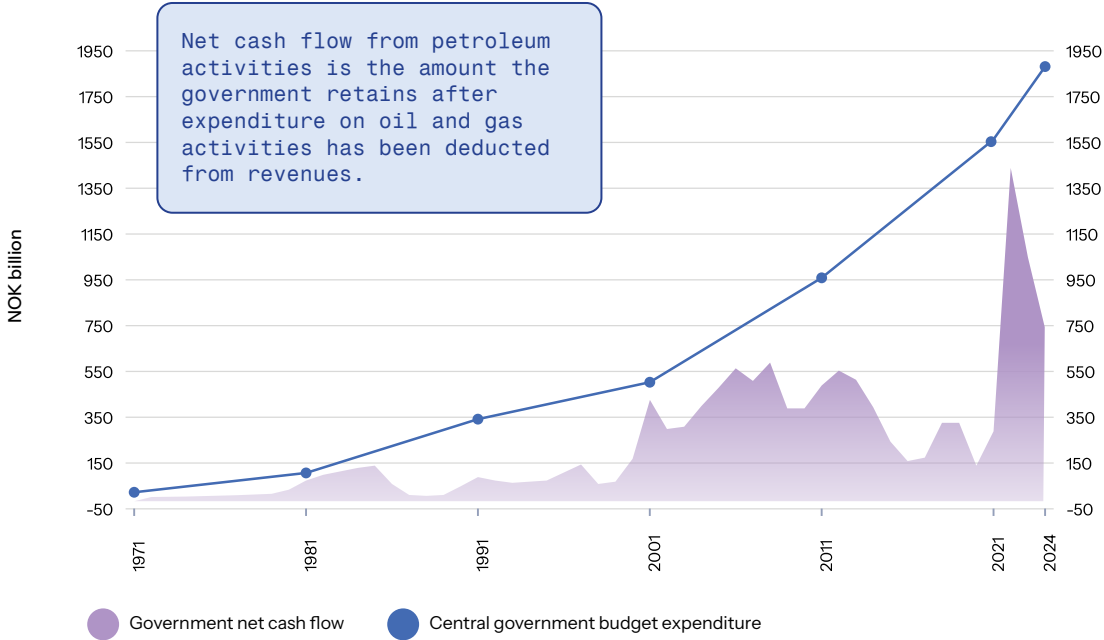


Figure 3. Government net cash flow (Source: Norsk Petroleum)

A policy that actively restricts activity in the petroleum industry and prevents commercially viable projects from being developed would create greater transition challenges for the Norwegian economy. Examples of measures that would constrain activity include various forms of gross taxation, such as transition levies or production taxes, as well as restrictions on exploration. Figures from Statistics Norway (SSB)¹⁸ show that an accelerated scaling-down of the petroleum industry could have negative effects on public and private consumption, real wage growth, value creation and revenues for society. Their calculations show, among other things, that in such a scenario the value of the GPF could be NOK 8,000 billion lower in 2050 than under the Norwegian Offshore Directorate’s base scenario. In isolation, this would increase the fiscal adjustment required and put further pressure on the provision of public welfare services.

The Norwegian continental shelf competes with petroleum regions elsewhere in the world to attract investment, activity and expertise. The ability of the Norwegian continental shelf to compete successfully is therefore crucial to safeguarding jobs and value creation in Norway. Competitiveness is determined by the combined effect of tax levels, costs, project lead times, regulatory risk and access to efficient infrastructure. For projects with smaller volumes and shorter lifespans, even small differences in these factors can determine whether an investment goes ahead. Foreign investment in oil and gas production and the supply industry also accounts for a significant share of total foreign investment in Norway. It is therefore important to maintain the Norwegian continental shelf’s ability to attract capital and industrial activity.

¹⁸ [Challenges for wage formation and the Norwegian economy, SSB](#)

The energy market in Europe ahead of 2050

Norway must facilitate oil and gas production on the Norwegian continental shelf in line with the Norwegian Offshore Directorate's high scenario¹⁹. Even in a market where Europe meets its climate targets, Europe will still need this volume of oil and gas. Reliable supplies of low-carbon oil and gas from Norway will therefore remain important to Europe's energy security – both today and in 2050.

¹⁹ *Scenarios, the Norwegian Offshore Directorate*

Europe will need more than we can produce

Norwegian oil and gas are currently sold primarily to Europe. Around 95% of Norwegian gas is supplied via pipelines to the EU and the UK. In addition, liquefied natural gas (LNG) from Melkøya is transported by ship and can also reach markets outside Europe. Norwegian crude oil can be sold and transported to any country in the world at relatively low transport cost. There is therefore very little financial risk that Norwegian oil production will be unable to find a market, even in 2050.

Oil currently accounts for around 40% of Europe's energy consumption, while gas accounts for well over 20%²⁰. In order to assess future market demand for Norwegian oil and gas, we have chosen to examine Europe's oil and gas needs through to 2050. We have also assumed that the EU and the UK will meet their climate targets in line with the Paris Agreement, together with the corresponding projections for their oil and gas needs through to 2050. We then compared this demand with the Norwegian Offshore Directorate's high and low scenarios for production on the Norwegian continental shelf. This comparison is shown schematically in Figure 4 for oil and Figure 5 for gas.

Figure 4 shows that total oil import demand in 2050 will be more than twice as high as

the Norwegian Offshore Directorate's high scenario for Norwegian oil production in 2050, even if the climate targets are met. Figure 5 shows a wide range of possible outcomes for natural gas import demand in the EU and the UK. The figure also shows that total import demand is likely to remain above the Norwegian Offshore Directorate's high scenario.

The EU's climate and energy policy is currently under increasing pressure, as both industry and households are facing noticeably higher electricity and gas prices. Competitiveness and strategic autonomy have therefore moved higher up the agenda, while affordable energy has become a key priority, including through the EU's Affordable Energy Action Plan. Stable, available and clean energy is nevertheless seen as a prerequisite both for meeting climate targets and for ensuring industrial competitiveness in Europe, through an active industrial policy with greater emphasis on 'Made in Europe', stronger value-chain security and greater acceptance of protective measures. Whether or not the EU and the UK will be able to meet their climate goals will depend on many different factors, including changed policy priorities.

