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EQUINOR AND ØRSTED: HOW INDUSTRIAL POLICY SHAPED THE SCANDINAVIAN ENERGY GIANTS

Jonas Algers

Economist
Manifest Tankesmie

Rainer Kattel

Deputy Director
UCL Institute for Innovation and Public Purpose



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Introduction

The green transition requires radical shifts in both public policies and corporate actors. In the case of state-owned enterprises (SOEs), these two worlds meet. The two partially state-owned Scandinavian enterprises Equinor (Norway) and Ørsted (Denmark) (formerly Statoil and DONG, respectively) have both recently adopted new strategies for renewable energy development. However, the green strategies of the two firms differ quite radically, both in scale and timeline. This divergence can partially be explained by a difference in their respective access to fossil assets. However, the two SOEs have also been tools for policy goals, having been founded as vehicles for their

respective countries' petroleum extraction policy. Over time, two trends have developed. First, direct state control has been reduced in both firms, following the international trend towards privatisation. Since the turn of the millennium the state ownership share has been reduced in both firms and the Norwegian state now owns 67 percent of Equinor, while the Danish state owns 50.4 percent of Ørsted. At the initial public offering in 2001, Statoil was valued at NOK 151 billion (Wall Street Journal, 2001). DONG Energy was only publicly listed in 2016 and was then valued at DKK 98.2 billion (NOK 123 billion) (Bray, 2016). Second, as climate change has become an increasingly acute



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challenge for energy firms, these two 'national champions' have diversified into renewable energy, but while direct state control has been reduced, the firms' ability to diversify into renewable energy production has been shaped by different approaches to industrial policy by their respective governments.

Danish industrial policy has for decades been focussed on transformational innovation in the development of wind power, while Norwegian industrial policy has been focussed on incremental innovation within petroleum extraction. Ørsted has therefore been able to develop a more ambitious renewable energy strategy than Equinor. In this policy brief, we take a look at how these two major Scandinavian SOEs have evolved over the past decades. We show why SOEs play such a critical role in (green) industrial policy and how governments can utilise SOEs in the energy sector to increase their ambitions and commitments to the green transition. However, we also show how a less ambitious energy and industrial policy can lead to value extraction rather than value creation through SOEs.

Background

Equinor and Ørsted have similar characteristics and therefore provide useful examples for a comparison of firms' capabilities and strategies in relation to renewable energy. Both were originally founded as fully state-owned firms in 1972, Ørsted as Dansk Olie og Naturgas A/S (Danish Oil and Natural Gas: DONG) (Rüdiger, 2019) and Equinor as Statoil (Equinor, 2021c; Ørsted, 2021a).



Source: UnderConsideration | Brand New

Statoil was immediately tasked with a policy goal: in 1971 the Norwegian parliament had passed a motion dubbed the 'Ten Oil Commandments', stating that a state-owned oil company pursuing the state's business interests and an appropriate collaboration with domestic and foreign oil interests" should be established (Norgeshistorie.no 2018). From the start, Statoil's raison d'être was therefore to pursue the state's interests and to have a role in shaping the industrial landscape. Norway has a high degree of energy security due to its ample hydro resources, as well as the large reserves of petroleum found on the Norwegian continental shelf. Highly profitable petroleum resources

and the risk of overheating has made stability and management of petroleum revenue the main priority for Norwegian policymakers, competing with and sometimes overshadowing industrial policy considerations.

However since the oil crises of the 1970s, Denmark has sought to reduce its dependence on energy imports. The oil crisis of 1973 hit Denmark hard, as oil constituted 90 percent of the country's energy consumption and 90 percent of the oil was imported from the Middle East (Rüdiger, 2014). DONG was tasked with managing imports of gas and negotiating with international gas companies; (Rüdiger, 2019) its mission was to build oil reserves in order to increase Denmark's resilience to supply shocks (Rüdiger, 2011). In the following years, as the Danish government pushed for more intensive petroleum extraction, DONG was also given a role in exploration and production of oil and natural gas, and won licences on the Danish continental shelf (Rüdiger, 2011).

