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EU energy and Climate policy and the Greening of the Norwegian Energy Industry:

A Comparative Analysis of Equinor and Statkraft's Green Development under the EU ETS and European Green Deal

Master's thesis in European Studies

Supervisor: Carine S. Germond

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Abstract

Climate change is a pressing issue, and the EU has set ambitious goals to become climate neutral by 2050. To reach these goals, the EU has introduced flagship policies, the Emission Trading System and the European Green Deal, which contain legally binding targets for the EU and EEA member states. This thesis explore the EU climate and energy policies' effect on the greening of the Norwegian energy industry. The thesis consists of a comparative case study of the two cases Equinor and Statkraft, who are two of the biggest energy producers in Norway. The chosen EU climate and energy policies for the analysis are the EU ETS and the European Green Deal. The thesis investigates the challenges and responses raised by the EU ETS and the European Green Deal and the adaptations made for Equinor and Statkraft to green their energy industry. The thesis examines to what degree the EU affects the Norwegian energy industry, portrayed in the adaptations they have made and how they have solved the challenges they are presented with. The contribution of this, therefore, relates to how Norway, being an EEA country affected by EU legislation through the internal market and how this affects the energy producers Equinor and Statkraft in the green transition. The main argument of this thesis is that the EU have some effect on the Norwegian energy industry, but that it varies in the different companies, depending on their energy sources, economy, and production.

Sammendrag

Klimaendringer er en stor utfordring, og EU har satt noen svært ambisiøse mål om å bli klimanøytrale innen 2050. For å nå disse målene har EU innført ulike politiske verktøy som kvotehandelsystemet (ETS) og den europeiske grønne giv (European Green Deal). Begge disse inneholder juridisk bindende mål for EUs medlemsland, samt EØS-landene. Denne oppgaven utforsker hvilken effekt EUs klima- og energipolitikk har hatt på å gjøre norsk energiindustri mer miljøvennlig og bærekraftig. Oppgaven består av en komparativ casestudie av Equinor og Statkraft, som er to av de største energiprodusentene i Norge. EUs klima og energipolitikk som vil bli brukt i denne analysen er EU ETS og European Green Deal. Oppgaven undersøker hvilke utfordringer og reaksjoner som har blitt reist av EU ETS og European Green Deal, samt tilpasningene som er gjort for å gjøre Equinor og Statkraft mer miljøvennlige i energibransjen. Videre undersøker oppgaven i hvilken grad EU har effekt på norsk energibransje, skildret i tilpasningene de har gjort og hvordan de har løst utfordringene de blir stilt overfor. Bidraget denne oppgaven tilbyr knytter seg derfor til hvordan Norge, som EØS-land, påvirkes av EU-lovgivningen gjennom det indre markedet, og hvordan dette påvirker energiprodusentene Equinor og Statkraft i den grønne omstillingen. Hovedargumentet i denne oppgaven er at EU har en viss effekt på den norske energibransjen, men at det varierer i de ulike selskapene, avhengig av deres energikilder, økonomi og produksjon.

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List of Abbreviations

EU	European Union
EU ETS	European Union Emission Trading System
EEA	European Economic Area
EC	European Commission
SEIP	Sustainable Europe Investment Plan
LNG	Liquified natural gas
MSSD	Most similar system design
MDSD	Most dissimilar system design

1 Introduction

1.1 Introduction to the Topic

Climate change is one of humanity's most significant challenges in modern times. The European Union (EU) has set some ambitious goals to make Europe the first climate-neutral continent by 2050 (European Commission (c), n.d.). These ambitions are reflected in the EU climate and energy policies and laws that apply to the EU member states and the European Economic Area (EEA) member states. As an EEA member state, Norway is therefore obliged to follow EU laws and policies on the same basis as the EU member states. Because of this, the EU's goal of making Europe the first climate-neutral continent by 2050 can also be seen as a Norwegian goal. For Norway to reach these goals, there is a need for significant changes in the energy industry, especially in the fossil fuels energy industry. Equinor and Statkraft are two Norwegian energy suppliers that are crucial energy exporters to the EU. While Statkraft is based on renewable energy sources, Equinor is based on fossil fuels. To reach the goals of climate neutrality, the reality is that we need to become independent from fossil fuels and only rely on renewable energy sources. Therefore, transitioning from fossil to renewable is necessary but also challenges Equinor and Statkraft.

Through the EEA agreement, Norway is a part of the internal market and the energy market (Energifakta Norge (a), n.d.). The scope of the EU energy market has expanded through the years and developed more supranational legislation. Norway is influenced not just by EU energy policies through the EEA agreement but also by the European energy market, being Norway's most important export market in electricity, oil, and gas. At the beginning of the corporations between Norway and the EU in energy, nine legal directives were incorporated in the EEA agreement. Today, 70 legal acts regarding EU energy policy have been incorporated into the EEA agreement (Energifakta Norge (b), n.d.). The energy market also has some rules of how the market should function, including energy security, infrastructure, and renewable energy. Even though there are some rules regarding the market, it also states that every member state has the right to self-determine the usage of their resources and what type of mix they have (Energifakta Norge (a), n.d.). This means that the EU have no power over how Norway operates the extraction of their energy from the available sources. They also have no say over which sources Norway uses in their energy industry.

The theme of the thesis is energy and climate policy, while looking at two EU flagship policies, The EU Emission Trading System (ETS) and the European Green Deal and how it affects the Norwegian energy industry. The primary reason for choosing this topic relates to how Norway is directly affected by the climate and energy policy decisions made in Brussels based on two factors. First, as an EEA country, Norway must follow EU law and policies and acts as a rule-taker rather than a rule-maker. Second, Norway is one of the crucial energy exporters to the EU, both in the fossil and renewable energy sectors (Knudsen & Ruud, 2009, p. 5). One can also look at the importance of the Norwegian energy industry for the Norwegian economy and for Norway in general. Both Equinor and Statkraft are some of the most important contributors to the Norwegian economy, which makes it essential to preserve their industries at the same time as they green their

industries. Therefore, in the EU's and Norway's best interests, the Norwegian energy sector is booming in developing the green transition. It is crucial to reach the goal of becoming climate neutral by 2050.

For a long time, Norway has relied heavily on fossil fuels, and their renewable energy industry also accounts for a significant portion of Norwegian exports. How this industry is affected by the EU ETS, the European Green Deal, and EU climate and energy policies substantially impact Norwegian policy and economy. Another important aspect of my project lies in the significance of European energy and climate policies on the Norwegian energy industry and that Norway is a key producer and exporter of fossil energy. I will look at the two actors, Equinor and Statkraft, and see what impact the EU energy and climate policies have on the actors, what challenges they have faced, and what adaptations they have made in greening the energy industry. Equinor has faced the challenges of phasing out fossil fuels, while Statkraft is known for being the most significant energy supplier of renewable energy in Europe. What are the differences in the challenges the two actors have met, how big were the changes, and do they live up to the standards set by the EU? Throughout the thesis, I will also draw upon the concept of Europeanization and use it to explain how national governments implement EU policies and laws.

1.2 The Chosen Actors and Policies

To demonstrate the EU climate and energy policies' effect on the Norwegian energy industry, I have chosen the two actors Equinor and Statkraft as my case studies and the policies of EU ETS and the European Green Deal. The preferred climate policies, the EU ETS and the EU Green Deal, are two flagships of the EU's climate and energy policies. The EU ETS was launched in 2005 and is the first international ETS in the world. After the Kyoto Protocol in 1997 set legally binding emission reduction targets, there was a need for a tool or a system to meet these targets (European Commission (a), n.d.). The European Green Deal was presented by the European Commission (EC) in December 2019. The goal of the deal is to ensure economic stability in the EU by making opportunities and a just transition in the climate and environmental challenges (European Commission (c), n.d.). The EU ETS and the European Green Deal aim to fight climate change (European Commission (a), n.d.).

Even though the EU's environmental policies started way before 2005, the reason for choosing the EU ETS and the European Green Deal relates to a few different aspects. First, both policies have introduced legally binding goals and actions that the EU, the member states and the EEA member states are obliged to follow. Both policies contain specific legislation and steps on how the EU will reach climate neutrality by 2050. Another reason relates to how these two policies represent the reductions of greenhouse gases and the implementation of new renewable energy solutions. To fight climate change, it is not enough to only implement renewable energy sources without removing the old fossil fuel energy sources, and it is impossible to remove the fossil fuel energy sources without renewable sources to replace them.

The actors Equinor and Statkraft are two of the biggest energy suppliers in Norway. Equinor was founded in 1972 as the first Norwegian state oil company (Equinor (a), n.d.). Statkraft was founded in 1895 when Norway, for the first time, became the owner of a Hydropower plant called Paulenfossen. The two firms are significant on two different grounds. First, it relates to how the two energy suppliers are based on entirely different

energy sources, one being renewable and the other not. Equinor is an oil-based company that has been struggling with making changes to adapt and become greener. Statkraft, on the other hand, has a focus on hydropower which is considered to be renewable and green energy. Comparing how two actors representing different parts of the Norwegian energy sector have transitioned to green energies would be interesting. Second, Equinor and Statkraft are some of Norway's biggest and most significant energy suppliers, and the EU is one of the biggest importers of Norwegian energy. It is, therefore, necessary to investigate how the Norwegian energy suppliers adapt to the EU's energy and climate policies, as these include legally binding laws that Norway and Norwegian actors are obliged to follow. At last, it is interesting to compare how the two actors have adapted to the EU ETS and The Green Deal and what impact the policies have had on the two different actors.

Another factor that is important to note is how both of the energy actors are partially and wholly owned by the Norwegian state. Being state-owned companies implies that the Norwegian state's policies and actions are reflected in the company's policies and actions. Norway is a part of the internal energy market through the EEA agreement, and EU energy and climate policies are integrated into the EEA agreement. This means that EU energy and climate policies are also integrated into Norwegian energy and climate policies. This gives the EU a direct influence on Norway and the Norwegian energy industry, especially in companies such as Statkraft and Equinor, where the Norwegian state holds a majority share. This means there is a reasonably high stake for the Norwegian state to comply with the EU legislation as the EU ETS and the European Green Deal contain legally binding targets.

1.3 Research Questions and Methodology

This thesis looks into the effect of EU energy and climate policies on the Norwegian energy suppliers Equinor and Statkraft. It explores two different aspects of how the EU ETS and the European Green Deal have affected the actors: the companies' adaptations to green their industry and the challenges EU policies have had on Equinor and Statkraft.

First, it investigates how and to what degree Equinor and Statkraft have made adaptations to make their energy industry greener. It explores to what extent adaptations have been made by the two actors to further green their industry in line with the goals set in the EU ETS and the European Green Deal. The adaptations reflect how and to what extent the EU ETS and the European Green Deal have pushed for, promoted, or hindered Equinor and Statkraft's transition to green energies. Based on the differences between the two actors, Equinor and Statkraft, the thesis explores what adaptations the actors have made and to what degree. The thesis also explores Equinor and Statkraft's transformations in their economy and operations based on the push from the EU ETS and the European Green Deal. Equinor and Statkraft being based on two fundamentally different energy sources resulted in them facing other impacts from the EU ETS and the Green Deal. Based on this, the first main research question of the thesis is:

How and to what degree have Equinor and Statkraft adapted to make their energy industry greener?

Second, the thesis explores the challenges and responses Equinor and Statkraft have made to meet the criteria and goals set by the EU ETS and the green deal. It investigates the economic and structural challenges and identifies the main challenges the actors

have faced in greening their companies. For Equinor, the main challenge they face to successfully meet the criteria set by the EU ETS and the European Green Deal is the phasing out fossil fuels. This challenge is very complex and difficult to overcome as almost the entire operation of Equinor's energy is based on fossil fuels. However, if Equinor is to become a zero-emission company, it is necessary to replace fossil fuels with renewable energy sources. Statkraft, on the other hand, is already based on renewable energy sources. Therefore, their biggest challenge is further developing and expanding their energy production to cover the energy demand. The thesis then explores the different actions made to keep in line with the goals of the EU ETS and the green deal. It looks into what steps have been taken to tackle the challenge of reducing emissions to keep in line with the EU ETS and to invest in renewable energy sources to reach the goals set by the Green Deal. The second research question of the thesis is, therefore:

How and to what degree have Equinor and Statkraft responded to the challenges of the EU ETS and The Green Deal?

The thesis will consist of a qualitative comparative case study analysis of the two cases Equinor and Statkraft. I will thoroughly analyse the individual cases' operations, adaptations, challenges, and responses. After that, I will provide a comparison between the two energy actors to look at the similarities and differences they have faced as energy suppliers in the transition towards green energy. The two actors are Norwegian energy suppliers, but they are fundamentally different. It is not easy to distinguish if the most different system design (MDSD) or the most similar system design (MSSD) is most helpful in this case. We cannot predict the outcome or distinguish if they are most similar or dissimilar as a starting point. This comparison will therefore be based on a simple comparison between the two cases where the outcome is not premeditated. The simple comparison will, however, distinguish the similar challenges the actors have faced based on the EU ETS and the European Green Deal and the different adaptations they have made to fulfil the criteria set by these policies. Equinor and Statkraft have an end goal of becoming zero-emission companies which means they have to apply to the requirements set by the EU ETS and the Green Deal. The simple comparison method, therefore, can be helpful to explain the similarities and differences between the two cases Equinor's and Statkraft's outcomes.