²⁰ [Statistical Review of World Energy, Energy Institute](#)



Emden Reception Terminal. Photo: Gassco

PREREQUISITES FOR FIGURES 4 AND 5

DEMAND NEEDS

The EU has a target of cutting its carbon emissions by net 90% by 2040 and of achieving net-zero emissions by 2050. The European Commission’s own scenarios²¹ show what this means for oil and gas import requirements. Figures 4 and 5 use the European Commission’s S2 scenario, under which carbon emissions are reduced by 88% by 2040 and net zero is achieved by 2050. This is considered consistent with the climate target of a net 90% reduction by 2040, since the target allows 5% of the emission reductions between 2036 and 2040 to be achieved through the purchase of international carbon credits. For the United Kingdom, Figures 4 and 5 use the import requirements from the CCC Balanced Pathway scenario²², which assumes an 87% reduction in CO₂ emissions by 2040 and net zero by 2050.

In the high-demand scenario for oil and gas, it is assumed that import requirements in the EU and the United Kingdom will develop in line with the International Energy Agency’s (IEA) Current Policies Scenario (CPS). This scenario assumes a continuation of current climate policies. Historical net imports of oil and gas for the EU and the United Kingdom have been calculated using consumption data less domestic production, based on the Energy Institute’s databases²³.

PRODUCTION TRAJECTORIES

The Norwegian Offshore Directorate has developed three scenarios²⁴ for total oil and gas production ahead of 2050 within areas of the Norwegian continental shelf that have already been opened and made available.

All of the scenarios show a decline in production, but the rate of decline varies depending on exploration activity and technological developments. There are significant differences in production levels in 2050 across the various scenarios. In the Norwegian Offshore Directorate’s high scenario, production is maintained over the next decade before gradually declining to around half its current level by 2050. This requires a high level of exploration activity both in areas close to existing infrastructure and in under-explored areas. Among other things, this scenario assumes that several major gas discoveries are made early in the period in less mature areas of the Norwegian Sea, that several large discoveries are made in the Barents Sea and rapidly developed, and that substantial new gas export capacity is established from the Barents Sea to the Norwegian Sea. If the Norwegian Offshore Directorate’s high scenario is to be realised, it will require a tremendous effort from both the industry and the authorities.

In the Norwegian Offshore Directorate’s scenarios for Norwegian oil and gas production, as shown in Figures 4 and 5, it is assumed that the current oil-gas split will be maintained through to 2050, and that pipeline gas will continue to account for its current share of total gas production (95%).

²¹ [The EU's 2040 target and path to climate neutrality by 2050 and the IEA World Energy Outlook 2025](#)
²² [The Seventh Carbon Budget, Climate Change Committee](#)
²³ [Statistical Review 2026, Energy Institute](#)
²⁴ [Scenarios, the Norwegian Offshore Directorate](#)

The EU’s and the UK’s oil import demand compared with Norwegian oil production

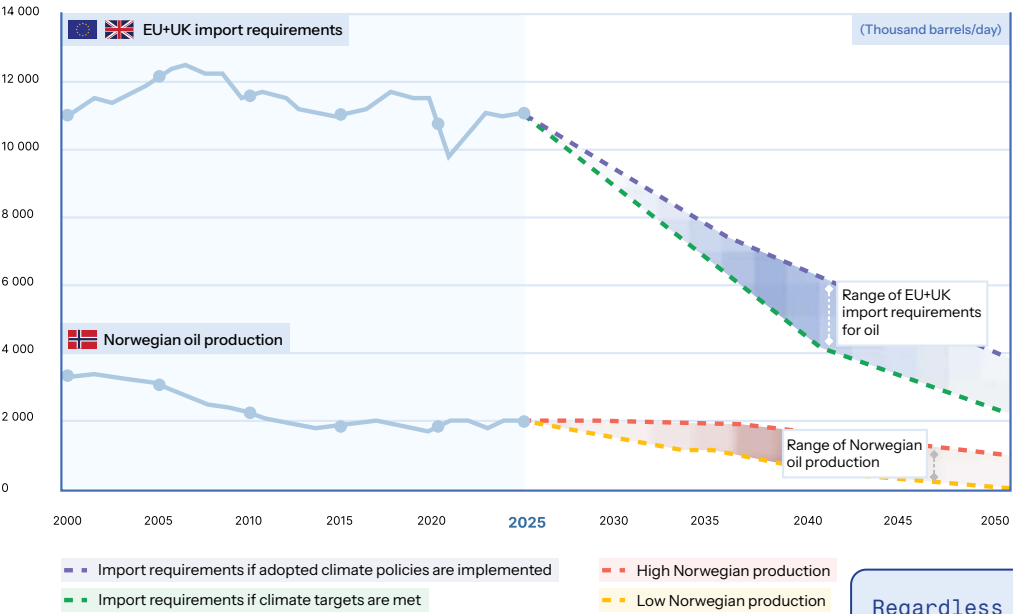


Figure 4. The EU’s and the UK’s import demand compared with Norwegian oil production

Regardless of the future scenario, the EU and the United Kingdom will still need to import oil and gas from external suppliers.

The EU’s and the UK’s natural gas import demand compared with Norwegian pipeline gas exports

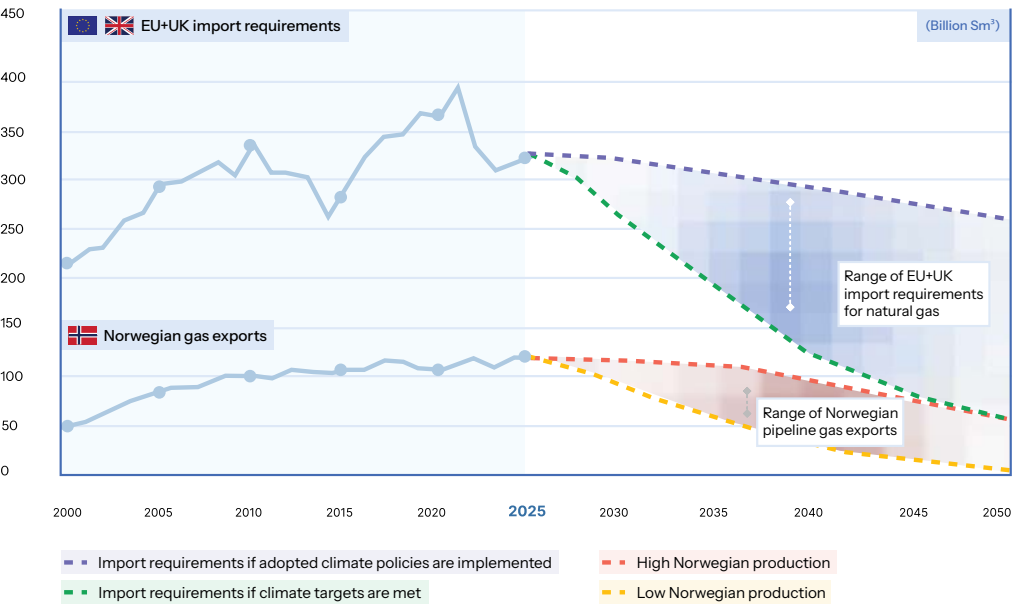


Figure 5. The EU’s and the UK’s import demand compared with Norwegian pipeline gas exports

The world needs oil and gas in the foreseeable future

Ever since the industrial revolution, global population growth and rising prosperity have driven a growing demand for energy, and this demand has been met by an ever broader range of energy sources.

