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Norway

Prospects for a just transition in the Oil and Gas sector

Interim report

Oil and Gas Transitions project



UiO : **University of Oslo**

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Introduction

Vast oil and gas resources with a low carbon footprint, good storage capacity for CO₂ and opportunities for mineral resources on the seabed mean that the Norwegian shelf is well-positioned for the future energy transition. However, progress in domestic emissions reductions - which is the most important measure of climate action - has been modest if not marginal. As an analyst recently noted, over the last three decades Norway has “cut 3.2 percent in emissions. Over the next three decades, we will [have to] cut just about everything. It will affect all areas of society. Nevertheless, there is remarkably little talk about this so far before the parliamentary elections this autumn. It almost seems as if many politicians are terrified”.¹ Other commentators also suggest that while Norway’s point of departure in an imminent transition is rather favourable, the lack of progress is due to insufficient political leadership.²

The oil and gas sector is a source of Norway’s national wealth and a pillar of its robust welfare state. However, at the same time it constitutes Norway’s largest contribution to the global climate crisis. As the recent Production Gap Report 2020 attests, there is a growing discrepancy between the global emissions reductions targets which were set to allow humanity to stabilize dangerous climate change, and the extraction of fossil fuels.³ We simply cannot burn all the fossil fuel resources that we have already discovered. In this context, the Norwegian political and business debate is visibly changing, however, is it difficult to answer whether its main goal should be managing decline or managing climate related economic risks? ⁴ This report provides the background on Norway’s oil and gas industry, maps the policy landscape as well as the current market structures, and lists most important actors involved in the petroleum activities as well as the governance and political contestation related to the sector (in Section 1). Section 2 explains the role of the oil and gas sector for the Norwegian economy, clarifying the scale of the challenge the energy transition brings. Finally, Section 3 maps the most important arguments in the policy debate, listing key issues and policy positions, focusing on political parties as the most important players who are likely to steer any possible change in the petroleum sector. Finally, the current actions and policy proposals are assessed based on a seven point ‘just transition’ framework. We conclude that currently, Norway’s efforts in a ‘just transition’ are very limited, and there is a need for dialogue not only within sectoral bubbles but across the most important divide.

1. Overview of the oil and gas sector

1.1 Policy and market mapping

1.1.1 Background: The emergence of Norway’s oil extraction governance

Norway exercises jurisdiction of its continental shelf of approximately 2 million square kilometers.⁵ By the law pertaining to petroleum activity, the right to subsea petroleum deposits is vested in the state, and the deposits shall be administered for the benefit of the Norwegian society as a whole. Consequently, rights to explore, drill and extract oil and gas are granted through the country’s licensing rounds.

Given the need for capital and expertise, the Norwegian Government was keen on attracting foreign companies in the first licensing round in 1965. It was not until August 1969 that the first commercially viable discovery was made.

¹ Dagbladet, ‘Norge har sovet i timen’, dagbladet.no, 9 June 2021, <https://www.dagbladet.no/meninger/norge-har-sovet-i-timen/73884364>.

² Mariana Mazzucato and Rainer Kattel, ‘Waking the Norwegian Green Giant’, Project Syndicate, 2021, <https://www.project-syndicate.org/commentary/use-norway-sovereign-wealth-fund-for-green-transition-by-mariana-mazzucato-and-rainer-kattel-1-2021-05?barrier=accesspaylog>.

³ ‘The Production Gap: The Discrepancy between Countries’ Planned Fossil Fuel Production and Global Production Levels Consistent with Limiting Warming to 1.5°C or 2°C’, International Institute for Sustainable Development, accessed 13 June 2021, <https://www.iisd.org/publications/production-gap-discrepancy-between-countries-planned-fossil-fuel-production-and-global>.

⁴ Bård Lahn, ‘Norwegian Petroleum Policy in a Changing Climate - CICERO’, 2019, <https://cicero.oslo.no/no/publications/internal/2890>.

⁵ Norsk petroleum, ‘Aktivitet per havområde’, Norskpetroleum.no, accessed 3 June 2021, <https://www.norskpetroleum.no/utbygging-og-drift/aktivitet-per-havomrade/>.

Production on the Ekofisk field commenced in June 1971.⁶ The discovery changed the balance of power between the state and the petroleum companies. The latter would now go to great lengths to secure licences on the Norwegian continental shelf. The new balance of power allowed the Government to alter the concession system more in alignment with its own preferences. Some of the changes made were to only allow individual applications in licencing rounds, resulting in companies submitting competing analyses of the fields and effectively increasing the information and know-how in the Norwegian oil bureaucracy.⁷ Concessions would also come with conditions relating to the employment of Norwegians and placing orders with the Norwegian industry.⁸

Understandably, reforming the licencing system was unpopular among the companies operating on the Norwegian continental shelf (NCS). However, Norway has managed to maintain the interest of E&P companies. A relatively stable political climate has played a role in maintaining this interest, as well as the introduction of awards in predefined areas (APA - see the following section) rounds and an expansive overhaul of the taxation system in the early 2000s. After the overhaul, the favorable deduction schemes for exploration activities also applied to companies without income.

1.1.2 Taxation and state revenue

The net Government cash flow from petroleum activities is expected to amount to NOK 154 billion in 2021. The state's instrument for achieving income from the petroleum activities has been *taxes and fees* as well as its *own participation* in the activities.

The extraordinary returns on oil and gas production make the entities who extract such resources subject to a special tax in addition to ordinary taxes. The marginal tax on the net profit of these companies is 78 % (22 % ordinary tax plus 56 % special tax). The reimbursement scheme allows companies exploring for oil and gas to choose between getting an immediate refund of the tax value of exploration costs or carry forward the losses with interest to a year when the company has taxable income.⁹ As a result, the scheme greatly increases the liquidity of companies that have yet to turn a net profit.¹⁰ Considering there are no guarantees for operating companies to turn a net profit, the reimbursement scheme has come under fire for essentially being “gambling with taxpayer money”.¹¹ However, between its inception in 2005 and 2019, reimbursement pay-outs have amounted to approximately NOK 106 billion - a mere 3.75 per cent¹² of the tax revenue generated from the industry.¹³ Still, the increasing uncertainty regarding the future of oil prices and given that it can take 10-15 years from a discovery is made until the field is developed and put in production, NGOs such as Bellona, have made calls for reform of the petroleum tax system to transfer more of the financial risk to the exploration companies.¹⁴ Lowering the depreciation rate of assets and removing the cessation refund scheme as well as uplift are some of the calls made by Bellona.¹⁵

The Government's *own participation* was initially taken care of through the establishment and development of the state oil company Statoil (now Equinor). From 1973 to 1985, the state ensured that Statoil was amply met in license allocations. In the 1980s a political scandal broke out about this management, the reason being that Statoil's cash flow was becoming increasingly sizable in relation to the size of Norway's GDP.¹⁶ This resulted in the splitting of Statoil's ownership interests in most production licenses on the NCS into a share for the company and a share for the Norwegian Government. The scheme is formally known as the State's Direct Financial Interest (SDFI). The majority of income in 2021 is expected to derive from this portfolio. As Statoil was partly privatized in 2001, a new fully-state owned company, Petoro, took over formal ownership of about 78.5 per cent of the holdings in the SDFI.

⁶ Dag Harald Claes, *The Politics of Oil: Controlling Resources, Governing Markets and Creating Political Conflicts*, 1st ed. (Cheltenham,; Edward Elgar Publishing Limited, 2018), 53, DOI 10.4337/9781785360183.

⁷ Claes, 53–54.

⁸ Claes, 53–54.

⁹ Norsk petroleum, ‘Petroleumsskatt’, Norskpetroleum.no, accessed 1 May 2021, <https://www.norskpetroleum.no/okonomi/petroleumsskatt/>.

¹⁰ Norsk petroleum.

¹¹ Bellona, ‘Bellona Tries to Pull the Plug on Vast Norwegian Oil and Gas Exploration Subsidies’, Bellona, 22 August 2017,

<https://bellona.org/news/fossil-fuels/2017-08-23814>.

¹² Figure only includes ordinary and special taxes

¹³ Anders Lie Brenna, ‘Så mye har Norge brukt på leterefusjon og opphørsrefusjon’, enerWe, 3 January 2019, <https://enerwe.no/sa-mye-har-norge-brukt-pa-leterefusjon-og-opphorsrefusjon/166683>; Statistisk sentralbyrå, ‘Skatt for selskaper’, ssb.no, accessed 1 May 2021,

<https://www.ssb.no/virksomheter-foretak-og-regnskap/statistikker/skattepl/aar/2021-02-18>.

¹⁴ Bellona, ‘Derfor er leterefusjonsordningen farlig gambling med skattepenger’, Bellona.no, accessed 1 May 2021, <https://bellona.no/oljespons>.

¹⁵ Bellona.

¹⁶ Claes, *The Politics of Oil: Controlling Resources, Governing Markets and Creating Political Conflicts*, 55.

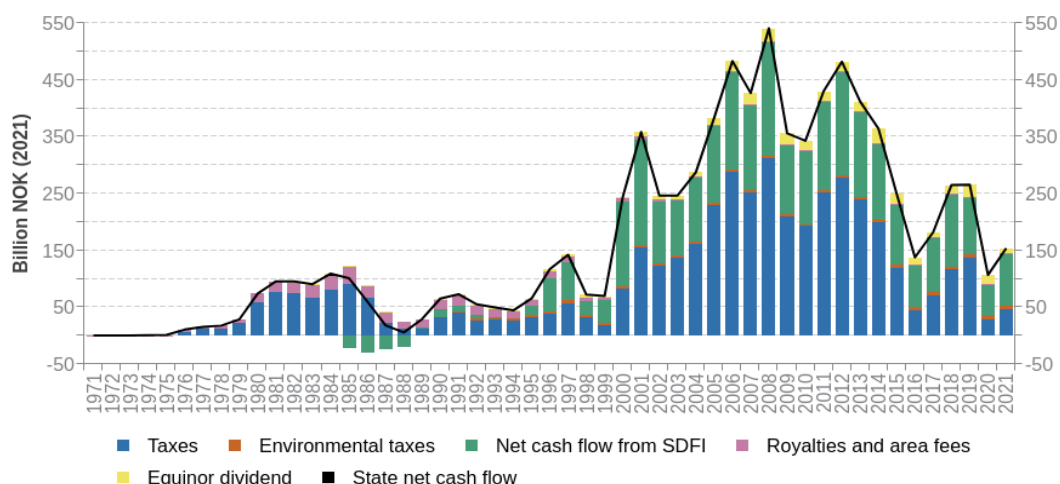


Figure X.X The net government cash flow from petroleum activities, 1971–2021. Source: Norsk Petroleum

1.1.3 Licensing regime: current status and policy changes discussed

The Norwegian Government facilitates continuous exploration on the continental shelf through two types of regular licencing rounds: *awards in predefined areas (APA)* or *numbered licencing rounds*.¹⁷ In general, APA-rounds are held annually, while numbered rounds are held every other year. The main difference between the two is that there is a good understanding of the geology of the acreage that can be acquired through APA-rounds and that the infrastructure of the areas in question is well-developed or planned. Rights awarded through APA-rounds may have been acquired before. Exploration rights in frontier areas, which are less explored and developed, can be won through the numbered licencing rounds.

APA-rounds were introduced in 1999 (known as the North Sea Awards until 2002), with the objective of finding and extracting additional petroleum resources in mature areas before its infrastructure is built down.¹⁸ While the probability of discoveries is relatively high in APA-areas, it is also less likely that any major findings will be made.¹⁹ These smaller discoveries cannot justify an independent development of infrastructure, but they can be profitable when the acreage has existing or planned infrastructure. In addition, the APA-rounds have increased the overall frequency of licencing rounds, giving actors regular access to new exploration areas, which in turn results in increased predictability for all parties along the value chain.²⁰ Figure X.X shows the area status of the NCS. The yellow areas are open, but are subject to special arrangements.²¹

The introduction of APA-rounds has increased overall activity on the Norwegian continental shelf and has subsequently amassed criticisms due to its environmental impact. In response to a 2011 **Government white paper**, a **joint hearing statement** signed by the Bellona Foundation, the Norwegian Society for the Conservation of Nature, Nature and Youth, WWF and Greenpeace, demanded the APA-scheme be abolished altogether.²² Among other things, the signatories were concerned with awards being allocated in environmentally sensitive areas, contrary to environmental recommendations, and an overall lack of transparency in the licencing rounds.²³ The document states that 40 per cent of the concessions that have been awarded through the APA-system have been in areas where environmental institutions

¹⁷ Norsk petroleum. 'Letepolitikk', accessed 19 April 2021, <https://www.norskpetroleum.no/leting/letepolitikk/>.

¹⁸ Oljedirektoratet. 'Ressursrapporten 2018' (Stavanger, 2018), 17, <https://www.npd.no/globalassets/1-npd/publikasjoner/ressursrapport-2018/ressursrapporten-2018-n-lav.pdf>.

¹⁹ Olje- og energidepartementet. 'Konsesjonsrunder', Regjeringen.no (regjeringen.no, 20 2016), <https://www.regjeringen.no/en/topics/energy/oil-and-gas/licensing-rounds/id2001295/>.

²⁰ Industri Energi. 'TFO-ordningen trykker arbeidsplasser og ringvirkninger', 04 2021, <https://www.industrienergi.no/nyhet/tfo-ordningen-trykker-arbeidsplasser-og-ringvirkninger/>.

²¹ Klima- og miljødepartementet. 'Meld. St. 20 (2019-2020). Helhetlige forvaltningsplaner for de norske havområdene', Stortingsmelding (Oslo: Klima- og miljødepartementet, 2020), 131–34, <https://www.regjeringen.no/contentassets/5570db2543234b8a9834606c33caa900/no/pdfs/stm201920200020000dddpdfs.pdf>.

²² Bellona et al., 'Høringsuttalelse - TFO-området og forslag til utvidelse' (2011), https://bellona.no/assets/sites/2/2015/06/fil_111207-TFO_hoering1.pdf.

²³ Bellona et al., 1.

have had objections. Furthermore, the signatories claim that the scheme is in conflict with the Parliament's decision that the Norwegian sea areas shall be managed according to an integrated ecosystem-based model.²⁴

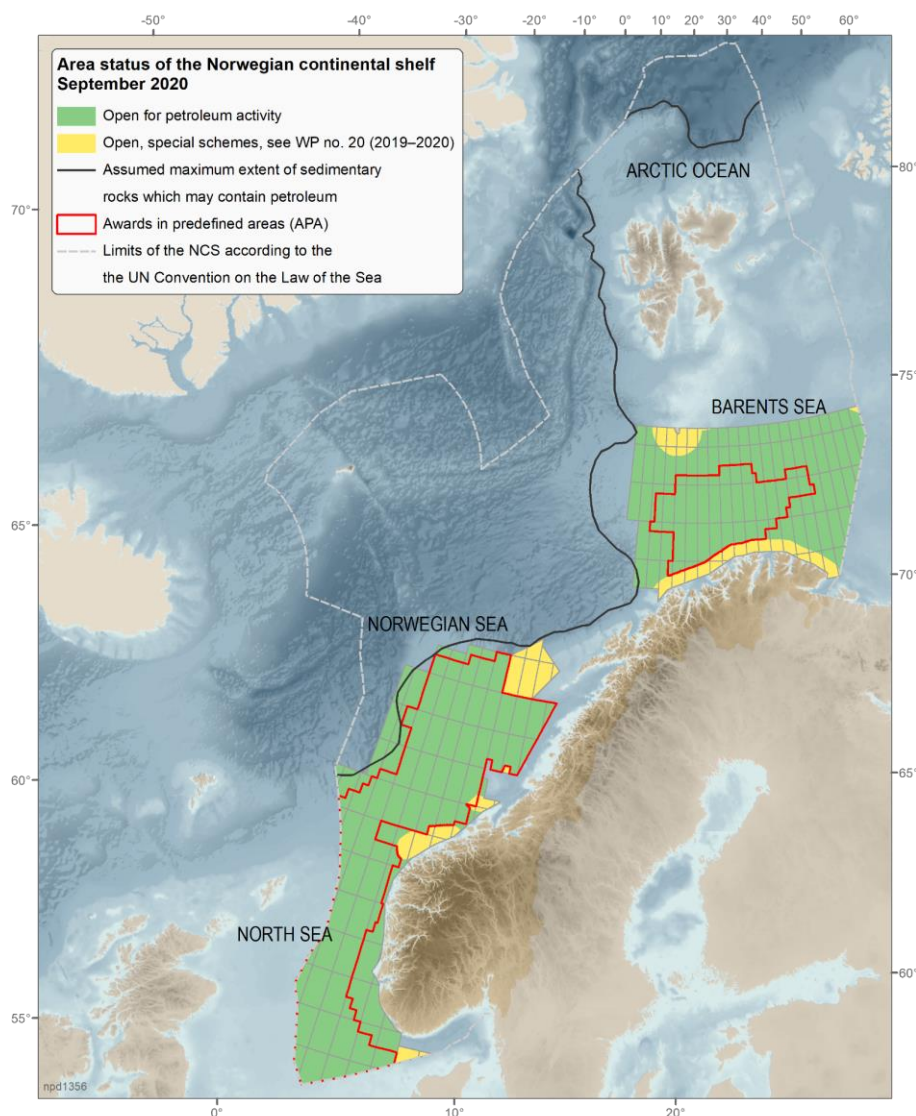


Figure X.X Area status of the Norwegian continental shelf, September 2020. Source: Norsk Petroleum

In recent times, the Government has decided that terms and restrictions, such as when a company can conduct seismic surveys or drill exploration wells may accompany concessions.²⁵ Still, there has been a general frustration among environmental institutions, considering that once an area is defined as APA-area, there are no mechanisms that may change this status based on new available knowledge, and no real opportunity for withdrawal of the license.²⁶

Given the need for large amounts of capital when exploring frontier areas, the introduction of APA-rounds lowered the entry barriers for new actors wanting to embark on exploration. Despite the new license policy, exploration on the continental shelf was still dwindling at the turn of the century. To stimulate more exploration, the second conservative-liberal government of Kjell Magne Bondevik (Christian Democratic Party) introduced the reimbursement scheme in 2005

²⁴ Bellona et al., 1; Miljøverndepartementet, 'St.meld. nr. 37 (2008-2009). Helhetlig forvaltning av det marine miljø i Norskehavet (forvaltningsplan)', Stortingsmelding (Oslo: Miljøverndepartementet, 08 2009), regjeringen.no/contentassets/1b48042315f24b0182c3467f6f324d73/no/pdfs/stm200820090037000dddpdfs.pdf.