The qualitative analysis will be based on a variety of sources. The study will be based on academic articles, reports, and documents from the EU and the two Norwegian energy firms under investigation. I will look at reports about the European Green Deal and other official EU documents related to energy policies. These documents will be found on the official website of the EU institutions. The actors also have assessments, reports, and strategies for themselves regarding the greening of their energy. These will be used to get more insights about the actors and their actions. These reports and strategies are mainly found on the official website of the actors but are also analysed and researched in academic literature.

1.4 Outline of the Thesis

This thesis is divided into nine chapters. The second chapter consists of a literature review of the existing literature on challenges for the old energy suppliers, the push for a green energy industry, and the adaptation of EU energy and climate policies. This chapter aims to identify the existing debates on the topic and what contributions this thesis gives to fill in the gaps in the debate regarding the EU policy's effects on the

Norwegian energy industry. The third chapter explores the concept of Europeanisation and how this is relevant in the case of implementing EU policies at the national level. The concept of Europeanisation will be used to explore why Norwegian actors have implemented the EU policies the way they have. In Chapter four, I thoroughly explain the two crucial pillars of EU climate and energy policy, the EU ETS and The Green Deal. This part explores the policies' background and the challenges these systems give Equinor and Statkraft. Chapter five thoroughly introduces the two actors, Equinor and Statkraft. This chapter explores the actors' background, operation, and economy, as well as their goals, measurements made, and shortcomings to reach the goals set in the EU climate and energy policies. Chapters six and seven are similarly built. Chapter six looks at Equinor, and chapter seven at Statkraft. These chapters emphasise the direct impact the two policies have on Equinor and Statkraft, the challenges they have met and the measurements they have made to reach the goals set by the EU policies. In Chapter nine, I compare the two case studies, Equinor and Statkraft and discuss the similarities and differences they have experienced in their transition to green industries. This chapter also explores current debates and challenges and possible future challenges that the energy industry might face in the green transition. At last, we have chapter eight, which is the conclusion of the thesis. This chapter will answer the research questions and the limitations of the thesis and suggest further research on the topic.

2 Literature Review

This chapter is devoted to the literature concerning the greening of the Norwegian energy industry regarding the European Green Deal. The literature is divided into three different groups. The first group looks into the decarbonisation of the energy field and the challenges the Norwegian old energy suppliers have faced with the EU's climate policies. The second group looks into how the European Green Deal gives a push for investment in renewable energy and the actions made by the Norwegian energy sector. The third group looks into the European Green Deal, climate policies and the energy sector. Some of the literature is directly connected to the member states of the EU. Still, Norway being an EEA country and obliged to implement EU policies (Boasson, 2021, p. 193), makes the literature relevant to this case.

The authors use different methods and theories in their research. The most prominent theory in the literature regarding this topic is Europeanisation and how new policies are implemented into national governance. In this thesis, I will use Europeanisation as a concept to explain how Norway has adapted to EU legislation on Energy and climate.

2.1 Challenges for Old Energy Suppliers, Decarbonisation, and the EU ETS

This first section concerns the challenges the old energy suppliers relying on oil and gas face in the green transition and decarbonisation. The literature investigates the specifics of greening the petroleum industry, the challenges the old oil energy suppliers face with the EU climate and energy Policies and how the EU emission trading system is tightened in line with the European green deal and pushes for a decarbonisation of the power sector in the EU.

In the book chapter by Overland (2019), she analyses the implications of a change in the EU energy demand. She examines the case of Norway and the efforts they have made in preparation for the energy transition (p. 74). Norway is a country that is considered well-equipped for the energy transition, and among the EU's external energy suppliers, they are viewed as the best case. Furthermore, Overland explains how Norway, alongside Nigeria, Russia, Saudi Arabia, the US, Colombia, and Kazakhstan, are the most significant fossil fuels exporters to the EU and how these countries might face some challenges in the transition from fossil to renewable energy sources (Overland, 2019, p. 74). According to Overland, Norway has an advantage over the other fossil fuel suppliers because of the direct pipelines to Europe and their ambitious climate discourse (Overland, 2019, p. 77). Since the early 1990s, Norway has contributed to climate mitigation with CO₂ taxes, climate policies, carbon trading and support for electric vehicles. On the other hand, the energy relationship between Norway and the EU is not affected by any of these contributions, and it is there, therefore, essential to look into the actions of the Norwegian government and Equinor (Overland, 2019, p. 80). Overland's findings show that, in the short run, renewable energy cannot match the energy dependency that Equinor and the petroleum sector give (p. 90). However, Norway is still the most equipped country to adapt and, therefore, the best case for external energy suppliers outside the EU. This book chapter introduces the concept of energy security,

which I will continue to explore in the light of the two actors Equinor and Statkraft in a green transition.

Midttun, Khanieva, Lia, & Wenner (2022) analyse in their article the engagement of the European petroleum industry through the first two decades of this century (p. 1). In their analysis, they found that there has been a shift in several steps in petroleum energy along the way towards a greener industry. At first, the major petroleum businesses started with "climate negligence" before they evolved to "clean petroleum" and then later ended up with a vision of "net zero" with a transition away from oil and gas (Midttun, Khanieva, Lia, & Wenner, 2022, pp. 1-2). This shift in the petroleum industry results from the EU climate policies and the European green deal. Directives and policies from the European Green Deal aim to give a push towards a greener energy sector. One of the European Green Deal outcomes is the EU Taxonomy Regulations which require the member states and the EEA countries to create green corporate bonds (Midttun et al., 2022, p. 11). My study will, therefore, further explore the adaptations that two big energy companies have made to keep up with the green transition that the EU pushes forward.

In the article by Pietzcker, Osorio, & Rodrigues (2021), they explore how the European Green Deal has tightened the ETS targets and how this will result in a change in the power sector (p. 1). Their findings show that tightening the ETS targets will lead to a positive development in the transition out of fossil fuels. The transition time will be sped up by 3-17 years, and in 2030, renewable energy will contribute to 74% of the electricity demand. The phasing out of coal would also be a reality in 2030 instead of the estimated year of 2045 (Pietzcker, Osorio, & Rodrigues, 2021, p. 13). Their findings also showed that there would be non-fundamentally changes with a potential increase of energy demand in Europe. While the article explores the tightening of the EU ETS, I will investigate if the tightening of the EU ETS has pushed the actors Equinor and Statkraft to lower their emissions and further green their energy industry.

The selected literature is a mix of literature about fossil fuels energy providers and the European Green Deal in general and about the case of Norway. This shows that there need to be more specific cases about the Norwegian fossil industry and actors like Equinor, one of Europe's biggest energy suppliers. This gap in the literature will therefore be filled with my contribution on how Equinor, the most significant energy supplier based on fossil fuels in Norway, has faced decarbonisation challenges because of a push from the EU ETS and The Green Deal. The thesis looks into actual adaptations made and the responses to challenges raised by the EU climate and energy policies.

2.2 EU Climate and Energy Policies Push for Renewable Energy in Norway

The second section is based on the literature regarding how the European Green Deal pushes for a shift towards green energy and investment in renewable energy sources in Norway. These articles look into the investment in renewable energy sources such as offshore wind and how Norwegian petroleum actors have invested in renewable energy.

Dahl, Tveiten and Cowan (2022) argue that offshore Wind, the fastest-growing renewable energy sector, has the potential to halt climate change and reduce greenhouse gas emissions at a level that reaches the goals of the European Green Deal (p. 1).

Norway also has a unique position in offshore wind investment based on its Petro-maritime expertise, but the policy has been scarce and small. Despite the investments in research and development, there has yet to be an investment to create a domestic market. In their article, the authors use the example of Equinor, whom Enova granted 2.3 billion NOK to build the biggest floating offshore wind farm in the world (Dahl, Tveiten, & Cowan, 2022, p. 2). They argue that the investment in renewable energy in Norway is grounded in the fear that their investments in the energy sector can be replaced by new technology at any given time (Dahl, Tveiten, & Cowan, 2022, p. 4). As a final contribution, they note that the Norwegian case might only fit into the energy development in some countries as everyone has different starting points (Dahl, Tveiten, & Cowan, 2022, p. 11). My thesis looks into the effect of offshore wind as a renewable energy source to green the energy industry. It also looks into how efficient offshore wind is and how it is one of the adaptations Equinor has made as an effort to green its industry.

The article by Mäkitie, Normann, Thune and Gonzales (2019) also looks into the transition from fossil fuels to renewable energy in Norway (p. 269). They draw attention towards a needed change in the market to transition from fossil to renewable (Mäkitie, Normann, Thune, & Gonzales, 2019, p. 270). In their article, the authors study the changes in engagement of renewable energy in the period 2007-2016, and they use neo-institutional theory regarding organization-environment interactions (Mäkitie et al., 2019, p. 270). Their findings show a fluctuation in the engagement in renewable energy over the period. There were two periods where the engagement peaks, which they refer to as the Green flings (Mäkitie et al., 2019, p. 277). My thesis explores the exact adaptations that the actors Equinor and Statkraft have made in the transition from fossil to renewable energy and if they are successful or not in the green transition.

Many argue that national energy sovereignty is bolstered by renewable energy. According to Hansen and Moe (2022), most scholarships investigate imports, enhanced domestic production and security of supply, but exclude exports (p. 1). In their article, Hansen and Moe, therefore, explore the effects exportation of renewable energy has on the nation's sovereignty, and they use the case of Norway. Their article explains how the debate on renewable energy sources in Norway does not involve how renewable energy can bolster sovereignty (Hansen & Moe, 2022, p. 2). More on the contradictory, renewable and sovereignty are viewed as a non-relationship, and in some situations, renewable is viewed to weaken sovereignty. The fear of a co-dependent relationship with the EU on energy-related matters is an obstacle to expanding renewable energy (Hansen & Moe, 2022, p. 2). The funding in their article shows Norway has a mild surge of resource nationalism. There is no evidence that renewable energy sources strengthen Norwegian energy sovereignty, which is portrayed by the renewable energy policy as being in the middle of the two discourses of mainstream and sovereignty (Hansen & Moe, 2022, p. 8). To further explore the concept of energy security, my thesis looks into how investment in renewable sources is expanding and clean hydrogen is introduced as a solution to ensure the reduction of greenhouse gas emissions.

The literature on the EU climate and energy policies that push for renewable energy in Norway mainly focuses on offshore wind. Offshore wind has the potential to replace fossil fuels, but this has yet to happen in Norway. Therefore, I will look at the investment in other renewable sources, such as hydropower, solar, wind, and clean hydrogen. I investigate the actions and responses of the two actors to introduce renewable sources to ensure energy security and sovereignty for Norway. As well as looking into the different

renewable sources invested in, I also look into the effect of these sources on participating in the green transition while ensuring energy security. How are the impacts of renewable energy sources compared to non-renewable sources such as oil and gas, and do the investment in these sources matter compared to the continuous investment in the petroleum industry?

2.3 The European Green Deal, Climate and Energy Policies and Adaptation.

The last section of the literature review focuses on the European green deal and climate- and energy policies from the EU that the Norwegian energy industry is obliged to adopt through the EEA agreement. The literature consists of more general analyses of the European Green Deal and climate and energy policies and more specific analyses of its direct influence on the energy industry.

Fischer (2021) argues that the European Green Deal will significantly impact Norway as a gas supplier (p. 1). In her text, she explains how the goal of a 55% reduction of greenhouse gases by 2030, resulting in a decline in gas demand, will affect the Norwegian energy industry (Fischer, 2021, p. 3). Based on the decrease in gas demand, Fischer introduces three factors that might impact Norway: price, relative climate impact, and energy security. Regarding price, Norway has one of the most expensive gas productions, which might threaten Norway's reliance on price to compete in the market (Fischer, 2021, p. 8). Regarding relative climate impact Norway has an advantage with its access to technologies such as carbon capture storage, which decrease the impact on the climate. Lastly, energy security is essential to the EU's decision-making, and Norway is considered a reliable gas resource. Even though the demand for gas will decrease, Norway will still be seen as a reliable source of energy (Fischer, 2021, p. 9). In my thesis, I go further into the effects the European Green Deal has on the actors Equinor and Statkraft as gas suppliers. Especially connected to today's situation with an energy shortage in Europe and Russia's invasion of Ukraine, Norwegian gas is highly requested by the EU, which means that the actors Equinor and Statkraft are given an opportunity.

In the article by Maris and Flouros (2021), they use the theory of Europeanisation to analyse the EU energy and climate policies (p. 1). This analysis looks into the member states strategies, compliances, and responses to the Green Deal. Their article found that the member states are divided into different groups where some are viewed as foot-draggers, some as fence-sitters and the rest as pacesetters (Maris & Flouros, 2021, p. 14). According to Börzel's theory, Europeanisation is a dynamic and multi-faced process that constantly evolves through the process of adopting legislation (Maris & Flouros, 2021, p. 2). Through the years 2021-2027, the European Green Deal is said to have the most significant impact on policies developed by the EU (Maris & Flouros, 2021, p. 14). Therefore, the Europeanisation theory shows how the member states of the EU have different compliances and strategies towards the European Green Deal and climate policies. Third countries such as Norway can also shape the EU energy policies based on their structural power and accession (Maris & Flouros, 2021, p. 3). There is, however, a lack of knowledge about how Norway shapes their strategies, responses, and compliances with the European Green Deal and EU ETS. I will therefore investigate further how Europeanisation also can be used to explain Norway's integration of EU legislation and how this affects Norwegian companies.