Figure 6 shows that new energy sources have not replaced older ones, but have instead met part of the growth in energy demand (so-called energy addition). At the same time, older energy sources have continued to expand in order to keep pace with rising demand. This remains the case today. A substantial reduction in oil and gas production would have significant consequences. For example, the UN has estimated that the closure of the Strait of Hormuz, which, among other things, reduced daily oil and gas production and trade, could result in an additional 45 million people facing hunger.

This demonstrates that the world remains highly dependent on both oil and gas. Oil is used to manufacture a wide range of products, from plastics, paints, tyres, synthetic textiles and asphalt to liquid petroleum products such as petrol, diesel, aviation fuel and propane. Similarly, gas is used as an energy source for heating and power generation in both industry

and households, and as an input in many industrial processes, including fertiliser production, steelmaking, methanol production and refining. It is therefore not easy to replace oil and gas with other energy sources, as the benefits these products provide are simply too significant.

Although we are seeing strong percentage growth in energy generated from renewable sources, Figure 6 shows that renewables still account for a very small share of global energy production compared with oil, gas and coal. Even so, a major energy transition is under way in the key sectors of road transport and power generation. Energy demand in the road transport sector continues to grow, mirroring the broader global trend towards rising consumption of both new and established energy sources. Almost 45 percent of global oil consumption is used in road transport, making this the single most important sector for the oil market.

The global picture for energy production looks different from that in Europe

Global energy production (exajoules)

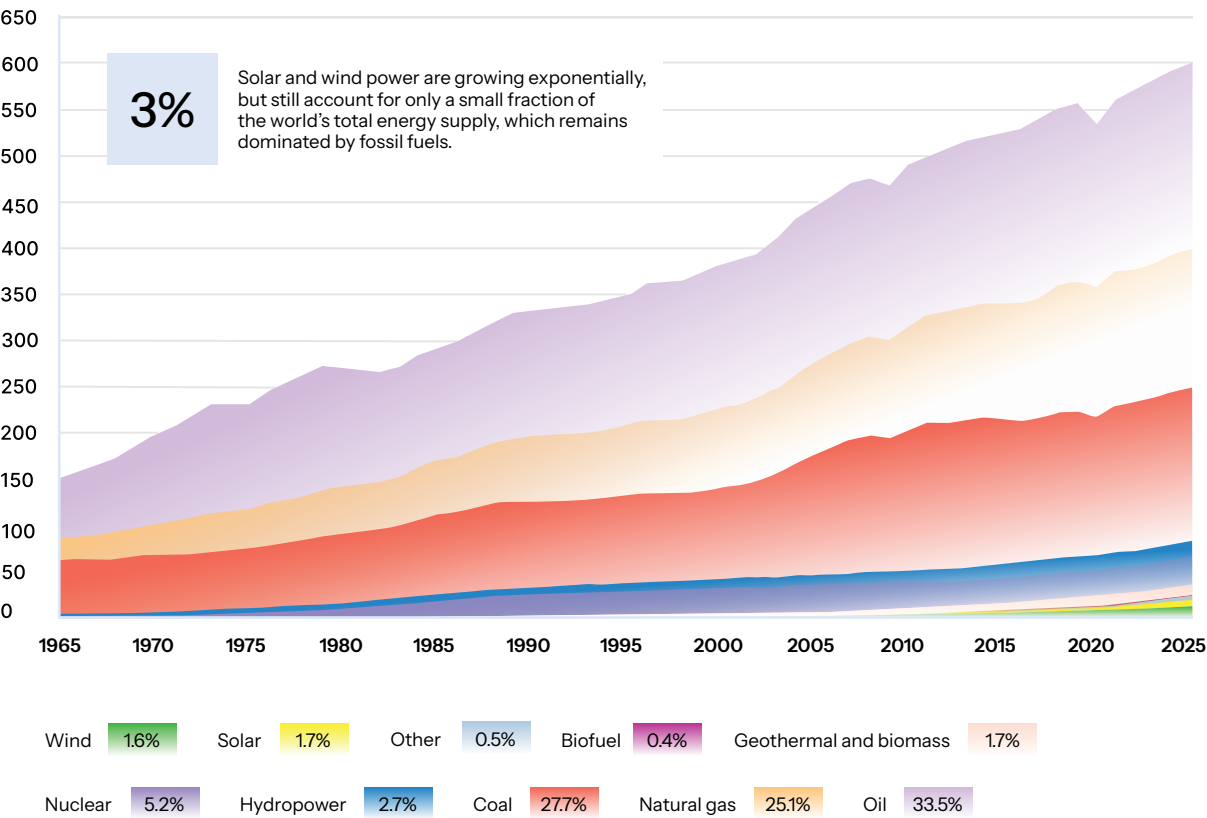


Figure 6. Global energy production, figures from 2025 (Source: [The Energy Institute's Statistical Review of World Energy](#))

As the electrification of road transport gathers pace globally, electricity will replace a significant share of this oil consumption. DNV estimates²⁵ that oil and electricity will each account for roughly the same share of energy consumption in road transport by 2060. This could also reduce total energy consumption in road transport, despite the global vehicle fleet being projected to grow by 50% in DNV's scenario. This is because electric motors use energy more efficiently than internal combustion engines.

Electricity currently accounts for around 20% of total global energy consumption, and increasing this share is a key climate policy objective. Decarbonising the power sector will require a significant increase in the share of electricity generated from renewable sources and nuclear power. According to the IEA²⁶, meeting the climate targets will require emissions from the power sector to be halved by 2030. However, the IEA's projections indicate that no substantial reduction in greenhouse gas emissions from the sector is expected between 2020 and 2030. One challenge associated with weather-dependent renewable energy is that periods of insufficient sunlight or wind can leave generation unable to meet electricity demand. This is particularly problematic in Europe, where such periods often coincide with higher-than-normal

demand. Gas-fired power generation is the cheapest way to meet energy needs during periods of insufficient wind and solar output. Batteries can compensate for shortfalls lasting around a day, but not for prolonged periods. Hydrogen can also be used to provide backup power, but it is currently an expensive solution and therefore at odds with the EU's plans to improve its competitiveness through wider access to affordable energy.