²⁵ Klima- og miljødepartementet, 'Meld. St. 20 (2019-2020). Helhetlige forvaltningsplaner for de norske havområdene', 85.

²⁶ Bellona et al., Høringsuttalelse - TFO-området og forslag til utvidelse, 1.

for exploration costs. The scheme was introduced to increase the exploration activity on the continental shelf by reducing the entry barriers for new actors. The new policy, as well as the upturn in oil prices, resulted in a surge in exploration activity on the continental shelf, especially among small to medium-sized companies.²⁷ Since 2006, small to medium-sized companies have on average constituted 53 per cent of the yearly exploration costs on the Norwegian continental shelf – an increase of almost 40 percentage points compared to their 2005 activities.²⁸

Exploration activity on the NCS has primarily taken place in the **North Sea** and the **Norwegian Sea**. In the North Sea, around 770 wildcat wells have been drilled since 1966.²⁹ There has been significantly less activity in the Norwegian and **Barents Sea**, with about 270 and 130 wildcat wells drilled, respectively. The Norwegian Petroleum Directorate has estimated the undiscovered resources on the NCS at approximately 3.9 billion Sm³ recoverable oil equivalents, meaning that approximately half of the remaining resources on the NCS have yet to be proven.³⁰ Almost 65 per cent of these undiscovered resources are thought to be in the Barents Sea, making the area highly relevant in the discussion of the future of the Norwegian oil industry. So far, **only the area south of 74° 30' N is open for petroleum activities.**³¹

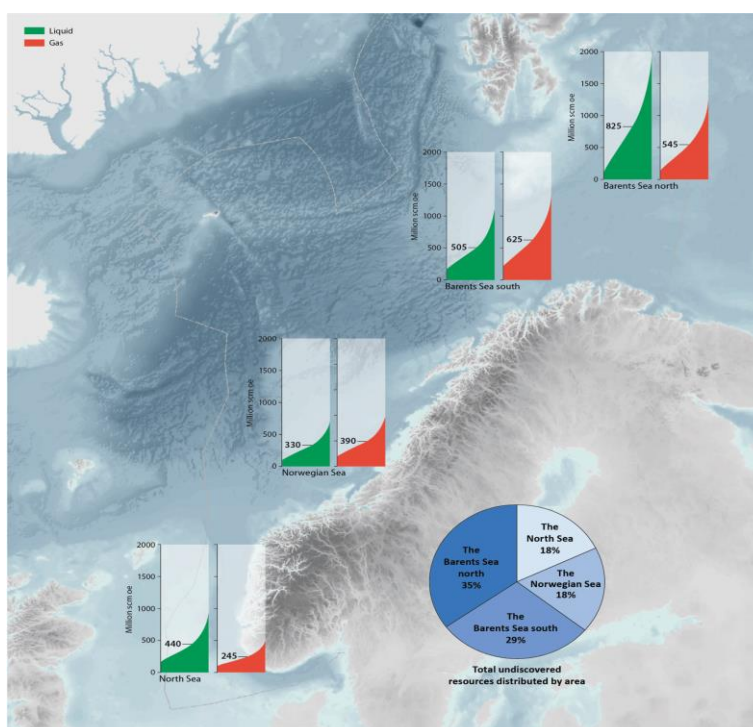


Figure X.X Undiscovered resources by area. Source: Norsk Petroleum

Oil exploration in the sea areas of the **Lofoten islands, Vesterålen, and Senja (LoVeSe)** has been a controversial issue since the 1970s. Today, no petroleum activity is conducted in these areas, over the years however, the issue has arisen sporadically in Norwegian politics. Opponents of petroleum activity in the areas are mainly concerned with the increased risk of accidents and oil spills, and the threat this poses to these sensitive areas, and its wildlife and coral reefs. Norway's fishing industry has long traditions, and the fish stocks in the areas play a key role in the marine ecosystems, and form the basis of national fisheries. The coastal fisheries have also been sustaining livelihoods and helped maintain settlements in barren coastal areas.³² In recent years, the debate has primarily been focused upon whether these sea areas should be opened for environmental impact assessment (EIA). Political grassroots organization *The People's Action Oil-free Lofoten, Vesterålen and Senja*, have voiced their skepticism of an EIA, as they believe it would be an "initial step in a process

²⁷ Norsk petroleum, 'Leteaktivitet', accessed 20 April 2021, <https://www.norskpetroleum.no/leting/leteaktivitet/>.

²⁸ Norsk petroleum.

²⁹ Norsk petroleum.

³⁰ Norsk petroleum.

³¹ Norsk petroleum, 'Aktivitet per havområde'.

³² Erik Olsen, 'Lofoten–Vesterålen – noe helt for seg selv', Framsenteret, 2013, <https://framsenteret.no/arkiv/lofotenvesteraalen-noe-helt-for-seg-selv-5167301-146437/>.

towards awarding production licenses".³³ Furthermore, the organization backs up their concerns over the objectivity of such a process with the events that came to light in a parliamentary hearing in 2021, where the impact assessment in relation to the opening of the South-Eastern parts of the Barents Sea "proved to be a formal obligation for oil policy interests to be allowed to open up new areas despite available knowledge".³⁴ After the hearing, the Storting's Standing Committee on Scrutiny and Constitutional Affairs recommended that the Government moved the Equinor ownership from the Ministry of Petroleum and Energy, to the Ministry of Trade, Industry and Fisheries, noting that it may be problematic that the state ownership of Equinor belongs to Ministry of Petroleum and Energy, while the same Ministry is also responsible for regulating the oil and energy industry.³⁵

Another issue which has sparked controversy is the oil and gas extraction in the Barents Sea region and the **Arctic**. The Ministry of Trade, Industry and Fisheries has made a strongly favorable statement about the developmental potential of the industry in the sparsely populated High North, and the Government "will pursue an offensive petroleum policy in the north by facilitating the allocation of new exploration areas".³⁶ The 25th (numbered) licensing round was sent for public consultation with the authorities in June 2020, and was announced in November 2020. The round includes 9 areas, divided into 8 in the Barents Sea and one in the Norwegian Sea.³⁷

1.1.4 Decarbonization policies

In early 2020, Norway updated its nationally determined contribution (NDC) to reduce emissions by at least 50 per cent and towards 55 per cent compared to 1990 levels by 2030.³⁸ At the time of submission, the 55 per cent goal was somewhat conditioned upon the EU increasing its climate target to the same level as Norway (which it did later that year).³⁹ In 2021, the Government published a comprehensive climate plan action plan. Among the highlighted measures, there are plans to substantially increase the taxation of greenhouse gas (GHG) emissions, climate-related requirements in public procurement processes and financial support and initiatives for the development of new technology.⁴⁰ Measures relating to the petroleum industry will be discussed further below.

Emissions from the oil and gas industry make up 28 per cent of the Norwegian total of GHG emissions (life cycle emissions from oil is not included), and is the second-highest source of GHG emissions after transport.⁴¹ Emissions from petroleum activities are regulated through several laws, including the Petroleum Act, the CO₂ Tax on Petroleum Activities, the Sales Tax Act, the Greenhouse Gas Emissions Trading Act and the Pollution Control Act.⁴² Most of the greenhouse gas emissions are CO₂ from energy production, i.e. from gas that produce energy for extraction of petroleum resources, transport of gas in pipelines and processing of gas onshore. The second largest source of emissions from the petroleum sector is emissions from flaring natural gas in oil extraction facilities. Because of the Norwegian ban on flaring, flaring only occurs for operational or safety reasons, including when production is stopped, or when maintenance is performed.⁴³ This has resulted in the CO₂ emissions from flaring on the NCS only being eight per cent of the global average, and only one tenth of the CO₂ emissions from the British continental shelf.⁴⁴

³³ Oljefritt fakta, 'Konsekvensutredning', Fakta for et oljefritt Lofoten, Vesterålen og Senja, accessed 4 June 2021, <http://www.oljefritt fakta.net/konsekvensutredning.html>.

³⁴ Oljefritt fakta.

³⁵ Stortinget, 'Olje- og energidepartementets håndtering av åpningen av Barentshavet sørøst' (Kontroll- og konstitusjonskomiteen, 11 May 2021), <https://www.stortinget.no/no/Saker-og-publikasjoner/Saker/Sak/?p=82359>.

³⁶ Nærings- og fiskeridepartementet, 'Maritime Muligheter - Blå Vekst for Grønn Fremtid', Plan/strategi (Oslo, 29 May 2015), 51, https://www.regjeringen.no/contentassets/05c0e04689cf4fc895398bf8814ab04c/maritim-strategi_web290515.pdf.

³⁷ Norsk petroleum, 'Letepolitikk'.

³⁸ United Nations Framework Convention on Climate Change, 'Update of Norway's Nationally Determined Contribution' (United Nations Framework Convention on Climate Change, 2 July 2020), 1.

[https://www4.unfccc.int/sites/ndcstaging/UploadedDocuments/Norway%20First/Norway_updatedNDC_2020%20\(Updated%20submission\).pdf](https://www4.unfccc.int/sites/ndcstaging/UploadedDocuments/Norway%20First/Norway_updatedNDC_2020%20(Updated%20submission).pdf).

³⁹ Klima- og miljødepartementet, 'Norge forsterker klimamålet for 2030 til minst 50 prosent og opp mot 55 prosent', Nyhet, Regjeringen.no (regjeringen.no, 7 February 2020), <https://www.regjeringen.no/no/aktuelt/norge-forsterker-klimamalet-for-2030-til-minst-50-prosent-og-opp-mot-55-prosent/id2689679/>.

⁴⁰ Klima- og miljødepartementet, 'Heilskapeleg plan for å nå klimamålet', Nyhet, Regjeringa.no (regjeringen.no, 8 January 2021), <https://www.regjeringen.no/nn/aktuelt/heilskapeleg-plan-for-a-na-klimamalet/id2827600/>.

⁴¹ Miljødirektoratet, 'Klimagassutslipp fra olje- og gassutvinning', Miljøstatus, accessed 7 June 2021,

<https://miljostatus.miljodirektoratet.no/tema/klima/norske-utslipp-av-klimagasser/klimagassutslipp-fra-olje-og-gassutvinning/>.

⁴² Norsk petroleum, 'Utslipp til luft', Norskpetroleum.no, accessed 7 June 2021, <https://www.norskpetroleum.no/miljo-og-teknologi/utslipp-til-luft/>.

⁴³ Miljødirektoratet, 'Klimagassutslipp fra olje- og gassutvinning'.

⁴⁴ Halfdan Carstens and Snorre Olaussen, 'Fakling – den aller største elefanten i rommet', Tu.no, 1 June 2021, <https://www.tu.no/artikler/fakling-den-aller-storste-elefanten-i-rommet/510521>.

CO₂ emissions per toe increased between 1997-2012. The possible reasons are that many fields on the NCS are in a declining phase. As a field's extraction rate declines, emission intensity increases. This may also be the result of lower CO₂-prices in the EU ETS, which reduced the incentives to cut emissions in that period. The CO₂-price for the Norwegian oil and gas producers declined by more than 50% from late 1990s to 2012 (in real terms). This is partly because the nominal CO₂-tax was reduced by more than 20% from 1999 to 2000, and partly due to lower than expected CO₂-prices in the EU ETS in 2009-2012. Finally, a contributing factor could have been the high oil prices. In that period, the oil price tripled (in real terms), giving companies more incentives to develop more expensive and often more energy demanding fields, and to delay termination of producing fields, which often implies higher emissions per unit extracted.⁴⁵

In a 2021 white paper, the Ministry of Climate and Environment presented the government's **policy on the reduction of greenhouse gas emissions up until 2030**. The white paper presents plans for a 45 % decrease in non-ETS emissions, mainly focusing upon the transport and agricultural sector. For the oil and gas industry, which is already covered by the ETS, the Government suggests increasing the CO₂ tax in accordance with the tax increases on non-ETS emissions. According to the plans, this will result in the total carbon price (CO₂ tax + quota price) in 2030 to be about NOK 2000, fixed in 2020 kroner, per tonne of CO₂. During the period, the total carbon price shall not exceed this price.⁴⁶ The rationale is that a substantial increase in carbon prices can make a number of climate measures such as offshore wind and carbon capture, cost-effective solutions for the petroleum sector.⁴⁷ It is also reasonable to believe that the policy will make the development of oil fields that seem to have weak profitability, even more unattractive, thus mitigating the state's climate risk. At the time of writing, the Norwegian CO₂ tax is NOK 591, resulting in a total carbon price of NOK 1030.⁴⁸

It is important to underline that in the oil and gas sector, the primary rationale for emissions reductions has focused on energy efficiency and a **“cleaner” oil and gas industry, not decommissioning**.

The Norwegian Oil and Gas Association have expressed concerns over the Government's relatively **lofty CO₂ pricing policy**. Director General Anniken Hauglie was especially worried about the competitiveness of the oil and gas companies operating on the Norwegian continental shelf.⁴⁹ The association has also emphasized that the funds raised from the increased CO₂ taxes should be earmarked for measures that will speed up the reduction of GHG emissions in the affected sectors.⁵⁰

A major solution to the sector's emissions is also seen in the **electrification of the platforms** with power from the land. Notable fields such as Johan Sverdrup, Ormen Lange and Snøhvit are already supplied with power from shore, and the Government has pushed for further electrification of producing platforms on the NCS. Partially state-owned energy company Equinor, have made investment plans amounting to NOK 50 billion towards energy optimization and electrification of their operations. The company estimates that their electrification plans would require around 10-12 TWh of power, equivalent to roughly seven per cent of present electricity production. However lofty Equinor investment plans may seem, it should be noted that the company sees “stable framework conditions” – i.e. a reimbursement of 78 per cent of the investment, as a requirement to go ahead with their plans.⁵¹

The **effectiveness of the electrification policy** has been heavily debated. The Progress Party (Frp) has been critical of the high costs relative to the benefits of the policy, while the Green Party (MdG) is against what they essentially believe is greenwashing of the oil and gas industry.⁵² Others have also been concerned that the electrification of the continental

⁴⁵ Ekaterina Gavenas, Knut Einar Rosendahl, and Terje Skjerpen, 'CO₂-Emissions from Norwegian Oil and Gas Extraction', Discussion Papers (Statistisk sentralbyrå, April 2015), 4–9.

⁴⁶ Klima- og miljødepartementet, 'Meld. St. 13 (2020-2021). Klimaplan for 2021-2030' (Klima- og miljødepartementet, 8 January 2021), 163, <https://www.regjeringen.no/contentassets/a78ecf5ad2344fa5ae4a394412ef8975/nn-no/pdfs/stm202020210013000odddpdfs.pdf>.