Denmark

In the 1970s, Denmark adopted a strategy for diversifying its energy supply, increasing energy efficiency and regulating behaviour through regulations and taxes (Rüdiger, 2014). Denmark's current competitive advantage in wind power is the result of a long-term commitment to developing the technology, which started as a reaction of the oil crises of 1970s. Danish industry was a first-mover within wind power technology and has therefore been able to gain a large market share within this future growth market. Danish turbine manufacturer Vestas supplied 18 percent of wind turbines globally in 2019, making it the number one supplier in the world (Global Wind Energy Council, 2020). Assisting its industry by developing a large home market and supporting technology exports strengthens the competitiveness of Danish industry.

In 1979, Denmark created an investment subsidy system that consisted of three principles (Maegaard, 2010):

- All farmers had the right to install one turbine on their own land.
- Local residents had the right to become members of wind cooperatives in their municipalities or neighbouring municipalities. Exclusive local ownership was the condition for obtaining planning permission for cooperative windmills and there was a limit to the shares that each cooperative member could hold.
- Electric utilities could build large wind farms with the agreement of the government.

The cooperative model has enabled popular support for wind energy and by 2001, 86 percent of wind turbines were installed by cooperatives (IRENA-GWEC, 2013).

In the 1980s, Danish support for wind power increased. In 1981, Denmark established a feed-in-tariff programme and in 1985, the government took a number of steps towards increasing support for renewables. It made a deal with the utilities to increase the supply of renewable energy over the coming five years; established the Danish Wind Turbine Guarantee to provide long-term patient finance for wind turbines; and granted access to the energy grid (Sovacool, 2013). In the 1990s, energy markets were liberalised and with a government change in 2001, several support programmes for wind power were removed, causing a standstill in the development of the Danish wind industry. However, they were eventually reinstated (Maegaard, 2010).

Public investment in technology and the expansion of the wind market, the development of companies with the necessary capabilities and the regulatory regime, as well as pressure from within both the business community and civil society were all factors that enabled Ørsted to make a radical and rapid strategic shift towards renewable energy.

Norway

Initially, Norwegian policymakers adopted a developmentalist approach to the petroleum industry, relying on three parallel institutions which would enable the growth of a domestic industry: a new regulatory regime through a concession system and a tax system; the Norwegian Petroleum Directorate (NPD) and the Ministry of Oil and Energy (MOE), which would form the regulating arm of government; and the establishment of the SOE Statoil, which would be the operative arm of government in petroleum. Statoil “contributed greatly to technical and organizational adaption by utilizing traditional industrial networks and functioning as an agent transferring and adapting international petroleum techniques and competence” (Engen, 2009). Policymakers preferred to develop oil platforms with a high degree of participation by Norwegian companies. This infant industry approach led to the growth of Aker and Kværner as the most important companies in the large, petroleum-related supply industry, and major learning throughout Norwegian contractors. This industrial policy approach to the petroleum sector led to higher costs for petroleum extraction. Training Norwegian personnel and transferring competence to Statoil obviously incurred greater costs than if policymakers had completely relied on already existing international firms (Engen, 2009). However, over time the Norwegian companies and public institutions became experienced and skilled, bringing costs down and enabling larger technological autonomy.

The Norwegian petroleum innovation system has gone through several phases of maturation, reorganisation, consolidation and internationalisation. By now it is a highly sophisticated and innovative sector in the global petroleum industry (Engen, 2009).

Norway was never in a similar import-dependent situation as Denmark and has therefore not been pressured to develop renewable energy technologies for energy security reasons. Instead, petroleum extraction has been the focal point of Norwegian industrial policy. Therefore, limitations to the extraction tempo became an important lever for the state to control the expansion of the oil industry and to avoid overheating. In 1988, the Norwegian parliament limited total investments in petroleum to NOK 25 billion, but due to the financial crisis which hit Norway later the same year, the government removed any limits to the extraction tempo to support employment and profitability, and in 1993, investments were more than double the former maximum (Ryggvik and Kristoffersen, 2015). By 2013, petroleum investments had grown to NOK 115 billion in 1988 prices.