In other sectors, replacing oil and gas often requires substantial structural changes on both the production and consumption sides. Until the trend of rising energy demand and continued energy addition begins to ease, there will therefore remain a need to maintain oil and gas production. Today, the vast majority of investment in the oil industry is directed towards preventing production from declining too rapidly. According to the IEA²⁷, if the world were to stop investing in new exploration and production today, it would lose an amount of oil production each year equivalent to the combined output of Brazil and Norway.

²⁵ [Global Energy Transition Outlook 2025, DNV](#)
²⁶ [Electricity 2026, IEA](#)
²⁷ [The implications of oil and gas field decline rates, IEA](#)



Apodi Solar in Brazil. Photo: Einar Aslaksen / Equinor

A turbulent world favours stable suppliers

Since the fall of the Berlin Wall in 1989, the West has largely embraced the belief that free trade and openness can foster an increasingly liberal, democratic and peaceful world order, laying the foundations for international trade and the exchange of technology.

“Change through trade” has been a central tenet of European policy. The expansion of global trade has driven economic growth worldwide and brought particular benefits to many formerly poorer countries. At the same time, it has also contributed to a shift across much of the West from industrial to service-based economies. Europe’s domestic production of energy and raw materials – including oil, gas, steel and minerals – has fallen sharply, and the continent now imports goods to a much greater extent than it did before.

However, recent years have shown that such a system is vulnerable in times of instability, particularly since Russia’s invasion of Ukraine in 2022 and the consequences this had for the EU’s energy supply. The EU has legislated to phase out imports of Russian gas by the end

of 2027, while the legal requirement to phase out Russian oil imports has been postponed due to the situation in the Middle East in spring 2026. Russian gas accounted for 13% of EU gas imports in 2025²⁸. This represents a substantial decline from the figure of roughly 50% recorded before the invasion of Ukraine, but even so, the EU still has some way to go before achieving its goal of completely phasing out Russian gas.

Russian gas imports to the EU have been replaced by liquefied natural gas (LNG) which is shipped from around the world. As Figure 7 shows, LNG is transported over long distances, and this results in higher greenhouse gas emissions and costs, as well as greater uncertainty over shipping routes.

²⁸ [Europe’s Energy Quadrilemma, Econ Intel and Offshore Norge report 2026](#)

Transport routes for gas to the EU

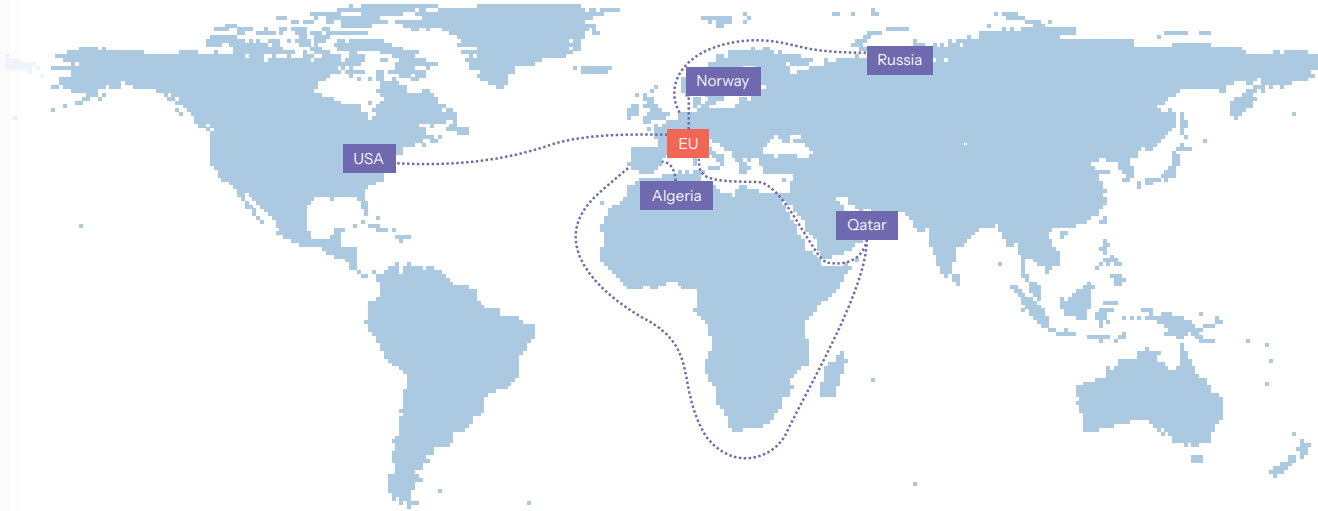


Figure 7. Routes for the transport of natural gas to the EU

With the global landscape now considerably more unpredictable and conflict-ridden than at any time since the Cold War, the EU is facing significant challenges in sourcing energy and raw materials from countries that are affected by conflict or lacking political stability. As Figure 8 shows, many of the countries

from which the EU imports oil and gas have weak democracies, high levels of corruption, low levels of political stability and limited degrees of freedom²⁹. The EU and the UK are currently importing as much oil and gas as possible from Norway, and there is good reason to expect this to continue in the interests of energy security.

²⁹ [Europe’s Energy Quadrilemma, Econ Intel and Offshore Norge report 2026](#)

Categorisation of the EU's largest suppliers according to four societal indices



The four indices each capture a different aspect of a country’s political and social environment: democracy (free elections and genuine political competition), corruption (the misuse of public power for private gain), freedom of expression and participation (the extent to which people can voice their views and influence those in power), and freedom (a combined measure of political rights and civil liberties).

Sources: The Economist Democracy Index (democracy), the Transparency International Corruption Perceptions Index (corruption), the World Bank’s Worldwide Governance Indicators – ‘Voice and Accountability’ (freedom of expression and participation) and Freedom House’s Freedom in the World (freedom).

Figure 8. Categorisation of the EU's largest oil and gas suppliers according to four societal indices, based on information from the Economist, Transparency International, the World Bank, Freedom House, Eurostat and Bruegel (Source: [Europe's Energy Quadrilemma, Econ Intel and Offshore Norge report 2026](#))

Norwegian oil and gas production has the lowest emissions in its class

In order for Norwegian oil and gas production to be consistent with climate targets, emissions from the production, transport and use of Norwegian oil and gas must remain within the emissions targets of the countries where those emissions occur or are accounted for. As Figures 4 and 5 show, the combined oil and gas import requirements of the EU and the

UK in 2050 exceed production under the Norwegian Offshore Directorate’s high scenario, even if the EU and the UK meet their climate targets. Norwegian oil and gas is also characterised by substantially lower greenhouse gas emissions from production and transport than oil and gas from other countries, as shown in Figures 9 and 10.



