
Tax policies and environmental regulations applied to oil producers - comparison between the State of Texas and Norway

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Diplôme : Master en ingénieur de gestion, à finalité spécialisée en sustainable performance management

Année académique : 2023-2024

URI/URL : <http://hdl.handle.net/2268.2/21153>

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**TAX POLICIES AND ENVIRONMENTAL REGULATIONS APPLIED TO OIL PRODUCERS -
COMPARISON BETWEEN THE STATE OF TEXAS AND NORWAY**

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Engineering, specialization in Sustainable
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Academic year 2023/2024

Acknowledgments

I would like to express my deepest gratitude to my supervisor Mr. Marc Bourgeois. I would like to thank him for his support and valuable guidance throughout my journey. His expertise has been essential to shape this master thesis, enabling me to complete this study.

I would like to thank Mr. Michel Hermans for taking the time to read this master thesis.

Finally, to all my friends and family who have been supporting me during this time, thank you.

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List of abbreviations

- CAPEX: Capital Expenditures
- CCS: Carbon Capture and Storage
- CDP: Carbon Disclosure Project
- CSRD: Corporate Sustainability Reporting Directive
- DAC: Direct Air Capture
- DJSI: Dow Jones Sustainability Index
- E20: Europe 2020
- EEA: European Economic Area
- EEA: European Environment Agency
- EGD: European Green Deal
- EIA: Energy Information Administration
- EMS: Environmental Management Systems
- ESG: Environmental, Social and Governance
- EU ETS: EU's Emissions Trading System
- EU: European Union
- G20 : Group of Twenty
- GCF : Green Climate Fund
- GHG: Green House Gas emissions
- GIEC : Groupe d'experts Intergouvernemental sur l'Évolution du Climat
- GOP : Grand Old Party
- GRI: Global Reporting Initiative
- IEA: International Energy Agency
- IIGCC: Institutional Investors Group on Climate Change
- IPCC: Intergovernmental Panel on Climate Change
- IRA: Inflation Reduction Act
- ISO: International Organization for Standardization
- ITC : Investment Tax Credit
- LS : Lisbon strategy
- MBOE: Million Barrels of Oil Equivalent
- NBIM: Norges Bank Investment Management
- NDC: National Determined Contribution
- NFRD: Non-Financial Reporting Directive
- OECD: Organization for Economic Cooperation and Development
- PTC: Production Tax Credit
- R&D: Research and Development
- SASB: Sustainability Accounting Standards Board
- SDG: Sustainable Development Goals
- SFDI: State's Direct Financial Interest
- TCFD: Task Force on Climate-related Financial Disclosures
- TPI: Transition Pathway Initiative
- UNEP: UN Environmental Program
- UNFCCC: United Nations Framework Convention on Climate Change
- US: United States

I. Introduction

I.A Subject presentation

The motivation for this master thesis is as follows: human activities are impacting the planet in drastic ways. The most detrimental is global climate warming, which should be our main concern. Without intervention there will be major consequences: shrinking of ice sheets in Greenland and Antarctica, droughts in subtropical regions, increased rainfall in equatorial regions, and a potential one-meter rise in sea levels by 2100 (Intergovernmental Panel on Climate Change 2023).

The oil industry is one of the main producers of greenhouse gasses (see Appendix 1a and 1b). According to the IPCC (2023), addressing climate change is a complex dilemma since fossil fuels are essential for the vast majority of human activities, from primary sectors such as agriculture and industrial processes to services like surface and air transport as well as construction, plus domestic use of fossil fuels for heating and transport purposes. Whole nations depend on fossil fuels to generate their electricity.

The oil industry is attracting more and more scrutiny due to its effect on the environment (IEA, 2020). This scrutiny led to the implementation of environmental and tax regulations, designed to reduce greenhouse gases emissions and promote sustainable practices. These policies pose significant challenges to the oil industry as fossil fuel production of course being its revenue source. Oil companies must adapt to these new regulations, which impact their operations and profitability.

The purpose of this master thesis is to analyze the different strategies adopted by oil producers to face climate change challenges and to what extent tax regulations have influenced their financial performance and strategic decisions. The analysis explores how different oil companies in the State of Texas and Norway adapt to an evolving environmental and regulatory requirement. It will provide a deeper understanding of the effectiveness of policy measures in promoting environmental sustainability in the oil industry.

I.A.1 Texas and Norway

My choice deliberately turned to two important oil producers, the State of Texas and Norway (See Appendixes 2a, 2b, 3a and 3b). Norway is an important oil producer, accounting for 2% of the global oil production in 2022 (IEA, 2023).

Because of Texas' size, large population (30 million in 2022¹) and prosperous economy, it can be considered as a country on its own. Nevertheless Texas, with its own tax laws, is part of the United States of America, so that the federal taxation and Washington's policies towards global warming have to be taken into account as well. On the other hand, Norway is a sovereign country and a member of the European Economic Area² (EEA), though it is not a full member of the European Union.

The affiliation to the EEA allows Norway to participate in the EU's single market without being subject to all regulations, ensuring free movement of goods, services, capital and people but also adopting EU legislation on climate and environmental issues (Eriksen & Fossum, 2021). In their paper, the authors explore the relationship between non-member states and the European Union. They examined if

¹ https://datacommons.org/place/geoid/48?utm_medium=explore&mprop=count&popt=Person&hl=en (consulted on the 6/8/2024 at 11:14 am)

² <https://www.europarl.europa.eu/factsheets/en/sheet/169/the-european-economic-area-eea-switzerland-and-the-north> (consulted on the 6/8/2024 at 11:27 am)

these states could maintain their independence or if they are dominated by the EU rules. The authors concluded that Norway retains formal sovereignty, although its autonomy is constrained by the extensive adoption of EU laws and regulations. Indeed, Norway's legal framework is heavily influenced by EU rules (Eriksen & Fossum, 2021).

Within this framework, I thought it would be especially interesting to compare democracies that are reputedly polar opposites within the political range of such regimes: one, Texas, with a frankly capitalistic, right-leaning system in recent decades; the other, Norway, which in modern times has always been considered a social-democracy (Campbell et al., 1990).

This master thesis will focus on the comparison of both systems. The research questions will be as follows:

- How did the State of Texas and Norway react to climate challenges? What were the strategies put in place by the oil sector in both cases? (1)
- To what extent has tax policy towards oil producers acted as an indirect subsidy or incentive in both cases? (2)

I.B Objectives

The objectives of this master thesis are on the one hand, identifying the existing trends among oil producers in the context of reaching climate targets. On the other hand, assessing the effect of tax policies on oil producers' profitability and performance in the State of Texas and in Norway. This study aims to explore the balance established between their economic needs and the transition to more sustainable energy sources.

Most data collected for this thesis are secondary information available to the public. They are gathered from companies and organizational reports, as well as government reports and websites plus policy documents. The research method used is content analysis which involved identifying trends within qualitative data found in these sources. The information is categorized, and dashboards have been created to compile this information, available in the appendices. The first chapter of this research focuses on the literature review, establishing the theoretical framework of the subject. The second chapter is dedicated to the methodology and findings in companies' reports, more particularly sustainability and annual reports. The discussion section will analyze the data collected to highlight the distinct strategies implemented by oil companies to face climate challenges and the influence of tax policies on their performance and profitability, in the State of Texas and Norway. Finally, the last chapter presents the conclusion and limitations of the study.

The fiscal situation studied here changes constantly, as it is dependent upon politics and more precisely election results. This is especially true with U. S. fiscal policies, as will be seen. In order to remain up to date it appears that, beside the use of books and peer reviewed articles, the incorporation of the constantly updated type of information provided by the Internet is unavoidable. There are drawbacks to this use of Internet sites: the fact that they are not permanent, so that future readers may not be able to consult such references. The latter is avoided by using official sources rather than press articles.

These are the publications by organizations Norway and the United States are part of: the G20, OECD, IEA and IPCC. Reports from these organizations are important sources for establishing policy analysis and economic databases. As to these organizations:

G20³ stands for “Group of Twenty”, founded in 1999. It is an association of the 20 countries with the largest world economies. The heads of State or Government of member countries meet annually to discuss economic, political and social initiatives. This year (2024), the meeting will be held in Rio de Janeiro, Brazil. While the United States is a full member of the G20, Norway is only a guest country. The G20 countries combined represent 80% of the world’s GDP and account for 78% of CO2 emissions (United Nations, 2019).

Founded in 1961, the **OECD**⁴ (Organization for Economic Co-operation and development) now counts 58 members, including the United States and Norway, along with the world’s largest economies such as Brazil, China, India, Indonesia and South Africa. The OECD develops standards and programs addressing contemporary issues, with a focus on direct taxation and international tax laws. It provides frameworks for tax policy, treaties, and transfer pricing, helping countries to navigate the complexities of tax law (OECD, 2017). Becoming an OECD member involves a rigorous review process, assessing the country’s willingness to implement OECD legal instruments and recommendations.

More specifically to the subject at hand, the United States and Norway are part of the **IEA** (International Energy Agency)⁵. This intergovernmental organization was created in 1974 to provide sustainable energy for all, after a disruption of the oil supply at the time. The IEA provides statistical data on oil supply and demand, recommends policies on reliability, affordability and sustainability of energy. Its 31 members include the United States and Norway.

Moreover, reports from the **GIEC** “Groupe d’experts Intergouvernemental sur l’Evolution du Climat”, the French name of **Intergovernmental Panel on Climate Change (IPCC)** are considered highly reliable. The United Nations Environment Programme (UNEP) created this organization in 1988. It plays a crucial role in emphasizing scientific research on climate change and raising awareness about it. 1992 marked the adoption of the first international treaty: the United Nations Framework Convention on Climate Change⁶ (UNFCCC) aimed at addressing climate change. For the first time, climate change was recognized as a problem. Member States are committed to stabilizing the greenhouse gasses emissions.

Now that the general framework for this master’s thesis is established, one must examine previous literature, first to provide a comprehensive understanding of the subject and secondly to gain insights on the current situation, pinpoint important issues and establish a foundation for the thesis’ own analysis and contribution to the topic.

³ <https://www.g20.org/en/> (consulted on the 6/8/2024 at 11:27 am)

⁴ <https://www.oecd.org/about/> (consulted on the 6/8/2024 at 11:28 am)

⁵ <https://www.iea.org/> (consulted on the 6/8/2024 at 11:29 am)

⁶ <https://unfccc.int/process-and-meetings/what-is-the-united-nations-framework-convention-on-climate-change> (consulted on the 6/8/2024 at 11:30 am)

II. Literature review

II. A Global and regional framework: Key agreements, regulations and reporting

Over the years, production and consumption have become an important part of people's lives. These human activities are responsible for the increase of greenhouse gasses in the atmosphere over the last 150 years, especially because of fossil fuel use and industrial emissions (IPCC, 2023). Oil has become one of the most important energy sources in the world (see appendixes 4 and 5). There are two main problems with this source: firstly, it is non-renewable. It took hundreds of millions of years to form. Continued extraction will cause oil supplies to run out and there will be no way to replace them. Secondly the release of CO₂ when it is burned is what mainly leads to climate warming, as this is a potent greenhouse gas. Thus, it is important to find alternatives.

Irreversible changes are caused, leading to adverse impacts on nature (the atmosphere, ocean) and on people. Vulnerable communities are especially affected. Approximately 3.3 to 3.6 billion people live in a context that is vulnerable to climate change. The temperature increases and climate extreme events have led to food insecurity and reduced water security. Human influence has caused extreme heat waves, heavy precipitation, droughts and tropical cyclones (IPCC, 2023).

Profound changes are needed in the infrastructure, technologies and behaviors. Governments play a key role here, as strong policy interventions are required to reorient consumption, production and investment choices in the economy (Söderholm, 2020). In his paper, the author discusses the challenges that policymakers face when transitioning to a greener economy. According to him, governments need to implement mix policies to transition the economy into a greener one. He argues in his paper the importance of including innovation policies that support the development and deployment of sustainable technologies (R&D grants or tax breaks), in addition to traditional regulations to achieve long term sustainability goals.

The next chapter will detail the different international treaties and regulations regarding climate change and relevant to the state of Texas and to Norway. The first of these is the 2016 *Paris Agreement*, an international treaty negotiated by the United Nations Framework Convention on Climate Change (UNFCCC), which establishes commitments for countries to reduce greenhouse gas emissions. The second important treaty is the *European Green Deal* of 2019. As its name implies it aims to make Europe greener by setting to reach net zero emissions by 2050. For the United States there is the Biden administration's *Inflation Reduction Act* comprising environmental policies, among others.

Furthermore, several regulatory frameworks aimed at increasing companies' transparency will be analyzed, it includes the *Global Reporting Initiative*, the *Task Force on Climate-related Financial Disclosures (TCFD)* and the *Carbon Disclosure Project (CDP)*. Other initiatives such as the *Transition Pathway Initiative (TPI)* and third-party verification with ESG audits are crucial for ensuring compliance with regulatory standards. These frameworks and audits play a key role in the global effort to address climate change and promote sustainability.

By examining these, we will gain valuable insights into the global commitments and obligations that influence oil companies in Texas and Norway.

A.1. United Nations Framework Convention on Climate Change

The United Nations Framework Convention on Climate Change (UNFCCC) is an international treaty which entered into force in 1992⁷. Its role is to stabilize greenhouse gas concentrations to prevent climate change. The UNFCCC facilitates discussions by offering a framework for future protocols and agreements. It established the basis to encourage developed countries to do so with the Kyoto Protocol in 1997 and the Paris Agreement of 2015. One of their bodies include the Intergovernmental Panel on Climate Change (IPCC) which offers scientific assessments on climate change.

The Paris agreement⁸ of 2016 is a legally binding international treaty between 195 countries, committed to reducing their GHG emissions (EU Directive 2016/1841). As climate change is a global emergency, it does require international cooperation. The goal is to maintain the global temperature increase to below 2 degrees Celsius. Two key dates are to be kept in mind: reducing the GHG emissions by 55% by 2030 and reaching net zero emissions by 2050. Both Norway and the United States⁹ have signed in 2016 the international treaty and committed to take actions for climate change. More specifically, President Obama signed the Paris Agreement on the 3rd of September 2016, while the government of Norway¹⁰ signed it on the 20th of June, making it the 18th party to do so.

This treaty has set specific objectives to individual countries. Every five years, each country is expected to submit a national climate action plan, known as the Nationally Determined Contribution or NDC (Paris Agreement, Article 4). In their NDCs, countries firstly communicate actions they will take to reduce their greenhouse gas emissions in order to reach the goals of the Paris Agreement; and secondly, they list the actions they intend to take to build resilience and adapt to the impacts of rising temperatures.

Under President Barack Obama, the United States committed to reduce greenhouse gas emissions. However, in 2017 the country withdrew from the Paris Agreement under President Donald Trump. As the world's largest emitter of greenhouse gases (World Resources Institute), it is crucial that the United States be included in the efforts to achieve climate targets. In their paper, Urpelainen & Van de Graaf (2017) assessed the effects of the U. S. withdrawal from Paris agreement. The authors explained that the U. S. non-cooperation does not cause major threat to global emissions reductions, as some might see opportunities to step up and increase their efforts to assume global leadership. Emerging countries like China and India might be motivated by benefits from climate action or international reputation. Moreover, this is an opportunity for the EU to deepen collaboration with emerging countries. However, on the long term, climate finance faces a major threat due to the US being the largest contributor to the Green Climate Fund (GCF). The GCF fund was created to help developing countries cope with climate change, favoring cleaner alternative technologies.

In 2021, under President Biden, the United States rejoined the Paris agreement, marking an important step as the country renewed its commitment to address climate change. In their 2021 NDC¹¹, the U.S. reaffirmed their commitment to reduce greenhouse gasses by 50 to 52% below the 2005 level by 2030. The United States is willing to prioritize investments that will improve the sociocultural and sustainable aspects of the US communities. Regarding innovation, the United States commits to be involved in low

⁷ <https://unfccc.int/resource/docs/convkp/conveng.pdf> (consulted on the 6/8/2024 at 1:14 pm)

⁸ https://unfccc.int/sites/default/files/english_paris_agreement.pdf (consulted on the 6/8/2024 at 3:28 pm)

⁹ <https://obamawhitehouse.archives.gov/blog/2016/09/03/president-Obama-United-states-formally-enters-Paris-agreement> (consulted on the 6/8/2024 at 1:15 pm)

¹⁰ <https://sdg.iisd.org/news/norway-ratifies-paris-agreement-promises-to-go-carbon-neutral-by-2030/> (consulted on the 6/8/2024 at 1:15 pm)

¹¹ <https://unfccc.int/sites/default/files/NDC/2022-06/United%20States%20NDC%20April%202021%20Final.pdf> (consulted on the 6/8/2024 at 1:26 pm)

carbon technologies and renewable energy (US NDC, 2021). Diverse specific sectors are developed in their NDC with the goal of a transition to a low carbon economy, such as electricity, transportation, buildings, industry and agriculture.

As for Norway, its 2021 NDC planned to reduce GHG emissions by at least 55% compared to the 1990 levels by 2030. Norway has national regulations to complement the EEA ones. This is the 2017 Norwegian Climate Change¹² Act. It sets Norwegian legal frameworks for achieving climate targets and aims at reducing greenhouse gas emissions through the implementation of CO₂ taxes, but also participating in the EU ETS and investing in Carbon Capture and Storage (Norway's 2021 Nationally Determined Contribution). Every year, the Norwegian government is required to submit annual reports to the parliament on the progress of climate goals and updated plans every five years to achieve 2050 climate goals (Norway's Climate Action Plan for 2021-2030, Norwegian Ministry of Climate and Environment).