Siddi (2020) writes more broadly about the European Green Deal by assessing its current state and future implementations (p. 4). He places the European Green Deal into the context of climate governance in the EU and investigates the performance through four categories derived from policy issues. Through an interdisciplinary and comprehensive approach, these categories are addressed. The findings of the thesis highlight the numerous obstacles the European Green Deal must face to be successful, and policy priority is an essential factor (Siddi, 2020, p. 12). This text focuses on the member states of the EU and not the case of Norway. Further investigation in my paper will therefore display what it takes to make the European Green Deal successful in Norway and within Norwegian energy industries.

The book chapter by Boasson (2021) about Norway and how they turned from Certificate supporters turning opponents investigates how Norway has been influenced unexpectedly by the European environment (p. 194). In contrast to the rest of the European community, Norway was mainly influenced by the European climate when the steering was weak. The main argument found was that Norway acted the way it did because of the preferences of two dominant actors, the Ministry of Petroleum and Energy and Statkraft (Boasson, 2021, p. 211).

Among the literature regarding The Green Deal and energy- and climate policies, some focus on the direct impact on the case of Norway, but more is needed. The theory of Europeanisation can be applied to the Norwegian case and the EU member states. My thesis will, therefore, further investigate how EU legislation is integrated into the two cases Equinor and Statkraft and how this legislation affects their industry.

3 Europeanization as a Conceptual Tool for Studying the Impact of EU Climate Policy on the Norwegian Energy Sector

Europeanisation can be described as a concept that strives to understand the EU policies and European integration's influence on the EU member states regarding political, social, and economic changes (Saurugger, 2014, p. 123). The concept of Europeanisation was introduced in the 1990s, and the definition has become more complex since the first scholarship on this area. However, one can isolate three conventional definitions of Europeanisation: bottom-up (uploading), top-down (downloading) and circular (Saurugger, 2014, p. 124). These three processes were developed by Holzhaecker and Haverland, who distinguished three generations of European studies that portray three different structured conceptual and theoretical branches of Europeanisation (Wach, 2015, p. 14).

The bottom-up perspective of Europeanisation can be understood as how interdependence between European and domestic actors and national positions explains how institutional patterns have evolved at the EU level. The definition of top-down Europeanisation can be seen as a process where EU economic and political dynamics become part of the national policy-making in an incremental process. This means that the impact of European integration can explain the changes in national politics. Circular Europeanisation is defined as a process of construction, diffusion, and institutionalisation for informal and formal rules, policy paradigms, procedures, and style. One needs to look at establishing rules in the EU and the processes of establishing those rules (Saurugger, 2014, p. 125). Circular Europeanisation emphasises that the process of Europeanisation is circular and not linear. About the adaptation of EU climate and energy policies in national governments, the top-down definition of Europeanisation and the process of adaptation that is the best fit. Therefore, this thesis focuses on top-down Europeanisation and how federal governments adapt and respond to EU policies.

Risse et al. (2001) developed a three-phase model that top-down Europeanisation is a part of (Saurugger, 2014, p. 126). The three phases of this model are European integration, pressure, and adaptation, where the first phase leads to the second phase, which again leads to the third phase:



It is necessary to induce change at a domestic level with existing European norms, and this is the first research step. The second research step relates to a crucial measurement of the compatibility between national and European standards. This means it is easier for the EU to influence at the national level those institutions, norms, and structures that most resemble the European. The third research phase analyses domestic institutions and how they mediate the pressure they face from the European level (Saurugger, 2014, p. 126).

Adaptation of EU law into the national legislation varies in the different member states, and the level of adaptation depends on the level of 'EU constraints' (Saurugger, 2014, p.

129). The domestic level is directly and indirectly affected by the primacy of EU law triumphing over national legislation. One can therefore divide into compliance with EU law and non-compliance, often seen as Euroscepticism. These two divisions were distinguished based on an analysis of the implementation of EU laws at the national level (Saurugger, 2014, p. 130). One way to measure the convergence of EU laws into national legislation is through the efficiency of administrative services. The efficiency of implementing the EU laws was measured in the speed of the legislative procedures. These measurements showed that national political structures that better 'fit' the European demands are more likely to comply with implementing and adapting to EU law. If the EU laws correspond well with the national structure, ideology, economy, and social and cultural mechanism, the adaptation will be more accessible.

Europeanisation results in domestic-level changes, and there have been identified four possible outcomes of the process: absorption, adaptation, transformation, and inertia (Saurugger, 2014, p. 135). Absorption refers to how member states adjust their institutions accordingly and incorporate European policies. In the process of adaptation, the procedures, policies, institutions, and discourses of a member state are adopted without modifying essential characteristics. Regarding the transformation process, Europeanisation can also affect national governments by replacing processes, policies, discourses, and institutions with substantially different ones. At last, we have situations where no changes are made, which refers to inertia.

In addition to the conventional definitions of Europeanisation as bottom-up, top-down, and circular, some scholars also argue for a fourth definition. In 2007 Schimmelfennig introduced the concept of 'Europeanization beyond Europe', which describes how neighbourhood countries are influenced by the EU (Dyduch, 2015, p. 196). Europeanisation beyond Europe refers to "quasi-member states" such as Switzerland and Norway, as well as EU candidate countries (Schimmelfennig, 2007, p. 4). According to Schimmelfennig (2007), "It is certainly plausible to assume that EU organisations, policies, and decisions have a relevant domestic impact in the member states, in the quasi-member states that participate in the internal market and a significant number of other EU policies..." (p. 4). The domestic impact of the EU can be seen in the transfer of the *acquis Communautaire* which can be described as the core of Europeanisation (p. 4). The adoption of rules regarding the European single market is necessary for parties participating in the market.

Norway is an EEA country and is obliged to follow the EU energy and climate policies which means that European integration is also present in Norway. Europeanisation in the context of how a country applies and responds to EU energy policies is therefore relevant to the case of Norway. Even though Norway is not an EU member state, the central administration in Norway is still as adopted and adjusted to EU legislation as actual member states (Læg Reid, Steinthorsson, & Thorhallsson, 2004, pp. 362-363). Through the EEA agreement, Norway is well integrated into the highly Europeanised energy sector, and the EU is also the biggest customer of Norwegian energy, both renewable and non-renewable. The two cases in this thesis, Equinor and Statkraft, have the Norwegian state as their main shareholder. These companies are not only economically beneficial for the Norwegian state, but they are also essential actors in fulfilling critical services for Norwegian citizens. Compared to other energy companies in the EU, Equinor and Statkraft are in a unique position of the national state's ownership and involvement in the companies. One could therefore argue that Europeanisation is a valuable concept to

explain the level of European integration, in the shape of EU energy and climate policies, in the Norwegian energy companies Equinor and Statkraft.

4 Two Crucial Pillars of the EU Climate and Energy Policies: The EU ETS and the European Green Deal

4.1 The EU Emissions Trading System

4.1.1 Background and Policies

As previously mentioned, the EU ETS is the world's first international emission trading system, launched in 2005. Since the creation of the system, it has been through three phases and is now in its fourth phase (European Commission (a), n.d.). The fourth phase included a series of revisions presented by the EC on July 14th, 2021, along with a revision of other EU climate policies and a series of legislative proposals.

The EU ETS was launched in response to the signing of the Kyoto Protocol in 1997, and on February 16th, 2005, it entered into force (United Nations , n.d.). This was the first time emission reduction targets were legally binding, and it included 37 countries and the EU (European Commission (e), 2000, p. 6). The goal of the Kyoto Protocol is to commit industrial countries and economies to reduce their greenhouse gas emissions to operationalise the United Nations Framework Convention on Climate Change (United Nations , n.d.). The only legally bound countries are developed countries recognised as responsible for high greenhouse gas emissions. These countries are therefore placed under a heavier burden based on the principle of "common but differentiated responsibility and respective capabilities" (United Nations , n.d.). What the Kyoto Protocol meant for the 15 EU member states at the time can be described in three points. First, the salience of the Kyoto Protocol resulted in a quantitative target where the EU countries aimed to reach an 8% reduction of emissions to the 1990 levels. Second, the flexibility of the protocol's mechanism, which included emission trading, made it possible to meet the targets. Lastly, the EU countries were given legally binding targets in the sharing agreement in 1998, which provided a drive among the EU to meet the targets (Convery, 2009, p. 396).

To reach the legally binding targets set in the Kyoto Protocol, there was a need for a policy instrument (European Commission (a), n.d.). The first design ideas of the EU ETS were shown in the "Green paper on greenhouse gas emissions trading within the European Union" presented by the EC in March 2000. The Green paper states how the Kyoto Protocol has introduced emission trading as an instrument in climate change policy (European Commission (e), 2000, p. 4). The intention of the Green Paper was to start a discussion of the needed policies involved in establishing an emissions trading system (Convery, 2009, p. 400). The Green papers tone already implied that an emission trading system was decided, so the paper focused on how it should be implemented and what design it should have (Convery, 2009, p. 401). One important decision that needed to be made was who would cover emissions and receive allocation allowances. It was therefore made a distinction between going upstream and giving the responsibility to the producers and importers of fossil fuels or downstream and giving the responsibility to the consumers. Among the heavy industry and power sectors, the consensus was to go downstream, which meant that the producers and importers of fossil fuels would not be included in the emission allocations. There are already high excise duty rates on petrol

and diesel nationally, which means that additional allocation could result in double taxation of the industries producing these fuels (Convery, 2009, p. 401).

After the Commission's first presentation of the Green Paper on greenhouse gas emissions trading within the European Union in 2001, the draft proposal was submitted and sent to the European Parliament (EP) and the Council of Ministers for formal consideration (Convery, 2009, p. 403). On December 9th 2002, after the first reading by the EP, the Council of Ministers presented their position on the draft, which included some different opinions than what the EP had shown. The EP supported mandatory actioning for some shares of the allocations as well as a more dirigiste process. The Council of Ministers, on the other hand, favoured more free allocations and that the member states should delegate the allocations (Convery, 2009, p. 404). In the spring of 2003, the EP presented a new draft after its second reading on the 2nd of July 2003, which the Council of Ministers accepted on the 22nd of June 2003. The "Directive 2003/87/EC of the European Parliament and the Council of 13 October 2003 establishing a scheme for greenhouse gas emissions trading within the Community and amending Council Directive 96/61/EC" came into effect on the 13th of October 2003 and the set the starting date for trading on January 1st, 2005 (Convery, 2009, p. 404).

The first phase of the EU ETS lasted three years, from 2005-2007. This period consisted of preparations for phase two when they needed the EU ETS to be ready and functioning correctly to reach the goals set in the Kyoto Protocol (European Commission (a), n.d.). The first phase also included some key features: there was a 40 euro per tonne penalty for non-compliance, almost all of the allowances were given for free to businesses, and the only CO₂ emissions that were covered were emissions from energy-intensive industries and power generators. There were also a few different things that phase one successfully established. It established a carbon price across the EU, established free trade of emission allowances, and covered the needed infrastructure to monitor, verify and report the emission from businesses (European Commission (a), n.d.).

From 2008-2012 the second phase of the EU ETS was ongoing, and this phase coincided with the Kyoto Protocol's first commitment period. At this point, there were concrete emissions reduction targets that the EU ETS countries had to meet. At this point, the EEA countries with Iceland, Liechtenstein and Norway joined the trading system (European Commission (a), n.d.). In this phase, there was an increase from 40 to 100£ per tonne in a penalty for non-compliance. National registries were replaced with the Union registry, which guaranteed that all allowances were accurately accounted for (European Commission (f), n.d.).

The third phase of the EU ETS lasted from 2013-2020 and consisted of significant changes compared to the first two phases. Firstly, the system of national caps was entirely replaced by an EU-wide emission cap. The earlier system of free allocations was also replaced with a system where auctioning was the standard. The EU ETS also expanded to include more gasses and sectors. Lastly, the New Entrance Reserve was set up, and 300 million caps were set aside to fund renewable and innovative technologies such as carbon capture and storage (European Commission (a), n.d.).

4.1.2 The EU ETS's Challenges for the Norwegian Energy Industry and Equinor and Statkraft

Norway joined the EU ETS during its second phase in 2008 and therefore deepened its climate action cooperation with the EU. On October 25th, 2019, Norway and Iceland agreed to extend the collaboration to include efforts sharing regulations and regulations on Land, Forestry, and Land-Use change (European Commission (g), 2019). This means that from 2021 until 2030, Norway has committed to greenhouse gas emission targets in the economic sectors outside the EU ETS commitments. Norway will also commit to the "no-debit" rule, which includes a balance where the emissions from land use, forestry, and land use change account for an equivalent level of removal of carbon dioxide from the atmosphere (European Commission (g), 2019).