Photo: Offshore Norge

Upstream and midstream emissions intensity for the largest oil exporters to the EU27 in 2025

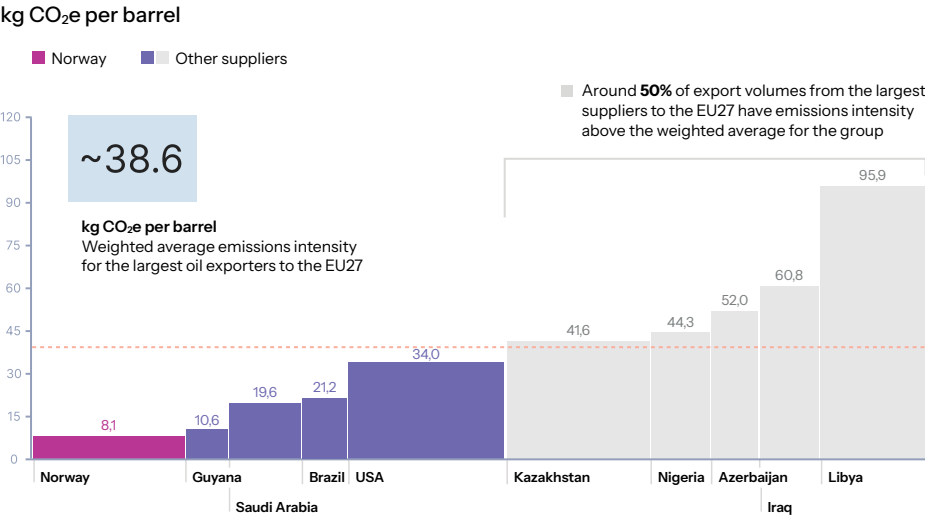


Figure 9. Emissions intensity of oil exports to the EU27 up to the refinery gate (Source: Rystad Energy, 2026)

Upstream and midstream emissions intensity for the largest gas exporters to the EU27 in 2025

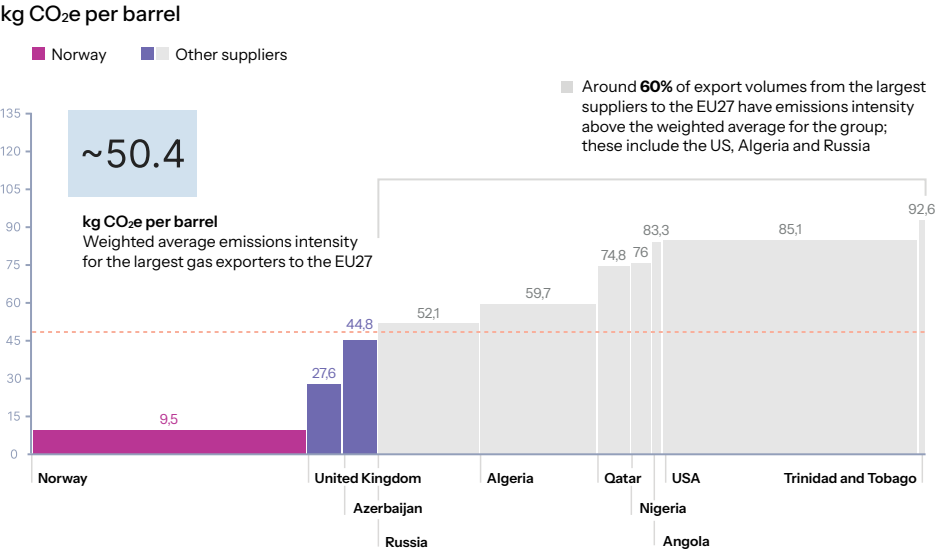


Figure 10. Emissions intensity of gas exports to the EU27 up to the receiving terminal (Source: Rystad Energy, 2026)

Rystad Energy has calculated an emissions intensity of 9.5 kg CO₂e per boe for Norwegian gas supplied to the EU. This includes both carbon dioxide and methane and covers emissions up to the receiving terminal. The upstream emissions intensity of Norwegian gas is estimated at 5.4 kg CO₂e per boe.

Norway has relatively low emissions from oil and gas production, due in part to the country’s environmental regulations, high greenhouse gas taxes, restrictions on flaring, systematic efforts to reduce emissions over time, and the use of power from shore. With regard to gas, transport-related emissions are particularly significant in the case of liquefied natural gas (LNG), which is transported by ship. It is therefore especially advantageous that most Norwegian gas is exported to Europe by pipeline. As shown in Figures 9 and 10, greenhouse gas emissions from the production and transport of Norwegian oil and gas are roughly one-fifth of the average for countries exporting oil and gas to Europe. For gas, emissions are around one-tenth of those associated with LNG imported from the US, which is now Europe’s largest LNG supplier.

Carbon storage on the Norwegian continental shelf could also make a significant contribution to reducing greenhouse gas emissions. The European Commission’s proposal to revise the EU Emissions Trading System would allow carbon removals, including the capture and storage of biogenic carbon dioxide, to be used to offset fossil emissions. The volume of biogenic carbon dioxide stored on the Norwegian shelf could be substantial by 2050. For example, the carbon storage company Northern Lights plans to store 430,000 tonnes of biogenic carbon dioxide from Denmark each year from 2027, followed by a further 800,000 tonnes annually from Sweden beginning in 2028.

KonKraft’s 2026³⁰ status report includes a long-term emissions outlook for the Norwegian continental shelf for the period 2030–2050. This indicates that greenhouse gas emissions from the Norwegian shelf could be reduced by 80–90% by 2050 compared with 2005 levels. The industry’s target is to achieve near-zero emissions from oil and gas production in Norway by 2050, in line with Norwegian and European climate targets and commitments under the Paris Agreement.

KonKraft’s 2026 status report shows that the industry’s original target of a 40% reduction in emissions by 2030, as set out in its 2020 climate strategy, remains within reach – provided that the measures identified and planned are actually implemented.

The long-term outlook shows that Norway’s oil and gas industry could continue to reduce emissions substantially beyond 2030, while further developing activity on the continental shelf. If all identified measures are implemented, emissions could be reduced by around 60% by 2040 and 87% by 2050 compared with 2005 levels. At the same time, the outlook shows that additional measures will need to be developed and implemented in order to achieve the long-term target of near-zero emissions by 2050.

³⁰ [KonKraft Status Report 2026](#)

The development of new industries on the shelf

The Norwegian continental shelf is well placed to support the development of new offshore industries such as offshore wind, carbon storage and seabed minerals. These industries will be important to the energy transition and efforts to limit global warming. They will also generate activity in the supply industry and support jobs across the country.