The CO₂ taxes will be further detailed in the Norway tax policies section. The main tool of the European Green Deal to reach climate neutrality by 2050 is the EU's Emissions Trading System (EU ETS)¹³. The system works on allowance, which is a permit to emit, calculated in tons of CO₂. Companies across a range of sectors are required to buy CO₂ emissions allowances. This system is applicable to EU countries as well as Iceland, Liechtenstein and Norway (EEA-EFTA states), limiting the total amount of greenhouse gases that sectors can emit. The revenue of the allowance is invested in climate and energy projects across the EU, such as green technologies and energy infrastructure (Directive 2003/87/EC). In their paper, the authors assess whether the EU ETS incentivize companies to reduce their emissions (Lynch et al., 2024). They explored the impact of EU ETS on the valuation of listed companies, highlighting the relationship between companies' environmental and financial performance. Their study concluded that emissions reductions from EU ETS became more effective over time. Reductions in emissions were rewarded by the markets, with high stock returns, aligning with its goals to lower carbon footprint. The success of EU ETS encourages companies to invest in low-carbon technologies.

Carbon Capture and Storage (CCS) is an important technology for achieving net-zero emissions in the energy sector. The International Energy Agency (IEA) asserts that the CCS can capture CO₂ emissions from power plants and industrial facilities to store them under the sea in order to prevent them from entering the atmosphere. With technologies like Direct Air Capture (DAC), CO₂ can directly be removed from the atmosphere (IEA, 2020). In Norway, the Sleipner project has been a pioneer of the CCS technology, initiated by Equinor in 1996. By 2016, the Sleipner project had already stored 17 million tons of CO₂ under the North Sea (IEA, 2016).

The Greenhouse Gas Emission Trading Act¹⁴ (Act of 17 December 2004 No.99, Ministry of Climate and Environment) is a Norwegian law, limiting greenhouse gas emissions with the CCUS system. This act recognizes the existence of the Norwegian Emissions Trading Registry in charge of managing emission allowances in the country, in accordance with the European Union's Emission Trading System (EU ETS).

In their study, Popielak Majchrzak-Kucęba & Wawrzyńczak (2024) highlighted the influence of the EGD in the increasing implementation of national energy projects in each state, such as the Acorn Project in the UK or Aramis in the Netherlands.

¹² <https://www.regjeringen.no/en/dokumenter/climate-change-act/id2593351/> (consulted on the 6/8/2024 at 1:27 pm)

¹³ https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets/what-eu-ets_en (consulted on the 6/8/2024 at 3:25 pm)

¹⁴ <https://www.regjeringen.no/en/dokumenter/greenhouse-gas-emission-trading-act/id172242/> (consulted on the 6/8/2024 at 3:26 pm)

An updated version of Norway's NDC was published in 2022, including more information about the plans and tactics to meet the targets established the previous year. It emphasizes transparency and includes more specific policies and actions. The main differences between the 2021 and 2022 versions are the level of detail and the outlined implementation strategies. The 2021 update set ambitious targets, while the 2022 version provides a clearer road map to achieve these targets.

Non-compliance with Paris Agreement

The *Paris agreement* has set the framework for actions to keep global warming under 2 degrees Celsius. Its implementation by the EU and the United States has significant relevance given both their political and economic influence and their being major GHG producers. However, the Paris Agreement does not impose any sanctions regarding its non-compliance. Instead, it established the Paris Agreement Implementation and Compliance Committee (PAICC), under Article 15 to facilitate the implementation of the Nationally Determined Contributions. The Paris Agreement does not legally require the implementation of the NDC, though their publication is mandatory under Article 4 Paragraph 2 (Bodansky, 2016).

Member states can choose to withdraw from the treaty if they find the constraints too burdensome, as the U. S. under President Trump did. However, they face reputational risks if they do not comply with their commitments or perform poorly. Transparent and accountable companies often enhance their reputation and tend to achieve better financial performance. However, finding the balance between profitability and sustainability responsibilities remain challenging (Adams & Zutshi, 2004; Bodansky, 2016).

Additionally, some authors analyzed the insufficiency of the Paris Agreement's goals. They emphasized the bottom-up approach in the publication of NDC, where member states set the long-term objectives without specific emission reduction targets, scope, allowing flexibility in member states. With this approach, there is a lack of clear pathways for implementation, with the risk of countries setting ambitious targets but without matching real actions (Sun et al., 2022).

A.2. European Green deal

In 2019, The European Commission had developed a set of policies aimed at reaching net neutrality by 2050. EU members needed to work collectively to transform the EU's economy and society to a more sustainable level. This would effectively address climate and environmental issues. The intermediate goal is to reach 55% reduction in greenhouse gas emissions by 2030, compared to the 1990 levels (European Commission, 2020).

This was rather a suggestion, transformed into a legal obligation by the 2021 *European climate Law*¹⁵ which is part of the *European Green Deal*. It ensures that all EU members set long term strategies to commit to reducing greenhouse gas emissions, meeting the common target. In order to guarantee that all EU laws are in line with the EU emission reduction targets, the European Commission is reviewing laws including the renewable energy (COM/2020/741¹⁶ and EU/2018/2001¹⁷), energy efficiency and energy infrastructure (EU/2024/1275¹⁸) thematics.

¹⁵ <https://eur-lex.europa.eu/eli/reg/2021/1119/oj> (consulted on the 6/8/2024 at 11:09 am)

¹⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2020:741:FIN&qid=1605792629666> (consulted on the 6/8/2024 at 3:26 pm)

¹⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32018L2001&qid=1722950716100> (consulted on the 6/8/2024 at 3:26 pm)

¹⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32024L1275&qid=1722849486076> (consulted on the 6/8/2024 at 3:26 pm)

In his publication, Schunz (2022) studies whether the European Green Deal (EGD) is a significant shift in the EU's approach to sustainability. He analyzed the EGD and its implications for sustainability performance. He concludes that the EGD indeed creates new opportunities for action, positioning environmental sustainability as a primary objective, compared to what had existed before with the Lisbon Strategy and the Europe 2020 agreement for example. The European Green Deal ambitions will lead to significant policy changes.

Non-compliance with European Green Deal

Like the Paris Agreement, member States apparently do not face sanctions for non-compliance with the European Green Deal, as none of its articles mentions penalties for non-compliance. Additionally, in their study, Bruch et al. analyzed stakeholders' perspectives on setting sanctions (Bruch et al., 2024). This seems to imply that at present no sanctions exist to enforce compliance.

The Treaty on the Functioning of the European Union (TFEU)¹⁹ highlights the common objective of European policies. It is up to member states' competences to adapt their national jurisdictions and sincere cooperation is required from member states, under article 4. Under Article 11, the European Commission is obliged to integrate environmental considerations into its policies. EU member states are indirectly subject to this article.

A.3. Inflation Reduction Act

As to the United States, in 2022 the Biden administration published the *Inflation Reduction Act* (IRA) after rejoining the Paris Agreement. The IRA was enacted in August 2022. In terms of taxation, the IRA comprised several tax proposals destined to finance climate and energy policies:

- an increase of the corporate alternative minimum tax rate from 15% to 21%.
- to reject deductions for employee compensation above 1 million dollars.
- an increase of corporate income tax from 21% to 28%.

These are currently on hold as the Republican majority in Congress blocked them. The outcome will depend on the party that will gain control over Congress during the next election year (2025).

In terms of sustainable initiatives, the United States Inflation Reduction Act aims to implement significant energy and climate policy reforms (IEA, 2024). These include \$ 370 billion in investments. Various tax provisions²⁰ include the *Investment Tax Credit* (ITC) which provides a tax credit for investment in renewable energy products, and the *Production Tax Credit* (PTC) which provides tax credits for electricity produced from renewable energy. This provided significant incentives to support the deployment of clean electricity and storage. Moreover, the *Department of Energy Loan Programs* has increased its loan authority to support clean energy projects, up to 40 million dollars. The IRA's tax provisions are designed to foster a significant shift towards clean energy and climate action, providing incentives for renewable energy projects (The White House, 2023)

A.4. Regulatory framework

Back in 2010, Freeman analyzed the stakeholders' pressure on companies (stakeholder theory), suggesting that focusing on their needs and concerns, companies can achieve long-term success and viability. He argued that businesses must think beyond financial performance.

¹⁹ <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:12012E/TXT:en:PDF> (consulted on 8/8/2024 at 9:03 am)

²⁰ <https://home.treasury.gov/policy-issues/inflation-reduction-act/ira-related-tax-guidance> (consulted on 8/8/2024 at 9:13 am)

In 2014, the European Commission published the *EU Directive 2014/95/EU*²¹, setting the legal obligation for certain big companies to disclose non-financial information. This was called the *Non-Financial Reporting Directive* or NFRD (Dolmans et al., 2021). Under its scope, *Public-Interests Entities* (PIEs) with more than 500 employees are required to disclose NFRD to further stakeholder value transparency and accountability. The NFRD did not require third-party verification, however companies are free to hire service providers to verify their ESG information. This helps stakeholders to assess risks and opportunities related to the policies (Durand, 2024). Non-compliance with NFRD will result in penalties and legal sanctions.

A few years later, the Corporate Sustainable Reporting Directive replaced the NFRD (Directive 2022/2464) broadened the definition of “public interest”. The CSRD adopted by the EU Council on November 28, 2022 came into force on January 5, 2023. The new regime requires large undertakings (listed or not) as well as any undertaking with securities listed on an EU regulated market, to disclose sustainability information. This concerns more than 50 000 EU undertakings (Dolmans et al., 2021).

Companies are highly encouraged to use existing reporting frameworks such as the *Global Reporting Initiative*, the *Task Force on Climate-related Financial Disclosures*, the *Sustainability Accounting Standards Board* (SASB) and other (European Parliament, 2021²²). The reporting frameworks seeks to be consistent, therefore leading to a better comparison between companies.

On the other side, the US have not implemented any obligation regarding disclosing ESG information (Fagotto & Graham, 2007). They suggested that Congress should mandate transparency, arguing that voluntary initiatives are insufficient and must be required in a legal framework. In line with Suchman (1995) which recognized that mere compliance to environmental regulations is not enough. He added that companies must go beyond legal requirements to achieve long-term success, enhancing their legitimacy. Additionally, Porter & Van der Linde (1995) challenged the traditional interpretation that environmental regulations are burdens that increase expenses and reduce companies’ competitiveness. They introduced the terms “innovation offsets” arguing that companies should focus on the outcomes, as costs are outweighed by innovations which later enhance their productivity, improve resource efficiency and provide them with a competitive advantage.

Disclosing ESG information increase companies’ financial performance. Indeed, Consolandi et al. analyzed a large sample of U.S. companies and found that companies with strong performance on material sustainability issues demonstrate better financial performance than firms with poor performance sustainability issues (Consolandi et al., 2020). This finding aligns with the Inamdar’s study, which evaluated the influence ESG disclosures with the companies’ financial performance. Analyzing listed companies in India, Inamdar found a positive correlation between disclosing more environmental information with the value of the firms (Inamdar, 2024).

The following section will be dedicated to detailing the different international standards and assessments to ensure the transparency and accuracy of companies’ reporting about their sustainability performance.

²¹<https://eur-lex.europa.eu/eli/dir/2014/95/oj> (consulted on 8/8/2024 at 9:20 am)

²²[https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/654213/EPRS_BRI\(2021\)654213_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/654213/EPRS_BRI(2021)654213_EN.pdf) (consulted on 8/8/2024 at 9:25 am)

A.4.A. Global Reporting Initiative

The *Global Reporting Initiative*²³ (or GRI) is an international non-profit organization which provides a comprehensive framework for sustainability reporting, enabling them to be transparent about their sustainability impacts. It is recognized by the European Parliament and widely used by companies to disclose environmental, social and governance performance (ESG). GRI reporting not only enhance transparency but also aims to build trust with stakeholders. Adams et al. (2022) argued that the use of this latter is often aimed at enhancing companies' reputations and improving financial performance rather than reflecting a genuine commitment to sustainability.

The GRI was founded in 1997 with the support of the *United Nations Environment program* (UNEP). A standardized reporting method is provided by the GRI guidelines, comprising three series of standards:

- **GRI 1: Universal standards** outline the essential companies must comply with, in accordance with the GRI standards. These standards address topics such as the identification and assessment of the companies' impacts, as well as the governance, the strategy, and the management approach.
- **GRI 2: Sector standards** provide guidance on disclosures specific to different industries such as agriculture, manufacturing and financial services, detailing the company's structure and reporting practices.
- **GRI 3: Topic standards** offer guidance on specific topics issues such as climate change, human rights and corruption. It includes a materiality assessment to identify the sustainability topics most important to a company's stakeholders.

The final GRI report must be reviewed and approved by stakeholders before making its sustainability performance public.

A.4.B. Task Force on Climate-related Financial Disclosures

Another important framework is the *Task Force on Climate-related financial disclosures* (TCFD). TCFD is a global organization, part of the G20, which developed recommendations related to ESG disclosures as a way into transitioning to a more sustainable economy (TCFD, 2017).

The focus of the TCFD recommendations is to report the impact of organizations on climate. This initiative, established in 2025, allows companies and financial institutions to better inform their stakeholders, investors and the public, increasing transparency. TCFD has issued guidelines to help companies to report effectively. This includes 11 disclosure recommendations, which cover four areas: Governance, Strategy, Risk management and Metrics and targets (TCFD, 2017):

- **Governance:** companies must disclose the climate-related risks and opportunities they face and the management role in assessing these issues.
- **Strategy:** companies should develop strategies on the short, medium and long term, taking into consideration different scenarios from an increase of 2 degrees Celsius (or lower). They must assess the impacts of those risks on their business, strategy and financial planning.
- **Risk management:** companies need to disclose the processes to identify and manage the climate-related risks and opportunities and how the processes of identification are integrated into the business's overall risk management.
- **Metrics and targets:** companies must disclose the metrics they use to evaluate the companies' processes, ensuring alignment with their strategies, transition plan to achieve climate target and their GHG disclosures across scope 1, 2 and 3 emissions.

²³<https://www.globalreporting.org/> (consulted on 7/8/224 at 11:21 am)

Ding et al. (2024) explored the link between carbon emissions and disclosing ESG information, following the TCFD recommendations. They concluded that companies with higher emissions tend to disclose more ESG information in their annual reports. Similarly, Bingler et al. (2024) found that the participation in the TCFD does not necessarily result in meaningful climate actions.

A.5. Voluntary commitments

A.5.A. Carbon Disclosure Project

The Carbon Disclosure Project (CDP) is an international non-profit organization which was established to help companies disclose their environmental impact, focusing on climate change, water security and deforestation. Companies must fill the CDP's annual questionnaire detailing their environmental performance. In the questionnaire, they report their greenhouse gas emissions, climate-related risks and strategies to reduce carbon footprint. The *Carbon Disclosure Project* is in line with the TCFD, matching the recommendations with disclosure questions. The companies' answers to the CDP questionnaire must be checked by external, accredited verifier²⁴, referred to as the CDP's verification team. Such services companies include PricewaterhouseCoopers, ERM CVS, LRQA and others. They are accredited under internationally recognized standards such as ISO or ISAE standards (CDP reports).

The Carbon Disclosure Project evaluates the companies' questionnaire by giving them a score from A (the highest score) to D- (lowest score). The final letter score is achieved when the minimum score on the level before has been met. Four levels exist from Disclosure, Awareness, Management to Leadership. (CDP, 2024).

- **Disclosure level (D- and D):** evaluates the completeness of a company's reporting.
- **Awareness level (C- and C):** assesses how a company measures the impact of environmental issues on their operations, without necessarily reflecting any actions taken.
- **Management level (B- and B):** assesses the effectiveness of companies' management of environmental impacts and its actions to mitigate those.
- **Leadership level (A- and A):** recognizes companies that demonstrate the best practices and actions in addressing climate challenges.

The score level²⁵ reflects the quality of information disclosed based on a transparent and standardized methodology, it is then posted on the CDP website. CDP questionnaires are not mandatory.