⁴⁷ Klima- og miljødepartementet, 'Meld. St. 13 (2020-2021). Klimaplan for 2021-2030' (Klima- og miljødepartementet, 8 January 2021), 164, <https://www.regjeringen.no/contentassets/a78ecf5ad2344fa5ae4a394412ef8975/nn-no/pdfs/stm202020210013000odddpdfs.pdf>.

⁴⁸ Finansdepartementet, 'Avgiftssatser 2021', Innhold, Regjeringen.no (regjeringen.no, 7 October 2020), <https://www.regjeringen.no/no/tema/okonomi-og-budsjett/skatter-og-avgifter/avgiftssatser-2021/id2767486/>; Ember, 'Carbon Price Viewer', Ember, accessed 3 May 2021, <https://ember-climate.org/data/carbon-price-viewer/>.

⁴⁹ Maryam Iqbal Tahir, 'Vi skal både nå klimamålene og sikre lønnsom produksjon', Norsk olje og gass, 21 January 2021, <https://www.norskoljeoggass.no/om-oss/nyheter/2021/01/vi-skal-bade-na-klimamalene-og-sikre-lonnsom-produksjon-fra-norsk-sokkel/>.

⁵⁰ Iqbal Tahir.

⁵¹ Equinor, 'Equinor med ambisjon om å kutte utslippene i Norge til nær null i 2050 - equinor.com', Equinor, 1 June 2020, <https://www.equinor.com/no/news/2020-01-06-climate-ambitions-norway.html>.

⁵² Fremskrittspartiet, 'Vil ikke elektrifisere norsk sokkel | Fremskrittspartiet - Frp', Fremskrittspartiet, 11 March 2021, <https://www.frp.no/nyheter/vil-ikke-elektrifisere-norsk-sokkel>; Kjetil Magne Sørensen, 'MDG og Frp med samstemt klimakritikk', Aftenposten, 19 November 2020, <https://www.aftenposten.no/norge/politikk/i/nAwjL/mdg-slutter-seg-til-frps-slakt-av-oljaeringens-viktigste-klimagrep>.

shelf will result in an upturn in electricity prices, which in turn may have ramifications on Norway's onshore industry.⁵³ In addition, the great amount of power required by electrification, results in the debate intersecting with the much disputed issue of wind power development, which is currently at the heart of the national energy transition debate.

Offshore wind power has been touted as a means to reduce emissions from the power supply on the oil platforms. Based upon its strong maritime sector and its experience from the petroleum sector, the Government believes that Norway has a competitive advantage in the development and installation of offshore wind power. In 2019, Norwegian companies operating in the offshore wind power industry generated a turnover of just over NOK 11 billion, a 50 per cent increase from the previous year. 80 percent of turnover is linked to exports and foreign activity. Norwegian Energy Partners estimates that Norwegian companies will generate a turnover of NOK 50 billion from the offshore wind industry in 2030.⁵⁴

The biggest offshore wind project on the NCS, **Hywind Tampen**, the largest floating wind farm in the world, has been contracted to Aker Solutions by Equinor. The wind farm is supposed to supply the platforms Gullfaks A and Snorre A with 88 MW. This will reduce CO₂ emissions from the fields by about 200,000 tonnes per annum, potentially saving Equinor of around NOK 200 million, given current carbon emission and quota prices. Installation and start-up is planned for 2022. Hywind Tampen is also a technology project for further development of renewable power production. The project has received support from Enova of NOK 2.3 billion and 566 million from the NOx Fund. The ultimate goal of the project is that this type of power production can be cost effective and competitive without subsidies.⁵⁵ As of now, there are no major offshore wind projects which appear to be realized before 2030 besides Hywind Tampen.⁵⁶ Equinor is also active outside the NCS, with the world's largest offshore farm constructed on the British shelf, and new projects in Poland.

An Equinor representative has said that while there is "great potential" for offshore wind expansion on the NCS, there is "no immediate need" for a large rollout from the perspective of the national energy system at this point (i.e. 2021), and only the electrification of transport and development of energy intensive electricity-based sectors (including hydrogen) would change that. At the moment, the continental shelf, due to its closeness to the major Norwegian industrial centers and engineering know-how resources is said to act as a "technology development laboratory".⁵⁷ However, there is already evidence that jobs are being relocated from the oil and gas industry to the renewables industry in western parts of Norway, which is an optimistic signal for the labour dimension of the future transition.⁵⁸

Summing up, while Norway has a set of climate policy targets, which are driven to a large extent by the global (UNFCCC) and European climate governance,⁵⁹ the lack of a national-level commitment to decarbonization and no confirmed goal of an oil and gas phase out mean that no conventional decarbonization economy-wide policies are in place. The rollout of domestic renewables, and particularly the importance of the offshore wind sector, where Norway has the potential to become both a global technological leader and an important player on the regional power market, is an important area though. Similarly, there were moves on the level of business actors to hedge against the risk of a decline in production on the NCS - i.e. Equinor's investments abroad, as well as the internationalization of the oil service industry.

However, the single **most important policy and financial instrument** which is available for the purpose of economic recovery and mitigating the economic impacts of an oil and gas sector decline is the **Sovereign Wealth Fund** (officially called the Government Pension Fund Global but most often referred to as the Oil Fund - *Oljefondet*). It is the largest sovereign wealth fund in the world, with over US\$1.3 trillion in assets. The aim of the oil fund is to "ensure responsible and long-term management of revenue from Norway's oil and gas resources, so that this wealth benefits both current and future generations".⁶⁰ The fund is a financial instrument on which the Government can draw only to a limited extent, specified by legislation and overseen by the Parliament. However, it plays three important function as a buffer for energy transitions: it can play, to a limited extent, the role of a "rainy day fund" used in case of a sudden economic shock; its main

⁵³ Oljedirektoratet, '6 - Kraftsituasjonen og kraftnettet på land', Oljedirektoratet, 2020, /fakta/publikasjoner/rapporter/rapportarkiv/kraft-fra-land-til-norsk-sokkel/6---kraftsituasjonen-og-kraftnettet-pa-land/.

⁵⁴ Nærings- og fiskeridepartementet, 'Blått Hav, Grønn Fremtid', Rapport (Oslo, 6 August 2021), 31–32, <https://www.regjeringen.no/contentassets/564afd76f1e34ccda982f785c33d21b9/no/pdfs/regjeringens-havrapport.pdf>.

⁵⁵ Klima- og miljødepartementet, 'Meld. St. 13 (2020-2021), Klimaplan for 2021-2030', 165.

⁵⁶ NTB and Ine Andersen, 'NVE: Trolig ingen store havvindprosjekter før 2030', *Teknisk Ukeblad*, 12 April 2021, <https://www.tu.no/artikler/nve-trolig-ingen-store-havvindprosjekter-for-2030/508993>.

⁵⁷ Pål Eirtheim, Executive Vice President for Renewables at the Energy Perspectives 2021 presentation, 10 June 2021, available at <https://www.equinor.com/en/sustainability/energy-perspectives.html>.

⁵⁸ - *Oljejobbene som forsvinner erstattes allerede - E24*

⁵⁹ Kacper Szulecki et al., 'Shaping the 'Energy Union': Between National Positions and Governance Innovation in EU Energy and Climate Policy', *Climate Policy* 16, no. 5 (3 July 2016): 548–67, <https://doi.org/10.1080/14693062.2015.1135100>.

⁶⁰ <https://www.nbim.no/>

purpose is to provide a smooth transition to an era After Oil (though this was not initially imagined as the result of climate-driven decarbonization); and lastly it has a strong inter-generational component, distributing the oil wealth to those citizens who might be born even after production stops. In this sense, the Fund constitutes a backbone for a “just transition” *avant la lettre*, and will play an important role in the future transformations of the Norwegian economy.

1.1.5 Structure of value chain and business landscape

The Norwegian oil and gas sector has fundamental importance for the national economy, but it is also highly **concentrated regionally**, and has therefore uneven impact across Norway. Along the country’s long coastline there are numerous terminals, helicopter bases, supply facilities, harbors etc. The economic activity in the **Stavanger region** (Southwestern Norway, Rogaland county) is to a large extent dominated by the oil and gas industry. But also outside **Bergen** (Western Norway, Vestland county) we find such facilities at the **Mongstad** refinery, and the **Sture** and **Kolsnes** terminals. Outside **Trondheim** (North-central Norway, Trøndelag county) similar activity is found at **Tjelbergodden**. In the Northern part of Norway, both **Harstad** and **Hammerfest** (both Troms og Finnmark county) are areas where the economic activity will be strongly affected and in this part of the country alternative industries are less likely to appear.

While employment estimates in the oil and gas industry vary due to varying definitions and methodical approaches, Statistics Norway estimates that a total of **140 000 were either directly or indirectly employed in the petroleum sector in 2018**.⁶¹ This constitutes five per cent of total Norwegian employment. A sizable part of these figures consists of employees in the supply industry, which is Norway’s second-largest industry in terms of turnover. Out of the 140 000, 23 700 were engaged with oil and gas extraction.⁶² Employment peaked in 2014, with approximately 239 000 employed either directly or indirectly in the sector.⁶³ However, this figure declined sharply following the oil price shock the same year.⁶⁴ A more recent report by Menon Economics has estimated that a total of **205 000** were employed in the petroleum industry in 2019.⁶⁵

The licensing and petroleum tax regime reform in the early 2000s contributed to the increased **exploration** activity on the NCS, especially among medium- and small-sized companies. At the turn of 2020, 37 different companies were active on the NCS. 24 companies as operators and the remaining 13 as partners in production licenses.⁶⁶ Equinor is by far the largest actor on the NCS, both in terms of numbers of active licenses, and fields operated. While large Norwegian companies such as Aker BP and Equinor make up a sizable part of total exploration costs on the NCS, medium-sized companies are altogether the most active.

Given the importance of the oil and gas industry for the Norwegian economy, **the Government has generally been accommodating to companies wanting to explore the continental shelf**. On average, just under 50 exploration wells have been spudded each year since 2010. Exploration activity did take a hit in 2020 however, with only 31 exploration wells being spudded as the Covid-19 pandemic wreaked havoc on the oil industry.⁶⁷ To combat a potential reversal of investment on the continental shelf, the government introduced temporary amendments to the Petroleum Tax Act.⁶⁸ As a result, an estimated additional liquidity of NOK 115 billion spread between 2020 and 2021 will be provided to the oil and gas companies. The amendments are estimated to give the oil and gas companies a tax relief of about NOK 8 billion.⁶⁹ As a consequence, concessionaires are expected to resume their endeavors in 2021, and an upturn in exploration activity is expected as the market outlook is more optimistic.⁷⁰

⁶¹ Norsk Petroleum, ‘Arbeidsplasser’, Norsk petroleum, accessed 12 May 2021, <https://www.norskpeteroleum.no/okonomi/arbeidsplasser/>.

⁶² Norsk Petroleum.

⁶³ Joakim Blix Prestmo, Birger Strøm, and Hilde karoline Midsem, ‘Ringvirkninger av petroleumsnæringen i norsk økonomi’, Rapporter (Oslo: Statistisk sentralbyrå, 16 February 2015), 16, https://www.ssb.no/nasjonalregnskap-og-konjunkturer/artikler-og-publikasjoner/_attachment/218398?_ts=14b82bba2f0.

⁶⁴ Norsk Petroleum, ‘Arbeidsplasser’.

⁶⁵ Sigrid Hernes, Jonas Erraia, and Sveining Fjose, ‘Ringvirkninger av olje- og gassnæringens aktivitet i 2019’ (Menon Economics, March 2021), 6.

⁶⁶ Norsk petroleum, ‘Selskap med utvinningstillatelse i Norge’, Norskpeteroleum.no, accessed 3 June 2021,

<https://www.norskpeteroleum.no/fakta/selskap-utvinningstillatelse/>.

⁶⁷ Norsk petroleum.

⁶⁸ Stortinget, ‘Vedtak til lov om endring i lov om skattlegging av undersjøiske petroleumforekomster mv. (petroleumsskatteloven)’, *lowvedtak*, Stortinget (Stortingets administrasjon, 12 June 2020), <https://www.stortinget.no/no/Saker-og-publikasjoner/Vedtak/Beslutninger/Lowvedtak/2019-2020/vedtak-201920-135/>.

⁶⁹ Finansdepartementet, ‘Temporary Amendments to the Petroleum Tax Act’, n.d.,

<https://www.regjeringen.no/contentassets/b9e1bc24fdf84a4fb04909f1df20db1c/2021-02-23-letter-esa-temporary-amendments-petroleum-tax-act.pdf>.

⁷⁰ Norsk petroleum, ‘Leteaktivitet’.

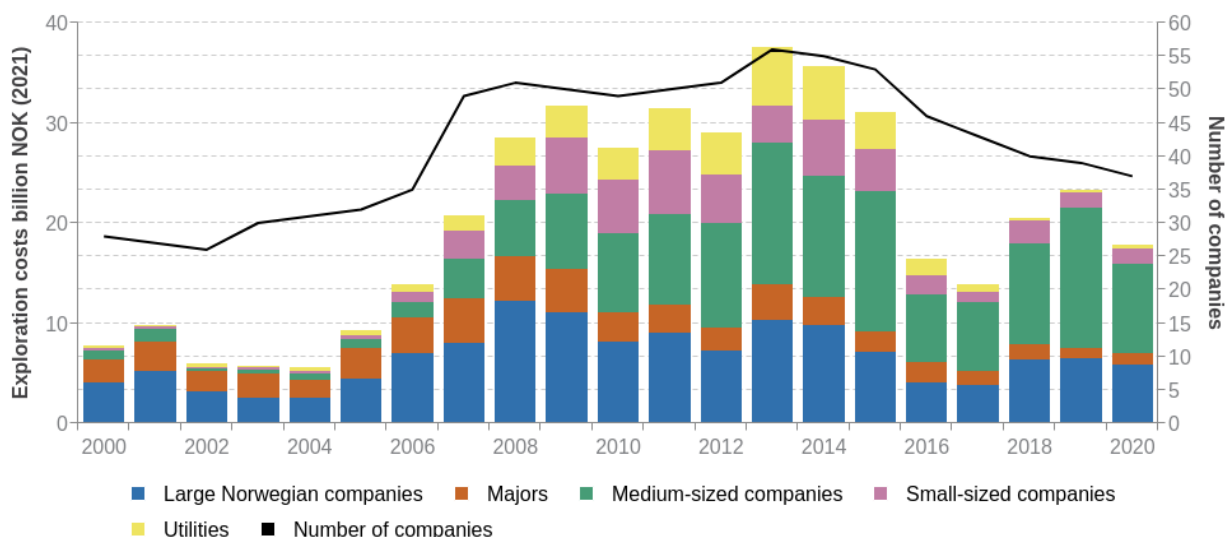


Figure X.X Exploration costs in production licences according to the size, and number of companies, 2000-2020 Source: Norsk Petroleum⁷¹

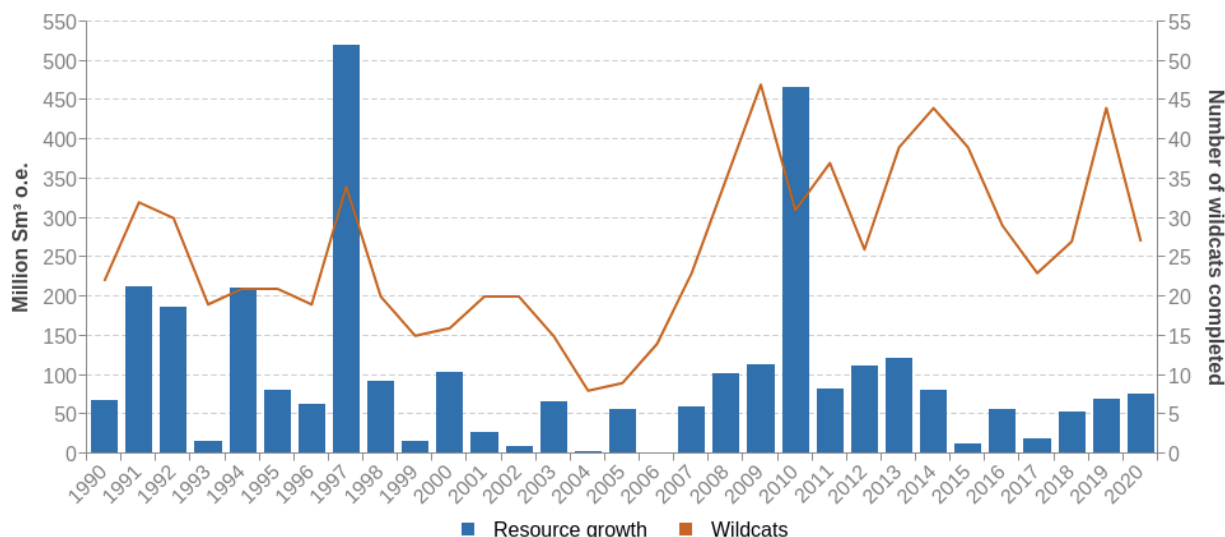


Figure X.X Gross resource growth and number of wildcats (completed), 1990-2020 Source: Norsk Petroleum⁷²

Since the inception of the Norwegian oil industry, the supply industry has experienced strong growth. As mentioned, the industry is Norway's second largest in terms of turnover, attaining a turnover of NOK 397 billion in 2019. Norwegian suppliers have also made great strides internationally. A 2020 report from energy research and business intelligence company Rystad Energy estimated that 43 per cent of the Norwegian supply industry's turnover derived from international operations.⁷³ Notable suppliers Norwegian suppliers are **Aker Solutions, Odfjell Drilling, BW Offshore, DNV GL, Kongsberg Gruppen, PGS** and **Interwell**. The 20 largest Norwegian suppliers account for 78 per cent of international sales.⁷⁴ In terms of turnover, the largest international segments are subsea equipment and installation, seismic and G&G, operational and

⁷¹ Norsk petroleum, 'Leteaktivitet'.