Norway is in a unique position to succeed in offshore wind

Norway has a competitive supply industry, strong maritime expertise and more than 50 years of experience delivering complex oil and gas projects. It also has a renewable, hydropower-based electricity system that is capable of balancing large volumes of wind power. At the same time, the Norwegian economy faces a dual challenge: securing enough renewable power for electrification and future growth, while also developing new, profitable export industries that can take on a greater share of the value creation as activity in the oil and gas industry on the Norwegian continental shelf gradually declines. Offshore wind is one of the few areas of investment that could begin to address both challenges by the early 2030s, namely by delivering large volumes of power, strengthening industrial competitiveness, driving investment in new value chains and reinforcing Norway's global position in floating offshore wind.

Demand for electricity is rising rapidly as society becomes increasingly electrified and new industries emerge. At the current pace of power development, Norway risks facing an electricity shortfall as soon as the early 2030s. An electricity shortfall would lead to higher prices, reduced

competitiveness and make Norway less attractive as a location for new industrial investment. For energy-intensive industry, access to affordable electricity is a fundamental requirement, and the prospect of power shortages increases the risk of existing industrial operations being shut down or relocated abroad. Businesses in Europe currently pay twice as much for electricity as those in the US and around 50% more than those in China³¹. Higher energy costs are harming the competitiveness of European industry, leading to both capacity reductions and the closure of industrial facilities. If industrial activity in Europe declines, Norwegian industry risks losing the foundations on which it depends. In many places, industrial companies are cornerstone employers in their communities, and their wider economic impact often extends far beyond just the local area or municipality in which they are based. Offshore wind is one of the few technologies that is capable of delivering large volumes of renewable energy within a relatively short timeframe, thereby strengthening security of supply in Norway and Europe.

The first large-scale offshore wind farms on the Norwegian continental shelf are

now moving closer to becoming a reality with the development of Sørlige Nordsjø II and Utsira Nord. Since Hywind Tampen began operations in 2022, Enova has subsequently awarded funding to two additional floating offshore wind projects: GoliatVIND in 2024 and Wind Catching Systems in 2025. However, Norway's offshore wind ambitions face a number of challenges. Enova has withdrawn its funding for GoliatVIND because the project could not be completed within the five-year deadline. Ventyr has applied for an extension to the deadline for submitting its licence application for Sørlige Nordsjø II due to a number of unforeseen circumstances.

In June 2026, the Norwegian Parliament passed a resolution asking the government to present an external quality assurance review, a socio-economic analysis and an assessment of the technology development potential of the support scheme for floating offshore wind. Similar challenges have also emerged elsewhere in Europe, prompting leading markets such as the UK and Denmark to continually adjust their support schemes to keep offshore wind projects commercially attractive. Norway's offshore wind ambitions will require continued strong measures if they are to succeed.

Around 7,000 people already work in Norway's offshore wind industry, which generated revenues of more than NOK 60 billion in 2024³². By contrast, the position of Norway's offshore yards has weakened in recent years. The current outlook suggests that order books will begin to thin out from 2027. We are already seeing the consequences of this in the form of workforce reductions and the loss of expertise that could prove critical to the development of offshore wind. Oil and gas projects are becoming fewer and smaller, while the development of offshore wind on the Norwegian continental shelf has taken

longer than anticipated. If the offshore wind industry is to continue growing and generate contracts for Norwegian suppliers of all sizes, several conditions will need to be put in place, including the development of a domestic market. A strong domestic offshore wind industry, in which Norwegian companies are able to play an active role, could help drive the transition of Norway's existing offshore supply industry.

Over several decades, Norway's petroleum and maritime industries have built up a base of expertise that is directly transferable to offshore wind. This includes a highly skilled workforce and expertise within engineering, project execution, marine operations, installation, operations and maintenance, as well as a mature culture of safety and quality. As with all other industries, the development of offshore wind must be rooted in the Norwegian labour market model. This means requirements for responsible business practices, good pay and working conditions, a high proportion of skilled workers and apprentices, and strong levels of employee participation. The development of new offshore industries must not come at the expense of health, safety and the environment on the Norwegian continental shelf, and it will require sound processes for developing regulations and framework conditions. This is essential to ensuring safety, quality and effective recruitment.

³¹ [Electricity 2026 – Prices, IEA](#)

³² [Norwegian energy industries continue to grow \(Multiconsult\)](#) and [LeverandørKRAFT \(Federation of Norwegian Industries and HavvindNO\)](#)

Norway is a pioneer in carbon storage

Global carbon capture and storage has expanded steadily over the past 15 years, from just under 10 million tonnes per year (mtpa) in 2010 to around 50 mtpa in 2024. This includes both the use of carbon dioxide for enhanced oil recovery (CO₂-EOR) and the injection of carbon dioxide for permanent storage (CCS). Norway has been a pioneer in this field, having stored more than 25 million tonnes of carbon dioxide at the Sleipner and Snøhvit fields since 1996. Northern Lights, which became operational in 2025, is also the world's first project to offer commercial carbon-dioxide transport and storage as a service.

In addition to these three projects, the Norwegian authorities have also, as of August 2026, awarded 13 exploration licences on the Norwegian continental shelf – three of which have since been relinquished. The planned total annual injection capacity of these storage sites exceeds 60 mtpa. With sufficient market demand, this capacity could be brought online by 2035. This could make Norway a strategically important partner for the EU as it works towards its targets of establishing a carbon capture and storage capacity of 50 mtpa by 2030 and four times that amount by 2040.

The market for CCS in Europe is in an early stage. In order to reach a final investment

decision (FID), the developers of first-generation projects require a business model that offers an acceptable balance between risk and return, mechanisms to coordinate FID timelines across the CCS value chain, and sufficient commitments from carbon emitters to justify investments in transport and storage infrastructure. As of August 2026, only two carbon storage projects in the EU – Porthos and Greensand – had reached FID, alongside two further projects in the UK – the Northern Endurance Partnership and HyNet – as well as Northern Lights.

The long-term development of a market for CCS in Europe will depend primarily on the carbon price, and secondarily

*The Northern Lights facility in Øygarden Municipality, to the north of Bergen.
Photo: Torstein Lund Eik / Equinor*

on the value and predictability of carbon removal credits, as well as the market's willingness to pay a premium for products with a low carbon footprint. Until these factors are strong enough to drive the further development of the CCS market, support schemes and other policy measures for climate action will be critical to the pace at which CCS can be scaled up.