In the 1980s, there was a turn away from active state involvement in enterprise and towards trust in the efficiency of the private sector alone (Lie, 2016). State ownership stakes were sold to finance government budget expansions, reflecting a change in the view of SOEs from an entrepreneurial arm of government to a source of revenue (Lie, 2012). To manage the vast revenue from petroleum activities, Norway established the Oil Fund. Tax revenue and dividends from Equinor are channelled into the fund, which is now the largest sovereign wealth fund in the world. As the fund has grown and become an important instrument for macroeconomic policy, the view of Equinor as a source of revenue for the fund — rather than as an industrial policy instrument in itself — has perhaps been enhanced.

This change was driven by an ambition to “reduce the problems of governance in what was perceived as a too big and complex centralised state” (Grønlie, 2001). Without limiting the extraction tempo, Norway has increasingly suffered from Dutch disease. Norway is now a major petroleum exporter: oil and gas exports constitute 47 percent of total export of goods. Norway is the world's third largest exporter of gas (Norsk Petroleum, 2021). By assisting the petroleum industry to develop competitive advantages over competitors in other countries, the government can support long-term profitability in the industry. However, supporting the sector not only prolongs production of fossil energy and exacerbates climate change, it also risks Norway's ability to successfully transition to the post-petroleum era. Perhaps ironically, the industrial policy approach initially favoured by Norwegian policymakers has made the petroleum industry a powerful institution in the Norwegian political economy, which will influence the long-term economic development of the country and increasingly be in conflict with effective climate policy.

Equinor and Ørsted in the green transition

Equinor and Ørsted announced new strategies in 2017 and 2018 respectively — and their attitudes towards development of renewable energy could not be more different.

While Ørsted has recently been applauded for its successful shift towards renewable energy, (Sheppard, 2020) Equinor is deepening its engagement within petroleum (Andersen, 2020). Equinor has not announced any end date to its petroleum activities, while Ørsted will phase out all coal use by 2023 (Ørsted, 2021b). Furthermore, Ørsted has adopted a strategy based on divesting from fossil fuels and committing to rapid renewable energy production, giving it a competitive advantage within a future high-growth energy market. Equinor, on the other hand, has adopted a strategy aimed at expanding its renewable energy operations while maximising its share within a shrinking market for oil and gas.

Ørsted

Danish Ørsted has adopted a wholesale renewable energy strategy. The move towards renewable energy started in 2008, at a time when the firm was still called DONG Energy and almost fully generating electricity from fossil sources. Turning to renewable energy was one of three alternatives discussed by the executive management group, which also contemplated a merger with a Dutch firm and a focus on gas, building coal plants and further exploration of fossil fuels (Voldsgaard and Rüdiger, in press).

At the time, climate change was becoming an increasingly important issue in the mainstream policy debate. In 2007, Al Gore and the United Nations Climate Panel were awarded the Nobel Peace Prize, and the UN climate meeting COP15 was to be held in Copenhagen in 2009. In this increasingly climate-conscious landscape, the executive management group made the decision to focus on renewable energy development (Voldsgaard and Rüdiger, in press). In 2009, the company launched the 85/15 strategy, which aimed to generate 85 percent of electricity from renewables and 15 percent from conventional sources by 2040. It is worth noting that Helge Lund, the CEO of Statoil at the time, approached the green transition differently, stating that, “As an industrial leader I only know one effective solution for climate action: that the price of CO₂ is high enough” (Vermes, 2009).

DONG optimised its internal operations and coordinated the supply chain to become a leader within offshore wind by 2013. Through a partnership with Siemens Wind Power (SWP), DONG gained access to turbines in exchange for

a stable demand for SWP's turbines. Industrialisation of the supply chain managed competition between upstream suppliers and partnerships with institutional investors, reducing uncertainty and costs. DONG thereby changed the industrial landscape within offshore wind in Denmark.