⁷² Norsk petroleum, 'Leteaktivitet'.

⁷³ Rystad Energy, 'Internasjonal Omsetning Fra Norske Oljeserviceselskaper - Rapport Til Olje Og Energidepartementet', 2020, 10.

⁷⁴ Rystad Energy, 20.

professional services, and topside and process equipment.⁷⁵ The UK is by far the largest single market internationally. Combined with the USA and Brazil, the three countries make up 42 per cent of international turnover.⁷⁶

Norway is a small player in the global crude market with **production** covering about 2 percent of the global demand. Norwegian production of natural gas covers approximately 3 percent of global demand, however, as an exporter Norway is a significant country. Norway is the third largest exporter of natural gas in the world, behind Russia and Qatar only. Norway supplies between 20-25 percent of the EU gas demand. Nearly all oil and gas produced on the Norwegian shelf is exported, and combined, oil and gas equals about half of the total value of Norwegian exports of goods. This makes **oil and gas the most important export commodities in the Norwegian economy.**⁷⁷

Since the inception of the Norwegian oil industry in 1970, about 49 per cent of total recoverable resources on the NCS have been produced.⁷⁸ At the turn of the century, gas production started gradually catching up with oil production in terms of volume. In the same period, oil production on the continental shelf was declining. However, as the Johan Sverdrup field went into production in 2019, crude oil production is expected to reclaim a larger share of total output on continental shelf.

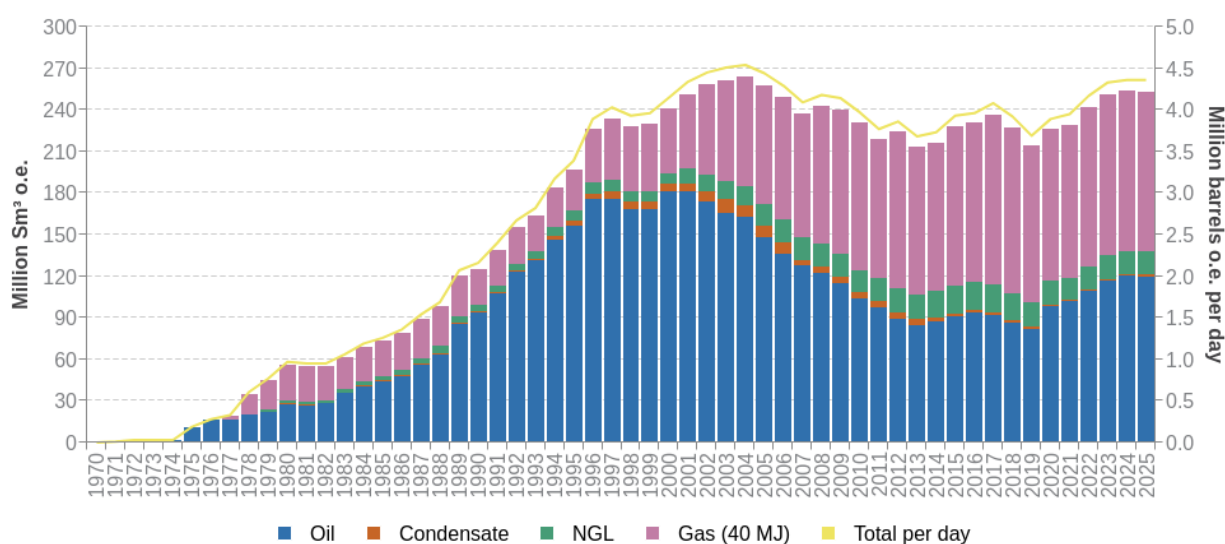


Figure X.X Historical and expected production in Norway, 1970–2025 Source: Norsk Petroleum

Equinor is by far the largest operator on the NCS. In 2020, the company produced 76.55 million Sm³ oil equivalents – most of which came from gas. **Aker BP** and **Lundin Energy Norway AS** are the second and third-largest operators, producing 11.81 and 9.66 Sm³ oil equivalents in 2020, respectively. Due to high development activity on the shelf in recent years, it is expected that oil production will continue to increase over the next few years. The new fields that come into production will compensate for declining output from ageing fields in the short term.⁷⁹

The limited flexibility and regional concentration of oil and gas assets is also strengthened by the importance of **infrastructure**. Eight years after the discovery of the Ekofisk field, the first **gas pipelines** from the NCS to Europe are set in operation. Today, the gas transport system consists of a network of pipelines corresponding to the distance between Oslo and Bangkok.⁸⁰ In contrast to the operation of fields, there is far greater state control over this network. **Gassco**, a Norwegian state-owned company, develops and operates most of the network of gas pipelines.

⁷⁵ Rystad Energy, 21.

⁷⁶ Rystad Energy, 5.

⁷⁷ Norsk petroleum, 'Eksportverdi og volumer av norsk olje og gass', Norskpetroleum.no, accessed 3 June 2021, <https://www.norskpetroleum.no/produksjon-og-eksport/eksport-av-olje-og-gass/>.

⁷⁸ Norsk petroleum, 'Produksjonsprognoser', Norskpetroleum.no, accessed 3 June 2021, <https://www.norskpetroleum.no/produksjon-og-eksport/produksjonsprognoser/>.

⁷⁹ Norsk petroleum.

⁸⁰ Norsk petroleum, 'Rørtransportssystemet - Norskpetroleum', Norskpetroleum.no, accessed 3 June 2021, <https://www.norskpetroleum.no/produksjon-og-eksport/rortransportssystemet/>.

On several oil fields, the crude oil is loaded directly onto **tankers**, and transported to a delivery point on land. In 2018, 20 percent of Norwegian crude oil was transported by pipeline and 80 per cent by tankers.⁸¹ Equinor operates about 100 tankers on the NCS.⁸² The oil pipelines that do exist are connected to onshore facilities and Equinor operates a majority of these pipelines. The ⁸³longest, and the only **oil pipeline** which is connected to Europe, is operated by **ConocoPhillips Skandinavia AS** and spans from Ekofisk to Teeside (UK).

The Green Shipping Programme, a collaboration between classification company DNV, the Ministry of Climate and Environment, and the Ministry of Trade, Industries and Fisheries, currently has 60 collaboration partners from the **shipping** community.⁸⁴ Among the pilot projects, there are initiatives to develop green ports, create LNG / VOC / battery-powered shuttle tankers, hydrogen-powered speed boats, bunkering vessels and autonomous, zero-emission vessels.⁸⁵ A comprehensive mapping study found that 9 percent of Norway's CO₂ emissions come from domestic shipping, which also accounts for 34 per cent of NO_x and 25 percent of SO_x emissions. Equinor has also joined the project. Supply boats and buoy loaders make up approximately 85 percent of the carbon emissions from the company's logistics operations, and the company is now in the process of renewing and replacing these boats in its fleet. Equinor planned for 14 newly built ships to be taken into use in its shipping fleet in 2020, most in the North Sea and two for use in Brazil.⁸⁶

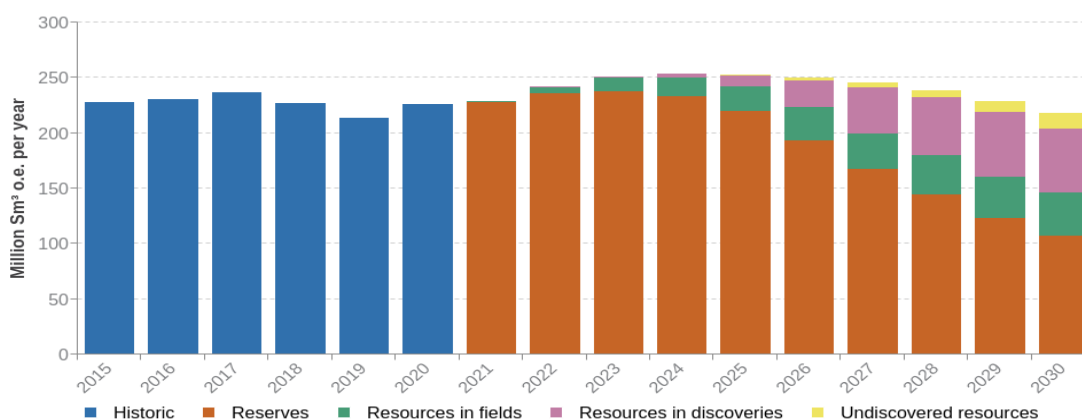


Figure X.X Production history and forecast distributed per resource category, 2015-2030. Source: Norsk Petroleum

The Government's attractive financing schemes have encouraged a wide range of climate targeted investments in **innovative energy technologies**, primarily renewables. Enova, a state-owned enterprise that aims to contribute to innovation in energy and climate technology, committed a total of NOK 3.3 billion across 3800 projects in 2020. The funding stretches across various sectors, including transport, non-residential buildings, industry, households and consumer goods and the energy system.

The Hywind Tampen **offshore wind** farm received the largest grant for a single project by Enova in 2019. In addition to strides being made in offshore wind development, petroleum companies have also added **carbon capture and storage (CCS)** projects to their portfolios. The most notable is perhaps the Longship CCS project, which the Government proposed in September 2020. The Longship project is not the first carbon capture initiative in Norway. There has been carbon capture activity on the Sleipner field since 1996.⁸⁷ In addition, in 2006, Stoltenberg's Second Cabinet decided that a gas-fired power plant should be built in Mongstad. The Government had decided that the power plant would have a test plant that captured CO₂ at a rate of 100 000 tonnes per year. The rest of the plant would operate without any handling of its emission (approximately 1.3 million tonnes of CO₂ per year). However, within 2014, full-scale carbon capture capabilities

⁸¹ Norsk petroleum.

⁸² Equinor, 'Shipping in Equinor - Shipping in Equinor - Equinor.Com', accessed 3 June 2021, <https://www.equinor.com/en/what-we-do/shipping.html>.

⁸³ The Explorer, 'Green Shipping Programme: Creating the World's Most Environment-Friendly Fleet', 2 December 2020, <https://www.theexplorer.no/stories/ocean/green-shipping-programme-creating-the-worlds-most-environment-friendly-coastal-fleet/>.

⁸⁴ The Explorer.

⁸⁵ The Explorer.

⁸⁶ Equinor, 'Grønnere skipsfart i Equinor - Grønnere skipsfart i Equinor - equinor.com', 6 January 2020, <https://www.equinor.com/no/magazine/greening-our-shipping.html>.

⁸⁷ Equinor, 'Sleipner-lisensen frigir CO₂-lagringsdata', 6 December 2019, <https://www.equinor.com/no/news/2019-06-12-sleipner-co2-storage-data.html>.

were to be put in place for the whole plant.⁸⁸ Jens Stoltenberg referred to this project as Norway's "moon landing". In 2013 however, the Stoltenberg Government announced that they would abandon their plans for a full-scale CO₂ treatment plant at Mongstad, the reason being that a solution for depositing of the captured CO₂ was too expensive and difficult.⁸⁹ In 2017 Equinor decided that the plant would be shut down altogether, however these plans have been postponed indefinitely.⁹⁰

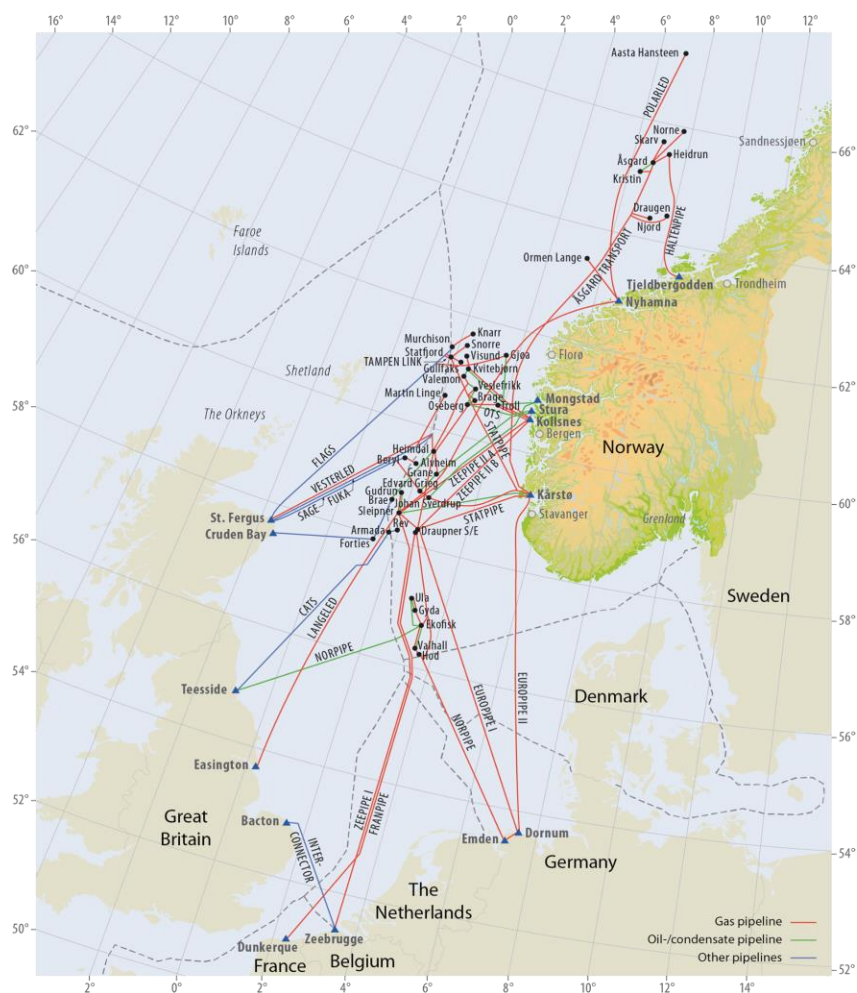


Figure X.X Pipelines on the Norwegian continental shelf Source: Norsk Petroleum

In processes that cannot be electrified, utilisation of **hydrogen** could be a contributor towards decarbonisation. Domestically, the Government views the most relevant applications to be in the maritime sector, heavy goods transport and industrial processes.⁹¹ Equinor has entered several partnerships internationally to investigate the development of low-carbon hydrogen value chains.⁹² A consortium of 14 European, including Norwegian companies Eidesvik, Equinor, Prototech AS and NCE Maritime CleanTech received support in early 2020 from the EU research program Fuel Cells and Hydrogen Joint Undertaking, in which they will test the use of ammonia fuel cells on the supply ship Viking Energy. The

⁸⁸ Miljøverndepartementet, 'Utslippstillatelse for CO₂ for Statoils kraftvarmeverk på Mongstad', Brev, O22001-110097 (regjeringen.no, 12 October 2006), https://www.regjeringen.no/no/dokument/dep/kld/anbud-konsesjoner-og-brev/brev/utvalgte_brev/2006/utslippstillatelse-for-co2-for-statoils/id270811/.

⁸⁹ Ulf Peter Hellstrøm, Andreas Slettholm, and Karen Tjernshaugen, 'Dropper CO₂-rensing på Mongstad', *Aftenposten*, 20 September 2013, <https://www.aftenposten.no/norge/politikk/i/VoKJ/dropper-co2-rensing-paa-mongstad>.