The EU ETS is based on emissions from the downstream, meaning that the consumers of fossil fuels are the liable actors. Therefore, Equinor and Statkraft are not directly affected by their production. Equinor primarily benefits from the liability of emissions going downstream instead of upstream, which would have resulted in the producers and importers of fossil fuels being responsible (Convery, 2009, p. 401). As stated earlier, fossil fuels and petrol already face high excise duty rates and would therefore face double taxation if they were included in the EU ETS. However, the EU ETS still affects the companies' consumption.

4.2 The European Green Deal

4.2.1 Background and Policies

On November 11th, 2019, the Commission presented the new European Green Deal, which included the goals of boosting the economy, more caring for nature, making Europe the first climate-neutral continent by 2050 and better quality of life and people's health (European Commission (h), 2019). The European Green Deal is a roadmap to make the EU's economy sustainable and to determine a just and inclusive transition of making policy opportunities out of the climate and environmental challenges the EU faces. In the press release from the EC, President Ursula von der Leyen stated:

"The European Green Deal is our new growth strategy – for a growth that gives back more than it takes away. It shows how to transform our way of living and working, of producing and consuming, so that we live healthier and make our businesses innovative. We can all be involved in the transition, and we can all benefit from the opportunities..." (European Commission (h), 2019).

President Von der Leyen continues to explain how the European Green Deal be a global leader that sets the standards on sustainability and competitiveness that they can show and teach the rest of the world. It is essential for the sake of Europe's natural heritage and the life on the planet that the EU succeed in the transition (European Commission (h), 2019).

European climate policy was the top priority of the new President Von der Leyen and the new European Commission that started their mandate in December 2019. The previous Commissions focused on the security of supply, which meant a shift in the stresses that might be explained by many factors (Siddi, 2020, p. 6). First, both in Europe and globally, the climate crisis became more evident, with temperatures rising, catastrophic forest fires, and glaciers melting. Second, there was a rise of Green parties in Europe that gained more support among the people as well as an increase of many movements

such as 'Fridays for Future' or 'Youth Strike for Climate'. This was portrayed in the 2019 Parliament election, where the Green parties had strong electoral support (Siddi, 2020, p. 6). Lastly, there was a rise of world leaders denying climate change, such as Donald Trump and Jair Bolsonaro, which threatens global cooperation in tackling climate change.

To become the first climate-neutral continent by 2050, the Commission introduced the European Climate Law on July 9th, 2021, which entered into force on July 29th that same year (European Commission (d) , n.d.). The climate law aims to ensure that the goals set in the European Green Deal are followed and that all EU policies contribute to reaching these goals. This means that the goal of becoming climate neutral by 2050 is written into law and legally binding for all EU Member States and the EEA countries. The Climate Law also set a legally binding target of a 55% cut of greenhouse gas emissions compared to the 1990 level by 2030 (European Commission (d) , n.d.). As well as legally binding targets, the Climate Law includes measures to adjust actions and track processes, using systems such as the governance process for the national energy and climate plans. They also use the latest scientific evidence on the impacts and changes in the climate, as well as reports made by the European Environment Agency.

Another obstacle towards climate neutrality is investment, and the estimated cost of reaching the 2030 targets is 280 billion euros. These investments rely on mobilisation from the private and public sectors (European Commission (h), 2019). In January 2020, the Commission introduced the Sustainable Europe Investment Plan (SEIP), which is the European Green Deal's investment pillar (European Commission (i), 2020). Over the next decade, the goal of the SEIP is to mobilise 1 trillion euros in sustainable investments. There are three main objectives of the investment plan: to mobilise at least 1 trillion euros for the transition, to create a framework for sustainable investments for the public sector and private investors, and lastly, to support project promoters and public administrations to structure and identify projects that are sustainable (European Commission (i), 2020).

The European Green Deal also introduced a Just Transition Mechanism. This mechanism supports the most vulnerable countries and people relying heavily on carbon-intensive activities (European Commission (h), 2019). The Just Transition Mechanism, therefore, includes three targets. The carbon-intensive industries with active sectors and companies, the vulnerable people and citizens in the transition, and those member states and regions dependent on carbon-intensive industries and fossil fuels (Colli, 2020, p. 2). Through a combination of private and public investments from 2021-2027, the mechanism is foreseen to mobilise 100 billion euros making a just transition for all possible.

4.2.2 The European Green Deal's Challenges for the Norwegian Energy Industry and Equinor and Statkraft

To reach the goals set in the EU Green Deal, the phasing out of fossil fuels is very important. Equinor, whose production mainly focuses on fossil fuels, might need help with this. Over the last five years, Norway has relied on the EU for 66-73% of its gas exports. With the EU and The UK, the two biggest importers of Norwegian gas, implementing regulations to increase the use of gas will have an effect on the Norwegian energy industry (Fischer, 2021, p. 3). Norway is one of the most significant fossil fuels exporters to the EU and is an external actor; they do not influence the EU energy

policies. Although Norway is closely integrated into the EU, they have very little say in the adaptation of policies (Fischer, 2021, p. 74).

In 2016 the “Clean Energy Package” was implemented, which includes regulations that ensure a declining role for gas, but there would be a prop up of gas demand due to the thought that gas should replace coal. Due to climate targets, the need for gas has declined, and an even further reduction in the use of gas is necessary for the EU to reach the goal of 55% greenhouse gas reduction by 2030 (Fischer, 2021, p. 3). The EU is also turning its back on gas economically, where they no longer finance new infrastructures for gas (Fischer, 2021, p. 7). Gas has been excluded in the EU budget’s Just Transition Fund, Connecting Europe Facility, the Modernisation Fund, and the Recovery and Resilience Fund. By 2022 the European Central Bank will also stop lending money to projects involved with fossil fuels. This is also reflected in the EU’s sustainable finance taxonomy, which only includes a small selection of gas use (Fischer, 2021, p. 7).

5 Equinor and Statkraft: the Core of the Norwegian Energy Industry

5.1 Equinor

Equinor, formerly known as Statoil, is known in Norway for being one of the essential oil players and also an important factor in the process of making Norway a modern industrial nation. This has resulted in Norway becoming the best test lab for the development of technology as well as the most productive petroleum province. The Norwegian state ownership also ensures that high-tech industrial groups and knowledge are present in Norway (Gjerde, n.d.) Equinor was founded as the Norwegian State Oil Company in 1972 (Equinor (a), n.d.). In 1981 Equinor became the first Norwegian company responsible for operating a field, the Gullfaks, in the North Sea. Through the 1980s, Equinor continued to grow and expand its operation to more areas, such as Troll, Statfjord and Oseberg. This development also made them a significant player in the European gas market.

In the 2000s, Equinor continued to grow on the Northern Continental Shelf and in the international field. The operations expanded worldwide to countries such as Algeria, Azerbaijan, the Gulf of Mexico, Nigeria, and Angola. In June 2001, Equinor became partially privatised and a public limited company. The company was listed on the stock exchange market in Oslo and New York in the same year. In the beginning, the Norwegian state held 81.7 per cent of the company's shares after they approved a sale of 15-20 per cent shares of the company's total value (Gjerde, n.d.). Today, the Norwegian state is still the main shareholder, with 67% of the shares in its possession (Equinor (b), u.d.). Equinor must comply with principles for good corporate governance, and the Ministry of Trade, Industry and Fisheries controls the state's interests. There are ten principles that describe good corporate governance and one of these states, "The company shall be aware of its responsibilities to society at large" (Equinor (b), u.d.). This implies that Equinor is responsible for society's challenges, such as climate change.

The merger of Equinor and the oil and gas division of Hydro in 2007 portrayed the strength of the Northern Continental shelf (Equinor (a), n.d.). The merger made Equinor the most prominent offshore operator in the world. This also made Equinor the first partner and operator in Brazil's Peregrino field. Based on this, the Ormen Lange development project was completed when Equinor produced the world's longest pipeline on the Snøhvit and Ormen Lange gas fields. The expansion of Equinor's operations is not only limited to geographical expansion but also to technology and production. In recent years, Equinor has invested in developing shale gas projects and heavy oil (Equinor (a), n.d.).

In 2012 Equinor sold off its chain of filling stations that consisted of 2290 stations across Eastern and Northern Europe (Overland, 2019, p. 80). Instead, what could have been used to promote natural gas vehicles and developed into stations for charging electric vehicles was sold off because they were seen as non-profitable. The reason why the stations were non-profitable was the assumption that climate policy would not affect oil and gas demand. Equinor also argued that they were 'less evil' because they produced

cleaner oil and gas than companies in other countries (Overland, 2019, p. 81). At the same time, Equinor was invested in oil production in other countries, such as Canadian oil sands. Therefore, selling off the filling stations can be seen as a disclaimer of liability for the pressuring climate challenges. Equinor could have taken responsibility and participated in the energy transition by adjusting the filling stations from natural gas to renewable energy sources.

Despite being an oil company, Equinor claims to be climate-friendly in much of its promotional material (Overland, 2019, p. 82). It was, therefore, surprising when Equinor's director of New Energy Solutions, Irene Rummelhoff, wrote:

"Let there be no doubt: Our [oil and gas] activity in the North Sea is Statoil's [Equinor's] backbone. Here we have a proud history—and an exciting future, and we are also growing internationally in oil and gas. We will thus remain an energy company focused on oil and gas for a long time (Rummelhoff 2016, in Overland 2019, p. 82).

This statement contradicts the ambitions Equinor portrays as being a climate-friendly company, especially coming from someone involved in the company's renewable energy investments. However, it is a good representation of Equinor's renewable investments between 2012 to 2016, which was only 3.6 per cent of the company's overall investments. At the same time, Equinor announced that they would invest 180 million euros in renewable energy; they also invested about 600 million euros at the Johan Castberg oilfield, which is just one of many fields they invested in. To further emphasise the contradictory efforts of Equinor to portray themselves as climate-friendly can be seen in their lobby efforts. Equinor has made significant lobbying efforts to reduce the taxes on oil and to get the Norwegian government to allow oil extraction in the seas around Lofoten and Vesterålen, they have made no efforts to lobby for wind power investments and conditions in Norway (Overland, 2019, p. 82). The continuous expansion of the petroleum industry is not compliant with the greener shift and makes it harder to reduce the emission of greenhouse gases.

One effort that Equinor has made to green their energy is with investment in offshore wind. The first project Equinor launched was the first floating wind farm called Hywind Scotland which has been operating since 2017 (Overland, 2019, p. 82). Later on, they created the Hywind Tampen project based on the knowledge from the previous project. Hywind Tampen is located in the Northern Sea and was in 2019 was awarded 2.3 billion NOK from Enova (Dahl, Tveiten, & Cowan, 2022, p. 2). Hywind Tampen is the world's biggest floating offshore wind farm and the first renewable power for offshore gas and oil. Since October 2022, Hywind Tampen has produced electricity and is expected to meet about 35 per cent of the energy demand on the two oil platforms, Gullfaks and Snorre. This will result in a 200,000-tonne reduction of Co2 emissions per year (Equinor (d), 2022).

After an annual General meeting In 2018, the company changed their name from Statoil to Equinor to better reflect its identity and evolution over time and move away from a word related to fossil fuels that today have lousy publicity. In 2022 Equinor, for the first time, published an Energy Transition Plan which explains how they as a company are to become a net zero emission company by 2050 (Equinor (c), 2022). This Transition Plan sets some ambitious goals along the way to zero-emission, such as halving greenhouse gas emissions from their operations by 2030 (Equinor (c), 2022, p. 4). Another goal relates to their gross capital expenditures and how half of this should come from renewable and low-carbon solutions.

For Equinor to become a net zero emission company, it must make extreme changes and phase out oil and gas production. At this point, the goals set for 2030 and 2050 seem very unlikely to become a realisation. Numbers from 2021 show Equinor alone is responsible for 261 million tonnes of Co2 gas emissions (Øvrebø, 2022). Overall, companies in Norway, where the state has a shareholder, release ten times as many co2 gas emissions as the Norwegian state. Out of the companies, Equinor is responsible for more than half of these emissions. Compared to Equinor's 261 million tonnes, the Norwegian state released 49,1 million tonnes over the same period. This portrays the extreme amount of Co2 emissions that Equinor releases into the atmosphere yearly.

5.2 Statkraft

Statkraft is known for being one of Europe's biggest suppliers of renewable energy (Statkraft (a), n.d.). Statkraft as a company was founded on the 30th of May 1895 when Norway, for the first time, became the owner of a waterfall called Paulenfossen. The intention of this waterfall was to produce electricity to run the railway in Seterdal. Between 1907 and 1920, the Norwegian State bought and invested much money in the right of hydropower plants and became the most prominent hydropower owner in northern Europe. This was a big breakthrough for Norway as an industrial society, and it also ensured that the Norwegian state continued their ownership of Norwegian waterfalls (Christensen, 2010, p. 38). In 1921 the Norwegian Water and Electricity Board was created with the responsibility of operation and development of the state's power plant (Statkraft (a), n.d.).

Between the 1920s and 1930s, production declined by 30 per cent because of the world depression in the interwar period (Statkraft (a), n.d.). The decline in energy consumption throughout the 1930s had a negative impact on the state's power plant. Some power plants, such as Nore and Glomfjord, experienced tremendous economic losses throughout the interwar period. The significant financial losses resulted in the State also losing political legitimacy. As a result of these challenges, the state only builds two new hydropower plants between the 1920s and the 1940s. During the second world war, the occupational powers planned to implement many new hydropower plants in Norway to produce electricity to produce aluminium. These plans failed quickly when they were sabotaged by the Norwegian and their allies. This period did, however, speed up the electrification of Norway when better transmission technology ensured electricity in more cities and villages (Statkraft (a), n.d.).