Level	Climate Change	Forests	Water Security	Score band
Disclosure	1-49%	1-49%	1-49%	D-
	50-79%	50-79%	50-79%	D
Awareness	1-44%	1-44%	1-44%	C-
	45-79%	45-79%	45-79%	C
Management	1-44%	1-44%	1-44%	B-
	45-79%	45-79%	45-79%	B
Leadership	1-79%	1-79%	1-79%	A-
	80-100%	80-100%	80-100%	A

Source: https://cdn.cdp.net/cdp-production/cms/guidance_docs/pdfs/000/005/365/original/CDP_Full_Corporate_Scoring_Introduction.pdf?1719845480
(consulted on 8/8/2024 at 4:12 pm)

²⁴ <https://www.cdp.net/en/guidance/verification> (consulted on 12/8/2024 at 9:52 am)

²⁵ <https://www.cdp.net/en/scores/cdp-scores-explained> (consulted on 12/8/2024 at 9:53 am)

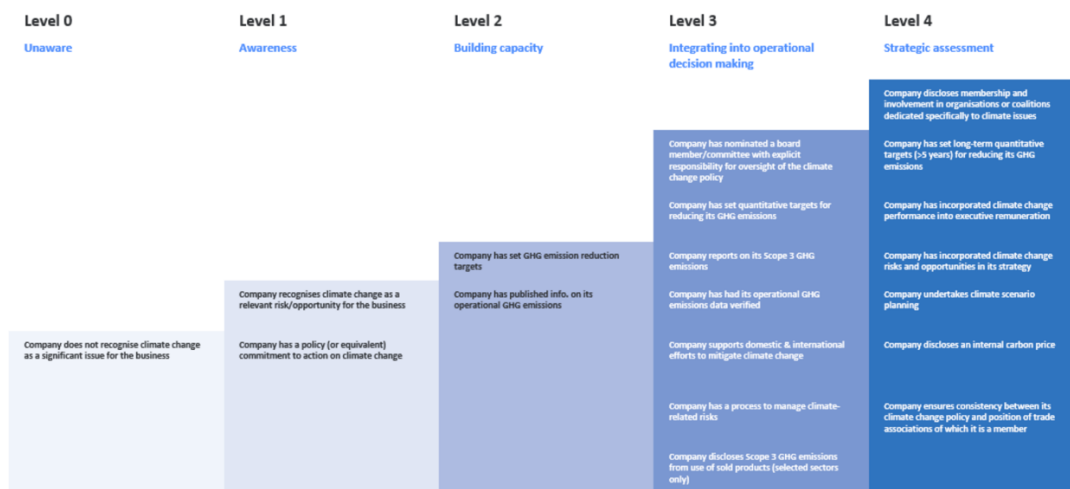
Companies with strong environmental performance are likely to publish their CDP questionnaire, using this disclosure to distinguish them from competitors and increase their reputation. Similarly, those in high carbon-emitting sector tend to use the CDP as a tool to legitimize their actions and mitigate negative perceptions by demonstrating their accountability (Ott et al., 2017). Additionally, Renner (2011) finds that companies involved in Carbon Disclosure Projects experienced higher financial returns, indicating a positive relationship between transparency in climate practices and investors commitment (Renner, 2011). Participating in voluntary initiatives positively influence the companies' performance.

A.5.B. Transition Pathway Initiative

The Transition Pathway Initiative (or TPI) was created by asset owners to evaluate how well companies are prepared to transition to a low carbon economy. This initiative dates from 2017 and aims to support greater transparency and accountability for corporate commitments to net zero emissions. TPI assessments are based on TCFD recommendations and are publicly posted on their website. This initiative evaluates two dimensions:

- **Management quality** is evaluated to disclose companies' management to climate-related risks and opportunities.
- **Carbon performance** is evaluated by the method developed by the International Energy Agency. The TPI assessments compare the current and future performance of businesses with the international targets, as set in the Paris Agreement.

Figure 3. The Management Quality staircase



Source: TPI's methodology report – Management quality and Carbon Performance (TPI, 2021)

Based on their performance to comply with their developed policies, emissions reporting and verification, targets and strategic risk assessment, companies receive a score level from 0 (unaware of climate change as a business issue) to 4 (strategic assessment). Companies with a high score fully integrate climate change risks in their business, suggesting a pro-active approach to mitigate climate change impacts (TPI, 2021).

A.6. External assurance

The obligation to disclose ESG information and have it audited, is required by *the Corporate Sustainability Reporting Directive*²⁶ (2022/2464/EU). Large companies with more than 500 employees, Public-Interests entities (PIEs), listed companies but also companies from specific industries like oil and gas businesses are required to hire independent auditors to conduct an assessment on the companies' ESG disclosures, verifying their compliance with EU standards and evaluating the robustness of the internal controls implemented to collect and report these data. The final audit opinion expresses the reliability and compliance of the company's ESG statements (Dolmans, et al., 2021).

However, companies can also ask for voluntary ESG audits to further transparency and accuracy, which may lead to be integrated in sustainability indexes such as the Dow Jones Sustainability Index (DJSI). Some authors criticized the credibility of being included in the DJSI index as some companies involved in irresponsible activities can still be part of it, despite their poor environmental performance (Arribas et al., 2021). Efforts to be part of the DJSI is motivated by reputation concerns and improved stakeholders' relations (Searcy & Elkhawas, 2012).

Hawn et al., 2018 found that investors initially showed little concern about their company being included in the DJSI, but that attitude seemed to evolve positively. These results were confirmed by Durand et al., 2019. They found no effect of DJSI activism on stock prices and trading volumes. Yet being listed in the DJSI increased visibility and an increase in equity being held by long-term investors. Other studies concluded that companies listed in the DJSI tend to have better financial performance, leading to a competitive advantage (Lopez et al., 2007; Searcy & Elkhawas, 2012).

²⁶ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32022L2464> (consulted on 9/8/2024 at 8:07 pm)

A.7. Certification ISO

In 1996, the International Organization for Standardization (ISO) issued an environmental certification called the ISO 14001²⁷, providing companies an effective framework for environmental management systems (EMS). ISO 14001 requires companies to identify environmental impacts, develop objectives implement operational measures and continuously monitor performance while complying with laws and regulations. This helps companies mitigating their environmental impacts, improve environmental performance and enhance credibility and reputation with stakeholders. High costs and commitments are required from companies in order to be certified but are rewarded with financial benefits on the long run, increasing their reputation (De Jon et al., 2017). However, Mosgaard & Kristensen (2020) found that limited benefits are observed from holding the certification by smaller companies.

Lee et al. (2017) found a correlation between the certification and improvements in environmental performance. Certification ISO 14001 increases companies' market value by serving as a legitimacy tool, particularly in response to institutional pressures from the Paris Agreement (Margaret et al., 2024).

II.B General presentation of the protagonists

B.1. Brief history of the State of Texas - Oil in Texas

Texas is the largest state in the U.S. after Alaska (see Appendix 7a), with 30,000,000 inhabitants²⁸. It forms the middle of the country's southern flank. The geology of Texas has allowed the formation of oil-rich layers. This is because over geological times the state has often been covered by seas (see Appendix 7b).

As for other U.S. states, Texas has a significant degree of autonomy. This leads to substantial differences in policies and practices among U. S. states. However, they do not possess full sovereignty as independent countries. Texas operates within the framework of the U.S. federal system, unlike Norway, which is a sovereign state. The oil industry's taxes are mostly dependent upon the federal government though, as will be seen.

B.2. Brief history of Norway - Oil in Norway

The discovery of North Sea oil in 1969 was a major event for Norway and had significant implications for the global oil industry. The first commercial discovery was made by the Phillips Petroleum Company at the EKOFISK field (see Appendix 8). This field was located in the Norwegian sector of the North Sea called the Norwegian Sea and revealed itself to be one of the largest offshore oil fields in the world. This marks a turning point for Norway, which enters an era of economic growth and by 1995 Norway was the world's second-largest exporter. This resulted in a large increase in wealth.

²⁷ <https://www.iso.org/standards/popular/iso-14000-family> (consulted on 9/8/2024 at 9:08 pm)

²⁸ https://worldpopulationreview.com/states/texas-population?force_isolation=true (consulted on 9/8/2024 at 8:08 pm)

II.C The political structure

C.1. In the United States

The political structure of the United States comprises the US federal government and individual state governments. The US federal government is composed of three branches: executive, legislative and judicial, as will be detailed in the next paragraphs (The White House website).

The head of the executive branch is the President of the United States, the head of state and of government. Elected for a mandate of four years, the US president is in charge of executing and enforcing the laws created by Congress. The latter elaborates laws for the nation and composed of two chambers: the Senate and the House of Representatives. The third branch is the judicial, with at its top the Supreme Court, the highest court in the country. The members of the Supreme Court are appointed by the president after vetting by Congress, as opposed to the legislative and executive members elected by the people (The White House site)

As to the state level, each of the 50 states in the United States has its own three branches of government and its own constitution. Their responsibilities are in areas such as education, transportation and public safety (The White House site).

C.1.A. Political parties

Presidential elections every four years shape the policies that will be implemented, based on the winning party. There are two major parties in the United States: the Republican and the Democrat. Other political currents (Reformist, Libertarian, Socialist, Natural law, Green Party, etc.) are relatively unimportant as far as electoral results are concerned.

The Democratic party emphasizes social responsibility and government support. They are in favor of increased taxation of high incomes, of health care and social services for all US citizens, of abortion rights for women, religious freedom and increased regulations for carrying weapons. These examples show the relative left leaning position of the party.

The Republicans are the opposite, conservative party. They are known as the Grand Old Party (GOP), with a right leaning position that supports traditional values, individual responsibility and freedom, low degree of government interference and support for the private sector. They are in favor of low taxation for all and are “pro-life”, fighting against abortion. They also oppose the introduction of gun control measures. Regarding climate change, this party has shown skepticism on climate concerns (Goldberg, 2021; Ehret, 2021).

There is a wide gap between the views of the two political parties on climate change. Back in 2001, the Intergovernmental Panel on Climate Change (IPCC) affirmed in their report that global warming is a reality. Public opinion on its occurrence is divided, though. Since late 1990, the U. S. public opinion on environmental issues have been polarized. In their study, the authors emphasize the answers from Gallup's poll in 2008, demonstrating divergent points of views between Democrats and Republicans (Dunlap & McCright, 2008).

Gallup is an established organization that polls public opinion on diverse subjects. Their 2008 results are collected from 1,012 adults 18 years old and older. According to Gallup the margin error is around 3% and the confidence level is 95%. Here is an example of questions asked to the participants:

- Is global warming occurring? Only 54% of Republicans believe in its occurrence (against 75% in the Democratic party).

- Is media coverage exaggerated? 59% of Republicans believe so (against 17% in the Democratic party).
- Is it human-caused or natural-caused? 40% of Republicans do believe that climate change is caused by human activities (against 72% in the Democratic party).
- Is global warming a threat? Only 26% of Republicans believe that climate change is a serious threat (against 49% in the Democratic party)

These results highlight significant disparities between the Democrat and Republican parties (see Appendix 9), leading to the implementation of different policies in the 50 U.S. States and matching their dominant parties (Reed, 2006; Jeanne et al., 2023). Tax burdens tend to be higher under Democrats control, with state and local rates being 3% to 5% higher than those under Republican control (Reed, 2006).

When it comes to environmental concern, both political parties support renewable energy, though for different reasons. Republicans are primarily motivated by economic reasons (i.e., the possibility of making profit), whereas Democrats have broader environmental motivations (Gustafson et al., 2020). Consequently, the level of climate transparency that is required locally also depends on the political framework (Jeanne et al., 2023).

Our analysis will first turn to the State of Texas, which has been dominated by the Republican political party since 1976, with Republican governors continuously occupying the seats since that date (Miller, 2020).

C.1.B. The State of Texas

The capital of Texas is Austin (while the oil capital is Houston). The head of the state is the governor, presently Greg ABBOTT. He heads the executive branch and the national guard. He has been governor since 2015 and is a Republican, as stated.

C.1.C. Federal environmental commitments through different mandates

The standing position of the US in regard to the fight to reduce GHG emissions strongly depends upon the ruling party's and the president's position.

Presidency	Barack Obama	Donald Trump	Joe Biden
Mandate period	From 2009 to 2017	From 2017 to 2021	From 2021 to 2025 (next election on November 5 th , 2024)
Political party	Democratic	Republican	Democratic
Actions taken	Entered paris agreement (2015) Clean Power Plan	Withdrawn from Paris Agreement	Rejoined Paris Agreement and updated NDC + Inflation Reduction Act (increase in taxation such as corporate income tax and corporate alternative minimum tax)

As mentioned previously the Democrat President Barack Obama was strongly committed to protecting the environment and joined the Paris Agreement. However, Trump's 2017's withdrawal from the Paris Agreement weakened the international collaboration on net carbon neutrality (Urpelainen & Van de Graaf, 2017).

C.2. In Norway

C.2.A. Political structure – History

Norway is a constitutional monarchy. The head of state is the king (presently Harald V) or depending on the succession, a queen. His/her role is ceremonial and representative. The executive is represented by the prime minister (presently Jonas Gahr STØRE), who is the head of government. The legislative branch is the unicameral parliament, called the *Storting* (other chambers were abolished in 2007). As to Norway's internal politics, the socialist workers' party (Labour Party) has had a fairly stable majority since 2013. At present (2024), the Labour Party scored second after the Conservative party (see Appendix 10).

After a negative referendum in 1972, Norway is one of the few states in Western Europe not to have become a full member of the European Union. Since 1994 Norway has entered the European Economic Area (EEA) though, which is a commercial union (EU Directive on 03/01/1994²⁹). Additionally, Norway is also part of the Schengen area³⁰, ensuring the free-circulation of persons (it joined in several stages from 1996-2001).

Because of these memberships Norway has to respect some European regulations, among others in the fiscal field (direct and indirect taxation) and in sustainable development and the green economy.

C.2.B. Different structures lead to different climate policies

In his work, Wendler (2022) highlighted similarities but also marked differences between the EU and US systems. Among the similarities, there is the fact that the higher levels of governance provide frameworks and guidance to the lower levels. These have the flexibility to adapt according to their economy and preferences.

The EU, a supranational entity of 27 member states sets climate goals and regulations but allows member states to define specific GHG reduction measures. For example, the EU Emissions Trading System (EU ETS) aims to reduce greenhouse gasses emissions by at least 55% by 2030 compared to the 1990 levels. Each member state receives an emission allowance and can implement additional policies to meet the overall goal.

In the US, the US federal government sets national policies and regulations, while states have the autonomy to implement these policies within their borders, leading to different measures based on the political party in place (Reed, 2006; Jeanne et al., 2023). For example, the Democrat state of California has established a Renewable Portfolio Standard (RPS) aiming to produce 100% of its electricity with carbon free sources by 2045, whereas Republican-dominated Texas has invested in renewable infrastructure through the Renewable Energy Credit program (ERC) but has no specific target. As of 2023 they also continue building new fossil fuel-based energy plants³¹.

²⁹ [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:21994A0103\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:21994A0103(01)) (consulted on 8/8/2024 at 3/06 pm)

³⁰ <https://www.regjeringen.no/en/topics/european-policy/Norways-relations-with-Europe/cooperation-schengen/id684929/> (consulted on 8/8/2024 at 3:08 pm)

³¹ <https://www.utilitydive.com/news/texas-voters-approve-energy-fund-gas-power-plants-proposition-7/699110/> (consulted on 12/8/2024 at 3:45 pm)

II.D Tax and financial policies in Texas

Tax policies have the power to promote certain behaviors and activities, especially with tax deductions that can lower the overall tax bill for businesses. One will now look at the tax policies applied to oil producers in the state of Texas and in Norway.

D.1. Federal revenues

Taxes are levied by several levels of governments. In the United States, federal, state and local governments each levy different taxes independently, without involvement of the federal structures. Here one will first look at the taxes levied by the federal government, before addressing the state level.

D.1.A. Corporate income tax

Companies in the United States are subject to a federal income tax of 21%, reduced from 35% by Trump administration's Tax Cuts and Job Act (TCJA, Subtitle C), due to expire in 2025³². In the state of Texas, the state income tax rate is at 0% (Texas Constitution, Article 8) resulting in a total of 21% taxation for companies (see Appendix 11a). This is one of the lowest rates in the United States (with five other states: Ohio, Nevada, South Dakota, Washington and Wyoming).

In 2023, the federal government collected a total of 2,176 billion USD of federal income taxes, a decrease of 456 million USD compared to the 2022 level, which had the highest revenues collected since 2000 (see appendix 11b).

Additionally, American companies can deduct 20% of their Research and Development costs (R&D), reducing their federal income tax, under the R&D Tax Credit established since 1981 (Title 26, U.S. Code, Internal Revenue Code Section §41). These deductions are considered as incentives as they encourage investments in projects.

D.1.B. Federal Oil Royalties

When extracting oil from federal lands, oil companies must pay royalties to the federal government (US Treasury). These generally amount to 12,5% of the value of extracted oil (Mineral Leasing act of 1920). The effective rate varies depending on the terms of the lease agreements and on the type of natural resource. For example, the royalties amount to 25% for oil extraction in Texas (see Appendix 12).

Oil extraction is only allowed if the companies obtain lease agreements from the federal government. This document features a description of the land, the terms and conditions of the lease, the payment schedule and reporting requirements.

D.1.C Oil depletion allowance

The Oil Depletion Allowance is a depreciation deduction (an oil field loses value at the rate oil is removed from it). Oil producers are thus allowed to deduct a percentage of the total value of oil extracted in the fiscal year from their taxable income. The legal percentage is currently 15% (U.S. Code Title 26, Section 613). This reduction provides an economic incentive to oil producers to extract more oil. The depletion allowance played a crucial role in the American tax system (Shulman, 2011).

³² <https://kpmg.com/us/en/home/insights/2024/07/tnf-kpmg-report-expiring-provisions-2025.html> (consulted on 12/8/2024 at 3:46 pm)

The concept of oil depletion allowance was introduced in 1926 to support economic growth in the U.S, allowing investors to deduct 27,5% of their gross income from oil investments. This made oil exploration and production attractive to companies. However, it faced many controversies criticizing the favoritism of big businesses and its encouraging overproduction, but it played an important role in the American tax system (Shulman, 2011).

D.2. Federal subsidies

A total of 7 trillion dollars in subsidies have been devoted to the oil sector in 2022: 5,7 in explicit subsidies and 1,3 in implicit subsidies (Appendix 13). This amounts to 7.1% of the US gross GDP³³, which is more than the amounts invested in education and healthcare (IMF, 2023).

Most federal subsidies granted to oil producers were invested in renewable energy³⁴ (See Appendixes 14a and 14b). Chapter 313 of the Texas Tax Code explains the Texas Economic Development Act³⁵, that encourages business investments and economic development by offering tax incentives. To qualify, businesses must submit projects creating and retaining jobs, as well as supporting the local economy. These can vary from renewable energy projects to industrial facilities. Despite criticisms for its GHG emissions, Texas is the second largest solar installer, with 22 872 Megawatts (see Appendix 19). The United States as a whole has experienced a positive increase in the solar power net (see Appendix 20).