DONG changed its name to Ørsted to signify the shift away from fossil fuels. In 2019, the ambitious 85/15 goal was reached, 21 years ahead of schedule (Voldsgaard and Rüdiger, in press). In 2018, a new strategy was adopted, with planned investments of DKK 200 billion in renewable energy over the years 2019–2025, as well as the aim of reaching a renewable capacity of 30 GW by 2030 (Ørsted, 2018). By the end of 2019, Ørsted had invested DKK 193 billion in renewable energy (Ørsted, 2021c) and was being hailed as the “first green energy major” (Sheppard, 2020).

Equinor

In 2017, CEO of Statoil, Eldar Sætre, announced a new direction for the firm in an op-ed in Norwegian newspaper *Aftenposten*. Statoil would prioritise three areas:

1. Producing oil and gas with steadily lower emissions;
2. Growing considerably within renewable energy and invest NOK 100 billion in renewable energy until 2030; and
3. Actively using stress testing to ensure that the firm is also competitive in a low-carbon era (Sætre, 2017).

A year later, the firm changed its name from Statoil to Equinor to signal the change from a conventional oil and gas company to a broader energy company also producing energy from solar and wind (Bjerknes, Nybakken Kvale and Ånestad, 2018). These were significant changes for the SOE, signalling that it was taking climate change seriously and that the leadership was keeping up with a political mood increasingly focussed on climate.

Two flagship projects are the floating wind farms Hywind Scotland, already operational by 2017, (Equinor, 2021a) and Hywind Tampen, expected to be operational by 2022. Hywind Tampen will supply the Snorre and Gullfaks offshore fields with 88 MW of renewable energy. The investment decision was made in 2019 and the project received funding of NOK 2.3 billion from the Norwegian state fund Enova, almost half of the total expected cost of NOK 5 billion (Equinor, 2021b). The investment from Enova was an important signal from the government, showing its willingness to support development of the technology (Andersen, 2020). Floating wind technology is an area where Norwegian industry is believed to have a competitive advantage. The Norwegian coast and the North Sea are to a large extent too deep for bottom-fixed offshore wind, (Bosch, Staffell and Hawkes, 2018) and Norway has several actors already developing the technology, such as

Equinor, Aibel, Aker Solutions and Kværner (the last two have now merged) (Winje, Hernes, Grimsby and Jakobsen, 2019).

By the end of 2019, Equinor had invested US\$3 billion in renewable energy (roughly NOK 25 billion) (Equinor, 2020b). The firm aims to have a renewable energy capacity of 4–6 GW by 2026, which is a tenfold capacity increase from current levels and by 2035, a capacity of 12–16 GW (Equinor, 2021d). However, while Equinor is moving into renewable energy, it is continuing its investments in the extraction of petroleum. The giant Johan Sverdrup field alone will require investments of NOK 81 billion in the first few years (Equinor, 2021e) and Equinor recently announced a NOK 18.6 billion investment in the expansion of the Breidablikk oil field (Equinor, 2021f).

Equinor can continue its petroleum activities as the firm and the Norwegian state plans to be the last to ‘turn off the tap’. As the green transition progresses, the market for petroleum products shrinks, and if firms with large oil and gas assets are to sustain their revenue, they need to increase their market share in the shrinking market. One way to do this is to ‘green’ petroleum products by reducing emissions in production. Using renewable energy not for energy markets directly, but in oil and gas extraction, is a way for petroleum firms to extend the lifetime of their petroleum assets. “As Norway has low emissions in production, it is better that Norway produces oil and gas than other countries with dirtier production,” the argument goes (Freiberg, 2019). That perspective conveniently fits with the focus on domestic emissions common in the Paris Agreement. This is why Sætre stated in his op-ed that Equinor will continue to produce oil and gas “with steadily decreasing emissions” (Sætre, 2017). Therefore, the floating wind farm Hywind Tampen will not produce electricity for households, but reduce the emissions from fossil extraction at the Snorre and Gullfaks fields.