The years between 1945 and the 1970s were characterised by the reconstruction of Norway after the war, and hydropower was one of the most critical resources (Statkraft (b), n.d.). This period consisted of many new power developments that would provide electricity for the industry and highly needed exports in the post-war period. With the expansion and development of power plants, it also became more controversial and raised a series of political questions regarding environmental policy, nature conservation and ecology. In the 1960s, protests against the power plants increased, and people demanded that nature and the environment be considered. Based on this, the Ministry of the Environment was established in 1972, resulting in a more considerable influence of nature and environmental protection in decisions about planning and developing new power plants (Statkraft (b), n.d.). The conflicts continued throughout the 1970s, when increasing environmental awareness created big debates and made the power plant

development controversial. This meant that the public was more aware of climate change, but it also made it more difficult for Statkraft to green their industry further.

After many long political debates, the state's power plant was separated from the Norwegian Water and Electricity Board in 1986 (Statkraft (c), n.d.). At this time, Statkraft was in control of about one-third of the electricity production in Norway (Boasson, 2021, p. 196). Statkraft then moved on to being a management company under the Norwegian Ministry of Petroleum and Energy. The reasoning behind this move was based on the need for more efficiency from strengthening internal management. During this shift, the company also took the name Statkraft and created its logo, which was necessary to portray the company as a less traditional administrative agency and a more modern one. In 1990, a new energy law was implemented, which opened a free and more liberal power market and made Norway a pioneer in this field, even though power transmission still was a monopoly based. This law also outsourced the responsibility of transmission grids from Statkraft to the Transmission Systems Operator, the newly created company Statnett (Boasson, 2021, p. 196). This made Statkraft a management company and an international actor in the power sector (Statkraft (c), n.d.). Statkraft becoming a global actor, opened the international market to more renewable energy and expertise in operations of renewable energy production.

In 1994, Statkraft expanded its energy sources with plans to produce gas power (Statkraft (d), n.d.). The company Naturkraft AS was created by the partnership between Statkraft, Statoil, and later on, Equinor, and Hydro, with the goal of refining Norwegian gas into electrical power. The facility was built in Kårstø, and when it opened in 2007, it was the first commercial gas power plant in Norway. As of today, Naturkraft is owned 50/50 by Statkraft and Equinor. As well as cooperating with Equinor, in 1994, Statkraft made power exchange agreements with Preussen Elektra from Germany and SEP in the Netherlands, making Statkraft more integrated into Europe. Throughout the 1990s and 2000s, Statkraft continued to expand and invest in international corporations. In 1996 Statkraft bought a small shareholding in Sweden's second-largest power plant, Sydkraft. In 2010, Statkraft became the sole owner of the Baltic Cable, which connected different European regions (Statkraft (d), n.d.). These extensions geographically also expanded the expertise on renewable energy production, which was a positive factor in greening the energy industry.

The 2000s was the decade when Statkraft set the goal of becoming the leading company in Europe as a clean energy company (Statkraft (e), n.d.). Throughout the following years, Statkraft continued to expand its operations within hydropower and other energy sources. They now had a broad portfolio of hydropower, gas, wind power and district heating, and as an example, the wind farm was opened at Smøla in 2002, which produces energy to supply 6,000 households. In 2004, Statkraft's management established a new investment called 'New energy', which would identify new environmentally friendly energies and European projects in which Statkraft could get involved. The three energies that were labelled as environmentally friendly were water, wind, and gas, where water and wind were seen as pure, but gas was controversial and in the grey area. Independent of the controversies over gas, Statkraft built two gas power plants in Germany in the spring of 2005. This was the first time Statkraft expanded its operations to Europe, outside of the Nordic countries and marked a shift in Statkraft's growth strategies (Statkraft (e), n.d.).

Between 2015 and 2020, one hundred per cent of the companies' investments went to the growth of renewable energy sources, making them take the lead in the green shift

(Statkraft (f), n.d.). Statkraft has also expanded its operations geographically to more significant parts of the world, such as Albania and Argentina. In 2016 they opened the hydropower plant in Banjë in Albania, and in 2018, they bought eight hydropower plants in Argentina. Statkraft has invested in electrical transportation, solar power, battery storage and biofuel. In 2018 Statkraft presented a strategy from 2018 to 2025 on how to replace fossil fuels with renewable energy sources by optimising and maintaining the hydropower portfolio in the Nordic countries. In 2020 Statkraft celebrated 125 years of energy production from renewable sources and portrayed a wish to continue the development of greening the energy industry by investing 10 billion Norwegian kroner annually in renewable energy (Statkraft (f), n.d.).

In their most recent low emission scenarios report from 2022 Statkraft, they explain how they will participate in the green shift. The Russian invasion of Ukraine has taken a toll on energy security. Statkraft describes how the solution for energy security is producing efficient and clean energy at a high pace (Statkraft (g), 2022, p. 4). In their sustainability report from 2022, Statkraft writes how they comply with the sustainability directives coming from the EU (Statkraft (h), 2022, p. 50). Statkraft is a part of the EU ETS, and the impact of cost allowances will affect Statkraft's future revenues, which can increase or decrease (Statkraft (h), 2022, p. 84). The cap allowances are sensitive to macroeconomic trends, sometimes making them unpredictable. As well as complying with the EU ETS, Statkraft has also discussed and is continuously working on aligning with the new EU energy directives, such as the upcoming EU taxonomy (Statkraft (h), 2022, p. 50). This portrays how Statkraft constantly keeps in line with EU directives and policy and strives to reach the goals set in the European Green Deal by furthering the greening of their industry.

6 Equinor's Adaptations and Responses to Green the Industry

6.1 Equinor's Goals and Ambitions

Equinor's ambition of becoming a net zero company relies heavily on phasing out the oil and transitioning to renewable energy sources. To reach these goals, the company needs to reduce their emissions gradually. Their energy transition plan states that this should include emissions from their production and the final consumption (Equinor (c), 2022, p. 11). It is also important to note that the goals are to reduce consumption at all levels. Most companies divide their emission of Co₂ into three scopes (Øvrebø, 2022). Scope one is the direct emission from the company's business and operations. Scope two is indirect emissions from energy consumption, such as buying energy for production or district heating or cooling. Scope three is the indirect emissions from the products the company sells or products that the company buy. This includes transportation, waste, and logistics, as well as the emissions that occur from the products that a company sells. This means that all the oil and gas that Equinor produces are included in scope three and, therefore, in the total amount of their emissions.

Out of Equinor's total emissions of 269 million tons of Co₂ in 2021, 249 million tons is related to scope three, released when Equinor's oil is used for heating, transportation, and industry. The overall annual emissions of Co₂ by Equinor is five times as much as the Norwegian state releases at Norwegian territory (Øvrebø, 2022). This portrays the enormous amount of Co₂ gasses that Equinor releases into the atmosphere and how far they are from becoming a net zero company. The number of emissions from the oil and gas extraction on Norwegian territory in 2021 was 12,2 million tons, which is only about 5 per cent of the total amount released from oil in extraction and usage (Øvrebø, 2022). Equinor escapes the responsibility for most of its emissions outside Norwegian territory.

Equinor has committed to the goals set in the European Green Deal and to following EU climate and energy policy through the Norwegian membership in the EEA and through Norway's commitment to following EU climate and energy policies. The company has also publicly stated that they want to participate in the green transition through their Energy Transition Plan and advertisement on their websites (Equinor (c), 2022). This means that even though Equinor escapes much responsibility from the EU ETS directly, they still have a responsibility to contribute to the greening of the energy industry by phasing out the oil and contributing to the fight against climate change. The conditions of Equinor being a partially state-owned company means that they are responsible for society at large (Equinor (b), u.d.). Climate change is a pressing issue and a significant threat to humanity and communities worldwide. The goals set in the European Green Deal to reach climate neutrality by 2050 are clear, and it is a goal Equinor themselves have stated that they want to reach. Climate neutrality is impossible to achieve, while oil is an energy source. Equinor has a binding responsibility to comply with the goals set in the European Green Deal and EU ETS because them being a partially state-owned company in a country legally bound to the EU climate and energy policies through the EEA agreement. It is, however, questionable if Equinor has positioned itself to manage the green shift.

Many of the challenges Equinor has faced and their adaptations are based on pressure from the EU ETS, the European Green Deal, and in many situations, a combination of both. One can, however, divide their adaptations based on arrangements they have made to phase out fossil fuels and their actions to invest in renewable energy sources. As well as adapting and facing challenges from EU climate and energy policies, Equinor has also been pushed to green their industry based on the push from the Paris Agreement by the United Nations. The Paris Agreement and the European Green Deal aim to reach climate neutrality.

6.2 Adaptations from the EU ETS and the European Green Deal

The EU ETS and the Green Deal have introduced several rules and legislations that the EU member state and the EEA member states are obliged to follow. Through the EEA agreement, Norway has implemented several EU directives and regulations on energy policies. The questions, however, lie in how far Norway and Norwegian companies have made it to keep in line with the EU energy and climate directives and legislations. The EU energy market legislation states that every country has the right to decide how they use their energy sources (Energifakta Norge (a), n.d.). This means that Norway and Equinor must refrain from being forced to phase out the oil and gas industry, as the EU does not have legal power over them to do so. This indicates that the Norwegian government have a more significant influence on Equinor than the EU. However, the Norwegian energy policies are influenced by EU energy and climate legislation, and therefore the EU indirectly influences Equinor.

Equinor published its first Energy Transition Plan in 2022, which outlines how to become climate neutral by 2050 with concrete goals, actions, and adaptations. With the overarching goals of becoming climate neutral by 2050 and a 50 per cent reduction of greenhouse gas emissions by 2030, Equinor is forced to change its operations (Equinor (c), 2022, p. 4).

The plan of Equinor to reduce emissions is mainly limited to goals of reducing emissions in scopes one and two by energy efficiency measures and portfolio optimisation (Equinor (c), 2022, p. 13). They intend to do so by electrifying their offshore assets with electricity from their assets on shore. They have set a goal of a 50 per cent net reduction of scope one and two emissions by 2030 and zero emissions by 2050 as well as the goal of increasing investments in renewable energies from four per cent in 2020 to 50 per cent in 2030 (Nærings- og fiskeridepartementet, 2021, p. 33). This means that most of the emissions released based on using Equinor's oil and gas are not considered in their goals to green their industry. What remains to be seen is if Equinor manages to reach these goals. Between 2020 and 2021, there was a reduction in scope one from 13,3 million tons to 12 million tons. Scope two emissions decreased from 0.2 million tons to 0.1 million tons. Lastly, scope three decreased from 250 million to 249 million tons (Nærings- og fiskeridepartementet, 2021, p. 75). This shows that the most significant reduction was in scopes one and two, where Equinor takes the most responsibility. The sum of these reductions does, however, only result in a 0.9 per cent reduction of greenhouse gas emissions in one year (Nærings- og fiskeridepartementet, 2021, p. 54).

The EU ETS is based upon a system where the consumers of fossil fuels must pay caps for their emissions of Co2 into the atmosphere (European Commission (a), n.d.). With

over 90 per cent of Equinor's emissions falling into scope three, and therefore coming from the consumption of their product, they escape a lot of the responsibility concerning the EU ETS.

Regarding the EU ETS, Equinor did not need to make adaptations as they were not directly affected by it from the beginning. Equinor does, however, include goals in their Energy Transition Plan on "Reducing our net carbon intensity, including emissions from the use of sold products, by 20% by 2030 and 40% by 2035, addressing the systemic challenge of delivering energy that has lower – and eventually net zero – emissions to end-users" (Equinor (c), 2022, p. 4). This shows that Equinor takes some responsibility for scope three emissions, but a 40 per cent reduction by 2035 still might not be enough to make Europe the first climate-neutral continent by 2050. Compared to the number of greenhouse gas emissions between 2020 and 2021, the reduction of scope three emissions was only 0.4 per cent (Nærings- og fiskeridepartementet, 2021, p. 75). This percentage needs to increase rapidly over the following years to reach zero emissions by 2050.

Some adaptations Equinor have made to adapt to the requirements of the European Green Deal and the EU ETS are related to investment in renewable energy sources. Hywind Tampen and Hywind Scotland are two significant projects of floating offshore wind platforms, which produce electricity for two of Equinor's oil platforms. Hywind Tampen will produce 35 per cent of the electricity needed on the two platforms, leading to a 200,000-ton reduction of greenhouse gas emissions yearly (Equinor (d), 2022). This reduction will lead to a positive change in the green transition. Equinor has also invested in low-carbon solutions in the project Northern Lights (Nærings- og fiskeridepartementet, 2021, p. 33). However, adaptation to renewable energy sources is still shallow compared to oil and gas production. Investments towards renewable solutions accounted for only four per cent of Equinor's total investments. We also see a trend in Equinor where they continue to invest and grow the petroleum sector. Between 2021 and 2022, Equinor optimised its portfolio on oil and gas with projects producing oil at a price of around 30 American dollars per barrel. This investment is expected to give Equinor growth in oil and gas (Midttun, Khanieva, Lia, & Wenner, 2022, p. 7). As stated in the thesis, the use of oil as an energy source is not compatible with the goal of reaching zero emissions. One can therefore question the adaptations that Equinor has made to greening their industry and to what degree it has positively affected the fight against climate change. Even though their scope one and two emissions are lowering, their scope three emissions have barely been reduced. Scope three emissions account for most greenhouse gases released into the atmosphere.