⁹⁰ Ellen Synnøve Viseth, 'Gasskraftverket på Mongstad skulle legges ned i 2018. Er fortsatt i drift', Tu.no, 15 December 2020, <https://www.tu.no/artikler/gasskraftverket-pa-mongstad-skulle-legges-ned-i-2018-er-fortsatt-i-drift/504164>.

⁹¹ Olje- og energidepartementet and Klima- og miljødepartementet, 'Regjeringens hydrogenstrategi på vei mot lavutslippsamfunnet', Strategi (Oslo, 6 August 2020), 24.

⁹² Equinor, 'ENGIE and Equinor Join Forces in the Development of Low-Carbon Hydrogen - Equinor.Com', 2021, <https://www.equinor.com/en/news/20210218-join-forces-engie-hydrogen.html>; Olje- og energidepartementet and Klima- og miljødepartementet, 'Regjeringens hydrogenstrategi på vei mot lavutslippsamfunnet', 7.

five-year research undertaking has a total budget of NOK 230 million, of which a significant part is financed through the EU scheme⁹³. As noted in Equinor's 2021 Energy Perspectives report, hydrogen applications have the potential to be a great contributor in the decarbonisation process, today however, the market for hydrogen is "non-existent", and the industry is still in early stages.⁹⁴

Tech companies that produce software which can assist organisations and companies with their decision-making have grown both in terms of revenue and valuations the last few years (source). The software that these companies produce has had a wide range of uses, from optimising production output to predicting criminal activity. Lately, the idea of using this type of decision-making software to assist companies towards achieving net-zero has been gaining an increasing amount of traction. For instance, last year BP signed a new multi-million-dollar deal with software producer Palantir. While Palantir initially supplied BP with software to optimise oil and gas production efficiency, the energy company is now seeking to use it in its renewable endeavours and "(...) other aspects of the energy giant's net-zero emission targets".⁹⁵ The gist of what companies like Palantir are doing is to integrate data across all levels of an organisation, which brings separate but relevant information from siloed business areas to the decision-makers. The software can then assess and model different cost-benefit questions behind decarbonisation decisions, ranging from operational questions at one part of the business, to strategic ones for the organisation as a whole.⁹⁶

Even though Norway by no means is a major player in the software industry, similar solutions are being developed here. Most notably is perhaps software company **Cognite**, a subsidiary of the industry group Aker. Aker is the largest shareholder of Aker BP, the second-largest oil and gas operator on the Norwegian continental shelf. Although Cognite has a shorter track record than its American peers, e.g., Palantir and Snowflake, it has established a joint venture with oil major Saudi Aramco. Cognite will, among other things, provide solutions for yield optimisation, predictive maintenance and reduced environmental footprint of industrial operations.⁹⁷ While the solutions supplied in big data analytics have primarily been focused upon the optimisation of production, an increasing number of stakeholders believe that its applications might also be helpful towards reducing their carbon footprint. It is reasonable to assume that the applications made by the likes of Cognite will play a role in Norwegian companies' endeavours towards net-zero.

One more industrial sector which can play an important role in Norway's transition towards net-zero and search for alternative sources of value and employment is the **bioeconomy**, most importantly - forest-based.⁹⁸ The rising champion of this industrial branch is **Borregaard**, a Norwegian multinational company originating from the paper and pulp industry, now focusing mainly on the production of biochemicals.⁹⁹ Borregaard's biorefinery can be the knowledge and technology base for expanding the sector, while there is also significant potential in bioenergy and biogas production across the country.

1.2 Actor mapping

1.2.1 Policy actors

The three most important policy actors are the Ministries. **The Ministry of Petroleum and Energy**, currently headed by the Conservative Party's Tina Bru, oversees the entire activity in the energy sector, including both the mainland power system

⁹³ Equinor, 'The World's First Carbon-Free Ammonia-Fuelled Supply Vessel on the Drawing Board - Equinor.Com', 2020, <https://www.equinor.com/en/news/2020-01-23-viking-energy.html>; Olje- og energidepartementet and Klima- og miljødepartementet, 'Regjeringens hydrogenstrategi på vei mot lavutslippssamfunnet', 33.

⁹⁴ Equinor, 'Energy Perspectives - long-term macro and market outlook - equinor.com', 2021, <https://www.equinor.com/no/sustainability/energy-perspectives.html>; Olje- og energidepartementet and Klima- og miljødepartementet, 'Regjeringens hydrogenstrategi på vei mot lavutslippssamfunnet', 24.

⁹⁵ Laura Hurst and Javier Blast, 'BP Deepens Tech Ties With Palantir in Push for Low-Carbon Future', *Bloomberg.Com*, 5 February 2021, <https://www.bloomberg.com/news/articles/2021-02-05/bp-deepens-tech-ties-with-palantir-in-push-for-low-carbon-future>.

⁹⁶ Palantir, 'Net Zero Is a Data Integration Problem', *Medium* (blog), 25 March 2021, <https://blog.palantir.com/net-zero-is-a-data-integration-problem-1255a8853d38>.

⁹⁷ Cognite, 'Aramco and Cognite Establish Joint Venture to Accelerate Industrial Digitalization', 21 December 2020, <https://www.cognite.com/newsroom/aramco-and-cognite-establish-joint-venture-to-accelerate-industrial-digitalization>.

⁹⁸ Antje Klitkou et al., 'New Path Development for Forest-Based Value Creation in Norway', in *From Waste to Value: Valorisation Pathways for Organic Waste Streams in Bioeconomies*, ed. Antje Klitkou, Arne Fevolden, and Marco Capasso, Routledge Studies in Waste Management and Policy (London ; New York: Routledge, Taylor & Francis Group, earthscan from Routledge, 2019).

⁹⁹ 'Norwegian Wood to Grow the Bioeconomy in Østfold County - Nordregio', accessed 13 June 2021, <https://archive.nordregio.se/en/Publications/Publications-2016/GREEN-GROWTH-IN-NORDIC-REGIONS-50-ways-to-make-/Bioeconomy/Norwegian-wood-to-grow-the-b/index.html>.

and the exploration and production on the Norwegian Continental Shelf. Its significance is additionally strengthened because of the oversight competences for a number of key subsidiaries: subordinate government agencies (Norwegian Petroleum Directorate, Norwegian Water Resources and Energy Directorate, Enova, Gassnova, Statnett); wholly owned companies: (Gassco and Petoro); and partially owned public limited company: Equinor (62% ownership). Although this situation has led to diagnoses of a regulatory capture (the ministry is a stakeholder of the entities it regulates) and policy proposals have been made to transfer the competences and shares to other Ministries, this is the current situation as of June 2021.

The other key actor is the **Ministry of Climate and Environment**, currently led by Sveinung Rotevatn (Liberal Party), which is the part of government responsible for international climate negotiations and national climate policy - but does not have direct influence on the energy sector. Other important actors whose competences border that of the MPE are the Ministry of Trade and Fisheries, Ministry of Transport, Ministry of Local Government and Modernisation and the Ministry of Labour and Social Inclusion.

A very important role combining direct oversight and technical expertise is in governmental agencies, that is the **Norwegian Petroleum Directorate** (NPD - overseeing the oil and gas sector); and the **Norwegian Water Resources and Energy Directorate** (NVE - responsible for the electric power production, including offshore renewable sources). The national transmission system operator, Statnett, is also an increasingly important player due to electrification plans.

The most important forum for political contestation is the **Parliament** (*Stortinget*), since the ministries report directly to the lawmakers in the parliament, and the latter can set new policy directions that will alter the oil and gas sector. There are currently **nine political parties** represented in the Storting, and the September 2021 elections is likely to significantly change the balance of power. The current ruling coalition supporting the government of Erna Solberg is composed of the **Conservative party** (*Høyre*), the **Liberal party** (*Venstre*) and the **Christian Democratic party** (*Kristelig Folkeparti* - KrF). The largest opposition party is the social democratic **Labour Party** (*Arbeiderpartiet*), followed by the agrarian **Center Party** (*Senterpartiet* - Sp). The right-populist **Progress Party** (*Fremskrittspartiet* - Frp) has left the government in 2020. There are also three smaller opposition parties on the Left: the **Socialist Left** (*Sosialistisk Venstreparti* - SV), the **Greens** (*Miljøpartiet De Grønne* - MdG), and the far-left **Red Party** (*Rødt*). The policy positions of these parties are described in Section 3.1.

1.2.2. Actors within the value chain and business landscape

A special category of business actors are the wholly or partially owned state companies. **Petoro** is wholly owned by the Government. Established in 2001, it manages the Government's portfolio (known as the State's Direct Financial Interest) of exploration and production licenses for oil and natural gas on the NCS. Founded in the same year, **Gassco** is a state owned company operating 7,800 kilometres of natural gas pipelines. The last of the energy triplets is **Enova** SF, a governmental enterprise responsible for promotion of sustainable energy production and use, set up to explore new sources of clean energy, reduce overall energy consumption, and to provide know-how. It is supported by a state tariff on electricity. The last of the wholly state owned actors is **Statkraft**, Norway's national power company, owning most of Norway's vast hydropower assets (as well as wind, gas and other sources) and the Nordic region's third largest energy producer.

The largest player of the Norwegian oil and gas sector remains the formerly state owned, and now partially state owned company **Equinor** (1972-2018 - Statoil). In total, the company has some 21 000 employees, and is the largest publicly traded Nordic company, with a market capitalisation of about NOK 620 billion. In 2020, Equinor produced 76.55 Sm³ oil equivalents (based on current ownership in fields), making up 33.8 per cent of total production on the NCS.¹⁰⁰ The same year, the company was present in 31 countries and engaged in production in 12 of these.¹⁰¹ Foreign oil and gas production accounted for about 36 per cent of total equity production and on average the company produced 2.07 million barrels of oil equivalents per day.¹⁰²

¹⁰⁰ Norsk petroleum, 'Produksjonsprognoser'; Norsk petroleum, 'Selskap: Equinor Energy AS', Norskpetroleum.no, accessed 3 June 2021, <https://www.norskpetroleum.no/fakta/selskap-utvinningstillatelse/equinor-energy-as/>.

¹⁰¹ Equinor, '2020 Annual Report and Form 20-F' (Equinor, 19 March 2021), 39.

¹⁰² Equinor, 5.

The Norwegian **service and supply industry** consists of more than 1100 companies in all stages of the value chain.¹⁰³ The majority of this industry concentrated in the Rogaland region. In other parts of the country, the supplier companies have typically established themselves on the basis of local cutting-edge expertise and demand.¹⁰⁴ More companies were already introduced in Section 1.1.

Among **associations of the oil and gas industry**, we find several industry groups under the umbrella of the national employers' associations, **Confederation of Norwegian Enterprise (NHO)**. Among them we find **Norwegian Oil and Gas**, Norwegian Industry, Energy Norway and Nelfo. Norwegian Industry is NHO's largest association making up 25 per cent of total man-years in the NHO member companies.¹⁰⁵ The breadth of sectors in these associations is quite wide, however many of the companies, including majors, are represented by Norwegian Oil and Gas (116 members) and have a dual-membership in these associations.¹⁰⁶ The purpose of Norwegian Oil and Gas is to look after the member companies' common interests vis-à-vis the authorities, employee organisations, other national and international institutions, organisations and society in general.¹⁰⁷ All operating companies and companies with production licences on the NCS are members of Norwegian Oil and Gas.¹⁰⁸

The first Norwegian **bank** to issue a loan to a company operating on the NCS was Den norske Creditbank, which had a merger in 1990, and is now known as **DNB**. A report based on research conducted by the Netherlands based research and advice consultancy Profundo, finds that among Scandinavian banks, DNB is by far the largest fossil fuel creditor, having provided US\$ 19.3 billion to oil and gas companies between 2016 and June 2020.¹⁰⁹ This is not surprising given that DNB is Norway's largest financial services group, having a market capitalization of NOK 290 billion. The biggest receiver of DNB's loans in the period was Aker BP, having accumulated US\$ 1.126 billion in credit over the period. While Aker BP operates solely on the NCS, it must be noted that among the credit clients listed in this report, several do not have any Norwegian operations. The second-largest Norwegian creditor is **SpareBank 1 SR-Bank**, a Rogaland-based bank with a market capitalization of NOK 28.8 billion. The Rogaland-based bank is Norway's fifth largest bank and provided just under NOK 1 billion in loans and underwriting services to companies engaged in the oil and gas industry.¹¹⁰ As of the filings on June 30th 2020 DNB and SpareBank 1 SR-Bank held oil and gas shares worth US\$ 951 million and US\$ 5 million respectively.

1.2.3 Civil society actors

The most important **trade union** association in the oil and gas sector is **Industri Energi** - a trade union for employees in the petroleum industry, the chemical industry, the pharmaceutical industry, the aluminium and metal industry and the forest industry. The union is a member of the **Norwegian Confederation of Trade Unions (LO)**, which is the largest trade union association in the country, with over 900,000 members in a country of just over five million inhabitants. Other trade unions with stakes in the oil and gas sector include Fellesforbundet and EI- og IT-Forbundet. Traditionally, the Labour Party is closest to the trade unions, but SV and the Reds are also connected to the trade union movement.

The policy debate over the future of the oil and gas sector is increasingly influenced by environmental groups and organizations. Among these, **Norges Naturvernforbund** (Friends of the Earth Norway), **Natur og Ungdom** (Young Friends of the Earth Norway), the **Bellona Foundation**, **Framtiden i våre hender** (Future in our hands), **Greenpeace**, **WWF**, as well as the **ZERO** foundation and the **Norwegian Climate Foundation** are the most important actors in the advocacy network aiming at increasing Norway's climate policy and decarbonization ambitions. The Greens as well as the Socialist Left are closest to the environmental movement, but important connections exist also with the Liberals, Reds, and Christian Democrats who all have broad environmental agendas.

¹⁰³ Norsk petroleum, 'Leverandørindustrien', Norskpetroleum.no, accessed 6 June 2021, <https://www.norskpetroleum.no/utbygging-og-drift/leverandorindustrien/>.

¹⁰⁴ Norsk petroleum.

¹⁰⁵ Norsk Industri, 'Bransjer i Norsk Industri', accessed 13 June 2021, <https://www.norskindustri.no/bransjer/>.

¹⁰⁶ Norsk olje og gass, 'Våre medlemsbedrifter/Member companies', accessed 13 June 2021, <https://www.norskoljeoggass.no/om-oss/vare-medlemsbedrifter/>.

¹⁰⁷ Norsk olje og gass, 'Vedtekter, visjon og verdier', accessed 13 June 2021, <https://www.norskoljeoggass.no/om-oss/vedtekter-og-verdier/>.

¹⁰⁸ Norsk petroleum, 'Selskap med utvinningstillatelse i Norge'; Norsk olje og gass, 'Våre medlemsbedrifter/Member companies'.

¹⁰⁹ Ward Warmerdam, Daisy Termorshuizen, and Beenes Maaik, 'Banking on Thin Ice: Exposing Scandinavian Bank Finance for Fossil Fuels', n.d., 30, https://www.banktrack.org/download/banking_on_thin_ice/210202_banking_on_thin_ice.pdf.

¹¹⁰ Warmerdam, Termorshuizen, and Maaik, 55–56.