D.3. Texas state taxes

In addition to federal taxes, oil companies are also subject to state taxes, defined by the Texas Tax code.

The Texas Tax Club Act movement started advocating for tax reductions and tax reform in Texas as early as 1925 (Martin, 2013). Since then, the corporate income rate has been lowered to 0%. This constitutes a great competitive advantage for companies in this state.

Most Texas' revenues come from the oil and gas industry and is allocated to public services such as education, healthcare, transportation, and road maintenance, as well as in various funds such as the General Revenue Fund (Texas Comptroller of Public Accounts, 2024). Since 2014, Texas has seen an increase in its tax collection, raising 82.1 billion dollars in the fiscal year 2023 (see Appendix 15a).

The different state taxes imposed on oil producers in Texas will be detailed in the next section.

D.3.A Severance taxes

The severance tax is a state tax levied on the extraction of natural resources such as oil and gas. This tax is called severance tax as the resource is "severed" from the ground, meaning that it is removed or extracted it. In Texas, the current severance tax rate is 4.6% of the market value of the produced oil (Texas Tax Code, Chapter 202). It can also be called "oil production tax" as it is a specific severance tax applied to the extraction of oil. The tax is collected monthly by the Texas Comptroller of Public

³³ <https://www.imf.org/en/Blogs/Articles/2023/08/24/fossil-fuel-subsidies-surged-to-record-7-trillion>
(consulted on 9/8/2024 at 1:25 pm)

³⁴ <https://www.eia.gov/analysis/requests/subsidy/> (consulted on 9/8/2024 at 1:26 pm)

³⁵ [https://comptroller.texas.gov/economy/development/prop-tax/ch313/#:~:text=Texas%20Economic%20Development%20ActTax,operations%20tax%20\(M%26O\)%20purposes.](https://comptroller.texas.gov/economy/development/prop-tax/ch313/#:~:text=Texas%20Economic%20Development%20ActTax,operations%20tax%20(M%26O)%20purposes.) (consulted on 9/8/2024 at 2:22 pm)

Accounts. However, not all U.S. states impose severance taxes. Pennsylvania, for example, is the biggest gas producer and does not apply them (Chakravorty et al., 2010)

From 2000 on there has been a general increase in the Texas severance taxes, reaching its highest peak in 2022 (See Appendix 16). In his study, Kunce analyzed the influence of severance tax rate on the US oil industry. Reducing the severance tax leads to a slight increase in oil production but a significant loss in the state’s revenues (Kunce, 2003).

From EIA databases (see appendix 15b), there is a general increase in oil production taxes collected over the years, but so are the total collected taxes. The three highest production peaks were reached in 2015, 2019 and 2023, specifically:

- In 2015, 1,261,783 barrels of oil being produced.
- In 2019, 1,864,363 barrels of oil.
- In 2023, 2,011,995 barrels of oil.

D.3.B Franchise taxes

Each entity formed, organized or doing business in Texas is subject to an annual franchise tax (Texas Tax code, Chapter 171). In 2024, the franchise tax exemption (no tax-due threshold) increased to 2.47 million dollars, meaning that businesses with revenues below this limit are in effect exempted from the tax. Note that this limit has been increasing over the years (appendix 17, manually obtained on Excel, based on data from the Texas government website³⁶).

The franchise tax can be computed using four methods, each starts with the business’ total revenue. Firms engaged in the wholesale or retail trade benefit from a 0.375% rate. Other firms must use the 0.75% rate. Businesses with total revenue of 20 million or less use the E-Z calculation, with a 0.331% tax rate.

Types of taxes applied to oil producers (in the U. S.)	Percentage
Federal income tax	21%
Texas corporate income tax	0%
Texas severance tax	4,6%
Franchise tax	0,375% or 0,75% (depending on the business)

II.E Tax and financial policies in Norway

In Norway, two levels of government exist and levy taxes: the central and local governments. The oil industry is an important part of the Norwegian economy and tremendous revenues have been collected. In total, the Norwegian government has levied NOK 631,6 billion in 2023 from petroleum activities. It is equivalent to 59,78 billion USD, using the 2023 average exchange rate³⁷ of 1 USD = 10,5647 NOK (see Appendix 21). It corresponds to approximately 12% of the 2023 GDP (485,51 billion USD in 2023³⁸).

³⁶ <https://comptroller.texas.gov/taxes/franchise/> (computed on 9/8/2024 at 2:29 pm)

³⁷ https://www.norges-bank.no/en/topics/Statistics/exchange_rates/?tab=currency&id=USD&frequencyTab=3 (consulted on 11/8/2024 at 3:27 pm)

³⁸ <https://www.statista.com/statistics/327319/gross-domestic-product-gdp-in-norway/> (consulted on 11/8/2024 at 4:12 pm)

In 1975, the Petroleum Taxation Act was voted in to govern the exploration and extraction of petroleum in Norway (Act of 13 June 1975)³⁹. Oil companies are subject to a special tax called the Petroleum Tax as well as paying royalties to the government that will be further detailed in the next paragraph.

E.1. Central government

The government taxation is voted in by the legislative branch and is levied by the executive branch. The latter is headed by the Prime Minister, presently Gahr Støre, appointed by the King, Harald V. Since 2021, Jonas leads the Council of state composed of other government ministers, among whom is the minister of Petroleum and Energy, Terje Aasland. He ensures sustainable and efficient resource management.

E.1.A. Corporate income taxes

Norwegian businesses are subject to a corporate income tax (CIT) of 22%, with companies in the financial sector facing a higher rate of 25%. Under the Petroleum Act (Act of 13 of June 1975), oil companies face a total corporate tax of 78% (including the ordinary CIT rate and a special rate), applied to net income (see below). With this act, the oil industry pays much higher taxes than other sectors. However, various deductibility possibilities exist⁴⁰ allowing the deduction of certain expenses such as operating expenditures, exploration costs and R&D expenses (PwC website, 2024).

- The operating expenses are **fully** deductible: in the year they incurred. They include the CO2 taxes considered as a normal operating cost.
- The explorations costs are **fully** deductible: in the year incurred.
- Capital expenditures (CAPEX) **for investments before 2020** are depreciated over six years using straight-line method. Additionally, an additional deduction was granted over four years, providing an extra depreciation.
- Payments to foreign companies are **fully** deductible⁴¹.

Since its introduction, the highest collection of special taxes collected by the Norwegian government occurred in 2022, with NOK 535,3 billion i.e., 55,61 billion USD, using the average exchange rate of 2022 of 1 USD = 9,6245 NOK (see Appendix 21).

Ordinary corporate tax	Special tax
Operating income (norm prices for oil)	Operating income (norm prices for oil)
- Operating expenses	- Operating expenses
- Linear depreciation for investments (6 years)	- Depreciation for investments (100 %)
- Exploration expenses, R&D and decom.	- Exploration expenses, R&D and decom.
- Environmental taxes and area fees	- Environmental taxes and area fees
- Net financial costs	- Calculated ordinary tax
- (Loss carry forward)	
= Corporation tax base (22 %)	= Special tax base (71,8 %)

Source: <https://www.norskpetroleum.no/en/economy/petroleum-tax/>

³⁹ <https://www.regjeringen.no/en/topics/the-economy/taxes-and-duties/Act-of-13-June-1975-No-35-relating-to-th/id497635/> (consulted on 9/8/2024 at 4:30 pm)

⁴⁰ <https://www.norskpetroleum.no/en/economy/petroleum-tax/> (consulted on 9/8/2024 at 6:50 pm)

⁴¹ <https://taxsummaries.pwc.com/norway/corporate/deductions> (consulted on 9/8/2024 at 7:09 pm)

E.1.B. Carbon taxes

To reduce GHG emissions, the Norwegian government implemented the CO₂ tax act (Act 21 December 1990⁴²) becoming the first country to introduce carbon tax on petroleum activities. It applies to companies involved in the production, import or sale of oil products. Its revenues fund environmental initiatives. This tax rate is a key element in Norway's environmental policy. It is set at approximately NOK 1,176 per ton CO₂ in 2024, equivalent to 108,53 USD per ton of CO₂ emitted, using the latest exchange rate 1 USD = 10,8359 NOK on the 9th of August 2024 (Ministry of Finance, 2024)⁴³.

Since 2000, the emission of GHG has stabilized in the petroleum sector and the government is now seeking a decrease (see Appendix 22).

In their study, some authors analyzed the effectiveness of carbon taxes in Norway (Bruvoll et al., 2004). They concluded that the overall effect on total emissions has been modest, but the most significant impact has been seen on the energy intensity. Later on, Ahmed et al. (2022) confirmed this hypothesis, demonstrating a bidirectional relationship between green taxes and energy consumption and intensity. Higher green taxes do indeed lower the energy consumption, encouraging more efficient energy use. The carbon tax is an efficient tool to reduce greenhouse gas emissions (Ahmed et al., 2022; Bonilla et al., 2022; Banet, 2017).

Types of taxes applied to oil producers (in Norway)	Percentage
Corporate income tax	22%
Petroleum tax	22% + 56% = 78%
Carbon taxes	NOK 2.10 per liter of oil (in 2024)

E.2. Subsidies

Norwegian government mainly provide subsidies on CCS technologies. Indeed, it is the second largest contributor of CCS subsidies with USD 4.12 billion out of USD 20 billion, standing after the United States⁴⁴. The real figure could be larger, given other forms of public support for CCS come under other ministries' budgets. Under the "SkatteFUNN" program⁴⁵ which was established in 2001, Research and Development expenses (R&D) can be deductible at 19%. Companies can deduct 19% of project costs for approved activities, with eligibility assessed by the Research Council of, up to NOK 25 million per year.

Since 2004, R&D expenditures have been increasing, reaching 2,28% of Norway's GDP in 2022 (see Appendix 18).

E.3. Royalties

The Norwegian state owns shares in various oil and gas fields on the Continent Shelf, under the State's Direct Financial Interest (SDFI). In 2024, these ownership interests were estimated to NOK 194 billion

⁴² <https://www.sodir.no/en/regulations/acts/co2-discharge-tax/> (consulted on 9/8/2024 at 5:30 pm)

⁴³ <https://www.regjeringen.no/en/dokumenter/notification-co2-tax-exemption-for-undertakings-covered-by-the-ets2/id3028459/#:~:text=For%202024%2C%20the%20CO2,gas%3A%20NOK%202.534per%20sm> (consulted on 9/8/2024 at 6:56 pm)

⁴⁴ <https://priceofoil.org/2023/12/11/norway-second-only-to-the-united-states-in-carbon-capture-subsidies/> (consulted on 9/8/2024 at 8:49 pm)

⁴⁵ <https://www.forskningsradet.no/skattefunn/> (consulted on 10/8/24 at 3:18 pm)

in revenue, equivalent to 17,9 billion USD using the exchange rate of 1 USD = 10,8359 as of the 9th of August 2024 (Norwegian Petroleum website).

Historically, oil producers in Norway were required to pay royalties. However, new licenses no longer have to pay these, though certain legacy fields may still be subject to royalties which are computed as a percentage of the production value or volume.

E.4. Norwegian Oil Fund

The *Norwegian Oil fund* was established following the discovery of oil in the North Sea in 1969. In 1990, the Parliament adopted the *Government Pension Fund*⁴⁶, and six years later the first revenues were transferred to the fund. The government aimed to use oil revenues carefully to build financial wealth for future generations and stabilize the economy. Thus, the main goal of the fund is based on a long-term perspective (Jens Stoltenberg, Finance minister from 1996 to 1997), only using international investments in equities, fixed income, real estate and renewable energy infrastructure (NBIM website).

As one of the world's largest funds, the Norwegian Oil Fund holds 1.5% of all shares in globally listed companies, allowing Norwegians to benefit from a small share of their profits each year. In addition to shares, the fund invests in buildings in the world's leading cities, such as London, Tokyo, New York and Washington D.C, diversifying its risk through wide spreading the investments (NBIM website).

Since 2001, a government consensus has been reached on how to manage the fund: the net cash flow from the oil industry has to be entirely transferred to the fund, with resources only used based on a budget approved by the Norwegian Parliament. The policy ensures that only fund's returns are utilized, preserving its capital (Government Pension Fund Act).

The Norwegian Oil Fund is managed by the Norges Bank Investment Management (NBIM). The main goal of this bank is to generate the highest return for the fund, under the control of the finance minister, who decides the investment strategy of the oil fund (Government Pension Fund Act). The investment's repartition data are displayed in Appendix 23.

In his study, Bhopal (2023) analyzed the approach of the oil fund in the context of climate change, arguing that it places little emphasis on climate considerations and advocates for greater public involvement in decision-making.

⁴⁶ <https://www.regjeringen.no/contentassets/9d68c55c272c41e99f0bf45d24397d8c/government-pension-fund-act-01.01.2020.pdf> (consulted on 9/8/2024 at 7:47 pm)

III. Analysis

III.A Research methodology

A.1. Data collection

Since acknowledging the importance to act against climate change, the United States and Norway committed to reduce greenhouse gas emissions and achieve net zero by 2050 under the Paris Agreement. This commitment is crucial to addressing global warming and mitigating its increasing effects on ecosystems and communities.

To meet these ambitious goals, companies must develop strategies and implement policies within their operations, in documents called sustainability reports using established framework such as the Global Reporting Initiative and the Task Force on Climate-related Financial Disclosures. The reports include data on the emissions reduction targets, the timeline to achieve these goals, the specific actions, the technologies adopted to meet climate targets and the sustainable investments made.

Additionally, at the end of the fiscal year, all companies are required to publish their financial statements in annual reports. These statements offer insights into the financial health and performance of businesses for instance through stating their total revenues, net income and capital expenditures for instance.

By reviewing these publicly available reports, I was able to gather comprehensive information on the strategies implemented by oil producers and assessed how tax policies impact companies' sustainability efforts, through an analysis the taxes paid.

A.2. Data analysis

In Europe, many directives have been developed, making it an obligation for members states of the European Union to comply with the Corporate Sustainability Reporting Directive (CSRD) and the Non-Financial Reporting Directive (NFRD). These ensure that companies provide detailed and consistent information on sustainability practices, enabling stakeholders to be well informed. In contrast, the United States has not established any legal obligation for sustainability reporting. Some U.S. companies decide to disclose their ESG practices on a voluntary base, which were relevant and valuable data for my research.

Concerning the research question on how oil producers respond to climate challenges, sustainability reports offer valuable insights into their various strategies and initiatives, i.e. a comprehensive understanding of the approaches implemented to reduce greenhouse gas emissions. Both quantitative and qualitative analyses will be included. Amongst the relevant key variables relevant for my analysis, there are:

- **Oil production:** the amount of oil produced by each company over the years. These data help identifying the general trends such as production level increases or decreases and the way companies adjust their operations in response to climate targets.
- **Target GHG emissions levels:** this variable will help to understand the level of ambition of each company in terms of reducing the emissions of greenhouse gasses. Analyzing target emissions levels will reveal the commitments made by companies to achieve climate goals.

- **Current GHG emissions levels:** By comparing current emissions levels with targets, we can analyze the progress each company has made towards the reductions of greenhouse gas emissions. This assessment will provide insights on the effectiveness of strategies implemented.
- **Investments in renewable energy and technologies (such as CCS projects):** Assessing the total amounts invested in sustainable initiatives will highlight the extent to which companies are committing resources to renewable energy projects and technological innovation. These investments are key to the transition to a low carbon economy.
- **Capital expenditures:** This variable includes all types of investments made by the companies. It comprises a wide array of projects, not limited to renewable energy.

For the second research question, i.e., the extent to which tax policies towards oil producers act as an indirect subsidy or incentive in Texas and Norway, annual reports are particularly relevant. It is important to define the differences between the two terms: **indirect subsidies** are tax exemptions or tax cuts given by the government to indirectly reduce companies' costs which do not involve direct cash payments, while **incentives** are measures to encourage specific behaviors. Annual reports provide information that help assessing the financial implication of tax policies on oil producers.

- **Total revenue:** This variable will provide a general view of the financial performance and health of each company.
- **Net income/loss:** Analyzing the net income or loss allow to assess the profitability of each company, in order to understand its financial situation.
- **Taxes paid:** This includes a breakdown of the total taxes paid on a federal, state and local level including the yearly income taxes paid overtime. This provides insights into the tax contributions of oil producers to different levels of governments.
- **Effective tax rate:** This variable shows the real tax burden companies are facing, in order to understand the extent to which tax policies influence the financial performance of oil producers.

By combining information from sustainability reports and annual reports, this research aims to provide a comprehensive understanding of how oil producers in Texas and Norway are responding to climate challenges and how they are adapting to the evolving environment of climate policies and sustainable expectations.

A.3. Oil companies' selection

The analysis deliberately focuses on four Norwegian and Texan oil companies, based on their oil production volumes throughout the years and licensees hold, the selected companies are:

- **Norway:** *Aker BP* and *Var Energi*
- **Texas:** *ExxonMobil* and *ConocoPhillips*

Aker BP is the second largest oil producer in Norway, holding 192 licenses on the Norwegian shelf⁴⁷ and 13,31 o.e produced in 2023. **Var Energi** ranks among the top four oil producers in Norway with 196 licenses and 4,75 o.e produced in 2023 (see Appendix 24). However, Equinor is the biggest oil producer in Norway. It was excluded from our analysis due to the 67% ownership by the Norwegian state, making the analysis of the company less relevant as strong government involvement influences its policies.