As well as investing in renewable energy sources, Equinor has also made adaptations to green the petroleum industry. In contrast to other major petroleum companies such as Shell, Eni, and Total, which extract their oil worldwide, Equinor is dominantly engaged in the Norwegian offshore (Midttun et al., 2022, p. 3). One way to green the petroleum industry is to reduce Co₂ emissions by transitioning from oil to gas and incorporating systems such as carbon capture and storage. In 2000, Equinor produced 20 per cent gas and more than doubled that amount to 51 per cent in 2010 (Midttun et al., 2022, p. 6). This shows considerable gas production growth in ten years, but the transition grounded over the next decade when the number only increased to 54 per cent by 2020. The transition from oil to more gas production did, however, result in decreased Co₂ emissions in Norway. The total greenhouse gas emissions on Norwegian territory in 2021 was 12,2 million tons, corresponding to Equinor's scope two emissions of 12 million tons

in the same year (Øvrebø, 2022). Twelve million tons of greenhouse gas emissions account for approximately 4.6 per cent of Equinor's total emissions. This also portrays that the biggest problem in resolving greenhouse gas emissions is not the extraction and production of oil and gas but, ultimately, the use of these products.

Overall, Equinor has made some adjustments to green their energy industry, with investments in offshore wind projects and greening of petroleum by transitioning from oil to gas. However, as it is now, these adjustments must catch up in the big picture when Equinor continues and further expands its oil extraction operations. The amount of energy Equinor produces is still mostly covered by oil and gas. Their efforts to cut greenhouse gas emissions in scope two have given some positive effects with a reduction of emissions of Co₂ released on Norwegian territories, making Norway seem greener on paper. In reality, the emission from the usage of Equinor's oil and gas are accounted for in the countries that use the end product, which means that countries such as Germany import Norwegian oil and show numbers of much higher territorial emissions (Øvrebø, 2022). To reach the goals set in the European Green Deal, it is not enough that Norway and Norwegian companies reduce their emissions of greenhouse gases when there is still high emission from the rest of the world using Norwegian oil as an energy source. It is, therefore, important that a company such as Equinor actively adapts to phase out their fossil fuel and invest in renewable energy solutions. The numbers from Equinor's revenues and statements given from the company imply that they will continue their oil production in the upcoming years and have no plans of out-phasing the oil in the forthcoming future.

6.3 Challenges from and Responses to the EU ETS and the European Green Deal

EU climate and energy policies are rapidly progressing and expanding, resulting in different challenges for different actors. Equinor, an oil-producing company, automatically faces many challenges regarding greening their industry based on oil being a non-renewable source. Even though Equinor escaped the ETS, as mentioned earlier, they still needed to remove themselves from the oil industry to reach the goals set in the European Green Deal. It is not enough to invest, develop and create new renewable energy sources; it is also crucial that non-renewable energy sources are entirely removed from the environment. However, the oils still account for most of Equinor's energy production, investments, and revenues. Therefore, they face structural and economic challenges regarding the EU ETS and the Green Deal.

One major challenge Equinor faced in the green transition was how the demand for gas and oil would decrease over the following years. This means the market will become more contested, and the competition of oil and gas exporters will be more challenging (Fischer, 2021, p. 8). Norway has some of the most expensive gas production, meaning they also have a higher price for their product. With the demand for gas decreasing, the Norwegian companies selling gas will experience difficulties as they cannot use the cost to keep themselves in the competition. This development will slowly suffocate the Norwegian gas industry, where Norwegian gas will be the first to be de-prioritised in the shrinking market. In light of the war in Ukraine and the EU's decision to become independent of Russian gas, Norway has the advantage of becoming one of the prime gas exporters to the EU (European Commission (j), n.d.). Another advantage Norwegian

gas producers have compared to other gas producers is relative climate impact. Norwegian gas producers are often portrayed as having a better experience and implementing methods that reduce extraterritorial effects from gas imports by technology such as carbon capture storage (Fischer, 2021, pp. 8-9). This means that energy companies such as Equinor might be able to compete in the gas market, even though they have higher prices because their relative climate impact is lower than in other gas suppliers. However, the market for fossil gas is going to continue to shrink, and the estimate is a 70 per cent reduction of the gas demand in the EU in 2050 (Fischer, 2021, p. 3). From around 2017 until 2021, 66 to 73 per cent of the gas exports from Norway went to the EU. This portrays how the EU is the biggest customer of Norwegian gas, and losing this customer might cause economic challenges.

The formation of the Norwegian oil industry is said to have come from the international oil demand and the need for energy security compared to unstable oil exporters from the Middle East (Overland, 2019, p. 93). The issue regarding energy security is still very relevant and even more pressing in the green transitioning of the energy sector. Norway and Norwegian energy suppliers are perceived as reliable suppliers of gas. This gives companies such as Equinor an advantage, as they are seen as necessary to maintain energy security. Particularly with the introduction of the RePower EU, Norway and companies such as Equinor have a significant advantage when Russian gas is unwanted (European Commission (j), n.d.). Therefore, one must find a balance in the energy transition where energy from renewable energy sources must be secured before one can stop using oil and gas. This issue has also been raised by the EC where they recognise the "need to secure access to the critical raw materials and technologies necessary for the energy transition whilst avoiding new dependencies, as well as ensuring resilient supply chains, cybersecurity and the protection and climate adaptation of all, and in particular, 'critical' infrastructure" (Fischer, 2021, p. 9). Energy security, therefore, raises many challenges for an energy supplier such as Equinor. In one way, they are bound to take measurements to green their energy, but they are also crucial suppliers to maintain energy security. Today's situation with Russia's invasion of Ukraine also adds a difficult element towards energy security, when it has resulted in the EU releasing a plan called RePower EU on how they are to become independent from Russian oil and gas (European Commission (j), n.d.). Of the Actions of the RePower EU increase deliveries of Liquefied natural gas (LNG) from Norway and Equinor responded by stating how they would be able to increase their gas exports with 1,4 billion cubic meters in 2022 (Equinor (e), 2022).

Equinor being an oil-producing company gives them a huge disadvantage from the beginning on the road to green their industry. As stated earlier, using oil as an energy source is not sustainable and does not reflect the desire to achieve climate neutrality. Equinor's main challenge is to stop its oil extraction production and completely phase out the oil. Still, as stated earlier, this seems very unlikely to happen in the nearest future. Of the adaptations Equinor have made, the most significant challenges have been revolving around economic factors and energy security. The decrease in the demand for gas might hit Equinor hard economically, as their gas production is more costly than from other suppliers. The advantage, however, that Equinor and the Norwegian energy industry, in general, is that they are portrayed as reliable energy providers and that their gas is viewed as cleaner and greener. The exact representation of Equinor and Norway applies to the challenge regarding energy security. In a period of conflict and shortage of energy because of Russia's invasion of Ukraine, energy security must be maintained. This

means that it is essential that we have sufficient renewable energy sources that can replace the energy demand that oil and gas account for.

Overall, Equinor has faced multiple challenges, some of which have been harder to manage than others. Equinor's main challenge in the green transition is to out-phase the oil production, which they are not managing as they expand their petroleum production. They have, however, made some minor adjustments to their oil extraction to make their power production more sufficient and environmentally friendly. Other challenges they have faced relate to energy security and economic factors. In order to out-phase the oil, it is essential to find secure renewable sources that can replace the oil. At the same time, it maintains energy security and secures an income. Equinor and Norway might experience substantial economic losses when there is no longer a need for oil and gas. The efforts from Equinor show that they, in some ways, adapt well to the EU energy and climate policies, but in others, they do not. This might be explained by how they are only partially owned by the Norwegian government and, therefore, not as integrated into European legislation as Statkraft. Europeanisation can therefore explain how they are not as adjusted to the EU energy and climate policies because they are fully integrated. Based on the adaptations and challenges managed by Equinor to green their energy industry, one can say that they have started the transition but are nowhere near becoming climate neutral in the near future.

7 Statkraft's Adaptations and Responses to Green the Industry

7.1 Statkraft's Goals and Ambitions

Statkraft is the biggest company in Europe on renewable energy and aims to become the world-leading renewable company by 2025 (Nærings- og fiskeridepartementet, 2021, p. 85). This goal highly depends on Statkraft's competence and processes to extract and produce renewable energy in sometimes demanding conditions with different weather conditions. It is estimated that Statkraft will increase its energy production towards 2030 and 2040, depending on normal weather conditions (Skjærseth & Rosendal, 2022, p. 10). Statkraft produces energy that puts Norway in a surplus in today's conditions. This surplus is likely to continue even with more demands for electricity with the transition of electrifying the transportation sector. This surplus of clean and green energy is crucial for the green transition and for Europe to become a zero-emission continent.

One hundred per cent of Statkraft's investments went to renewable energy sources between 2015 and 2020. This does thus not mean that they have zero emissions. In 2021, Statkraft had a total amount of 1,53 million tons of greenhouse gas emissions (Nærings- og fiskeridepartementet, 2021, p. 54). Compared to the numbers being 2.04 million tons in 2020, this results in a 24,3 per cent reduction of greenhouse gas emissions in one year. Out of the total amount of 1,53 million tons of emissions, 1.32 million tons relate to scope one, 212 400 tons relate to scope two, and the remaining 2600 tons relate to scope three. This show that most of Statkraft's greenhouse gas emissions are related to scope one, which is direct emission from the company's production and business (Nærings- og fiskeridepartementet, 2021, p. 54). This portrays Statkraft's effort to reduce greenhouse gas emissions on the road towards zero emissions.

Only about 0.2 per cent of Statkraft's emissions comes from the end users of their products, which shows how clean and green their energy is (Nærings- og fiskeridepartementet, 2021, p. 54). There was an increased amount of greenhouse gas emissions in scope three from 2020 to 2021, and in the same year, there was a decrease in scope one and two emissions. Most of Statkraft's emissions do, however, come from their production, which means that they need to green their energy production further to reach the targets set by the EU ETS and the European Green Deal.

Statkraft is a hundred per cent state-owned company that ties them to the Norwegian energy and climate policies and the EU climate and energy policies through Norway's membership in the EEA. Norway shares the ambitious goals with the EU and the Paris Agreement to reduce their greenhouse gas emissions by 50 to 55 per cent by 2030. Norway cooperates closely with the EU, and through climate agreements, they have committed to a 40 per cent reduction of greenhouse gas emissions by 2030 (Klima- og miljødepartementet, 2021). Since the creation of the climate agreement, the EU has increased their goal from 40 to 55 per cent, which needs to be adopted for the agreement between Norway and the EU to change. As stated earlier in the thesis, state-owned companies are responsible to society at large, which means that Statkraft also

needs to participate in the green transition. Since the company's creation, Statkraft has been based on renewable energy sources and has significantly contributed to the green shift. In the 1960s, Statkraft started to experience challenges that forced them to adapt to their energy industry. We can, however, still see that Statkraft has faced significant challenges based on a push from the EU ETS and the European Green Deal. Based on these challenges, Statkraft has been forced to make more adaptations green their industry further to comply with the EU energy and climate policies.

7.2 Adaptation from EU ETS and the European Green Deal

Given the fact that Statkraft is based on renewable energy sources, they do not have the need to go through a significant shift like the oil-based company needs to do. Throughout the history of Statkraft, the company has made different adaptations in order to participate in the green transition. The greening of Statkraft's industry has been present since the beginning, but with the explicit goals set by the EU ETS and the European Green Deal and the pressuring issue of climate change has sped up this process. With one hundred per cent of Statkraft's investments going to renewable resources, they take a clear stand in the energy transition. In 2021 alone, they invested 2 billion Norwegian kroner towards hydropower (Nærings- og fiskeridepartementet, 2021, p. 85).

In 2022 Statkraft published both a sustainability report and a low emissions scenario report. These reports portray what Statkraft has done to maintain sustainability in its power production and a plan as to how it will continue to become greener. Statkraft's sustainability report depicts their ambitions to participate in the just transition and ensure that this transition does not harm the planet or people (Statkraft (h), 2022, p. 49). They also explain how they will further the development of clean flexibility, accelerate solar, onshore, and offshore wind and battery storage and develop better technologies to strengthen the growth towards 2030. The Low Emissions report presents Statkraft's low-emission scenarios. It focuses on energy security and how efficient and clean energy offers a solution to maintain this in a time of uncertainty based on Russia's invasion of Ukraine (Statkraft (g), 2022, pp. 4-5). It portrays a relationship between energy security and a low-emission world. These reports portray Statkraft's goals and commitments to participate and make adaptations to green their energy industry.