The most important think tanks working on climate policy are **CICERO** Center for International Climate Research, based in Oslo, and **Sintef**, based in Trondheim, but there are a large number of policy think tanks and research institutes that contribute to the debate. There is also a large number of research institutions and departments at universities that are focused on topics relevant for the oil and gas industry, and partly financed by the oil industry. Their purpose and finances will be hit by a disappearance of oil and gas activity. Some of them will be able to redirect their activity towards renewable industries, but not all. An important recent addition to the civil society landscape is the **Climate Transitions Committee** (or commission - *Klimaomstillingsutvalget*) set up by WWF, the Norwegian Climate Foundation and Civita (think tank). Its core task has been to “describe a policy that will prepare, implement and handle the consequences of such a transition, including a structuring of the petroleum policy that is compatible with reaching the climate goals”.¹¹¹

2. Role of oil and gas sector in Norway's economy and society

The Government's total **net cash flow** from the petroleum industry in 2020 amounted to NOK 106.8 Billion - relatively poor compared to previous years.¹¹² Taxes (including environmental taxes and area fees) added up to NOK 35.4 billion, dividends from Equinor amounted to NOK 15 billion and the net cash flow from SDFI was NOK 56.4 billion. In 2021 it is estimated that the total net cash flow will amount to NOK 154 billion.¹¹³

Net cash flow from petroleum activities in an individual year does not have a direct effect on the financing of the Government budget the same year. Regardless of the cash flow in the individual year, the Government budget will receive funds from the **Sovereign Wealth Fund** – presumably within the so-called budgetary rule, limited to 3 per cent of the fund's value.¹¹⁴ In 2020, NOK 417.4 billion was transferred from the Sovereign Wealth Fund to the Government budget.¹¹⁵

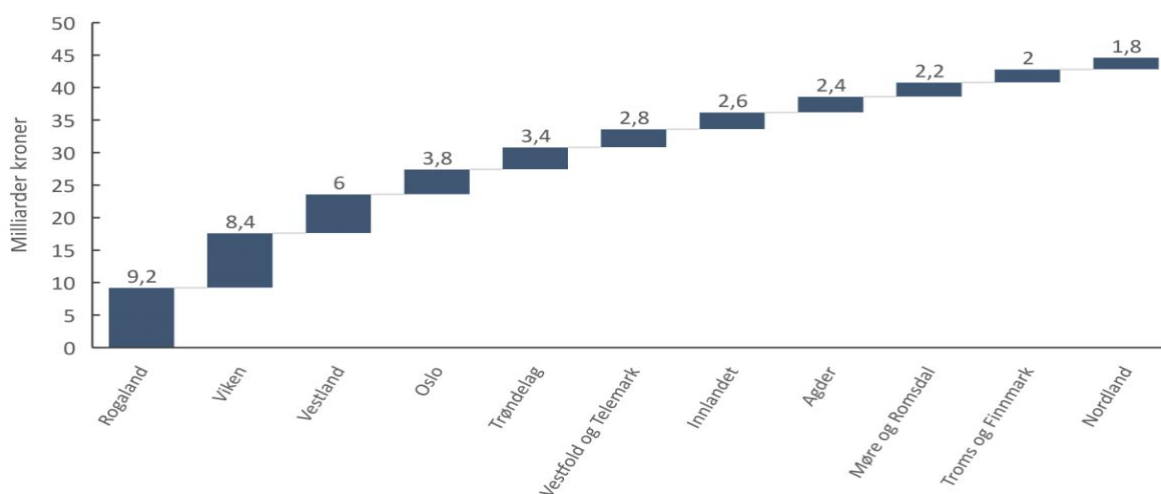


Figure X.X Petroleum related tax revenue and transfers (Billions NOK), 2019 Source: Menon Economics¹¹⁶

While most of the petroleum industry is concentrated in specific regions (discussed further below in this section), the **revenues** generated from the industry is redistributed to all municipalities in the country. Concessionaires pay petroleum tax and corporation tax that goes to the Sovereign Wealth Fund, which is used to finance the Government budget while the supply industry further down the value chain pays corporate tax which goes directly into the Government budget. In addition, the direct and indirect employees pay income tax (which goes to both the Government budget and the municipal

¹¹¹ 'Summary in English – Klimaomstillingsutvalget', accessed 13 June 2021, <https://www.klimaomstillingsutvalget.no/summary-in-english/>.

¹¹² Norsk petroleum, 'Statens inntekter fra petroleumsvirksomhet', Norskpetroleum.no, accessed 14 June 2021, <https://www.norskpetroleum.no/okonomi/statens-inntekter/>.

¹¹³ Norsk petroleum.

¹¹⁴ Hernes, Erraia, and Fjose, 16–18.

¹¹⁵ Finansdepartementet, 'Et budsjett for å skape mer og inkludere flere', Pressemelding, Regjeringen.no (regjeringen.no, 11 May 2021), <https://www.regjeringen.no/no/aktuelt/et-budsjett-for-a-skape-mer-og-inkludere-flere/id2848501/>.

¹¹⁶ Hernes, Erraia, and Fjose, 18.

budgets). Large parts of the municipalities' budgets are financed via transfers from the Government budget, and parts of the municipalities' welfare production can thus be traced back to the activity of the petroleum industry.¹¹⁷

Several **industry sectors** in the Norwegian economy have developed and prospered on the back of the oil and gas discoveries. First and foremost, the pre-existing ship building industry along most of the Norwegian coast, but also strong engineering companies have emerged, in addition to a number of various supply industries. Most of these have achieved international competitiveness. Thus, they are not dependent on the location of the oil and gas activity, but it of course helps to have a domestic demand for their products and services.

Although it is difficult to determine the exact numbers of employees in the oil and gas sector and the effect employment in this sector has on jobs in other sectors, Menon Economics estimates that **146 000** were employed in the O&G industry in 2019. (Fjose et al. p 4, **Ringvirkninger av olje og gassnæringens aktivitet I 2019, added in Zotero**). The wider economic impacts of the petroleum industry in the same year are estimated to about **205 000** employees. According to the report, 30 per cent of private-sector employment in Rogaland county can directly or indirectly be attributed to the petroleum sector.

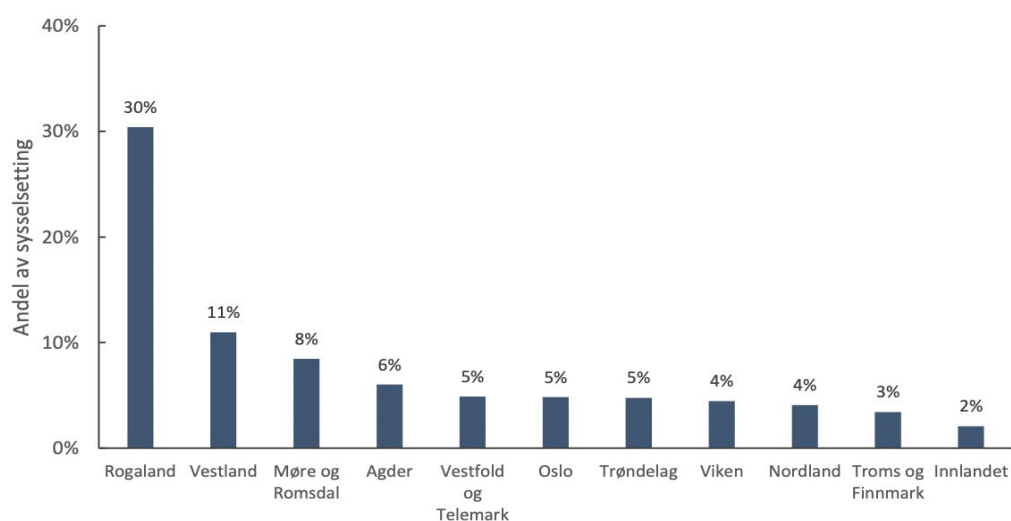


Figure X.X Employment effects of the O&G industry as a share of private employment in Norway's counties. 2019. Source: Fjose et al. p. 10

After the oil price shock of 2014, the county with the most exposure to the oil and gas industry, Rogaland, experienced a drop of 7 percentage points in the sector's share. Other counties that had similar experiences include Agder, Vestland and Møre and Romsdal. According to Statistics Norway, employees who leave the oil and gas industry typically enter other industrial jobs or move to sectors such as mining, construction and professional business services.(Fjose et al., 2021).

A 2020 report by Statistics Norway attempted to estimate **the macroeconomic impacts of two different phase-out strategies**. The first strategy which is explored, is to end awards of new exploration areas (both numbered and APA awards), which effectively reduces the petroleum companies' activities to operating already active fields. The companies may still explore and develop areas which have been awarded by the end of 2021. The second strategy also includes ending the numbered licencing rounds, but only a tightening of the APA scheme. This strategy however, severely reduces the oil companies' financial incentives by removing several pillars of the current financial framework. More specifically, this option explores the effects by the removal of the reimbursement scheme, uplift and the ability to write investments off using straight-line depreciation over six years. In addition to the changing framework conditions, the sum of the CO₂ tax and quota price is gradually increased to NOK 1500 by 2030, which is NOK 500 less than the Government proposed in a white paper this year.¹¹⁸

¹¹⁷ Hernes, Erraia, and Fjose, 'Ringvirkninger av olje- og gassnæringens aktivitet i 2019', 16–18.

¹¹⁸ Finn Roar Aune, Ådne Cappelen, and Ståle Mæland, 'Konsekvenser av redusert petroleumsvirksomhet', Rapporter (Statistisk sentralbyrå, 28 October 2020), https://www.ssb.no/nasjonalregnskap-og-konjunkturer/artikler-og-publikasjoner/_attachment/435324?_ts=17563963dc0.

The report finds that the first phase-out strategy will first start having significant impact from 2030, as it is likely that the E&P companies reallocate some of their activity from the fields they would have acquired under a “business as usual-scenario” to fields which have already been assigned. Compared to Statistics Norway benchmark (*referansebane*, i.e. a continuation of current policy), in which a gradual decline, and more than a halving of extraction is expected in 2050, compared to 2020 levels, the first scenario will “only” reduce the GDP of Norway by 1 per cent in 2050. The 2050 production output in this scenario is expected to be slightly lower (around 10 %) than the benchmark trajectory. The reason for the very slight GDP reduction in this scenario, compared to the benchmark, is that monetary policy will improve the international competitiveness of Norwegian goods and services (supply industry included). Real wages and consumption is expected to fall slightly, but modestly in relation to the expected increase according to the benchmark scenario.¹¹⁹

In the second, more restrictive scenario, which reduces the oil companies’ incentives to exploit already allocated areas for petroleum activities, more dramatic effects are expected. In this scenario, the 2050 production is expected to be half of the BAU benchmark. In the long term, mainland GDP will fall by almost 1.5 percent compared to the benchmark scenario. In this alternative, the accumulated oil taxes will decrease by a little less than NOK 1 billion compared to the reference path. The report estimates that the unemployment rate, at its peak in 2031, will be a little under one percent point higher compared to the benchmark in this scenario. Between 2030 and 2050, the effect of the second strategy is similar to a reduction of about one year of GDP growth compared to the benchmark scenario.¹²⁰

The geographic concentration of the oil and gas industry implies that a prospective phase out will have significant regional impacts. A 2016 report by Statistics Norway estimated that 60 per cent of those employed in the petroleum sector lived in the Rogaland or Hordaland counties. As illustrated by the 2014 oil price shock, a phase out of the petroleum sector will reduce the demand for goods and services along coastal areas. Unemployment will likely follow from the reduction of the activity. It will be strong in the coastal areas, and thus require national redistribution of public support, or geographical mobility of workers. The latter will increase the pressure on infrastructure in and around the Oslo area.

Not only will phasing out have significant effects on employment along the coast. The services and supply industry which is spread throughout the country, where companies are clustered together based on regional expertise, is also likely to be affected by a phase-out. The southern part of Norway hosts some of the world-leading companies in drilling technology. In and around Oslo you will find well-established engineering expertise, financial and advisory services, as well as several seismic survey companies. Kongsberg serves as a center for some of the leading subsea, automation and dynamic positioning equipment. In the Aalesund region and the northwestern parts of Norway, you will find maritime companies which collectively form a complete shipbuilding and outfitting cluster.¹²¹

Given reasonable oil prices, the income from oil and gas exports will provide substantial revenues to the state. The return from the oil fund is becoming more important, but the variations in returns and oil price are not in full sync, having both sources of financing available has a stabilizing effect on the amount the government can spend (3% of the value off the fund). “The most serious challenge, however, emerges if the existing income from oil exports is strongly reduced or disappears. In this case, consumption levels need to be reduced and production moved from non-traded goods to traded goods. In the traded sector, companies can only adjust the quantity they produce, as prices are set on the world market. In order to increase production in the traded sector, wages will have to come down, so that the companies can hire more people in order to augment the quantity produced. The workers will usually resist this. The risk is that a reduction or cessation of oil income results in unemployment and, in fact, a lower level of consumption than before the oil income appeared” (Claes, 2018: 63).

3. Current discourse and action on oil and gas transition

¹¹⁹ Aune, Cappelen, and Mæland, 64–65.

¹²⁰ Aune, Cappelen, and Mæland, 50–65.

¹²¹ Norsk petroleum, ‘Leverandørindustrien’.

3.1 Stakeholder perceptions and activities related oil and gas transitions

While Norway seeks to **portray itself as a green superpower** and climate policy champion abroad, its efforts to cut domestic greenhouse gas emissions have been marginal since the signing of the Kyoto Protocol.¹²² As the UNFCCC regime focuses on emissions ‘at the exhaust pipe’, the domestic oil and gas sectors were not at the center of the national climate debate, which is focused primarily on the decarbonization of selected sectors (like transport) and on climate change mitigation and adaptation efforts in the global South (like REDD). Over the past decade, the notion of an end to oil and gas production in Norway was the domain of *political fiction*, like the popular TV series “Occupied”, which depicts a Green party landslide and the new prime minister’s decision to stop all petroleum production with immediate effect.

As Norway’s oil and gas reserves remain vast and accessible, with a lot of resources already invested and high potential future yields, there is no purely economic reason to limit or stop oil extraction – and so the business-as-usual scenario for the Norwegian Continental Shelf would see current levels of activity over many years to come. However, the non-internalized climate costs of this activity are massive, and it is the urgent need for global and concerted decarbonization that exerts pressure on the industry. That said, **any radical change will have to come from political decisions** – and for this reason, this section primarily focuses on the discourses of political parties, as those actors in the Norwegian democracy that are best equipped to steer energy governance.

For a long time, petroleum policy and climate policy have been institutionalized into separate policy fields at the national level in Norway,¹²³ with the Ministry of Petroleum and Energy overseeing one, and the Ministry of Climate and the Environment responsible for the other. This led to a visible fragmentation of the policy landscape and the debate – i.e. climate policy could not focus on the domestic petroleum industry, because it lay outside the ministry’s competences¹²⁴. However, this division is increasingly challenged both by civil society advocacy coalitions and political parties in parliament.

3.1.1 Phase out? What would that mean in practice?

Until recently, a concrete political debate on the oil and gas sector transition, let alone phasing out, is still fringe, and there are important reasons for this. The **Norwegian oil and gas resources differ significantly** from resources in e.g. onshore US or the Middle East, as the investment costs are very high in the North Sea, but the running costs are comparatively low. Once the production platforms are in place, the operating costs are only a few dollars per barrel of oil, which means that it will almost always be profitable to continue extraction from existing sources, no matter what the price level is and what additional fiscal burdens are added. Political intervention **limiting or banning extraction** from operational platforms is legally possible (a paragraph in the Petroleum Law allows it), but is **very unlikely** and would lead to a major national controversy.

For the same reason, **fields ‘in the pipeline’ to be developed are unlikely to be stopped** by political intervention. The companies might have spent thousands of work hours on a project and also millions on preparation for the field development. Commercial considerations might of course stop even such a project, if the long-term prospect of oil price is very low, i.e. \$40 per barrel will restrict, but not exclude new field developments.

The third category is the **areas where licenses have been awarded, but no activity has started yet**. In these cases, political intervention is not unthinkable. It might trigger legal conflicts with the companies that have been granted a right to explore the area, but these situations can be handled with compensation.

The most likely, and most debated way forward is a governmental decision to **stop awarding new licenses**. Or even more likely, a decision by the government specifying a date in the future with such an effect. Neither the **Conservative party** nor the **Labour Party** have indicated that they support such a decision, although an internal opposition supporting a determined end date of licensing is growing within the Labour Party. However, in a recent (27 October 2020) report, the

¹²² Dagbladet, ‘Norge har sovet i timen’.

¹²³ Guri Bang and Bård Lahn, ‘From Oil as Welfare to Oil as Risk? Norwegian Petroleum Resource Governance and Climate Policy’, *Climate Policy* 20, no. 8 (13 September 2020): 997–1009, <https://doi.org/10.1080/14693062.2019.1692774>.

¹²⁴ Zita Asdal, ‘Petrolocked - Exploring Climate Change Mainstreaming in Norwegian Petroleum Policy, 2005-2016’ (MA Thesis, Oslo, University of Oslo, 2017).