The trajectory of carbon prices in Europe between now and 2050 will be determined in large part by policy. Among other things, this will include decisions on future adjustments to the EU Emissions Trading System (EU ETS), the Carbon Border Adjustment Mechanism (CBAM) and related flexibility mechanisms. DNV estimates³³ that, with an average carbon price in Europe of USD 150 in 2030 and USD 250 in 2050, carbon storage in Europe could reach 336 mtpa by 2050. By comparison, the IEA's Stated Policies scenario³⁴, which assumes a more conservative trajectory for carbon prices both in Europe and globally, projects that 305 mtpa of carbon dioxide could be stored worldwide by 2050.

The achievable injection capacity of licences already awarded on the Norwegian continental shelf could meet a substantial share of Europe's carbon storage needs. Given that carbon storage sites are also being developed elsewhere in Europe, and as Norway is located further from Europe's major emission sources, it is reasonable to assume that Norwegian storage sites will account for only a share of the total volume of carbon dioxide that is captured for permanent storage in Europe. This means that establishing a sustainable carbon storage industry on the Norwegian continental shelf before 2040 will depend on a high and stable carbon price, as well as the necessary support during the early stages of development.

At the same time, Europe is unlikely to meet either its CCS ambitions or its broader climate targets unless substantial volumes of carbon dioxide are stored on the Norwegian continental shelf. In its Industrial Carbon Management Strategy, the EU identifies a need for 200 mtpa of CCS capacity by 2040³⁵. The IEA's net zero by 2050 scenario³⁶ points to the need for substantially more. This would require more storage capacity than the EU can realistically develop. Norway and the UK are the EU's leading partners in providing this storage capacity.

Under EU rules, all carbon storage sites in the EU and EEA must be able to accept carbon dioxide from emitters in Norway. However, developing a broad portfolio of carbon storage sites on the Norwegian continental shelf will be strategically important for Norwegian emitters, as access to nearby storage provides a competitive advantage. This should be taken into account when designing policy measures to enable carbon capture from Norwegian emission sources. A large offshore carbon storage industry would also generate significant spillover benefits for the maritime sector. Many of Europe's early carbon storage projects are considering concepts in which carbon dioxide is transported by ship from customers to storage sites or receiving terminals. Offshore vessels are used for a wide range of operations related to the development, operation, maintenance and decommissioning of carbon storage sites. The widespread establishment of carbon receiving terminals could also help make onboard carbon capture from ship exhaust a competitive alternative to low-emission fuels.



Photo: Tom Haga, Offshore Norge

³³ [Energy Transition Outlook 2025, DNV](#)
³⁴ [IEA World Energy Outlook 2025, Table A.4b](#)
³⁵ [Towards an Ambitious Industrial Carbon Management for the EU, European Commission](#)
³⁶ [IEA World Energy Outlook 2025, Tabell A.4c](#)

Large deposits of seabed minerals on the Norwegian continental shelf

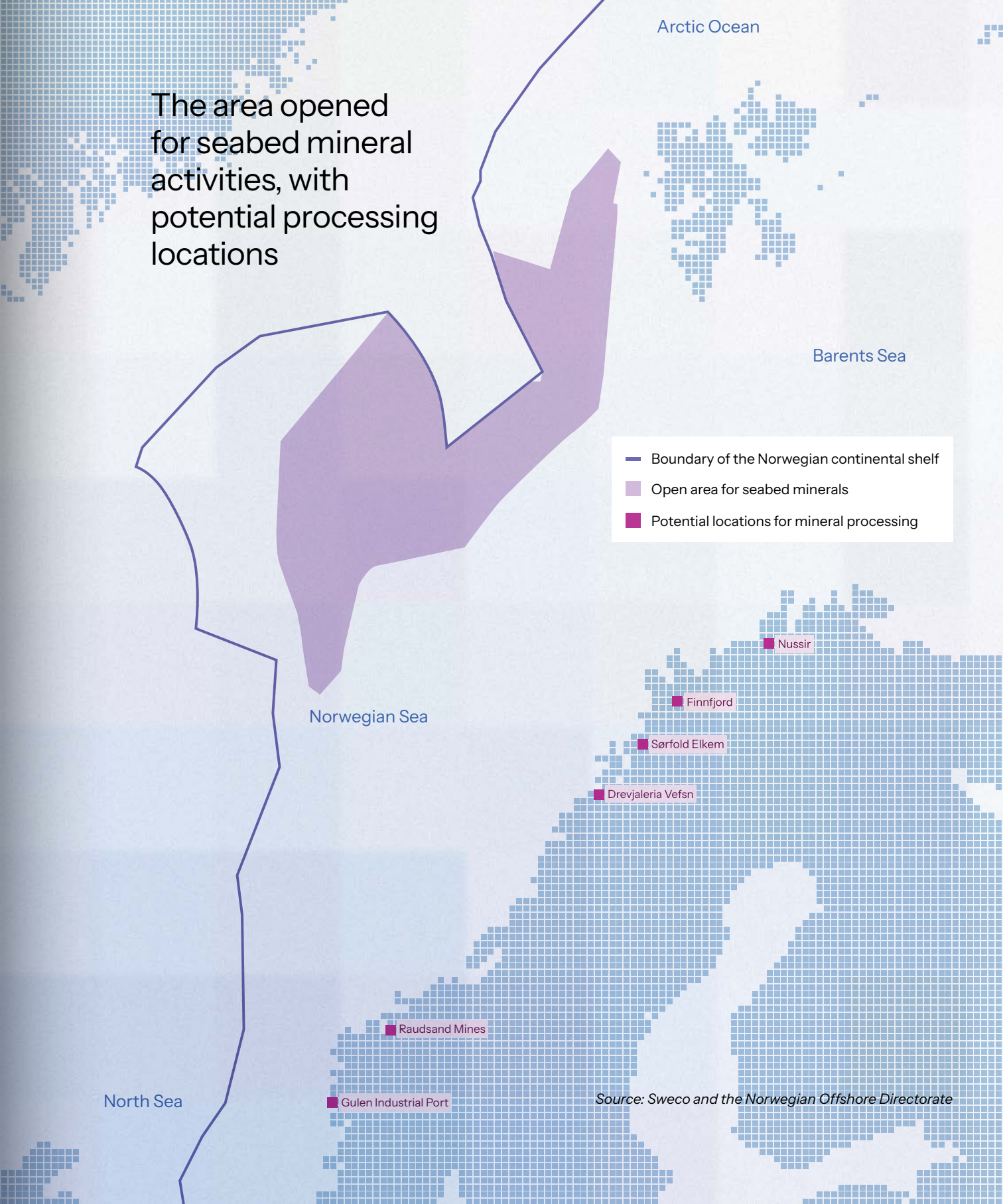
The Norwegian continental shelf contains large and concentrated deposits of metals such as copper, zinc and rare earth elements. These metals are essential for everything from wind turbines and batteries to defence technology and electric motors.