One adaptation that Statkraft has made is to expand its hydropower production geographically. It is difficult to further develop more hydropower plants in Norway because of limited resources, but there are many opportunities internationally. Statkraft opened a hydropower plant in Albania in 2016, which increased Albanian share of renewable energy by 17 per cent (Statkraft (f), n.d.). The project in Albania also participated in developing the infrastructure in the local community with environmental and social measures and creating more than one hundred kilometre roads. In 2018 Statkraft even further expanded their hydropower production when they bought wight hydropower plants in Brazil, and the same year, they took over production of the project Tidong in India. This geographical expansion of Statkraft hydropower production allows them to produce more renewable energy and also to help with the green transition in other less developed countries than Norway in this field.

In the beginning, Statkraft based its energy production solely on hydropower plants but has since then evolved and invested in other renewable energy sources. After the Norwegian government decided to increase their dividends in 2015, Statkraft increased

its investment in onshore wind power projects (Statkraft (f), n.d.). In 2019 the onshore wind park Roan opened, one of the six wind parks of the joint venture project between Statkraft, Nordic Wind Power DA, and TrønderEnergi. In 2017 Statkraft sold all of its shares in the offshore wind project SN Power and dedicated all its investment to onshore wind. This decision increased their investment capacity vastly, as they made a stronger position in fewer markets. At the same time as Statkraft sold their shares in SN Power, they also took over the shares of hydropower-, onshore wind power- and solar power plants in India, Nepal, and South America. They decided to deepen their investments in more specific areas, giving them a stronger position in these markets.

The 2022 Low emission scenario report states how renewable hydrogen is needed to reach the climate goals (Statkraft (g), 2022, p. 58). By 2050, the demand for hydrogen will increase by three times the amount of consumption today. In 2023 Statkraft and the hydrogen company Nel signed a deal to create a robust chain of hydrogen production in Norway (Chemical, I. D, 2023). In a statement by the CEO of Statkraft, Christian Rynning-Tønnesen and Håkon Volldal, CEO of Nel stated: "We are determined that we will contribute towards making Norway a leading producer of renewable hydrogen, and to establish an eco-system of electrolyser and equipment suppliers". This deal is said to be a first step towards reaching the targets of green hydrogen production, which is necessary for the green transition of the energy sector (Chemical, I. D, 2023).

As well as the development of more renewable energy sources, Statkraft has also made adaptations to decrease the emissions of their power production. Between 2020 and 2021, Statkraft had a 29 per cent reduction of greenhouse gas emissions in scope one (Nærings- og fiskeridepartementet, 2021, p. 54). This reduction is helping to make Statkraft's production greener and proves that Statkraft's adaptations positively affect the fight against climate change. As well as reducing the emission from their production, Statkraft has also increased the efficiency of old hydropower plants by upgrading their technology (Statkraft (f), n.d.). The Upgrade of the hydropower plant Nedre Røssåga increased the power production equivalent to the annual electricity consumption of more than 100,000 Norwegian households. As well as increasing energy efficiency, the upgrade resulted in better environmental conditions and biodiversity conservation, which are essential aspects of the European Green Deal.

As shown, Statkraft has made several adaptations in order to green their energy industry. Most of the adaptations are minor, as Statkraft's energy was green initially. They have still made some adaptations to green further the energy they already produced and expanded their production to other renewable sources. These adaptations of more renewable sources have equipped Statkraft to maintain energy security and produce more renewable energy to deliver the demand. Some of the adaptations Statkraft has made to green their energy industry started long before the EU ETS and the European Green Deal were presented. However, the push from these EU energy and climate policies has furthered the process of greening Statkraft's energy production by making it more efficient and expanding its operations to more resources. The investments and adaptations of Statkraft have made them well-equipped to handle the green transition.

7.3 Challenges from and Responses to EU ETS and the European Green Deal

One of the significant challenges Statkraft faces to green their energy industry further is related to energy security, environmental issues such as biodiversity, and decreasing greenhouse gas emissions in their energy production. Statkraft has always had a cheerful and willing position towards the EU energy and climate policies and is a significant player in the green shift. Some of the challenges Statkraft have faced in the green shift are minor, but they have also gone through some obstacles that are harder to tackle, such as protecting human rights and biodiversity. The constant development of EU climate and energy policies makes it essential to pay close attention. This was especially portrayed in the development of the new EU Taxonomy on Climate Delegated Act that is part of the European Green Deal (European Commission (k), n.d.). The EU taxonomy is a tool to secure environmentally friendly investments.

In order to further green the energy industry, it is essential to produce more power from renewable sources. Through the years, Statkraft has experience challenges regarding developing new power plants in some areas because of political conflicts that deal with human rights and preserving nature and biodiversity. The areas for creating new power plants were limited as there was only so much hydropower left to develop (Statkraft (c), n.d.). The areas left to create hydropower triggered other conflicts, such as human rights. One of the most significant and emotional conflicts revolves around the development of hydropower in Alta in the 1980s. The Sami people had rights to the land area, and developing a hydropower plant would destroy the Sami's livelihoods and reindeer husbandry. This conflict resulted in big demonstrations from Norwegian environmental activists, which later led to stricter requirements for hydropower development. This portrays a different type of challenge some energy producers experience in the green transition.

Other factors that have challenged the development of more power plants are biodiversity and the preservation of nature. Biodiversity is also one of the essential aspects of the European Green Deal to improve the well-being and health of citizens and future generations (European Commission (b), n.d.). In the 1970s, environmental activists demonstrated against developing hydropower plants that would destroy biodiversity (Statkraft (c), n.d.). The Mardøla action in 1970 was one of Norway's first environmental actions against hydropower by the collaborative groups for nature and environmental protection (Nicolaisen, 2016). In the late 70s, the Alta action took place, which was about Sami's interests and environmental protection interests. Therefore, biological, aesthetic, and ecological values were considered more in planning power development. This led to new definitions of nature conservation, making expanding the power plants further challenging. With the EU pressuring to green the energy sector further and to produce enough renewable energy to reach the energy demand, new developments of hydropower, wind- and solar power are necessary. It is, however, essential to find a balance between developing and expanding power plants in nature in a way that is not harmful to biodiversity. The challenge is, therefore, to further develop more power plants based on renewable sources without causing harm to the environment. It is essential to preserve biodiversity in the green transition, as nature and biodiversity have been harmed by global warming. To maintain a sustainable and green future for the next generations, it is vital that we both can deliver clean and green energy to everyone, as well as take care of the environment and biodiversity.

With climate changes, we also experience challenging weather that can have a negative impact on energy production. As stated earlier, Statkraft has the possibility to continue to produce renewable energy in a surplus as long as normal weather conditions continue (Skjærseth & Rosendal, 2022, p. 10). This means that some renewable energy sources are more vulnerable than, for example, oil and gas production. Hydropower, wind- and solar power all depend on weather conditions. With droughts and dry periods, the hydropower plants produce less power, and wind farms and solar panels cannot produce energy without wind and sun. Challenging weather conditions, therefore, might create challenges for Statkraft's power production. Still, extreme weather which destroys regions can also have an impact on people's awareness of climate change (Statkraft (g), 2022, p. 75). This also means that the geographical expansion of renewable sources such as hydropower is limited to areas that experience enough rain and snow. Developing hydropower plants would not be efficient in areas where it rains less, as they would not produce energy. The green transition can, therefore, in some ways, benefit from public opinion putting a focus on climate change and understanding the seriousness it can cause if we do not make a change.

Another challenge Statkraft has experienced is lowering their greenhouse gas emissions in their power production. Statkraft has successfully reduced its production emissions by 29 per cent from 2020 to 2021 (Nærings- og fiskeridepartementet, 2021, p. 54). The main amount of greenhouse gas emissions that Statkraft releases are still scoped as one emission, which refers to their production. The Scope One emissions account for more than 85 per cent of the company's total emissions. The biggest challenge to reducing greenhouse gas emissions to reach the goals of the European Green Deal and the EU ETS is to develop further the technology for energy production that makes it more efficient and environmentally friendly. In the same year, Statkraft also had an increase in greenhouse gas emissions in scopes two and three. This also represents a challenge for Statkraft as the goal is to lower all emissions (Nærings- og fiskeridepartementet, 2021, p. 54).

In 2020, the EU presented its first proposal of the EU Taxonomy Climate Delegated Act, which stated that hydropower is less sustainable than wind- and solar power and which would make the financing of hydropower more expensive (Hovland, 2020). This is a considerable challenge for Statkraft's power industry and Norway's most significant energy resource. There had been a massive miss from Norway in the process of the EU's strategy of classifying green investments. Statkraft's advocate Lars Magnus Günther wrote to the magazine E24 that they would give concrete feedback to the proposal that would avoid hydropower being perceived as less sustainable than other renewable sources. They also stated that they expected the national governments of Norway, Sweden, Austria, France, and Finland to give feedback on the proposal that could threaten hydropower production. After a feedback period with many lobby efforts, hydropower was accepted as a green energy source as the EC made changes to their initial proposal (International Water Power, 2021).

Overall, the greening of the energy sector and the push from EU policies such as the EU ETS and the European Green Deal have given Statkraft some challenges. Statkraft's energy production has been considered green from the beginning. Still, with increasing power demands and the pressuring issue of climate change, it is necessary to continue greening their energy production further. Most of Statkraft's challenges lie in the production of their power and the limitations to further develop more hydropower plants because of human rights and biodiversity considerations. These challenges are complex

as they revolve around sensitive subjects where it is essential to retain ownership. All things considered, all of the obstacles that Statkraft face in the process of further greening their energy seems feasible, and compared to other power actors, their challenges are pretty small in the big perspective.

Statkraft overcame the challenges raised by the EU ETS and the European Green Deal. The human rights and biodiversity challenges are hard to manage as they are very sensitive and affect some specific social groups. The limitations of renewable sources are also a challenge, as they affect the efficiency of power production and limit the expansion of new power plants. The further development of power plants is also affected by climate change and weather conditions. Some geographical areas of the world are not fit for hydropower based on lack of rain, and some are not for solar power because of too little sun. These issues impact energy security, a challenge Statkraft faces in the green transition. All of the challenges Statkraft faced have been managed in line with the objectives of EU ETS and the European Green Deal, which shows a high degree of adaptation. Europeanisation can explain this level of adaptation and how well integrated into Statkraft the EU energy and climate policies are.

8 Equinor and Statkraft in Light of The EU ETS and the European Green Deal: A Comparison

The EU energy and climate policies are well integrated into Norwegian legislation because of the EEA agreement. However, it is not a matter of course that countries implement EU legislation into their national legislation. The concept of Europeanisation is often used to explain the European integrations and EU policy's influence on member states related to economic, political, and social changes (Saurugger, 2014, p. 123). Through Norway's membership of the EEA, they are obliged to implement EU legislation that is a part of the agreement, such as climate and energy policies. Based on this, Norway has implemented about 70 legal acts regarding energy policies that the Norwegian government and Norwegian companies must follow (Energifakta Norge (b), n.d.). This means that European integration is present in Norway and that Europeanisation can explain their willingness to adapt to EU law. Both Equinor and Statkraft have the Norwegian state as their main shareholder. These companies are essential actors in providing critical services to Norwegian citizens and are beneficial for the Norwegian State and economy. However, even though the Norwegian state complies with EU legislation, there is there a gap in the willingness of Norwegian companies to follow the same legislation. It can therefore be questioned to what degree the state's ownership in these companies has an effect on the company's operations and compliance with EU legislation. Comparing the two actors, one can conclude that Europeanisation has been more successful within Statkraft than in Equinor.

Equinor and Statkraft have opted for different adaptations from the policies presented by the EU ETS and the European Green Deal, and there are several factors that can explain these differences. They have also faced different challenges and responded differently to these challenges based on the level of transitions the two actors need to make to reach climate neutrality because of their other starting points. There are, however, some challenges that are in common for both actors as energy providers.

Energy security is often considered a critical and significant challenge for both energy companies. Equinor and Statkraft have both introduced gas as a way to ensure energy security. Especially with the Russian invasion of Ukraine, the concept of energy security has been raised as a challenge in the energy industry, related to both the green transition and ensuring supply to cover the needs. The EU responded to the invasion by introducing RePower EU, and this plan expressed the need for Norwegian gas (European Commission (j), n.d.). Both Equinor and Statkraft have invested in the extraction of gas and delivery to the EU, which is one of their biggest customers. Although a fossil fuel, gas is viewed as a more green and sustainable energy source than oil, but in the long run, the end goal is also to phase out the use of gas. It is, therefore, important that the current war in Europe continues the green transition and that we continue to invest in renewable energy sources and create more innovative and sustainable solutions.

As well as the current conflict in Europe affecting energy security, it is important to note how oil and gas are more reliable sources than hydropower, wind, and solar. Renewable

energy sources are more exposed to weather conditions. With droughts, the hydropower plants will produce less energy, and the wind and solar farms can only produce energy with wind and sun. Climate change has already created challenging weather conditions, and it is therefore essential that the green transition is sped up. This portrays a challenge that Statkraft, as a renewable energy producer, experiences but that Equinor, as an oil and gas producer, escapes.