Norwegian Petroleum Directorate (NPD) suggested that there are still a lot of profitable resources on the continental shelf and new licensing procedures should begin.¹²⁵

3.1.2 Imagining futures for (and without) oil in the pre-election debate 2021

The different positions actors and stakeholders take on the future of the Norwegian oil and gas sector are founded on quite **different understandings of Norway's situation and global role**, as well as the benefits and barriers which petroleum extraction brings to the country. Most mainstream political forces underline the importance of the OG sector for the Norwegian economy and its historical contribution to building the Norwegian welfare state. These parties treat phase out as a taboo, or envisage it as something in the very distant future. On the other hand, political forces critical of the petroleum sector, primarily the **Green Party (MdG)**, the **Socialist Left party (SV)** and the far left **Reds**, speak of the country's "oil dependence" and portray the sector not as a driver of the Norwegian economy, but as a factor slowing down Norway's green transition "economically, structurally and mentally", and "Norway's largest contribution to global warming".¹²⁶ The logical policy conclusion of this perspective is that "the only thing that is justifiable if we are to avoid global climate collapse and protect the Norwegian economy against declining oil demand: to **free Norway from oil dependence**".¹²⁷

The Socialist Left emphasizes Norway's special role, uniquely privileged starting position and so - responsibility: "Norway is a country with large renewable energy resources, high competence and great wealth. Compared to many other countries, we are very lucky, and we have managed many of these resources well. Therefore, we have **a special responsibility** to be a pioneer in environmental policy: We have both the resources and the knowledge needed, we have benefited from our resources, and we can further develop our industry and business for the future".¹²⁸

From the three parties that present the oil and gas sector phase out as their policy goal, only the Greens give a concrete target date - "within 14 years from the start of the parliamentary term", that is by 2035. This radical move is meant to move Norway "out of the oil age. In line with our climate responsibility, we will implement a planned, controlled restructuring away from petroleum activities by 2035, at the same time as we safeguards employment, contribute to the retraining and creation of new jobs, in consultation with authorities, organizations, workers and industry"¹²⁹. The Red Party proposes to phase down production by 90% already by 2030, and maintain only enough production to cover needs that cannot be substituted with renewables for the time being.¹³⁰ The moderate pro-environmental forces on the political scene - the agrarian **Center party (Sp)** and the **liberal Left (Venstre)**, imply the eventual phase out but only after 2050. Norway's largest parties forming the center-right (Conservatives) and the center-left (Labour) do not raise the issue at all in their party programs (see Table X). The Conservatives, leaders of the ruling coalition, "believe that we should not set an end date for the Norwegian petroleum industry, but rather support the industry in the further work of exploring for new resources and the green shift".¹³¹

At the opposite end of the political spectrum and the spectrum of opinions on the future of the oil and gas industry, the Progress Party (Frp), defends the business-as-usual scenario, dismissing the idea of a national phase-out as "**symbolic politics dangerous for the Norwegian economy and welfare**" which will lead to a "green paradox" and carbon leakage, while hitting the country economically: "More and more politicians are speaking out in favor of shutting down the oil and gas industry, by far the most profitable industry for Norway. This is an expensive symbolic policy that will lead to more greenhouse gas emissions in the world, a devastation of jobs in Norway and less welfare for the Norwegian people".¹³² Norway's fringe right political groupings, e.g. the Capitalist Party (*Liberalistene*), and the Climate Realists (*Klimarealistene*), a climate-sceptic party are also contesting decarbonization goals.

In order to reduce the risks of the "green paradox" and substitution of Norwegian oil with other sources, more carbon intensive, the Socialist Left, Greens as well as the Christian Democrats propose forming **an international forum of petroleum producing states** where a joint reduction of supply could be negotiated.

¹²⁵ <https://www.npd.no/fakta/nyheter/generelle-nyheter/2020/lonnsom-leting-pa-norsk-sokkel/>

¹²⁶ MdG, 'Partiprogram Og Dybdeinformasjon', Miljøpartiet De Grønne, 2020, https://www.mdg.no/partiprogram_og_dybdeinformasjon.

¹²⁷ MdG.

¹²⁸ SV, 'SV - Prinsippprogram', SV, 2021, <https://www.sv.no/politikken/prinsippprogram/>.

¹²⁹ MdG, 'Partiprogram Og Dybdeinformasjon', Miljøpartiet De Grønne, 2020, https://www.mdg.no/partiprogram_og_dybdeinformasjon.

¹³⁰ Rødt, 'Olje', 2021, <https://roedt.no/olje?v=wEpdck2ekuVnxiFqYwVj>.

¹³¹ Høyre, 'Partiprogram 2021-2025', Høyre, 2021, <https://hoyre.no/politikk/partiprogram/>.

¹³² Frp, 'Olje og gass', 2021, <https://www.frp.no/var-politikk/energi-og-miljo/petroleumsvirksomhet>.

Although the phase out of the oil and gas industry has not been seriously discussed by the main political forces, the realization that ratcheting up climate action globally will put pressure on Norway and that decarbonization of the sector by its electrification is more of a replacement issue is becoming widespread. The future of Norwegian oil and gas was in the spotlight in mid-2021 after the **publication of the new International Energy Agency (IEA) scenarios** for net-zero by 2050, which suggested that no new oil resources should be explored after 2021. The report was a political bomb in the Norwegian context, with the country's major newspaper suggesting that it "can change everything in Norway's oil policy".¹³³ The report's publication coincided with a series of other blows to the oil industry, namely the Dutsch ruling against Shell, and two decisions in American oil giants - Exxon and Chevron, undermining the position of their executives and their business-as-usual line. Following what e.g. the Guardian called "the black wednesday of the oil industry,"¹³⁴ the head economic analyst at Nordea bank suggested that this is "a turning point" and that in Norway "the climate crisis will now have to be treated as a crisis".¹³⁵

All **major stakeholders commented on the report**, either dismissing its conclusion, downplaying the implications for Norway, or using the IEA data as political munition for domestic discussions. Frp representatives emphasized that IEA's is a "hypothetical scenario", and that the important question it raises is "where the remainder of oil and gas is to be produced".¹³⁶ Since Norway's oil is "the greenest" globally, the argument goes, the Norwegian oil and gas production sector should be the last to go, also because this would only strengthen authoritarian petrostates elsewhere in the world, which is a geopolitical mistake. The Labour party experts, while agreeing with the report, emphasized that it contained "nothing new" but was a signal for accelerating efforts of a coordinated green transformation of the sector.¹³⁷ Equinor's international presentation of the company's own scenario-building Energy Perspectives 2021 was held in a visibly polemic tone, with the IEA report as a frequent reference, but the company's chief economist underlining that even the most ambitious climate scenarios do not have to mean an end to new oil fields opening.¹³⁸ While political actors generally recognize that Norwegian oil and gas is in a good position to stay on the market for as long as possible under decarbonization pressures, the pro-environmental parties nevertheless see this as a last moment to change the course of the industry and avoid locking-in resources. The Center party, which will most likely be a component of any post-electoral coalition, is convinced that "Norwegian oil production will be reduced until 2050. Norwegian oil is produced with significantly lower CO2 emissions than many other places in the world, but also in a period of declining oil production, emissions from the production itself must be sharply reduced. This means, among other things, that power for production on the Norwegian shelf must be renewable".¹³⁹

However, in June 2021 the Government published a white paper entitled "Energy for work", laying out a vision of Norway's energy future, where oil and gas exploration plays an important role. It stated explicitly that "the Government will contribute to the development on the Norwegian shelf by continuing a petroleum policy that facilitates profitable production of oil and gas in a long-term perspective. To achieve this, the government will maintain stable and predictable framework conditions, allocate exploration area and actively contribute within research and development that contributes to good resource utilization and lower greenhouse gas emissions from production on the Norwegian shelf. The Government will continue an exploration policy with regular licensing rounds on the Norwegian shelf to make new exploration area available to the companies".¹⁴⁰

¹³³ Dagbladet, 'Kan endre alt i norsk oljepolitikk', dagbladet.no, 2021, <https://www.dagbladet.no/meninger/kan-endre-alt-i-norsk-oljepolitikk/73777595>.

¹³⁴ Jilian Ambrose, 'Black Wednesday' for Big Oil as Courtrooms and Boardrooms Turn on Industry', The Guardian, 29 May 2021, <http://www.theguardian.com/environment/2021/may/29/black-wednesday-for-big-oil-as-courtrooms-and-boardrooms-turn-on-industry>.

¹³⁵ Kristian Elster, 'Tina Saltvedt kaller fire sjokk på ti dager for «Et vendepunkt for oljeindustrien»', NRK, 3 June 2021, https://www.nrk.no/urix/tina-saltvedt-kaller-fire-sjokk-pa-ti-dager-for_et-vendepunkt-for-oljeindustrien_-1.15516444.

¹³⁶ Ketil Solvik-Olsen and Terje Halleland, 'Norge må styrke sin energimakt, ikke fase den ut', NRK, 27 May 2021, https://www.nrk.no/ytring/norge-ma-styrke-sin-energimakt_ikke-fase-den-ut-1.15504543.

¹³⁷ Espen Barth Eide and Skjæran, 'Comeback for industrien?', NRK, 26 May 2021, https://www.nrk.no/ytring/comeback-for-industrien_-1.15504597.

¹³⁸ Erik Wæarness at the Energy Perspectives 2021 presentation, 10 June 2021, available at <https://www.equinor.com/en/sustainability/energy-perspectives.html>.

¹³⁹ Senterparti, 'Forslag til prinsipp- og handlingsprogram 2021-2025', Senterpartiet, 2021, <https://www.senterpartiet.no/stortingsvalg-2021/program>.

¹⁴⁰ Olje- og energidepartementet, 'Meld. St. 28 (2010–2011). En næring for framtida – om petroleumsvirksomheten', Stortingsmelding (Oslo: Olje- og energidepartementet, 24 June 2011), <https://www.regjeringen.no/contentassets/19da7cee551741b28edae71cc9aae287/no/pdfs/stm201020110028000dddpdfs.pdf>.

Party	Phase out	Net-zero	Emissions reductions	Electrify the NCS	New Licenses	develop LoVeSe and Arctic	Position
Progress (Frp)	✗	✗	✗	✗	✓	✓	Radical pro-industry
Conservative (H)	✗	✗	✓	✓	✓	✓	Moderate pro-industry
Labour (Ap)	✗	✗	✓	✓	✓	✗	Moderate pro-industry
Christian Democrats (Krf)	✗	✓	✓	✓	✓*	✗	Moderate pro-climate
Center (Sp)	✓ 2050+	✓ 2040	✓	✓	✓	✗	Moderate pro-climate
Liberal (V)	✓ 2050+	✓	✓	✓	✗	✗	Moderate pro-climate
Socialist Left (SV)	✓	✓	✓	With offshore	✗	✗	Radical pro-climate
Reds (R)	✓ 90% by 2030	✓	✓	N/A	✗	✗	Radical pro-climate
Greens (MdG)	✓ 2035	✓	✓	With offshore	✗	✗	Radical pro-climate

Table X - Political party positions on most important petroleum related issues. Own elaboration.

3.1.3 New areas, licensing, and extension of existing concessions

This shift in the political debate, combined with the upcoming parliamentary elections in September 2021, **turned the question of petroleum licensing into an important political issue**. Less contentious than talk of a phase out, a decision on new licenses will nevertheless impact on the future of the industry, and can start steering it strongly into either direction - either a locked-in business-as-usual scenario or a transition. In June 2021 the 25th licensing round is to be held, which will include areas in the North - concessions on the Barents Sea.¹⁴¹ The licensing issue has three political frontlines, where party positions differ significantly.

The first question is related to the regulations of **exploration and production in the Barents Sea**, including the High North, and the definition and respecting the “ice edge” (*iskanten*). Since due to climate change the ice edge is moving northwards, the Conservative oil and energy minister Tina Bru decided to include new concessions which would have previously been considered out of bounds.¹⁴² The Conservatives are supported by the Progress Party which states that “it is important to ensure access to new attractive exploration areas, also in the High North. Areas in the Barents Sea bordering Russia should be given priority. Emphasis should also be placed on exploration in areas that have not yet been opened, but which border areas where oil extraction is permitted.”¹⁴³ However, this question sees pushback from a large constellation of parties, and has sparked controversy in the governmental coalition, since the Liberal party (with the Minister of Climate and Environment, Sveinung Rotevatn) and the Christian Democrats (Krf) oppose expanding production in the North. Also the Labour Party has reached an agreement at the April 2021 general meeting that it will not support moving the ice edge line northwards,¹⁴⁴ and the Center party - which can be the necessary element of any governmental coalition, says “no exploration close to the ice edge”.¹⁴⁵

Similar political division lines can be found in the issue of **oil and gas activity near the Lofoten islands, Vesterålen, and Senja**. This is the most visible line of controversy between the Labour and the Conservative parties, with the Ap stating

¹⁴¹ Ina Andersen, 'Lyser ut nye leteområder på norsk sokkel: 70 nye blokker i Barentshavet', Tu.no, 9 June 2021, <https://www.tu.no/artikler/lyser-ut-nye-leteomrader-pa-norsk-sokkel-70-nye-blokker-i-barentshavet/510920>.

¹⁴² Johan Falnes, 'Tina Bru vil utlyse 136 nye oljeblokker', e24.no, 2020, <https://e24.no/i/kj20Gv>.

¹⁴³ Frp, 'Olje og gass'.

¹⁴⁴ NRK, 'Ap sier nei til å flytte iskanten', NRK, 17 April 2021, <https://www.nrk.no/nyheter/ap-sier-nei-til-a-flytte-iskanten-1.15460083>.

¹⁴⁵ Senterparti, 'Forslag til prinsipp- og handlingsprogram 2021-2025'.

firmly in their political program that the party opposes petroleum activity in the LoVeSe area.¹⁴⁶ All moderate and radical pro-environmental parties are also against petroleum exploration in the region, which makes it highly improbable after the 2021 elections.

The problem of **new and existing licenses is likely to become the most contentious area of petroleum politics in the Norwegian parliament**. While energy companies can change their business models and prepare for a long-term future after oil, the short-to-mid-term direction of the industry will be decided by lawmakers. At the moment, we see three major policy positions on this issue: continue with new licenses, stop issuing new licenses and the most radical – stop new licenses and revise already acquired ones (see Table X).

The Progress Party lays out the logic of maintaining exploration for the sake of Norway's economy: "If Norwegian petroleum production is to be maintained, four factors are crucial: Increased recovery from existing fields, development of commercial discoveries, more discoveries in open areas and the opening of new exploration areas. Since it takes so long from exploration to production, it is urgent to open new areas."¹⁴⁷ Similarly, the Conservative and Labour parties want to see new licenses to maintain the full capabilities of the Norwegian petroleum industry, including the economically important sub-sectors which thrive on exploration. Labour states that in order to achieve a green energy transition, the sector "must develop, not wind up, and ensure that new industry is built on the shoulders of the old".¹⁴⁸ The Center Party, although it envisages a phase out of the sector around the 2050 horizon, does not say no to new concessions, suggesting the need to "control the allocation of new [areas] so that consideration for the environment, climate and renewable industries weighs heavily".¹⁴⁹ This is motivated by the need for a managed, gradual evolution of the service industry attached to the oil and gas sector, and its transition towards renewables. The Christian Democrats suggest that "future license awards must be limited to extensions of existing ones or those mature areas with existing infrastructure".¹⁵⁰ Meanwhile, the Liberals, Socialist Left, Reds and Greens oppose any new licenses and further future exploration. The Socialist Left specifies that "production licenses should not be extended automatically, but assessed according to strict requirements for profitability and impact on climate and environment. All applications for extension of production licenses that are in conflict with the 1.5-degree target must be stopped."¹⁵¹

The independent Climate Transition Committee, convened by civil society organizations and involving different opposition politicians made only two, but strong recommendations: to "Reduce the state's climate risk by limiting new exploration licenses, tightening the oil tax regime and introducing stress testing of climate risk for the plan for development and operation (PDO), and secondly "to facilitate far greater value creation and increased export revenues from renewable energy, bioeconomy, CCS and hydrogen".¹⁵²

3.1.4 Moving the sector towards net-zero

The **decarbonization of petroleum activities** has been a flagship policy area for past and current Norwegian governments. This is to be achieved by electrification of the oil platforms with power from the mainland, power from offshore wind farms or by installing carbon capture and storage systems. The Progress Party objects to electrification as inefficient and unsound, while most moderate parties support it. The Socialist Left and Greens oppose electrification with power from land, but support the deployment of offshore wind power, as well as CCS.

The governmental **target for emissions reductions in the sector is halving them by 2030**, and this is the goal of both the Conservatives and the Labour Party. It has to be emphasized that Norwegian emissions are significantly lower per produced unit than the average for oil-producing nations, and the industry aspires to reduce this further. The most ambitious sectoral decarbonization target is set by the Center Party, which wants to see states that "from 2040 there must be zero emissions from all installations on the Norwegian shelf. This means that all installations must be electrified or have a system for capturing and storing CO₂. The Center Party wants Statnett to take a coordinating operation and ownership responsibility for the electricity grid on the Norwegian shelf".¹⁵³ The largest parties do not mention net-zero ambitions

¹⁴⁶ Arbeiderpartiet, 'Lofoten, Vesterålen, Senja', Arbeiderpartiet, 2021, <https://www.arbeiderpartiet.no/politikken/lofoten-vesteralen-senja/>.