⁴⁷ <https://www.norskpetroleum.no/en/facts/companies-production-licence/> (consulted on 10/8/2924 at 9:30 am)

ConocoPhillips is a major oil producer headquartered in Texas⁴⁸, while **ExxonMobil** is one of the largest publicly traded oil and gas companies, with its headquarters in Texas. ExxonMobil operates in the exploration and production of oil, as well as in its refining and marketing. According to the most recent data, the biggest companies in terms of oil production include ExxonMobil, Chevron and ConocoPhillips (see Appendix 25).

The reports of three key dates have been selected for a comparison assessing the progress and impact of sustainable strategies. These dates are:

- **2017 reports:** It is key to considering commitments made under the Paris Agreement, which was signed two years earlier, in 2015. A space of two years after the signature should have left companies time to develop strategies. This would allow to detect initial initiatives to align with climate targets.
- **2019 reports:** This year provides insights into the pre-COVID-19 conditions, allowing the analysis to be unbiased by the exceptional disruptions and economic impacts caused by the pandemic.
- **2022 reports:** As the latest available data, the 2022 reports provide the most recent information on the companies' sustainability performance and strategies, as by the time of the redaction of this research many companies have not yet published their 2023 reports.

Selecting the oil companies, the key dates and the important variables to analyze, will allow an overview of the strategies and the performance of the companies chosen, highlighting the existence or not of trends and the progress in sustainability-related policies. This approach will offer valuable insights into how oil producers in Norway and Texas respond to climate challenges.

III.B Findings

B.1. Sustainability reports

B.1.1. Aker BP

Aker BP is the second largest operator on the Norwegian Continental Shelf (Sustainability report 2022), after Equinor which is 67% owned by the Norwegian state.

Regarding the long-term strategies of Aker BP, we observe a progressive commitment to reduce carbon emissions. In 2017, the main goal of Aker BP was to reduce CO₂ emissions intensity to 8 kilograms per barrel of oil. By 2019, they set more ambitious goals, aiming to achieve an emissions intensity below 5 kilograms of CO₂ per barrel of oil from 2020 and committed to a reduction of 140 000 tons of CO₂ by 2030, using 2016 as a baseline. The trajectory continued into 2022, as Aker BP set the goal to achieve net zero emissions in their operations (scope 1 and 2) by 2030. Additionally, Aker BP aims to lower their GHG intensity level under 4 kilograms of CO₂ per barrel of oil and achieve absolute reduction close to 100% in emissions for scope 1 and 2 by 2050. Their commitments focus on the CO₂ intensity and CO₂ emissions, showing their dedication to reduce their environmental footprint and their responsiveness to global concerns.

In reality, Aker BP did achieve the reduction of its carbon footprint: in 2017, their actual CO₂ intensity level was 7.2 kilograms per barrel of oil, meeting the goal of less than 8 kilograms that had been set previously. In 2019 the reduction of Aker BP's carbon footprint progressed to 6.9 kilograms and the idea was to further reduce it to under 5 kilograms by 2020. Throughout the years the CO₂ intensity has

⁴⁸ <https://www.statista.com/statistics/280705/leading-oil-companies-worldwide-based-on-daily-oil-production/> (consulted on 10/8/2024 at 9:31 am)

decreased, reaching a level of 3.7 kilograms in 2022. This reduction is a consequence of their investments in the electrification of their offshore installations. Their Valhall and Ivar Aasen oil fields indeed receive hydroelectric power from mainland Norway, improving their energetic efficiency. Offshore power generation accounts for 80% of Aker BP's CO₂ emissions (Sustainability Report 2019). The company focuses on digitalization to monitor and improve energy efficiency. Despite the efforts to reduce the CO₂ intensity through the years, the total CO₂ emitted increased: from 913 796 tons in 2017 to 1,066,456 tons of CO₂ in 2022, paralleling the increase in total of oil production: from: 50,671,230 barrels of oil in 2017 to 113 million barrels of oil in 2022.

Regarding third-party verification, one observes an improvement, with the involvement of PwC. One may add that from 2017 to 2022 the CDP level improved from level B to A-. This score indicates Aker BP's increasing transparency in their sustainability reports, compared to 2017. It was finally recognized for its climate action leadership by implementing best practices in 2022. Additionally, in 2023 Aker BP was assessed for the first time with a level 4 by the *Transition Pathway Initiative*. This is the highest level ever in their evaluation scoring. This underscores that the company is highly prepared for the transition to a low-carbon economy (see appendix 26).

B.1.2. Var Energi

Unfortunately for our analysis, Var Energi delayed its first sustainability report's release until 2019, whereas other companies had been publishing theirs since 2017. This affects the study by limiting the analysis to only two dates: 2019 and 2022. I chose not to include the data for 2020 and 2021, as they would bias the general trends, due to the significant disruptions caused by the COVID-19 pandemic. It significantly impacted all industries, including the oil sector. As a result, the focus is placed on data of 2019 and 2022 in order to have a clearer understanding of Var Energi' sustainability efforts minimizing the influence of COVID-19. This approach assumes that companies are in the process of recovering from the exceptional COVID-19 disruptions.

Var Energi describes itself as the most productive and profitable oil and gas company operating in various locations on the Norwegian Continental Shelf (NCS). Their strategies are centered on creating long-term value for stakeholders and shareholders, with a strong emphasis on profitability (Annual report, 2022).

In 2019 and in 2022, Var Energi saw a decrease in its oil production, dropping from 107.3 million barrels of oil in 2019 to 80.319 million in 2022. Despite this decline, the company, which produced 300,000 barrels per day in 2019, has set a target to increase their production to 350,000 barrels per day by the end of 2025. Var Energi has no plans to decrease its production in the transition to a low-carbon economy.

In 2019, the focus was placed on setting goals to reduce greenhouse gas emissions by 40% by 2030 and achieving net zero emissions by 2050, in line with the objectives of the Paris Agreement. By 2022, goals became more specific with Var Energi aiming at reducing net zero emissions for scope 2 and 3 by 2025. Additionally, the company intends to reduce operational emissions by 50% by 2030 (scope 1 and 2), from 350,000 to 175,000 tons of CO₂ per year. From 2019 to 2022, the overall goal of achieving net zero emissions by 2050 remained constant but the intermediate targets strengthened. Additionally, Var Energi set the goal to reduce its CO₂ intensity to 9 kilograms of CO₂ per barrel of oil in both 2019 and 2022. In 2019, they achieved 9,84 kilograms and by 2022, the company successfully reached its goal.

In line with the objective to increase its oil production, Var Energi participated in development projects with expenditures on property, plants and equipment totaling 2.5 billion USD in 2022. In parallel, Var Energi focuses on a decarbonization strategy with the electrification of offshore assets and the

implementation of energy efficiency technology. Var Energi heavily collaborates with Konkraft, an initiative developed to reduce GHG in Norwegian oil and gas companies by 40% by 2030 and net zero emissions by 2050. Konkraft brings together key stakeholders such as the Federation of Norwegian Industries, the Norwegian Union of Industry and Energy workers, among others. The strategy focuses on investments in offshore and CCS initiatives. In 2019 Var Energi invested NOK 81 million in 46 projects. No specific data have been disclosed regarding its R&D to reduce GHG emissions in 2022.

In terms of the regulatory framework, Var Energi based their sustainability reports on the Global reporting Initiative (GRI) and the TCFD recommendations, ensuring its alignment with sustainability standards. While no third-party verification was conducted in 2019, PwC issued an audit opinion with limited assurance on the GRI index and KPI in 2022. This step represents a notable improvement in the willingness of Var Energi to be more transparent. Despite not being assessed by the Transition Pathway Initiative, Var Energi demonstrated their commitment to environmental standards through the attainment of multiple environmental certifications. In both 2019 and 2022, the company maintained their ISO 50001 and ISO 14001. These highlight the dedication to adhere to environmental standards, which has been externally verified. In order to keep these certifications, Var Energi has developed policies to mitigate its environmental impact, operational measures and the continuous measuring of its performance. A particular significant development in 2022 was Var Energi's decision to disclose their CDP questionnaire, which they had not done in 2019. This disclosure marks their willingness to submit to greater transparency and accountability. The progression from 2019 to 2022 highlights the company's evolving approach to sustainability.

B.1.3. ConocoPhillips

Now as to Texas, ConocoPhillips is an independent oil exploration and production company, whose headquarters are located in Houston, Texas. It is operating in 17 countries, including the United States, Norway and others.

In terms of ConocoPhillips' oil production, it has increased from 2,405 million barrels in 2017 to 2,635 million in 2019, reaching 3,068 billion barrels in 2022.

In 2017, ConocoPhillips' capital expenditure was 4.6 billion USD, which increased to 10.2 billion USD in 2022. This highlights their commitment to expanding their operational capabilities and infrastructure. Additionally, ConocoPhillips made significant investments in energy efficiency R&D, starting from 2 billion USD in 2019 to no less than 5 billion USD in 2022, so that they more than doubled. ConocoPhillips focuses on enhancing operational efficiency and sustainability.

The company did not set any short-term objectives regarding CO₂ intensity. They established long-term targets from 2017 to 2022. In 2017 they pledged a reduction of greenhouse gas intensity of 5-15% by 2030, using 2017 as a baseline. The target was reiterated in 2018. In 2023, ConocoPhillips updated their objectives, aiming to reduce GHG intensity by between 50% to 60% by 2030, this time with 2016 as the baseline. Additionally, they set the goal to achieve net-zero emissions by 2050. The actual levels of CO₂ intensity that were disclosed are percentages that have increased between 2017 and 2022. This shows a commitment to act against climate change. The published total CO₂ emissions show a decrease from 20.9 million tons in 2017 to 16 million tons in 2022. This reduction of CO₂ emissions places ConocoPhillips on the path towards transitioning to a low-carbon economy.

From 2017 to 2022 ConocoPhillips has used the regulatory framework of the *Global Reporting Initiative* and the *Taskforce on Climate-Related Financial Disclosures*. They voluntarily involved themselves in the carbon disclosure project by answering the CDP questionnaire. The company has asked for a third-party verification by *ERM Certification & Verification Services*. This shows the willingness of ConocoPhillips to be more transparent, disclosing accurate information. Additionally, the company is

part of the *Dow Jones Sustainability Index*. It has been evaluated through an annual corporate sustainability assessment conducted by RobecoSAM. Being part of the *Dow Jones Sustainability Index* means that ConocoPhillips is recognized as a leader in sustainability practices and performance (List of S&P Dow Jones Indices, 2023). Their commitment has been evaluated and ranked highly in terms of sustainability efforts.

In 2023 the *Transition Pathway Initiative* has assessed them at level 4, based on their strategies to meet climate goals. The TPI's assessment evaluates whether companies are on track with long-term climate objectives. ConocoPhillips has had 7 assessments by the TPI since 2016. While other companies see their *Carbon Disclosure Project* level improve, ConocoPhillips only received a level D in 2022, rating their level of ESG transparency (see appendix 28).

B.1.4. ExxonMobil

The last company considered here is ExxonMobil in Texas. It is one of the largest oil companies in the United States, active in 45 countries including the United States, Canada, Africa and Asia.

From 2017 to 2022 ExxonMobil experienced a slight decrease in its oil production, from 3,985 barrels of oil per day in 2017 decreasing to 3,737 barrels per day in 2022. This downward production trend was paralleled by a reduction in greenhouse gas emissions. In 2017, ExxonMobil's greenhouse gas emissions stood at 122 million metric tons of greenhouse gas emissions, which were slightly reduced to 120 million metric tons by 2019. No data regarding the oil production of 2022 was disclosed, however. The reduction in greenhouse gas emissions from 2017 to 2022 show ExxonMobil's moderate commitment to lower its environmental impact.

In order to reach climate targets, ExxonMobil developed long term strategies from 2017 to 2022. One observes an evolving commitment to reducing greenhouse gas emissions and achieving net zero. In 2017 and 2019, the company's goal was to achieve net zero scope 1 and 2 greenhouse gas emissions in operated assets by 2050. In 2019, they added the goal of decreasing greenhouse gas intensity by 15%-20% by 2025, compared to 2016 levels. This commitment intensified in 2022 with new targets to reduce greenhouse gas intensity by 40%-50% by 2030 as well as the corporation-wide greenhouse gas intensity by 20%-30% by the same year. Additionally, ExxonMobil has set the goal to achieve net zero scope 1 and 2 emissions particularly in the Persian Basin by 2030 and maintain capital investments of 20 to 25 billion USD annually until 2027. Note that no intermediary goals have been set to reach net zero emissions by 2050.

From 2017 to 2022, ExxonMobil has demonstrated notable commitments reflecting the company's strategies to reach climate targets. In 2017, ExxonMobil allocated 1,063 million USD to Research and Development as well as 23,080 million USD to capital expenditures, emphasizing traditional energy projects, comprising their partnership with FuelCell Energy to develop carbon capture technology. By 2019, they continued their partnership with FuelCell Energy, but no specific R&D amounts were disclosed. However capital expenditures in 2019 increased to 31,148 million USD. In 2022, the commitment of ExxonMobil to lower-emission technologies became more important with 20 billion USD investments. These include optimizing CO₂ capture techniques and electrifying processes, with 50% of these investments targeting emissions reductions by operated assets. Concurrently, capital expenditures decreased to 5.7 billion USD, reflecting a reallocation of resources towards sustainable development and operational efficiency.

In terms of the efficiency of their renewable investments, in 2017 ExxonMobil has recorded 6.6 million metric tons of stored CO₂, making a significant contribution to the mitigation of greenhouse gas emissions. The company did not disclose data on the amount of CO₂ captured in 2019. In 2022, there

was a moderate decrease of captured carbon to 5 million metric tons, despite an increased investment in developing carbon capture technologies.

Through the years ExxonMobil mainly used the Global Reporting Initiative for disclosing ESG information. We do not observe a consistency in their use of the regulatory framework. Indeed, TCFD recommendations were only used in 2019. Then from 2019 to 2022 ExxonMobil based their sustainability reports on IPIECA guidelines. No third-party verification was done from 2017 to 2022. They hired an external consultant to assist them with their ESG disclosures, so as to be in line with the Sustainability Reporting Guidance for the Oil and Gas industry developed by IPIECA.

Moreover, they refused to participate in the Carbon Disclosure Project from 2017 to 2022, which put them at the lowest classification level, F. Generally speaking, this does not necessarily mean that the company fails to reduce greenhouse gas emissions. It may simply have failed to disclose requested data or provided insufficient information in the CDP questionnaire. However, in the case of ExxonMobil, they did refuse to participate. Regarding the Transition Pathway Initiative, ExxonMobil has been evaluated with a level 3. This score means that the company has developed well-defined climate strategies, aligning its operations to climate targets. In total, they have been assessed six times since 2016, which shows a willingness to consistently improve their climate targets and transparency (See appendix 29).

B.2. Annual reports

The second part of this section is dedicated to analyzing the impact of tax policies on oil producers in Norway and Texas. Extracting data from annual reports will provide insights on the tax obligations of these companies. It is important to note that all data collected represent the consolidated total, reflecting the overall financial situation of the companies, making sure that subsidiaries are included.

B.2.1. Aker BP

Aker BP and its subsidiaries mainly operate in Norway, with 13 fields on the Norwegian Continental Shelf (NCS). They are subject to the Norwegian tax legislation including the Petroleum Taxation Act, which imposes a total tax rate of 78% on oil producers, split between the income and special tax rates. Norwegian companies can deduct expenses such as depreciation, exploration costs and research and development costs, as mentioned earlier. From 2017 to 2022, the deductibility expenses have been increasing from 1.55 billion USD in 2017 to 2.01 billion USD in 2019, doubling to reach 4.03 billion USD in 2022, R&D expenses increased from 23,35 million USD in 2017 to 56,79 million USD in 2019, with a moderate decrease 51,9 million USD in 2022.

Between 2017 and 2022, Aker BP has recorded an increase in petroleum revenues, from 2.57 billion USD in 2017 to 3.33 billion USD in 2019 followed by a strong increase to 12.89 billion USD in 2022. This reflects the production capabilities of Aker BP, supported by an increase in capital expenditures (CAPEX) from 5,58 million USD in 2017 to 15,88 million USD in 2022. This is in line with the oil production increase from 2017 to 2022 as seen previously when treating the sustainability reports. Surprisingly, leasing costs have strongly decreased since 2017, dropping from 1.07 billion USD in 2017 to 365.21 million USD in 2019 and further to 156.22 million USD in 2022.

Regarding total taxes paid, Aker BP recorded a significant upward trend. With the increase in petroleum revenues and oil production, Aker BP paid 536.34 million USD in taxes in 2017, which nearly doubled to 943.2 million USD in 2019. By 2022, the total taxes even reached 7.17 billion USD.

Aker BP's contributions to CO₂ taxes in Norway have also increased over the years. The data in this regard were disclosed were in Norwegian Krone (NOK), which I have converted in dollars (USD) for the reader's ease. In 2017, Aker BP paid 41.88 million in CO₂ taxes. They increased slightly to 42.37 million USD by 2019, then even more to 46 million USD in 2022.

Aker BP recorded net income (after taxes paid) amounted to 274.78 million USD in 2017. This amount halved in 2019 to 141.05 million USD, eroded as it was by a high effective tax rate of 87%. The company recovered, however, and recorded a net income of 1.60 billion USD in 2022, almost ten times more than in 2019, even though the effective tax rate had increased from 66% in 2017 to 82% in 2022.

The company's results were verified by KPMG A.S. and PwC A.S. Their audit conclusions state that the financial statements were prepared and complied according to International Standards on Auditing and that the financial statements give a fair and true view of the financial position of Aker BP (See appendix 31).

B.2.2. Var Energi

Var Energi operates exclusively in Norway, where it is subject to the Norwegian tax legislation, including the special rate applied to oil producers under the Act of 13 June 1975 Act. This legislation allows the company to deduct various costs such as research and development expenses as well as explorations costs. Var Energi provides oil to customers across EU and the UK.