The amount of greenhouse gas emissions that the two actors release into the atmosphere are also highly different. From 2020 to 2021, Equinor's emissions in scope one went from 13,3 million tons to 12 million tons. Their scope two emissions went from 0.2 million tons to 0.1 million tons. Lastly, their scope three emissions decreased from 250 million to 249 million tons (Nærings- og fiskeridepartementet, 2021, p. 75). The overall emissions of Equinor in 2021 were, therefore, 269 million tons, and the reduction of Equinor's greenhouse gas emissions comes to 0.9 per cent. In the same year, Statkraft had a total amount of 1,53 million tons of greenhouse gas emissions, where 1.32 million tons relate to scope one, 212 400 tons relate to scope two and the remaining 2600 tons relate to scope three (Nærings- og fiskeridepartementet, 2021, p. 54). This gives Statkraft 24,3 per cent of greenhouse gas emissions between 2020 and 2021. These numbers portray the enormous difference between Equinor's and Statkraft's greenhouse gas emissions, which puts them in a very different position to manage the green transition.

In the upcoming years, companies such as Equinor and Statkraft might be forced to take greater responsibility for their scope three emissions after the historical ruling, from the Dutch court, on Shell to reduce their scope three emissions by 45 per cent by 2030 compared to 2019 levels (Gerretsen, 2021). This ruling came from a lawsuit from Greenpeace, Friends of the Earth, the Netherlands and five other environmental groups. This is the first time a company has been demanded to reduce their emission, and it could be seen as a threat as it can pave the way for new climate lawsuits against other companies, such as Equinor or Statkraft (Øvrebø, 2022). After the first lawsuit against Shell in 2021, the company experienced a new case in 2023, this time directed at the director personally (Carrington, 2023). This lawsuit was made by ClientEarth, who stated that the directors of Shell put the company at risk with their plans for the green transition and failed to prepare the company to reach net zero emissions. These lawsuits demonstrate possible outcomes and challenge the energy industry might face in the upcoming years. With the EU ETS and the European Green Deal being based on legally binding targets, this also means that environmental actors and others can hold the companies that release greenhouse gases accountable. Especially Equinor as an oil and gas exporter like Shell might face similar challenges if they face a lawsuit from environmental groups. This might result in Equinor being sentenced to take responsibility for their scope three emissions, potentially resulting in financial losses.

The difference in adaptations that Equinor and Statkraft make can also be explained by their statements and responses. In 2016, Equinor director of New Energy Solutions Irene Rummelhoff stated that the company's backbone was oil and gas and that oil is a part of the company's history and future. She expressed that oil and gas would continue to be a priority for Equinor for many years ahead (Overland, 2019, p. 82). In 2021 and 2022, Equinor continued to optimise its oil and gas portfolio and was expected to experience production growth (Midttun, Khanieva, Lia, & Wenner, 2022, p. 7). As well as expressing their plans to further develop their oil and gas industry, they also perform these plans with considerable investments in the field. Equinor invested more than 600 million euros

in just one of its many oilfields over a six-year period (Overland, 2019, p. 82). Their investment in renewable energy over the same period was 180 million euros. These actions and responses by Equinor are incompatible with the goals set in the EU ETS and the European Green Deal. Unlike Equinor, Statkraft, on the other hand, has made statements that align well with the green transition. In 2023, the CEO of Statkraft, Christian Rynning-Tønnesen, made a statement about Statkraft's involvement in a project of renewable hydrogen. He expressed Statkraft's determination to become a leading producer of renewable hydrogen (Chemical, I. D, 2023). These ambitions are also reflected in Statkraft's investment in renewable energy sources which was at 2 billion Norwegian kroner in 2021 alone (Nærings- og fiskeridepartementet, 2021, p. 85). This means that Statkraft invested more in renewable sources in 2021 alone than Equinor did over a six-year period.

The concept of greenwashing has also been highly debated in the greening of the energy industry. Greenwashing is "a deliberate corporate action with the presence of misleading elements, focused on the deception of stakeholders" (de Freitas Netto, Ribeiro, da Luz Soares, & Sobral, 2020, p. 2). The environmental organisation Client Earth published 2021 a greenwashing file on Equinor (Client Earth, 2021). They accuse Equinor of portraying themselves as greener than they are through their company advertisement. The rebranding of the name from Statoil to Equinor was justified by the company's green transition. Still, in reality, the company spent about 260 million Norwegian kroner on the new name, which is more than the 180 million Equinor spent on investments in renewable energy sources over six years (Overland, 2019, p. 82). Equinor has also stated that they want the share of renewable energy production to reach 4 per cent by 2026. Still, according to their 2020 sustainability report, the reality of this number is only 1 per cent. The renewable energy production of Equinor also decreased by 5 per cent between 2019 and 2020, which portrays their small efforts to become more renewable. Based on this evidence, Client Earth states that Equinor, in reality, has not made a green transition and that they are actively engaged in greenwashing to present themselves as better than they are (Client Earth, 2021). How Equinor portrays itself in the media is far from the truth based on its actions in the green transition. This is a high-pressure issue because the green shift depends on everyone contributing and making changes that affect helping the environment. It is, therefore, important that actors make changes that make them greener and position them to reduce their greenhouse gas emissions. If many companies engage in greenwashing instead of making changes, then we get a big problem on reaching climate neutrality.

Based on the evidence discovered in this thesis, the EU energy and climate policies have had some effect on the two actors, Equinor and Statkraft. Both of the actors have made adaptations to green their industry, and they have responded to the challenges raised by the EU ETS and the European Green Deal. However, we can see a big gap between the adaptations Statkraft has made in relation to Equinor. This might result from Statkraft having a more successful Europeanisation than Equinor or that the economic risks in the green transition are much higher for Equinor than Statkraft. The two actors have also faced challenges they have managed and responded to differently. The EU energy and climate policies have had a more considerable effect on Statkraft than Equinor in the transition of greening the energy industry, meaning that Europeanisation has been more important in Statkraft than Equinor. There are many factors that could explain the differences in the degree of adaptation between the two actors. First, one can look at the Europeanisation concept and argue that Statkraft being fully owned by the Norwegian government might significantly impact its operations more than Equinor, which the

Norwegian government only partially owns. Second, the economic losses of Equinor on the green transition are much more significant than at Statkraft, which most likely will not suffer a financial loss. Equinor's oil industry is an essential contributor to the Norwegian economy and is very important to maintain the prosperity of Norwegian society. Even though it is in the Norwegian government's and Norwegian actors' best interest to comply with the EU legislation, the out-phasing of the oil might be seen as a big sacrifice for the Norwegian economy. This might explain why the Norwegian government does not push Equinor to green their energy industry, as they do with Statkraft, which is already green.

9 Conclusion

The EU aims to become the first climate-neutral continent by 2050, and this depends on both national governments and industries and companies to participate. To reach this goal, the EU have presented numerous climate and energy policies that apply to EU member states and the EEA member states. Through the EEA, Norway is a part of the internal market and, therefore, the energy market. Norway and Norwegian companies, therefore, have to participate in the same way as EU member states to reach the ambitious climate goals. Equinor and Statkraft are two of the biggest energy suppliers in Norway and are important energy exporters to the EU. The two companies base their energy production on different sources, with Equinor based on oil and Statkraft based on hydropower. There are, however, some similarities between the two companies, one of them being that they are both partially and fully owned by the Norwegian state. Being state-owned companies gives companies the responsibility to act in the best possible way for society. Climate change is a threat towards humankind, and it is, therefore, essential that all possible measures are made to save the planet. The two actors, Equinor and Statkraft, are obliged to participate in the green transition and make adaptations to meet the goals set in the EU ETS and the European Green Deal. These adaptations have resulted in different challenges for the two actors, which have resulted in them giving different responses.

The theme of the thesis relates to the two flagship policies, The EU ETS and the European Green Deal and how these policies affect the energy industry in Norway in light of the two cases Equinor and Statkraft. The thesis, therefore, explores the challenges faced and actions made by the two actors Equinor and Statkraft and to what degree the actors have adopted these policies to green their energy industry. For a long time, Norway has been portrayed as a reliable energy provider with a mix of exports of non-renewable energy from oil and renewable energy from hydropower. This gives Norway a crucial position in the European energy market, being one of the leading exporters of power to the EU. It is, therefore, important that Norway continues to be a reliable energy provider and that energy security is not affected by the green transition. How the two actors, Equinor and Statkraft, respond to and manage the challenges is very important. Based on the theme, the chosen policies, and the actors I explored, the following two research questions:

1. "How and to what degree have Equinor and Statkraft adapted to make their energy industry greener?"
2. "How and to what degree have Equinor and Statkraft responded to the challenges raised by the EU ETS and The Green Deal?"

From the first Research Question, one can conclude that both actors have adopted to make their energy greener but to a very different degrees. Equinor has adopted this in some ways by reducing the greenhouse gas emissions on their production and electrifying their oil platforms which offshore wind farms partially power. However, these adjustments result in Equinor adopting to green their energy industry to a minimal degree. They comply with the EU ETS and set goals to lower greenhouse gas emissions. The main problem regarding Equinor is that they only account for their scope one and two emissions and completely exclude their scope three emissions in their strategies.

Most of the greenhouse gas emission related to Equinor comes from using their end products which the company takes no responsibility for. The burden of the greenhouse gases from their oil's end use lies in the consumers and the countries that buy their product. The greenhouse gas emissions from Equinor have also barely been reduced, which shows that more than their adaptations are needed to become a net zero company. Statkraft, on the other hand, has adapted to a large degree to even further green their industry which was green from the beginning. This advantage has made it easier for Statkraft to adjust to green their energy industry than Equinor. They have expanded their production and expertise to more renewable sources and their hydropower development outside of Norway. The adaptations Statkraft has made have significantly reduced its greenhouse gas emissions, but they also have a way to reach net zero emissions.

The second research question investigated the adaptations and challenges. Equinor and Statkraft have faced challenges in adopting policies related to the EU ETS and the European Green Deal. The two actors have experienced quite different challenges as they are based on other energy sources. Equinor's use of the oil itself is a much more significant challenge than the renewable sources Statkraft uses. The same conclusion from research question one applies to research question two in relation to how the two actors have responded to the challenges. Statkraft has made a great effort to cope with its challenges. Equinor has also responded to its challenges, but they have not started to respond to the most significant challenge, which is to phase out the oil. This shows that Statkraft has reacted to their challenges considerably, but Equinor has only responded to the minor difficulties and not their main challenge.

I found similarities and differences between the two companies' adaptations when comparing the two cases. Statkraft started its energy industry as a renewable company, and there has been less need for significant adoptions. The adaptations Statkraft has made have successfully furthered the greening of their industry in a way that they are within the necessary measures to reach the goal of climate neutrality. Equinor has also made different adaptations to comply with the EU goals and policies, but they have yet to be as successful in greening their industry. Even with their investments in renewable sources such as offshore wind and gas, these could be better than their oil investment. In the cases of Equinor and Statkraft, it is proven that the best comparative method is a simple comparison. The two companies could be described as similar from the beginning based on their being energy providers, but they also differ based on their various energy sources. The outcome of the comparison shows that some of the challenges they have faced and adaptations they have made are similar, and others very different. Therefore, because one could not predict the outcome or decide if they are most similar or dissimilar from the beginning, a simple comparison is more convenient than the MSSD or MDSM method.

Equinor and Statkraft still have a way to reaching climate neutrality and will continue to face challenges that force them to adapt. Equinor will likely face more extensive and complex challenges as they need to make a more significant transition than Statkraft to green their energy industry. With the EU climate and energy policies tightening, the actors must make more adaptations to stay within the legislation. It requires a great effort from everyone, including the EU, national governments, industries, and companies, to make Europe the first climate-neutral continent by 2050.

Based on my findings, I argue that EU energy and climate policies affect the Norwegian energy industry and that the actors. To what degree their effect differs on the two actors, but EU climate and energy policies have generally influenced Equine and Statkraft industries. Equinor and Statkraft have adapted from the challenges raised by the EU ETS and the European Green Deal to participate in the green transition. As to why the two actors adopted different to green their industries could be explained by Europeanisation and how well they have integrated EU legislation into their actions. Statkraft is a one hundred per cent state-owned company, which might explain why they are better equipped for the green shift. Still, it most likely also depends on many other factors, such as their history of renewable energy sources and economic factors. In the end, Equinor will experience a much higher financial loss in the green transition than Statkraft, as they would have to phase out their fundamental source of income.

Several aspects would be interesting and necessary to continue researching how EU policies affect Norwegian actors in the green transition. First, The EU energy and climate policies are in constant development. The EU ETS continues to tighten its targets, and The European Green Deal continues to expand its policies and create new instruments. One of these instruments is the EU taxonomy, which is in the developing phases. Second, It could be interesting to follow up on how the companies Equinor and Statkraft maintain and achieve the goals they have set for themselves in their forward-looking reports from 2022. Equinor's energy transition plan and Statkraft's low emissions scenarios outline the measurements they need to make to reach their goals within 2030 and 2050. It would therefore be interesting to check whether they follow strategies or not. Lastly, Russia's invasion of Ukraine has also introduced new challenges for the energy sector as the EU has declared the goal of independence from Russian oil and gas by 2030. In an already pressed energy market with energy shortages, substitutes for Russian oil and gas must be quickly found. Equinor has already stated that they can produce more gas, but in the long term, the overall goal is to entirely out phase oil and gas as an energy source. Therefore, Europe's war and energy crisis must not give the green transition a setback, and the topic requires further and deeper research.

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