Source: Unsplash

The Norwegian petroleum industry has set a target to reduce emissions from production from 2005 levels by 40 percent by 2030 and close to zero by 2050, (Iqbal Tahir,

2020) and the government frequently points to the low emissions in Norwegian production compared to other countries (Solberg, 2020; Listhaug, 2019). As the EU is a major importer of Norwegian oil and gas, it is strategically important for Norwegian policymakers and petroleum firms to be an attractive source for European oil and gas imports. As the EU increases its green ambitions, low production emissions are becoming more important alongside geopolitical relations (as seen in the construction of the Baltic Pipe, which will supply Poland with Norwegian gas, reducing its dependence on Russia), (Frogatt, Stevens and Bradley, 2020) even though the emissions in production of petroleum are a small share of the emissions in a life-cycle perspective (Gavenas, Rosendahl and Skjerpen, 2015).

There are two risks with this strategy:

1. It is unclear how rapidly petroleum demand will fall and Norway may end up with stranded assets if the EU and other importers have a successful climate policy; and
2. Even if petroleum exports are kept at a high level for a long time, there is underinvestment in post-carbon innovations and thus new engines for the Norwegian economy.

Norwegian industrial policy may be too passive and path-dependent to enable the dynamism and change needed for facilitating the green transition.

In a recent government white paper on SOEs, the stated aim of government ownership is to “attain the highest possible return over time” and the reason for a majority stake in Equinor is to ensure that a leading technology and energy company has a main office in Norway (Norwegian Government, 2019). The size and capabilities of the SOE puts it in a position where it shapes the Norwegian industrial landscape and could either lead the transition towards a low carbon future or reinforce carbon lock-in.

Value creation versus value extraction

Ørsted has reached its ambitious goals and co-shaped the industrial environment of Denmark, aligning its own activities with the turn towards renewables. Focussing on renewable energy development has paid off both for the firm, as well as for the Danish industrial landscape. Equinor, however, is not reinvesting its earnings in renewable energy. In 2019, it was announced that between 2019 and 2022 the company would spend US\$5 billion — about half of the pre-2030 planned investments in renewable energy announced in the 2017 strategy — on a share buyback programme (Equinor, 2019). Equinor stated that its strong financial position, as well as the starting up of the Johan Sverdrup oil field, put Equinor “in a good position to increase its capital distribution”. However, the programme had to be halted before the second tranche

had been initiated, due to the shock of the COVID-19 crisis (Equinor, 2020a). And shortly after the crisis hit, it was discovered that Equinor had, over the previous years, lost NOK 200 billion on investments in the United States, (Madsen, Ånestad and Melgård, 2020) a sum equivalent to 40–50 percent of the firm's current market value. According to the Norwegian Association of Financial Analysis, (NFF Committee for Financial Information, 2020) Equinor's earnings per share (EPS) have been NOK 40 over the last eight years, but share buybacks and dividends have been NOK 60 over the same period. The firm has therefore increased its debt to keep its commitment to shareholders, while failing to generate sufficient revenue. Equinor's generous share buyback programme implies a commitment to maximising shareholder value ideology, prioritising value extraction over value creation (Lazonick, 2013). Rather than investing in energy alternatives and low-carbon technologies, share buybacks drain the firm of capital. As the green shift becomes increasingly acute, it is questionable whether this is a good use of funds.

The Danish industrial policy has made the country's wind industry a significant employer and internationally competitive. Since 2006, around 30,000 people have been employed in the Danish wind industry, whereas total employment in renewable energy in Norway reached 6,900 in 2017 (Wind Denmark, 2020). Denmark exported DKK 122.6 billion worth of energy technology and services in 2019, of which 72 percent was green (Dansk Energi, 2020). This was significantly more than Norwegian energy renewable energy technology exports, which totalled NOK 6.2 billion in 2017 (roughly DKK 5 billion) (Espelien, Karina Stormo, 2018). In the same year, the value of Norwegian oil and gas exports reached more than NOK 420 billion (Statistics Norway, 2021).