Alongside with the decrease in oil production, Var Energi saw a significant reduction in leasing costs, dropping from 643.49 million USD in 2019 to 245.49 million USD in 2022. As to CO₂ emissions, they decreased from 291 283 tons in 2019 to 181 150 tons in 2022. Despite these reductions in operational expenses and environmental impact, Var Energi experienced a notable increase in their revenues, from 2.82 billion USD in 2019 to 9.78 billion USD in 2022. This surge in revenue led a sharp tax increase from 1.14 billion USD to 4.91 billion USD, so that it more than doubled. These taxes include the corporate tax, which went from 209.93 million USD to 2.67 billion USD in 2022. Despite Var Energi's decrease in CO₂ emissions, its CO₂ taxes almost tripled from 47.59 million USD in 2019 to 122.98 million USD in 2022. The effective tax rate for Var Energi stood at 84% in 2022, though no percentage was disclosed for the year of 2019.

The year 2022 marked a significant improvement in Var Energi's profitability compared to 2019, with profits increasing from 285.83 million USD in 2019 to 936.4 million USD in 2022. This growth allowed to double Research and Development investments from 19.39 million USD in 2019 to 31.54 million USD in 2022.

Additionally, under the Petroleum Act, Var Energi has been able to deduct various costs which increased from 2.15 million USD in 2019 to 3.45 million USD in 2022. This increase highlights the company's growth and the expansion of its operations.

These financial statements were prepared in compliance with applicable laws and regulations, offering a true and fair representation of Var Energi's financial position. PwC ASA have served as their company's auditors from 2019 to 2022, under a 4-year contract.

B.2.3. ExxonMobil

ExxonMobil is a major oil company based in the State of Texas, but it also operates through subsidiaries in many other U. S. states and internationally, e.g. in Canada, Europe, Africa and Asia. As a result, the company is subject to multiple tax legislations including U. S. and international ones.

ExxonMobil's oil production slightly decreased from 3,985 barrels of oil per day in 2017 to 3,737 barrels in 2022, while revenues increased significantly from 237,162 million USD in 2017 reaching 398,675 million in 2022. This increase in revenues has led to higher income taxes, including US non-states taxes as well as local states and federal taxes. These grew from 1,174 million USD in 2017 to 5,282 million USD in 2019 and further reaching 20,176 million USD in 2022, which is five times more than in 2019. The impact of the Tax Cuts and Jobs Act, enacted under President Trump, resulted in a 5,942 million USD tax credit. The corporate income tax rate reduced from 35% to 21%, significantly lowering the effective income tax rate to 5% in 2017, compared to 34% in 2019 and 33% in 2022.

ExxonMobil's capital and exploration expenditures rose from 23,080 million USD in 2017 to 22,704 million USD in 2022, indicating the company's willingness to expand operations through acquisitions or development projects aimed at increasing production. Additionally, leasing costs slightly increased from 1,103 million USD in 2017 to 1,776 million USD in 2022, supporting the expanding operations hypothesis. This is also reflected in the total taxes paid, increasing from 31,285 million USD in 2017 to 51,631 million USD in 2022.

ExxonMobil has remained profitable, with its net income after taxes showing an overall upward trend. The company recorded a net income of 19,710 million USD in 2017, experienced a slight decrease in 2019 but saw a significant increase, reaching 55,740 million USD in 2022.

From 2017 to 2022, PwC has been ExxonMobil's independent auditor, assessing the company's financial statements. Their audit opinion stated that the financial statements have been prepared fairly.

B.2.4. ConocoPhillips

ConocoPhillips has activities in 13 countries such as Canada, Norway, China and more. The company has to comply with various tax legislations including the U.S. federal laws, those of many foreign jurisdictions such as the English, Canadian but also the Norwegian ones including carbon taxes.

As mentioned earlier, ConocoPhillips experienced an increase in its oil production, paralleled with a marked increase in revenues from 32,584 million USD in 2017 rising to 82,156 million USD in 2022. This was of course accompanied by a less marked rise in income taxes (including federal, foreign, and state and local taxes) from 1,822 million USD in 2017 to reach 9,548 million USD in 2022 (for all subsidiaries), reflecting ConocoPhillips's expanding operations and growing market presence.

Breaking down income taxes, federal taxes decreased from 79 million USD in 2017 to 1,263 million USD in 2022, while foreign taxes slightly increased from 1,729 million USD in 2017 to 2,545 million USD in 2019, reaching 5,813 million USD in 2022. Similarly, state and local taxes strongly grew from 51 million USD in 2017 to 386 million USD in 2022. The Tax Cuts and Jobs Act, enacted on the 22nd of December 2017 influenced ConocoPhillips' tax obligations: they recorded a temporary tax benefit of 852 million USD in 2017, decreasing the overall tax burden. The effective tax rate has varied over the years, recording 69,7% in 2017, 23,8% in 2019 to 33,8% in 2022.

As ConocoPhillips operates in Norway, they need to comply with Norwegian tax legislation such as paying carbon taxes. The company has paid significant amounts to the Norwegian government with 29 million USD in 2017, slightly increased to 30 million in 2019 then rose to 36 million USD in 2022. This supports the hypothesis of their expanding operations. In addition, ConocoPhillips was subject to costs of compliance related to the EU ETS, which have significantly increased from 1.5 million USD in 2017, rising to 8 million USD in 2019 then escalated to 22 million USD in 2022.

These taxes and costs affected ConocoPhillips' net income: in 2017, a loss of 855 million USD, which shifted to a profit of 7,189 million USD in 2019 and further increase to 18,680 million USD in 2022.

The above financial information has been independently audited by EY from 2017 to 2022. It has assessed that ConocoPhillips had fairly prepared its financial statements in accordance with the standards of the Public Company Accounting Oversight Board. Note that EY have been their auditors since 1949, which might question their impartiality.

IV. Discussion

IV.A Effectiveness of policy measures in promoting environmental sustainability

Now that the data has been collected within annual and sustainability reports, we will try to find out if there are different trends between climate challenges facing oil producers in the two regions considered here.

A.1. Norwegian companies

The previous section gave an overview of the different sustainability situations of Aker BP and Var Energi. It examined the long- and short-term objectives for meeting climate targets, the oil production levels, total CO₂ emissions as well as the CO₂ intensity target and its actual level over the years. The analysis includes the different regulatory frameworks privileged by Aker BP and Var Energi as well as their voluntary commitments. Finally, the renewable investments were broken down to understand the companies' focus. This revealed significant insights into how political and environmental regulations shape the strategies of Norwegian companies in addressing climate challenges. Notable similarities and differences were observed, allowing to extrapolate trends in the array of Norwegian oil companies.

Aker BP and Var Energi show contrasting oil production and emissions trends. Aker BP almost doubled its oil production from 50.7 million barrels in 2017 to 113 million barrels in 2022, leading to an increase in CO₂ emissions from 913,796 tons in 2017 to 1.066 million tons in 2022. In contrast, Var Energi experienced a decrease in oil production from 107.3 million barrels in 2019 to 80.31 million barrels in 2022 with CO₂ emissions dropping from 291 283 tons of CO₂ in 2019 to 181 150 tons of CO₂ in 2022. Despite this, Var Energi plans to increase their oil production from 300 000 barrels to 350 000 barrels by 2025.

Aker BP and Var Energi have set ambitious climate targets in line with the European Green Deal and the Paris Agreement: reducing CO₂ intensity and lowering GHG emissions. Aker BP set the goal to reduce its CO₂ intensity to below 8 kilograms per barrel of oil by 2017, then to 5 kilograms by 2020 and reducing 140,000 tons of CO₂ and net zero emissions in scope 1 and 2, by 2030. Similarly, Var Energi has set goals to reduce GHG emissions by 40% by 2030 and net zero emissions (scope 2 and 3) by 2025.

Both companies have successfully reduced their CO₂ intensity, Aker BP from 7.2 kilograms per barrel in 2017 to 3.7 kilograms in 2022, nearly halving it. They focused their investments on digitalization and electrification, a strategy that Söderholm (2020) views as essential for transitioning to a greener economy with innovation being a key factor. These reductions might reflect Aker BP's view on environmental regulations as opportunities to improve energy efficiency, aligning with Porter & Van der Linde (1995).

In contrast, Var Energi only saw a moderate decrease in its CO₂ intensity from 9,84 kilograms per barrel of oil in 2019 to 9 kilograms per barrel in 2022. This suggests a more cautious approach to environmental regulations, which they may view as burdensome. While committed to reducing its emissions, Var Energi prioritizes profitability and increasing production levels with projects like Balder X. Although they mention investments in energy efficiency, CCS projects and electrification, details are less clear compared to their production efforts. Rather than aggressively cutting emissions, Var Energi is still navigating to balance profitability with sustainability in its business (Adams & Zutshi, 2004).

The use of established reporting frameworks such as the GRI and TCFD recommendations positively impact companies' financial performance and reputation. The verification of sustainability reports by

PwC ASA confirms the companies' commitment to increase transparency and accountability. Aker BP's leadership is highlighted by its A- score in the CDP and its highest rating of 4 from TPI. Renner (2011) adds that the participation in the CDP was correlated to better financial performance and reputation (Adams & Zutshi, 2004). The involvement of Aker BP might be doubted, when examining their finances and reputation, as outlined by Renner (2011) and Adams et al. (2022), yet they successfully decrease their environmental impact by decreasing their CO₂ intensity.

In contrast, Var Energi received a level B rating in the 2022 CDP assessment, reflecting their transparency efforts. However, they also hold environmental certifications such as the ISO 50001 and ISO 14001, indicating a better approach than their level B would tend to indicate. Lee et al. (2022) found that companies with these certifications tend to have better environmental performance. According to De Jon et al., (2017) and Margaret et al. (2024), these certifications are linked to greater long-term financial performance. The differences between Aker BP and Var Energi align with the criticisms by Sun et al. (2022) highlighting the lack of uniformity in climate commitments across companies.

Overall, the sustainability analysis of Aker BP and Var Energi reveals distinct approaches and results. Both are making progress to reduce their CO₂ intensity and GHG emissions. Aker BP has demonstrated a more aggressive approach, doubled its oil production while it significantly reduced CO₂ intensity. Aker BP's commitments seem to integrate environmental regulations as opportunities for innovation and competitiveness. On the other hand, Var Energi is seeking to balance profitability and sustainability, showing a more moderate reduction in CO₂ intensity. While Aker BP's leadership in sustainability is obvious, Var Energi's different approach still positions it as a significant factor in the transition to a lower carbon economy (see Appendix 34).

A.2. Texan companies

The following section is dedicated to analyzing the sustainability situation of oil companies located in Texas, more particularly to ExxonMobil and ConocoPhillips, I will highlight similarities and differences within these businesses, in a context of political parties' influencing the policies that are implemented: Texas has had by a right-learning governance system, for decades as described by Campbell et al. (1990).

Both companies have successfully achieved a reduction in their CO₂ emissions and CO₂ intensity, reflecting alignment with climate targets set by the Paris Agreement. ExxonMobil decreased its CO₂ emissions from 3,985 barrels per day in 2017 to 3,737 barrels per day in 2022 with CO₂ intensity dropping from 24,6 metric tons CO₂ in 2017 to 22,9 metric tons in 2022. Similarly, ConocoPhillips lowered its CO₂ emissions from 20.9 million tons in 2017 to 16 million tons in 2022, with the reduction percentage improving from 12,2% in 2018 to 36% in 2022.

In addition to their improvements, both ExxonMobil and ConocoPhillips have increased their capital expenditures (CAPEX). ExxonMobil grew its CAPEX from 23,080 million USD in 2017 to 5,7 billion USD in 2022. Meanwhile, ConocoPhillips significantly increased its CAPEX from 4,6 billion USD in 2017 to 10,2 billion USD in 2022, nearly doubling it. This reflects the capitalistic approach to expand operations outlined by Campbell et al. (1990).

ExxonMobil focused on low-emission energy solutions investments and carbon capture technologies, investing over 20 billion in these areas since 2022. On the other side, ConocoPhillips chose to invest 5 million USD in 2022 in its research and development team, so as to develop energy efficiency solutions.

The carbon disclosure project provides a score reflecting the level of transparency in sustainable reporting. Unfortunately, both companies received low scores: ExxonMobil declined to participate

since 2017 and ConocoPhillips received a D rating in 2022. This lack of climate transparency risks impacting their reputations, as noted by Adams & Zutshi (2004) and Bodansky (2016). The low scores suggest poor environmental reporting among Texan companies, due to a political framework lacking mandatory requirements, as highlighted by Jeanne et al. (2024) and Fagotto & Graham (2007). However, both companies achieved high TPI scores, indicating that they have integrated climate strategies into their businesses and developed plans to transition to a lower carbon economy.

Moreover, an opposite evolution can be noted in oil production levels between ExxonMobil and ConocoPhillips. On one hand, ExxonMobil's oil production decreased from 3,985 barrels per day in 2017 to 3,737 barrels per day in 2022. On the other hand, ConocoPhillips increased its oil production from 2,405 million barrels in 2017 to 3,068 million barrels in 2022. This divergent trend may indicate that oil companies are trying to balance profitability with sustainability, as discussed by Adams & Zutshi (2004).

ExxonMobil appears to be less involved in disclosing information, relying only on the GRI and opting not to pursue third-party verification. However, the use of GRI can still enhance financial performance and reputation, as outlined by (Adams et al., 2022). In contrast, ConocoPhillips used multiple frameworks such as the GRI, TCFD recommendations, hired an independent auditor and was included in the Dow Jones Sustainability Index. This suggests that ConocoPhillips is more committed involving itself in voluntary initiatives than ExxonMobil, although they may be driven by financial and reputation motivations, as noted by Renner (2011) and Adams et al. (2022). This is reflected in the relatively moderate decrease in CO₂ emissions and intensity observed in ConocoPhillips' case.

Overall, both ExxonMobil and ConocoPhillips have made progress by reducing their CO₂ emissions and intensity, aligning with the Paris Agreement. ConocoPhillips seems to be more proactive in its commitment to sustainability. However, both companies face challenges to improve transparency in their reporting which is crucial point to build legitimacy, as described by Schuman (1995), as well as to maintain their reputation (see Appendix 35).

A.3. Comparing Norway and Texas

Now that trends have emerged in Norwegian and Texan oil companies, the following section will analyze the general trends among oil companies globally.

Both Norwegian and Texan companies have notably **decreased their CO₂ intensity**, taking steps closer to achieving net neutrality by 2050 as outlined in the Paris Agreement, which the IPCC (2023) has emphasized as crucial to face climate challenges. Aker BP has shown a more aggressive approach, decreasing its intensity from 7.2 kilograms CO₂ per barrel of oil to 3.7 kilograms. Additionally, 3 out of 4 companies (Var Energi, ExxonMobil and ConocoPhillips) have **decreased their CO₂ emissions**, except for Aker BP which slightly increases from 913,796 tons CO₂ in 2017 to 1,066,000 tons CO₂ in 2022. This trend indicates that most oil producers are actively working to reduce CO₂ emissions in their operations, despite the U. S. withdrawal under President Trump, which challenged the overall climate targets. As outlined by Urpelainen & Van de Graaf (2017), it did not cause a significant threat, as most producers have successfully decreased their environmental impact.

However, the oil production trend is mixed, with 2 out of 4 companies increasing it (ConocoPhillips and Aker BP) while the other two (Var Energi and ExxonMobil) have slowly decreased theirs. It is important to note that Var Energi's plans is to boost its production level from 300,000 barrels of oil per day to 350,000 by the end of 2025, corresponding with 3,6 million barrels per year to 4,2 million. This indicates that the overall trend among oil producers leans towards increasing oil production.

When comparing the regulatory practices of Norwegian and Texan oil companies, similarities emerge but the requirements differ significantly. In the EU, companies are required to publish sustainability reports following the adoption of the NFRD and CSRD (enacted in 2022). The European Commission strongly encourages the use of regulatory frameworks such as the GRI and TCFD recommendations. In contrast, there is no obligation for American companies to disclose sustainability reports, yet they often do. Notably, all four companies consistently use the GRI and TCFD recommendations in their reports, with ExxonMobil being the exception as it only used the GRI framework.

In the United States, where the publication of sustainability reports is not mandatory, companies may be motivated to disclose ESG information for reasons related to financial returns or reputation, as discussed by Adams et al. (2022). The difference in regulatory environment helps explain the difference between Norwegian and Texan CDP scores (which assess the transparency of reports). Norwegian companies received high CDP scores, with Aker BP receiving an A- level, Var Energi following closely with a B level in 2022. Conversely, Texan companies received low scores, with ratings of D and F in 2022. Additionally, Ding et al. (2023) outlined that companies with higher emissions tend to disclose more ESG information.

In terms of third-party verification, none of the companies had sustainability reports verified in 2017. It was not until 2019 that 2 out of 4 companies hired an independent auditor, indicating that this commitment is relatively recent (ConocoPhillips and Var Energi). The adoption of the CSRD in 2022 requires companies in the EU to have their sustainability reports audited, a requirement not imposed in the United States. However, ConocoPhillips took the initiative to hire an independent auditor in 2017, potentially to increase its legitimacy, as suggested by Schuman (1995), so as to achieve long term success. This decision may also align with the hypothesis of Dolmans et al. (2021) regarding the growing importance of transparency and accountability in the eyes of stakeholders.