¹⁴⁷ Frp, 'Olje og gass'.

¹⁴⁸ Arbeiderpartiet, 'De store oppgavene løser vi best sammen', Arbeiderpartiet, 2021, <https://www.arbeiderpartiet.no/om/program/>.

¹⁴⁹ Senterparti, 'Forslag til prinsipp- og handlingsprogram 2021-2025'.

¹⁵⁰ KrF, 'Politisk program', Kristelig Folkeparti, 2021, <https://krf.no/politikk/politisk-program/>.

¹⁵¹ SV, 'SV - Arbeidsprogram', SV, 2021, <https://www.sv.no/politikken/arbeidsprogram/>.

¹⁵² Klimaomstillingsutvalget, 'Klimaomstillingsutvalget – Et uavhengig utvalg oppnevnt av Civita, WWF og Norsk klimastiftelse', 2021, <https://www.klimaomstillingsutvalget.no/>.

¹⁵³ Senterparti, 'Forslag til prinsipp- og handlingsprogram 2021-2025'.

specifically, while the more radical pro-environmental forces subscribe to an economy-wide 2050 net-zero target in line with UNFCCC and European goals.

3.1.5 Managing transition: new technologies, jobs and value creation

Apart from the Progress Party, **all political forces in Norway imagine different trajectories for an energy transition** - towards a non-carbon future. These visions emphasize the development of several key new technologies, most importantly: offshore wind, CCS and hydrogen, as well as ideas for stimulating the transition.

Both the Intergovernmental Panel on Climate Change and the International Energy Agency's (IEA's) scenarios estimate that there will be a need for **carbon capture and storage** to reach the objectives of the Paris Agreement. The Norwegian Petroleum Directorate (NPD) has mapped areas suitable for long-term, safe storage, and one of these will be used in connection with the Government's recently proposed Longship project. An increased need for CO₂ storage, e.g. in Europe, could represent new opportunities for value creation on the shelf. Recent CCS R&D initiatives are especially focused on cost reduction as this is viewed as a key to significantly improving project economics. The Longship project aims to implement carbon capture technology at a cement factory and waste-to-energy plant in the Oslo-fjord region. After being captured, liquified CO₂ will be transported by ship to **the Northern Lights terminal** – a joint project between Equinor, Shell and Total, situated on the west coast. Afterwards, the CO₂ will be sent offshore via pipeline and permanently stored in a reservoir 3000 meter below sea level. Total costs of the Longship project are estimated at NOK 25.1 billion. This figure includes ten years of operation costs, estimated at NOK 8 billion. The state's part of these costs is estimated at NOK 16.8 billion. The first phase of the Longship project is set to be completed mid-2024 with a capacity of up to 1.5 million tonnes of CO₂ per year, 800 000 tonnes of which will stem from the two Norwegian capture projects mentioned above. Furthermore, stakeholders have an ambition to expand capacity to up to 5 million tonnes, which will enable the terminal to receive CO₂ from European sources, effectively making it **a European CCS hub**.¹⁵⁴

There is near-universal agreement across the political spectrum that **offshore wind** development is desirable from all points of view. It is considered superior to controversial onshore wind deployment, which has sparked numerous local conflicts and is opposed by many parties including the radically pro-environmental Red Party, and the moderate Center. Labour sees Norway as a potential global champion of maritime renewables, building on the experience of the OG sector: "Norway is at the forefront of the world in the development of offshore oil and gas activity. The petroleum industry is also a hub for development in related industries such as shipbuilding and shipping, and for other business activities with great potential, such as aquaculture and offshore renewable energy."

Another important technology to be developed on the basis of the petroleum industry is **hydrogen**. In 2020, the Norwegian Government put forward their hydrogen strategy. In the strategy it is noted that "Norway has many years of industrial experience across the entire hydrogen value chain, and conditions for the production and use of clean hydrogen are ideal. Many Norwegian companies and technology communities are already developing and supplying equipment and services for the production, distribution, storage and use of hydrogen for various sectors".¹⁵⁵ While Equinor envisages a large role for **'blue' hydrogen** from natural gas with CCS, there is also visible political will to focus on expanding surplus renewable generation for producing **'green' hydrogen**. **Nuclear energy** is an option suggested by the Progress Party, and research and development in this sector is also supported by the Greens - while it is also unequivocally opposed by the Center, Socialist Left and Red parties.

The development within renewable energy sources and battery technology requires access to considerable amounts of **rare earth minerals**. On the Norwegian continental shelf, we know that such rare earth minerals are found in massive sulphide deposits and in manganese crusts on the seabed in the deep parts of the Norwegian Sea. The Government decided this year to initiate an opening process for mineral activities on the Norwegian continental shelf. The NPD will contribute in the impact assessment and resource assessments in this overall effort. The NPD has been working for several years to map mineral deposits and is now working on data analyses, geological evaluation and is also planning new mapping expeditions. However, accessing those deposits is also controversial, with the Liberal party among others voicing concerns over environmental risks.

¹⁵⁴ Northern Lights, 'What We Do', Northern Lights, accessed 12 June 2021, <https://northernlightscs.com/what-we-do/>.

¹⁵⁵ Olje- og energidepartementet and Klima- og miljødepartementet, 'Regjeringens hydrogenstrategi på vei mot lavutslippssamfunnet', 7.

A recent report by Industri Energi, representing the largest industry associations and trade unions in the country, laid out a vision containing eight concrete ambitions towards 2030: (1) Develop value chain for offshore wind; (2) Further develop and build a battery value chain; (3) Establish a large-scale production of hydrogen and ammonia; (4) Further develop job and value creation from the petroleum industry; (5) Scale up capture and storage of CO₂; (6) Reduction of carbon intensity in the process industry and new positions in the value chain (7) Focus heavily on the development of the renewable energy industry, where upgrading and renewing hydropower is central; (8) A clear goal for energy efficiency, a minimum of 10 TWH by 2030.¹⁵⁶

3.1.6 State, industry, and the governance of a just transition

A final set of issues relates to the governing of the transition, the role of the state in controlling the process and using its various resources to boost certain areas, most importantly the renewables sector. The Socialist Left emphasizes that since “Norwegian oil and gas extraction must be gradually replaced by industry based on renewable resources and climate-friendly production” and that requires a rollout of new renewables as well as the rapid marketization of CCS, “such a reorganization requires **a large degree of state management and cooperation with the trade union movement**, so that the resources can be managed in a planned and democratic way for the benefit of the community”.¹⁵⁷

The state has various instruments at its disposal – from licensing and taxation to active aid for both nascent sectors and a managed transition of the OG industry. **Three elements** emerge as key in the visions of pro-environmental political parties: ownership and governance reforms in Equinor, the boosting of Enova and the use of the State Pension Fund (Oil Fund) as a source of green finance.

As the largest player on the Norwegian Continental Shelf, **Equinor** will in any case be a leader of change. The Green Party suggests that the “work for Equinor to be transformed into an international green energy company as soon as possible and that the company’s foreign investments in fossil energy are sold or wound up”,¹⁵⁸ and the latter point is seconded by the Socialist Left.¹⁵⁹ Meanwhile, the Liberals suggest to “increase the CO₂ tax on petroleum activities in parallel with incentives for energy efficiency measures and electrification, and consider reducing the state’s holdings in the NCS and in Statoil [Equinor] in order to relocate parts of its assets in renewable and emission-free sectors”.¹⁶⁰ Furthermore, the Center, Greens, Socialist Left and Liberals want to see the strengthening of the state-led renewable energy entity **Enova**, and making it a key actor in the development of new renewable technologies, most importantly offshore wind, in a manner similar to the historical role of Statoil. Finally, the Red Party is most clear about its plan for a “just environmental policy” and to use the **Sovereign Wealth Fund** for financing the transition: “New jobs are needed for those who currently work in the petroleum industry. That is why we want to focus on: To establish a **national industrial fund**, where a share of the Oil Fund is set aside to make strategic investments in domestic industrial production; To establish a **green infrastructure fund**, where a share of the oil fund is set aside to make necessary investments in the development of climate-friendly infrastructure such as railways, public transport, charging networks, ports and broadband throughout Norway”¹⁶¹

3.2 Norwegian political visions seen through a ‘just transition’ lens

A statement by the Christian Democratic program captures well the grand challenge of the Oil and Gas sector transition in Norway and its socioeconomic complications: “The climate crisis demands that Norway be transformed into a zero-emission society by 2050. The restructuring will be demanding, but **Norway has good conditions for success with the green shift**. We have financial muscles, strong knowledge and technology environments and good access to renewable energy. To achieve the goal of becoming one zero-emission society by 2050 we must create a low-emission economy

¹⁵⁶ Industri Energi, ‘Lanserte plattform for en framtidsetta energi- og industripolitikk’, Industri Energi, 2021, <https://www.industrienergi.no/nyhet/lanserte-plattform-for-en-framtidsretta-energi-og-industripolitikk/>.

¹⁵⁷ SV, ‘SV - Arbeidsprogram’.

¹⁵⁸ MdG, ‘Partiprogram Og Dybdeinformasjon’.

¹⁵⁹ SV, ‘SV - Arbeidsprogram’.

¹⁶⁰ Venstre, ‘Venstres politiske program 2021-2025, “Frihet og muligheter for alle”’, Venstre, 2021, <https://www.venstre.no/politikk/programarbeid/programkomite/>.

¹⁶¹ Rødt, ‘Rettferdig miljøpolitikk’, 2021, <https://roedt.no/miljo?v=4AGjp7D9sDQgvQSQriezA7>.

with new, green jobs, we must transform the oil and gas nation into a renewable society, we must develop the world's most environmentally friendly transport system and we must cut greenhouse gas emissions in all sectors"¹⁶²

But what will it take to make the transition not only manageable and acceptable for the incumbents, but also - just? The governmental strategy, as laid out in the recent "Energy for work" white paper does not address the question of justice within the envisaged transition of the Norwegian economy, as it is built on the expectation that slowly decreasing petroleum activities will be substituted by the rapidly expanding low-carbon sector without generating socio-economic challenges.¹⁶³ With that in mind, to assess the current policy action and ongoing debate over plausible policy proposals we follow the seven principles of a just transition laid out by Atteridge and Strambo.¹⁶⁴

3.1 Actively encourage decarbonization

The current decarbonization goal of 50% reductions by 2030 is **only related to the on-site emissions** from oil and gas extraction. In principle, this corresponds to the European net-zero by 2050 goal, but it does not address the deeper problem of the "production gap". However, the debate over new licenses and the possibility of limiting exploration of new fields in the near future will be an important step in that direction.

3.2 Avoid the creation of carbon lock-in and more "losers" in these sectors.

The reluctance of the Solberg government to commit to any limitation of petroleum activity creates an important **economic risk** for the sector companies, the employees as well as the Norwegian state. The risk of lock-in looms large, and since no vision of transformation is in place, there is also no clear pathway for avoiding an unmanaged shock decline of entire branches of the oil economy following a future change.

3.3 Support affected regions.

This question is not yet addressed in relation to any possible sectoral decline, but are being brought to the agenda as far as **geographically concentrated value creation** is concerned. For instance, the Labour party as well as the Center Party emphasize regional and local value creation: "Petroleum policy must be designed so that it stimulates and creates local value creation to the greatest possible extent positive ripple effects in the area where the activity takes place"¹⁶⁵

3.4 Support workers, their families and the wider community.

Similarly, the lack of a realistic vision of Norway in the transition out of oil in the long term leads to the **lack of any regional visions of social and economic future**, and it is not surprising that the populations of the potentially most affected regions have little or no buy in into the more radical decarbonization plans of the opposition parties. This is also true for many in the sector's workforce. As long as the decline of the petroleum industry is only one among many scenarios for an uncertain future, **trade unions** are able to maintain a pro-climate rhetoric while focusing on relatively marginal and symbolic issues, such as the LoVeSe region. However, in the future, "climate mitigation issues will further redefine communities of interests and the 'jobs versus environment dilemma'." ¹⁶⁶

3.5 Clean up environmental damage & ensure that related costs are not transferred from the private to the public sector.

The question of **costs and benefits from the petroleum sector transition** and the **externalization of private business risks** which are transferred to the state and local communities has recently become a politically controversial issue, previously unaddressed. The Liberal party, in an effort to unlock state funds that could be used for stimulating e.g. renewables, wants to "discontinue the exploration refund scheme, limit the tax-free income and reduce extra interest deductions and depreciation rules so that it is the companies and not the state that take the risk"¹⁶⁷ of activities in existing license areas.

¹⁶² KrF, 'Politisk program'.

¹⁶³ Olje- og energidepartementet, 'Meld. St. 28 (2010–2011). En næring for framtida – om petroleumsvirksomheten', Stortingsmelding (Oslo: Olje- og energidepartementet, 24 June 2011), <https://www.regjeringen.no/contentassets/19da7cee551741b28edae71cc9aae287/no/pdfs/stm201020110028000dddpdfs.pdf>.

¹⁶⁴ Aaron Atteridge and Claudia Strambo, 'Seven Principles to Realize a Just Transition to a Low-Carbon Economy' (Stockholm Environment Institute, 15 June 2020), <https://www.sei.org/publications/seven-principles-to-realize-a-just-transition-to-a-low-carbon-economy/>.

¹⁶⁵ Senterparti, 'Forslag til prinsipp- og handlingsprogram 2021-2025'.

¹⁶⁶ Camilla Houeland, David C. Jordhus-Lier, and Frida Hambro Angell, 'Solidarity Tested: The Case of the Norwegian Confederation of Trade Unions (LO-Norway) and Its Contradictory Climate Change Policies', *Area*, 10 February 2020, area.12608, <https://doi.org/10.1111/area.12608>

¹⁶⁷ Venstre, 'Venstres politiske program 2021-2025, "Frihet og muligheter for alle"'.

3.6. Address existing economic and social inequalities

The radical pro-environmental parties, particularly the Socialist Left and the Red Party, but also to some extent the Center, Greens and Christian Democrats, have adopted the **language of just transitions** and thus expanded the scope of the discussion of petroleum politics to include questions of socio economic marginalization and risks of unmanaged transition. However, no specific policies are in place. We have to bear in mind that the **Norwegian welfare state** remains a well functioning and robust institution actively aimed at managing social inequalities, and while it will come under stronger pressure during the transition, it puts Norway in a much better starting point than many other European countries facing similar challenges.

3.7. Ensure an inclusive and transparent planning process.

Following the examples of other countries, where climate policy and energy transition governance has become increasingly participatory, following the idea of **'energy democratization'**,¹⁶⁸ Norwegian stakeholders have also sought to create more **inclusive institutions and forums for dialogue**. Following the example of the German "coal commission" which convened in 2018-2019 to agree on a date for and pathway towards the phase-out of the coal sector,¹⁶⁹ the Green Party proposed the formation of an **"oil commission"**, "where authorities, workers' organizations, research and knowledge environments, as well as business and industry collaborate on a plan to maintain employment and create new jobs at the same time as the oil business phases out."¹⁷⁰ In a similar vein though with a stronger focus on trade union involvement and lesser on decarbonization, the Labour Party proposes a **"just transition" commission** with workers.¹⁷¹

However, two cross-sectoral stakeholder bodies have already been established to give their recommendations for the future of the oil and gas sector. One of them is the **Industri Energi platform**, gathering the largest trade unions as well as the largest industry associations a, and so representing the OG sector's position. On the other hand, there is the **Climate Transition Committee**, set up by the civil society organizations WWF, Civita and the Norwegian Climate Foundation, and gathering primarily opposition parties politicians, local government representatives, but also experts from financial actors and academics.¹⁷² The recommendations from these two bodies are visibly divergent. It is only through **a dialogue that involves both sides, not two monologues**, that the future of Norway's oil and gas sector and a just transition towards a net-zero future can be planned and implemented.

¹⁶⁸ Matthew J. Burke and Jennie C. Stephens, 'Energy Democracy: Goals and Policy Instruments for Sociotechnical Transitions', *Energy Research & Social Science*, Policy mixes for energy transitions, 33 (1 November 2017): 35–48, <https://doi.org/10.1016/j.erss.2017.09.024>; K. Szulecki, 'Conceptualizing energy democracy', *Environmental Politics* 27, no. 1 (2018): 21–41, <https://doi.org/10.1080/09644016.2017.1387294>.

¹⁶⁹ Agora Energiewende, 'The German Coal Commission. A Roadmap for a Just Transition from Coal to Renewables' (Agora EW, 2019), <https://coaltransitions.org/publications/the-german-coal-commission/>.

¹⁷⁰ MdG, 'Partiprogram Og Dybdeinformasjon'.

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