However, the distribution of risks and rewards from Denmark's development of wind technology has not been aligned. In 2014, DONG needed fresh equity capital to finance its renewable energy strategy, which it sought from its main shareholder, the Danish state. At the time, the state owned 80 percent of DONG (Danish Ministry of Finance, 2013a). The firm required at least DKK 6–8 billion, a figure the government refused to supply. The Ministry of Finance judged that a capital injection from the state might be inconsistent with EU rules on state aid. (The Ministry of Finance argued that compliance with EU state-aid rules could be investigated informally with the EU Commission and that a formal decision would take two months. Such an inquest would require a decision at the political level. See [https://rigsrevisionen.dk/Media/A/0/sr1616%20\(1\).pdf](https://rigsrevisionen.dk/Media/A/0/sr1616%20(1).pdf)).

The decision was therefore made to sell a share of the state's ownership in the company and source capital from private investors. DKK 11 billion was sourced, including DKK 8 billion from Goldman Sachs (Danish Ministry of Finance, 2013b). The state's ownership share was thereby

reduced to 60 percent. DONG was publicly listed in 2016 (Ørsted, 2016) and a year later Goldman Sachs sold its final shares in the firm. In total, Goldman Sachs made a return of DKK 20.4 billion on its DKK 8 billion investment (Ritzau, 2017).

Looking ahead

Danish government policy has been instrumental in reducing the costs of renewable energy technology. Following Grubb and Weiner, the Danish investments in green technology have functioned as 'transition costs' that lowered the future costs of the green transition and made Danish industries internationally competitive (Grubb and Wieners, 2020). Therefore, the Danish experience is a case where industrial policy has "led to the establishment of competitive advantages" (Mazzucato, 2016).

As climate change progresses and governments impose climate policy, physical and transition-based climate-related risks will continue to grow. The shock of COVID-19 has exposed how dependence on potentially volatile energy markets implies high risks for Norwegian industry. While the COVID-19 shock reduced demand for petroleum, making oil and gas prices tumble even into the negative, energy grids in many countries favour renewables over fossil energy. Thus, Ørsted has gone through the COVID-19 crisis with no major shocks apart from in planned construction (Hook, 2020). Equinor also has one of the most optimistic projections in the sector of the future price of oil. Expecting more stable and long-term demand for oil, it diverges from other firms by projecting a future price of \$82 per barrel, whereas BP, Shell, Repsol, Eni and Total project long-term prices of between \$55 and \$72. The price projections signal that the firm has little intention of divesting itself of its petroleum activities in the foreseeable future.



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There is a cyclically causal relationship between industrial policy and decisions made by large firms with a large influence on the industrial landscape. The strategy adopted

by Ørsted was made possible by Denmark's long-term mission-oriented policy of developing wind power as a step towards energy security. Through the strategic investments of Ørsted, the Danish wind industry has become more competitive and has therefore enabled Danish energy policy to be more ambitious.

The Norwegian state should reconsider whether the petroleum-oriented industrial policy and passive ownership of Equinor is sustainable, as climate-related risks grow and as Norway needs to rapidly catch up on the green technological development of its immediate neighbours.

Conclusion

Denmark has for decades pursued an industrial policy that aims to improve the wind industry and Danish energy security. Norway, on the other hand, has had access to significant petroleum assets and hydro power, and the aim of Norwegian industrial policy has instead been to first build a domestic petroleum industry, and then eventually to incrementally improve it through efficiency improvements and reduced emissions in production. This divergence in industrial policy has shaped the two countries' respective innovation systems and enabled Denmark's Ørsted to rapidly shift into renewable energy while Norway's Equinor remains committed to petroleum extraction.

As the Danish and Norwegian states have reduced their control of the firms, the 'Scandinavian champions' are no longer tools for shaping national innovation systems in terms of policy goals, but Equinor and Ørsted continue to have a significant role in shaping the industrial landscapes of the two countries. Investments made now will affect the long-term viability both of the firms and of the national industrial landscapes. Under the existing regimes, Equinor and Ørsted will steam ahead along paths already set by the industrial policy of former generations. Remaining passive and committed to petroleum would be a high-stakes gamble for Norwegian policymakers.

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UCL Institute for Innovation and Public Purpose
11 Montague Street, London, WC1B 5BP

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