It is interesting to note that 3 out of 4 companies (Aker BP, ExxonMobil and ConocoPhillips) have high TPI scores, rating them between level 3 and 4 (being the highest), suggesting that a majority of oil companies have developed strategies aligning their business to meet global climate targets. Var Energi differs from the others by seeking ISO certification, and ConocoPhillips by being included in the Dow Jones Sustainability Index (DJSI). ISO certifications are significant, as Lee et al. (2017) found a correlation between companies holding such certifications and environmental performance. In contrast, Arribas et al. (2021) criticized the DJSI's credibility, prioritizing the enhancement of reputation concerns, relations with stakeholders and financial performance over addressing environmental concerns (Lopez et al., 2007; Searcy & Elkhawas, 2012).

Across all companies, investments continue to focus on carbon capture technologies, energy efficiency and renewable energy sources. As highlighted by Popielak Majchrzak-Kucęba & Wawrzyńczak (2024), there is a strong emphasis on CCS projects, despite criticism regarding their high costs and limited effectiveness in reducing CO₂ emissions. In 2023, the existing 15 U.S. plants captured a meagre 0.4% of total CO₂ released, with the hope of reaching 5% (Congressional Budget Office, 2023)⁴⁹. In contrast, Norwegian companies more particularly focused their investments on digitalization of operations and assets (see Appendix 36).

In conclusion, all four businesses have been adapting their businesses to climate challenges and regulations. The data demonstrated their commitment to reduce CO₂ intensity and CO₂ emissions, reflecting the industry's effort to mitigate its environmental impact. In contrast, the oil production trend is mixed, suggesting that while there is a push towards sustainability, companies are still navigating to balance between economic considerations and environmental goals, as stated by Adams

⁴⁹ <https://www.cbo.gov/publication/59832> (consulted on 10/8/2024 at 9:00 am)

& Zutshi (2004). Norwegian companies are restricted by EU regulations and encouraged to use frameworks such as the GRI and TCFD recommendations.

In the U. S. ConocoPhillips appears to demonstrate greater commitment to climate actions through its voluntary audits since 2019, reflecting an effort to align with practices enhancing transparency and accountability, as outlined by Dolmans et al. (2021). However, their participation in the DJSI is highly criticized by Lopez et al., (2007) and Searcy & Elkhawas (2012) who question the credibility of the index regarding the environmental performance, arguing that it often prioritizes corporate reputation and financial performance over genuine sustainability concerns. This criticism raises concerns that Texan companies like ConocoPhillips and ExxonMobil focus on their public image and financial outcomes rather than on environmental improvements. As argued by Adams et al. (2022), engaging in environmental practices positively boosts reputation and financial performance as well. This suggests that the primary motivation behind climate initiatives might be driven by market considerations.

IV.B Impact of tax policies on strategic decisions

This section analyzes the tax contributions of these companies, to assess whether tax policies towards oil producers acted as an indirect subsidy or an incentive.

B.1. Norwegian companies

Aker BP and Var Energi hold key roles in the Norwegian oil industry, both having increased their petroleum revenues. Aker BP experienced a significant increase, from 2.57 billion USD in 2017 to 12.89 billion USD in 2022. On the other hand, despite its decrease in oil production, Var Energi followed the same trend, rising from 2.82 billion USD in 2019 to 9.78 billion USD in 2022.

As is logical within this framework, Aker BP and Var Energi both experienced an increase in total taxes paid, along with a rise in CO₂ taxes paid, over these years. Aker BP saw a dramatic tax increase from 536.34 million USD in 2017 to 7.17 billion in 2022, alongside with a rise in CO₂ taxes from 41.88 million USD in 2017 to 46 million USD in 2022. This corresponds to the increased oil production. Var Energi witnessed a rise in total taxes as well, from 1.14 billion USD in 2019 to 4.91 billion in 2022 with a growth in CO₂ taxes from 19.39 million USD in 2019 to 31.54 million in 2022. However, under Norwegian tax legislation, some expenses are deductible. For Aker BP, deductible expenses grew from 1.55 billion USD in 2017 to 4.03 billion USD in 2022. Similarly, Var Energi's deductibility expenses increased from 2.15 billion USD in 2019 to 3.45 million USD in 2022.

Cost management played a crucial role in the firms' financial performance, with both companies significantly reducing leasing costs. Aker BP's leasing costs dropped from 1.07 billion USD in 2017 to 156.22 million USD in 2022, reflecting a major shift in strategy. Similarly, Var Energi saw a reduction in leasing costs, falling from 643.49 million USD in 2019 to 245.49 million USD in 2022.

Research and development investments were prioritized by Var Energi, increasing its research and development by more than 61%, 19.39 million USD in 2019 to 31.54 million USD in 2022. Aker BP's expenses in R&D more than doubled, increasing from 23,35 million USD in 2017 to 51,9 million USD in 2022. Additionally, their CAPEX has almost tripled from 5,58 million USD in 2017 to 15,88 million USD in 2022.

Despite the relatively high effective tax rates recorded by Aker BP and Var Energi, their net income remains significant. Aker BP's net income increased from 274.78 million USD in 2017 to no less than 1.6 billion USD in 2022. Similarly, Var Energi's net income rose from 285.83 million USD in 2019 to 936.4 million USD in 2022. Norwegian tax legislation is rigorous with high tax burdens being imposed.

Indeed, Aker BP was subject to a percentage increasing from 66% to 82% from 2017 to 2022. Similarly, Var Energi was also subject to an effective rate as high as 84% in 2022.

Oil companies in Norway continue to thrive, increasing their oil revenues, with substantial profits over the years. This reflects an ability to adapt within a stringent regulatory environment with high tax rates, supported by the increase in deductible expenses and CAPEX. This indicates a willingness to expand operations. Additionally, the contrasting oil production levels reveal that Norwegian oil companies are trying to seek a balance between profit and sustainability, as outlined by Adams & Zutshi (2004). See Appendix 37.

B.2. Texan companies

ExxonMobil and ConocoPhillips are key players in Texas' oil industry, displaying similar trends but also differences in how they adapt to various legislations. The following section will explore these similarities and difference.

Divergent oil production trends are noticed between the two companies: ConocoPhillips increased its production from 2,405 million barrels in 2017 to 3,068 million in 2022; in contrast, ExxonMobil has seen its oil production slightly decrease from 3,985 barrels of oil per day in 2017 to 3,737 barrels in 2022. These opposite trends suggest that ExxonMobil and ConocoPhillips seek to balance profitability by increasing oil production and sustainability by reducing CO₂ emissions, as outlined by Adams & Zutshi (2004).

Despite these differences, revenues have increased in both cases, as well as the related income taxes. Indeed, ConocoPhillips paid 1.82 billion USD in 2017 to 9.55 billion USD in 2022. Similarly, ExxonMobil paid a total of 1.17 billion USD in 2017 to 20.18 billion USD in 2022. In parallel, Texan companies have increased its CAPEX, reflecting expanding operations.

The effective tax rate of Texan companies varied between 23,8% to a maximum of 34%, as various variables has influenced the 2017 rate with the Tax Cuts and Jobs Act. This left them with a net income of 855 million USD in 2017 reaching a staggering 18.68 billion USD in 2022. ExxonMobil's revenues in 2017 were of 9.71 billion USD and experienced a more modest but still important rise to 55.74 billion in 2022. As outlined by Dunlap & McCright (2008), the implementation of tax policies varied depending upon the political party put in power. Under the TCJA, the corporate income tax rate has decreased from 35% to 21%, which confirms the views of Reed (2006) that tax burdens are lower under Republican dominance.

It is interesting to highlight that in 2022 ExxonMobil had higher profits than ConocoPhillips, although its oil production had decreased and was lower than ConocoPhillips'. The difference is due to the fact that ExxonMobil mainly operates in the United States, compared to ConocoPhillips with its subsidiaries in Norway, a country with stringent tax regulations, including CO₂ taxes that are unknown in the U. S. Additionally, ConocoPhillips is subject to EU ETS compliance costs, increasing their overall burden from 1.5 million USD in 2017 to 22 million USD in 2022.

B.3. Comparing Norway and Texas

This section analyzes the financial performance of oil companies subject to diverse tax legislations and how these act as **indirect subsidies or incentives** for the industry. The trends are worth highlighting to see whether they are similar or different in the two regions examined.

The analysis reveals that the trends are similar across all the analyzed oil companies, despite their location in the two regions: increased revenues lead to an increase in total taxes.

Norway imposes much higher tax rates on oil companies than the U. S, including a special rate and carbon taxes that must be complied with. However, the Norwegian government allows the deduction of a substantial range of expenses, providing some relief in tax liabilities. For example, in 2022, Aker BP was able to deduct 4.03 billion USD, while Var Energi deducted 3.45 million USD. It suggests that Norwegian tax policies particularly deduction expenses, acted as an **indirect subsidy** for expanding operations. These policies do not discourage financial growth as oil companies remained financially viable. This is evident with the increased net income recorded by Norwegian companies in 2022: 1.60 billion USD for Aker BP and 936.4 million for Var Energi.

In contrast, Texan companies are subject to lower tax rates, reflecting less stringent tax regulations. President Trump's the Tax Cuts and Jobs Act of December 2017 lowered the corporate income tax rate from 35% to 21%. As outlined by Reed (2006), tax burdens indeed tend to be lower under Republicans. With this act, ExxonMobil and ConocoPhillips benefited from tax deduction of 5,942 million and 852 million respectively. This act serves as an **incentive** for U. S. oil companies to boost operations and profit. Additionally, the U. S. have not implemented any environmental taxes, contrary to as Norway. This can be considered as an **indirect incentive** to further oil production.

Furthermore, the overall CO₂ reductions in Norway and in Texas were driven by a combination of policies, as noted by Söderholm (2020). He argues that policies encouraging innovation must be developed to complement traditional regulations, in order to achieve long-term sustainability goals. In Norway, the SkatteFUNN" program allowed businesses to deduct 19% of their R&D expenses. Similarly, in the United States, the "R&D tax credit" enables to deduct 20% of R&D expenses from the federal income tax. These R&D deduction provisions are considered as **incentives** encouraging investment in projects.

From 2017 to 2022, all four companies within the oil industry have consistently increased their net income, reflecting a substantial profit growth. This upward trend indicates a robust financial performance across the sector. The 4 companies not only show increasing profitability, but they also reinvested significantly in their operations, as demonstrated by increases in capital expenditures and Research and Development (R&D) costs. These investments in infrastructure, technology and innovation are expected to yield a strategic focus on long-term growth and competitiveness.

V. Conclusion

V.A Key findings

This analysis has revealed emerging trends among Norwegian and Texan oil companies. Oil companies have evidently recognized environmental risks, based on their TPI assessments, ranging them in levels 3 to 4. These scores affirm that businesses acknowledge climate issues and have developed strategies to mitigate them. Specifically, Norwegian and Texan companies have made progress towards climate targets, set by the Paris Agreement with the objectives to reach net neutrality by 2050 and a reduction of 55% in greenhouse gas emissions by 2030 set by the European Green Deal. They all have reduced their CO₂ intensity, with Aker BP leading with its more aggressive approach. Additionally, 3 out of 4 companies have successfully decreased their overall CO₂ emissions.

The sustainable practices demonstrate that Norwegian companies, driven by EU regulations, have achieved higher transparency and accountability with high Carbon Disclosure Project (CDP) scores. While no requirements exist in the United States, Texan companies still engaged in sustainability reporting although it appears that reputation and financial performance drive their commitments, rather than genuine environmental concerns. Nonetheless, Texan companies still managed to mitigate their environmental impact.

The overall oil production trend remained mixed as two out of four companies (ConocoPhillips and Aker BP) increased their production, while the others have seen it decrease. This reflects the ongoing challenge of balancing economic growth and sustainability responsibilities within the oil industry (and possibly a decrease in oil reserves⁵⁰ in Norway more than in the U. S).

The financial performance of these companies from 2017 to 2022 highlights substantial growth within the oil industry, as indicated by increases in net income, capital expenditures and R&D expenses, which indicate expanding operations. Norwegian policies, despite high tax rates, offer significant deductions that act as indirect subsidies, allowing companies to grow while staying financially viable. In contrast, Texan companies benefited from lower tax rates and incentives, such as the Tax Cuts and Jobs Act and R&D Tax credit. Similarly, in Norway, R&D expenses were deductible, under the SkatteFUNN program, supporting investment in innovation. This initiative is key in driving advancements in areas such as CCS technology, energy efficiency and the development of renewable energy sources, including offshore wind.

In conclusion, the oil industry has experienced significant financial growth from 2017 to 2022, while companies are aware of their responsibility to mitigate its environmental impact. However, balancing economic growth with sustainability remains a complex challenge, pressured by environmental regulations setting the goals to reach net neutrality by 2050. The mixed trends in oil production and the varying motivations behind sustainability practices raise important questions about the future of the oil industry.

V.B Limitations of the thesis

A major limitation of this analysis is the recent character of the topic, which restricts further in-depth study. Indeed, the Paris Agreement was only signed in early 2016 so the scope of the study focuses on the period from 2017 to 2022, relying on the most recent data available: at the time of writing most companies have not yet published their 2023 reports. Therefore, the full impacts of the Inflation Reduction Act of August 2022 could not yet be considered in the analysis. Its impact will be more likely

⁵⁰ <https://ourworldindata.org/grapher/oil-proved-reserves?time=2012> (consulted on 13/8/2024 at 11:21 am)

appear in the 2023 reports. Additionally, the analysis did not explore the differences between policies implemented by Democrats and Republicans as it primarily focused on the period from 2017 to 2021, under the Trump administration. The Biden's administration progress has been assessed by the World Resources Institute (WRI) as detailed in Appendix 40.

Additionally, the data disclosed by Var Energi were notably limited, particularly in the comparison between 2019 and 2022. It appears that the company has been less prepared to disclose its ESG information publicly, as the first sustainability report was published in 2019. Additionally, their first annual reports were published in 2018. As a result, the analysis lacks depth, which could affect the accuracy of trend assessments related to this company. Moreover, for comparison purposes, the NOK amounts have been converted to USD dollars manually based on the present average exchange rate by Norges Bank, which can introduce some inaccuracies in the conversions, affecting the precision of the financial comparisons.

The trends identified in this study are based on data collected from a selection of companies operating in Norway and in the state of Texas. I choose to analyze 2 companies in Norway and 2 in Texas, which cannot be generalized to all companies within these regions (a complete analysis was impossible within the scope of this research). Additionally, the study relies heavily on available secondary data, but this also introduces limitations in terms of data accuracy and potential biases in reporting.

In conclusion, the study provides valuable insights into the tax policies and strategies implemented by oil companies in Norway and Texas. It is important to interpret the findings with caution, considering the above limitations.

V.C Recommendations for future research

To enhance the depth of this research, one could consider several key recommendations for future studies.

First, it is recommended to expand the selection of Norwegian and Texan companies by including both large and small companies. It would provide more data to understand the overall oil industry's response to climate challenges, potentially capturing a broader range of strategies and results.

Given the recent character of the topic, environmental regulations and tax policies are expected to evolve over the years, providing more comprehensive data for future analysis. It is recommended to expand the time frame beyond 2022, particularly with 2023. This will be critical to assess the differences in policies implemented by Democrats and Republicans, especially in the light of the upcoming 2025 Presidential election where a vote for either Donald Trump or Kamala Harris could significantly impact the involvement of the US in the Paris Agreement.

Moreover, future analysis should consider the future trajectory of the oil industry, as the balance between economic growth and sustainability responsibilities has been apparent in this research. Future analysis should explore how the industry evolves, considering the push towards sustainability's technologies and hopefully their advancement.

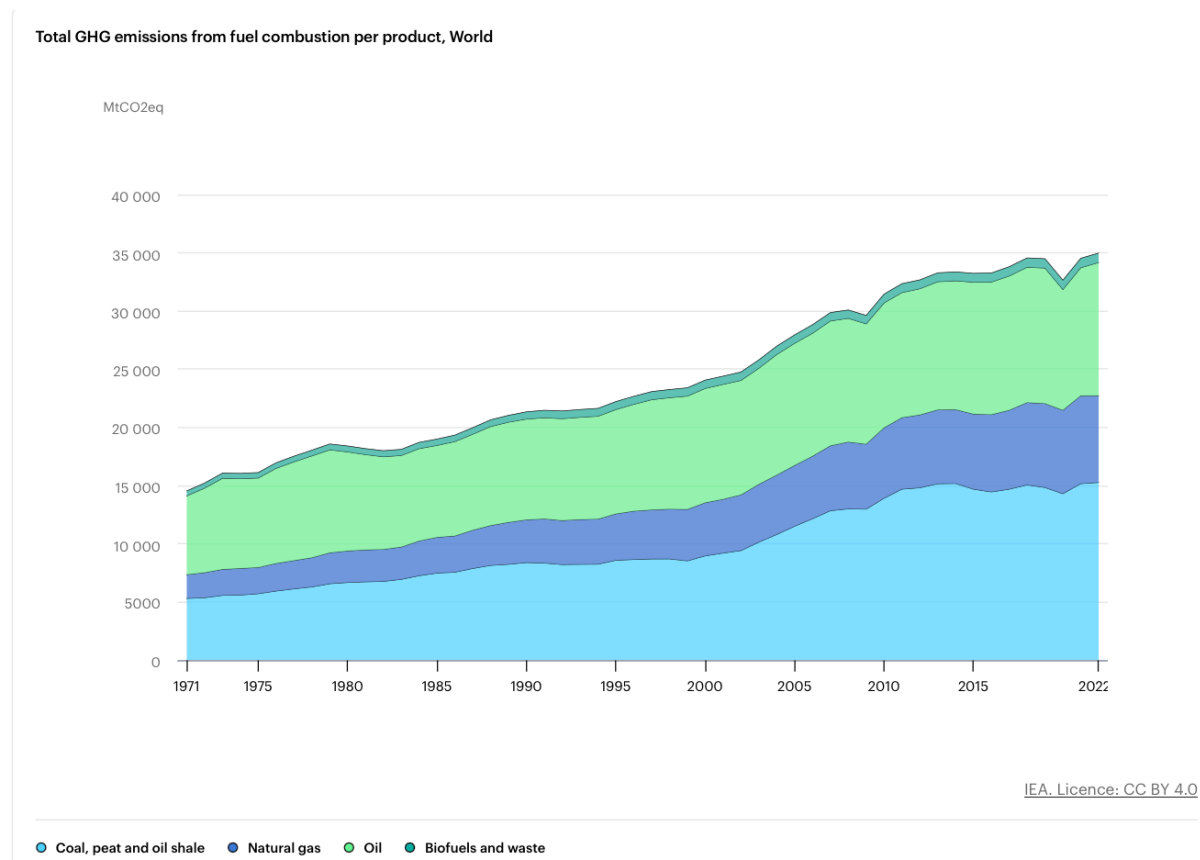
ChatGPT as a tool

The use of ChatGPT has unavoidably helped performing tasks since its launch in 2022.