At a time when electrification, technological development and defence capability are increasingly important to society, China controls between 50% and 90% of the global mineral market. The IEA estimates³⁷ that global demand for minerals will rise in step with the energy transition, increasing sixfold by 2050. A Norwegian seabed minerals industry could therefore not only create significant value for Norway, but it could also help to secure critical supply chains for the defence industry and other sectors.

Copper – one of the most important minerals for the green transition – is found in very large, concentrated deposits

on the Norwegian continental shelf. The Norwegian Offshore Directorate estimates³⁸ that the Norwegian continental shelf could contain more than 38 million tonnes of copper. At a copper price of just over NOK 140,000 per tonne (2026), the copper deposits on the Norwegian continental shelf could be worth more than NOK 5.3 trillion. A seabed minerals industry could not only create a new source of revenue for Norway as oil and gas revenues decline, but it also has the potential to generate new jobs, both offshore and onshore, and particularly in Northern Norway. In a study commissioned by the Norwegian Forum for Marine Minerals, Sweco identified Gulen, Raudsand, Vefsn, Sørfold, Finnfjord and Nussir as potential locations for the processing of minerals extracted from the seabed. A Norwegian seabed minerals industry could create significant value in these areas, while also supporting greater economic activity and population retention in strategically important regions.

³⁷ [Critical minerals demand in the net zero pathway, IEA](#)
³⁸ [Seabed minerals resource assessment, Norwegian Offshore Directorate](#)



Action list

Oil and gas

Conditions must be put in place to enable oil and gas production on the Norwegian continental shelf in line with the Norwegian Offshore Directorate’s high scenario.

This can be achieved as follows:

- Continue exploring for new resources to offset declining production on the Norwegian continental shelf.
- Continue and expand the APA scheme (Awards in Predefined Areas) to cover all available acreage currently open for petroleum activities.
- Make previously opened and impact-assessed areas with significant gas resources available, particularly the western parts of Nordland VI.
- Continue to gather knowledge through the Norwegian Offshore Directorate in areas not yet open for petroleum activities, to support potential future opening processes.
- Consider whether the State’s Direct Financial Interest (SDFI), through Petoro, should retain interests in production licences with substantial resource potential and higher geological risk in order to encourage further exploration.
- Gradually reduce the carbon tax as the carbon allowance price rises.
- Adapt regulatory and partnership processes more closely to the needs of smaller, time-sensitive projects.
- Ensure closer involvement between the authorities and licence holders in order to enable more efficient and targeted decision-making.
- Ensure good collaboration between operators and suppliers in order to select robust concepts tailored to cost-efficient execution and delivery.

- Strengthen collaboration among stakeholders in the gas infrastructure system to address challenges arising from declining profitability.
- Regularly review tariff components with the aim of maximising resource recovery, ensuring the efficient use of existing infrastructure and enabling commercially viable resources to be brought into production.
- Put in place policy measures that can unlock the gas potential of the Barents Sea.
- Increase the use of digital solutions and systems that can be deployed across operators and suppliers.
- Strengthen petroleum research through a long-term strategy for STEM subjects.
- Achieving stronger and more targeted levels of collaboration between operators, the supply industry and the authorities around skills development could deliver direct productivity gains and enhance competitiveness.

The potential of marginal discoveries near existing infrastructure must be realised.

This can be achieved as follows:

- Use regulatory frameworks and incentives to promote industry and supplier standardisation, reuse, and greater collaboration and sharing of equipment and services, thereby reducing costs, resource utilisation and project delivery times.
- Ensure predictable and commercially viable access to existing infrastructure so that resources can be brought into production before said infrastructure is decommissioned.
- Establish proportionate and more predictable decision-making, documentation and regulatory processes and requirements for accelerated developments.
- Strengthen information sharing between stakeholders at an early stage in order to enable the faster clarification of area and host options.
- Promote early collaboration and area-based coordination so that the solutions that offer the greatest socio-economic benefit can be identified and implemented in a timely, safe and sustainable manner.

Offshore wind

Offshore wind must be developed into a significant and profitable industry on the Norwegian continental shelf.

This will require:

- A comprehensive package of measures that combines tax and financing instruments (for example) with measures to reduce risk during the licensing and implementation phases.
- Ensuring that future allocation models are based on a single-stage process, with the project and support awarded through the same procedure.
- A support mechanism based on a two-sided contract for difference (CfD), with no cap on support or a sufficiently high cap, and with a sufficiently long duration.
- New offshore wind project areas to only be announced and awarded if a realistic framework is in place to enable the project area to be developed.
- The authorities to task NVE with identifying one or two new areas on the Norwegian continental shelf for fixed-bottom offshore wind.
- A competitive auction for support for a floating offshore wind project area to be held by 2030.
- Enova’s programme for testing stand-alone pilot projects to be continued and coordinated with the testing and demonstration facilities at the METCentre.
- The METCentre to become a strategic testing and demonstration facility in Norway and be able to develop the necessary grid infrastructure independently of individual projects being tested at the centre.
- Implementation of measures to provide a sound basis for deciding on a potential hybrid project in the Sørvest area.

Carbon storage

The advantages offered by the Norwegian continental shelf as a carbon storage location must be developed into a profitable industry for storing carbon dioxide from Norwegian and European carbon capture operators.

This can be achieved as follows:

- Establish concepts that enable economies of scale while still remaining competitive in a mature market.
- Reduce investment risk for carbon storage operators.
- Establish a basis for profitable carbon capture from Norwegian emission sources.
- Seek to ensure that Norwegian carbon storage sites can be used on the same, or better, commercial terms as carbon storage sites in other European countries.

Seabed minerals

A profitable seabed minerals industry must be developed on the basis of sound knowledge, while taking account of both the environment and other ocean industries.

This can be achieved as follows:

- Detailed geological and geophysical mapping of the area of the continental shelf opened for exploration.
- Industry cooperation on mapping, including through the sharing of environmental data.
- The further development of mature and mobile offshore technology for exploration, environmental monitoring and production.
- The establishment of an integrated value chain for seabed minerals through cooperation with relevant ports, supply services, mineral reception facilities and the processing industry.
- Cooperation with vocational colleges, university colleges and universities to develop relevant education and training programmes.
- Support for the development of offshore mineral activities through further resource mapping, data collection, the building of industrial and environmental knowledge, and early-stage research and development.
- Funding for the Norwegian Offshore Directorate for resource and environmental mapping of the seabed in the outer part of Norway’s exclusive economic zone.
- A gradual and predictable opening process for the seabed minerals industry, with a regulatory framework that makes investment attractive.