In this research, the tool has assisted in rephrasing sentences, in some paragraphs, to improve clarity. Additionally, ChatGPT was used to efficiently locate and extract specific information from sources, such as particular articles related to European Union Directives or within the U. S. code and Texas Tax Code, enhancing the accuracy of the research.

VI. Appendix

Appendix 1a: Total GHG emissions from fuel combustion per product by 2022



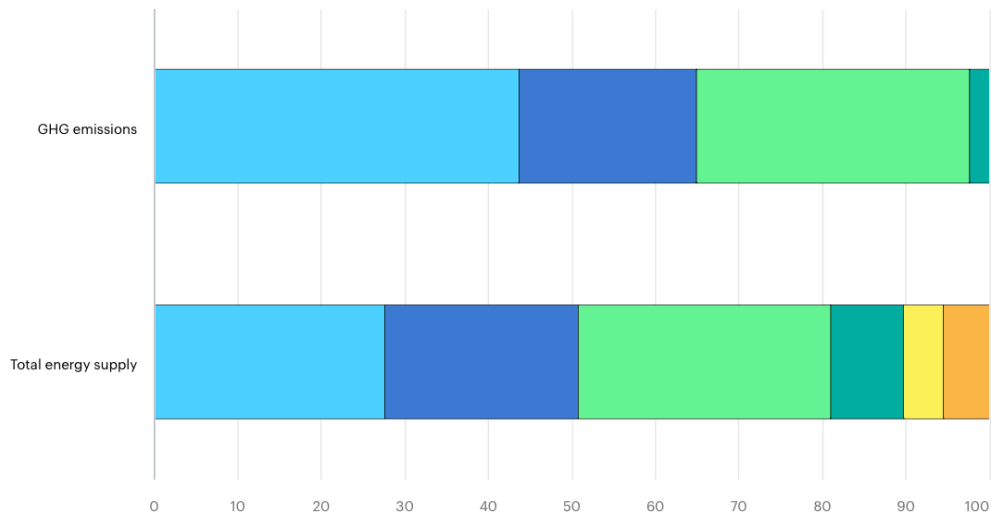
Source: <https://www.iea.org/data-and-statistics/data-tools/greenhouse-gas-emissions-from-energy-data-explorer> (consulted on 2/8/2024 at 11:08 am)

Appendix 1b: Share of GHG emissions and total energy supply by product by 2022

Share of GHG emissions and total energy supply by product, World, 2022

Year
2022

%

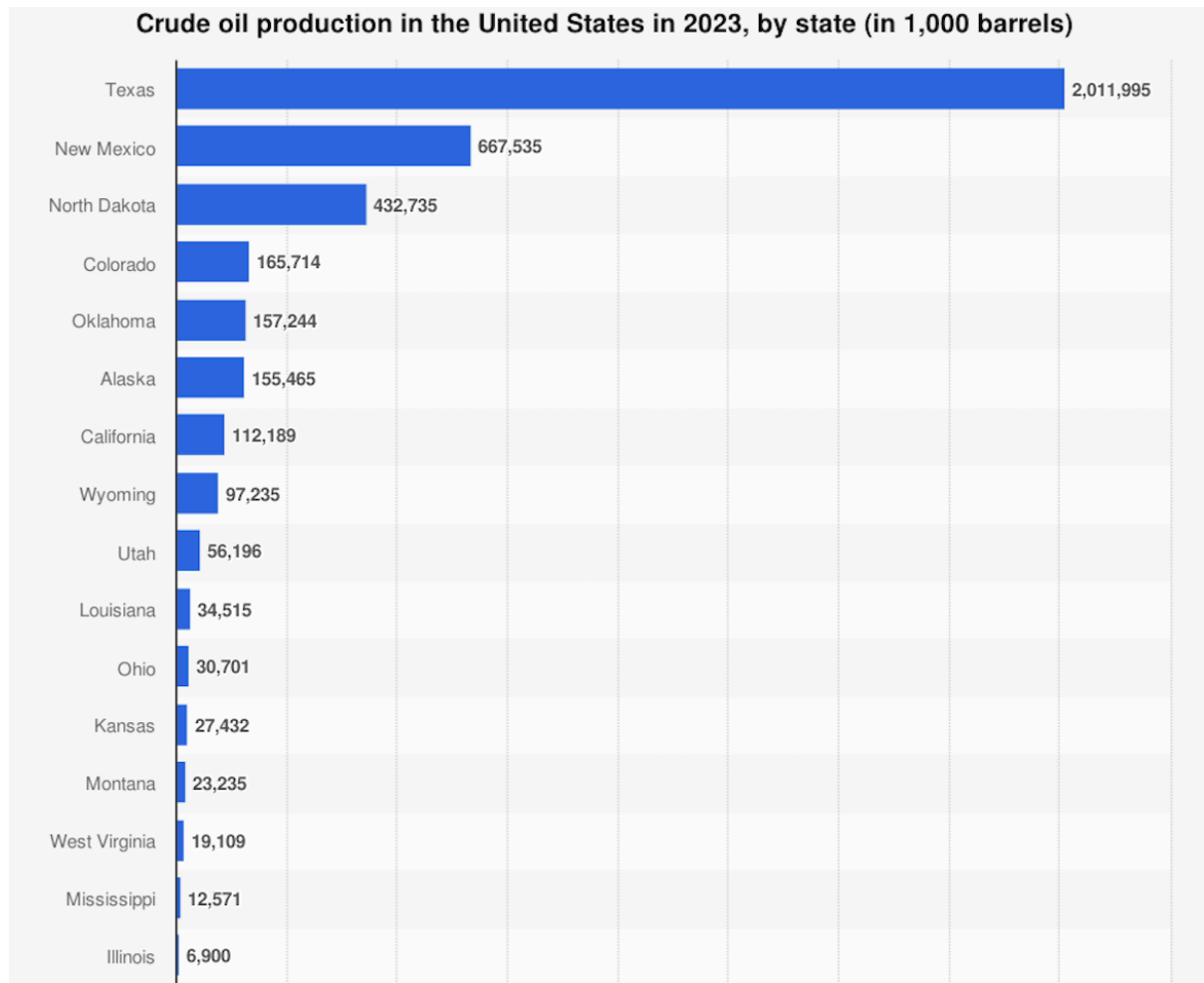


IEA. Licence: CC BY 4.0

● Coal, peat and oil shale ● Natural gas ● Oil ● Biofuels and waste ● Nuclear ● Other

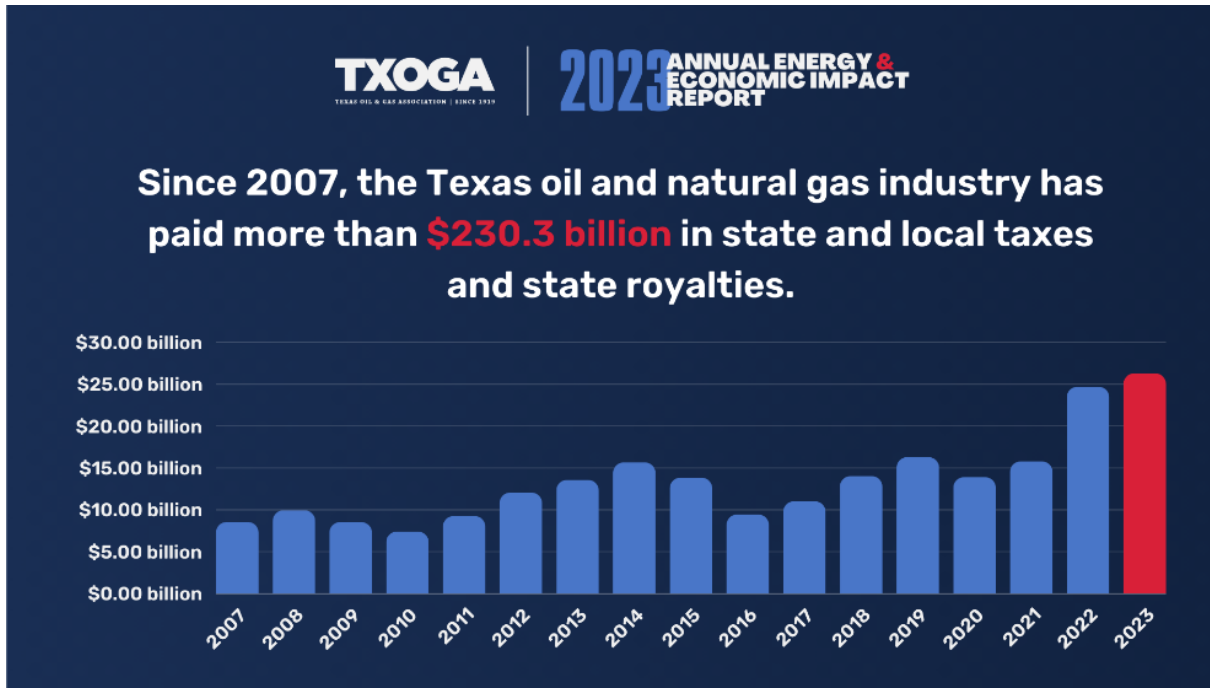
Source: <https://www.iea.org/data-and-statistics/data-tools/greenhouse-gas-emissions-from-energy-data-explorer> (consulted on 2/8/2024 at 11:10 am)

Appendix 2a: Oil production in the United States in 2023, by state



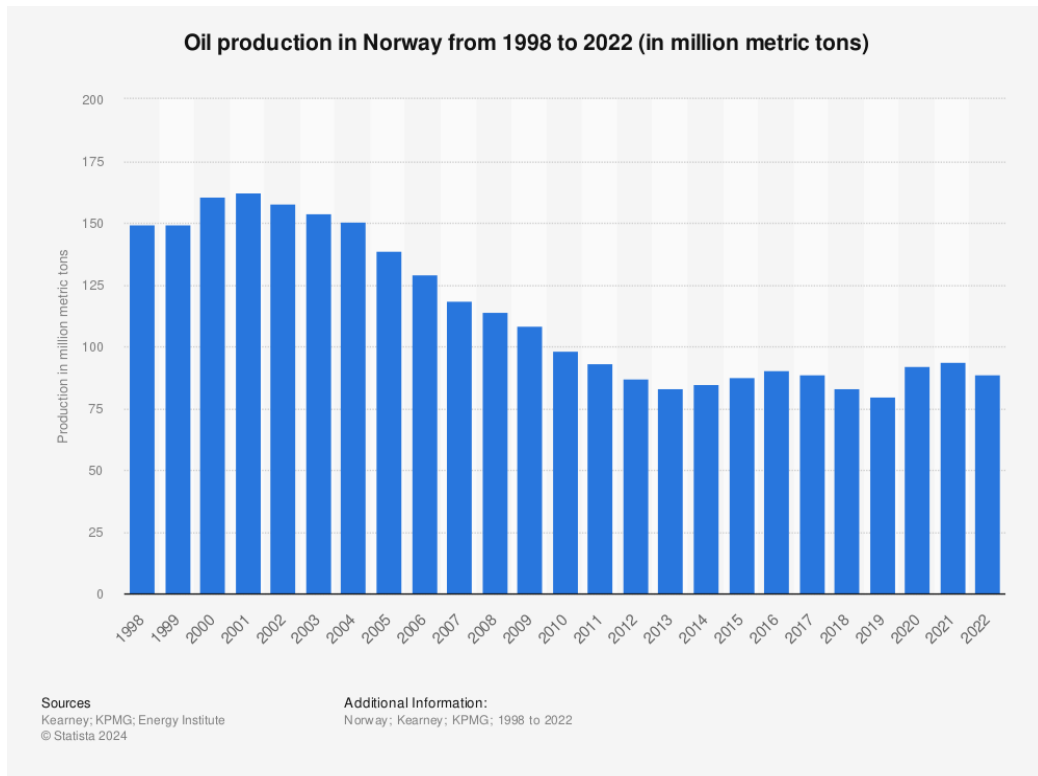
Data source : eia.gov

Appendix 2b: Contribution of the oil industry in Texas since 2007



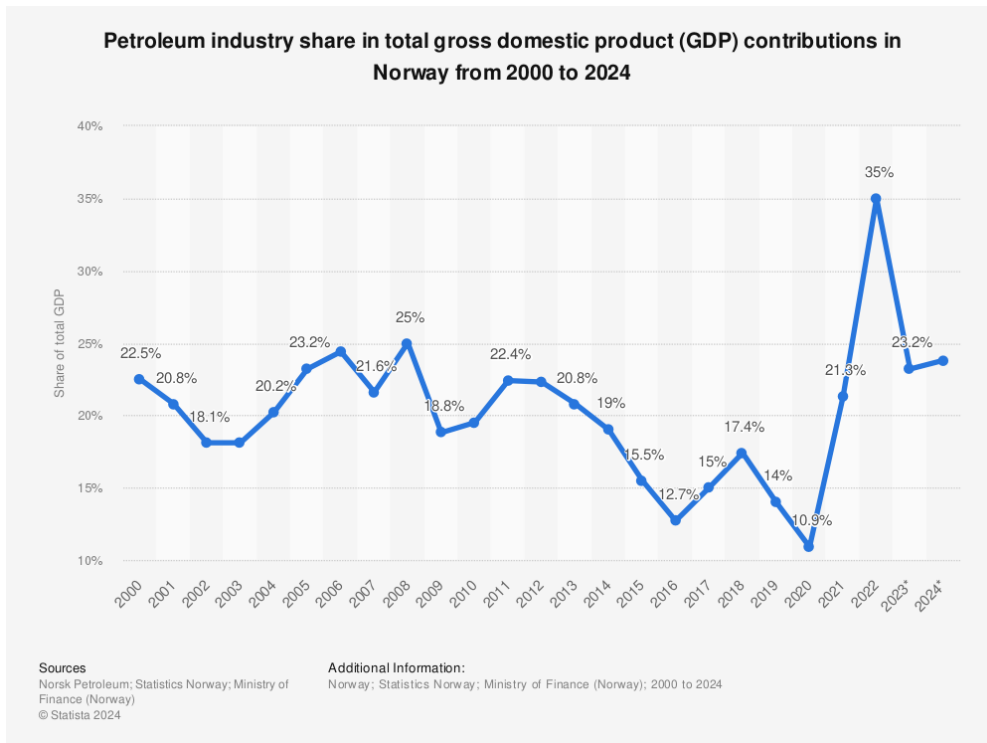
Source: <https://www.txoga.org/our-industry/economic-benefits/> (consulted on 1/8/2024 at 10:12 am)

Appendix 3a: Oil production in Norway from 1998 to 2022



Source: Statistical Review of World Energy 2023, Tab "Oil Production - Tonnes"

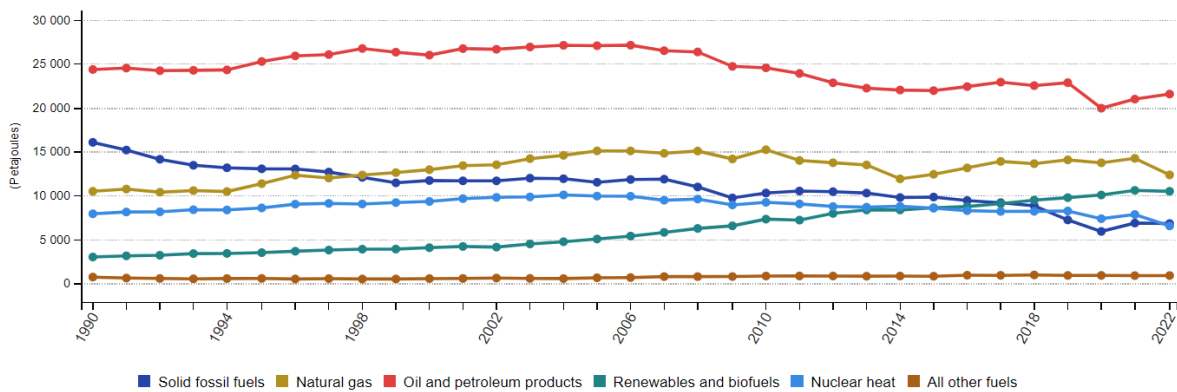
Appendix 3b: Contribution of the oil industry in Norway since 2000



Source: norskpeteroleum.no (consulted on 9/8/2024 at 2:17 pm)

Appendix 4: Overview of energy economy in European Union from 1990 to 2022

Gross available energy, EU, 1990-2022



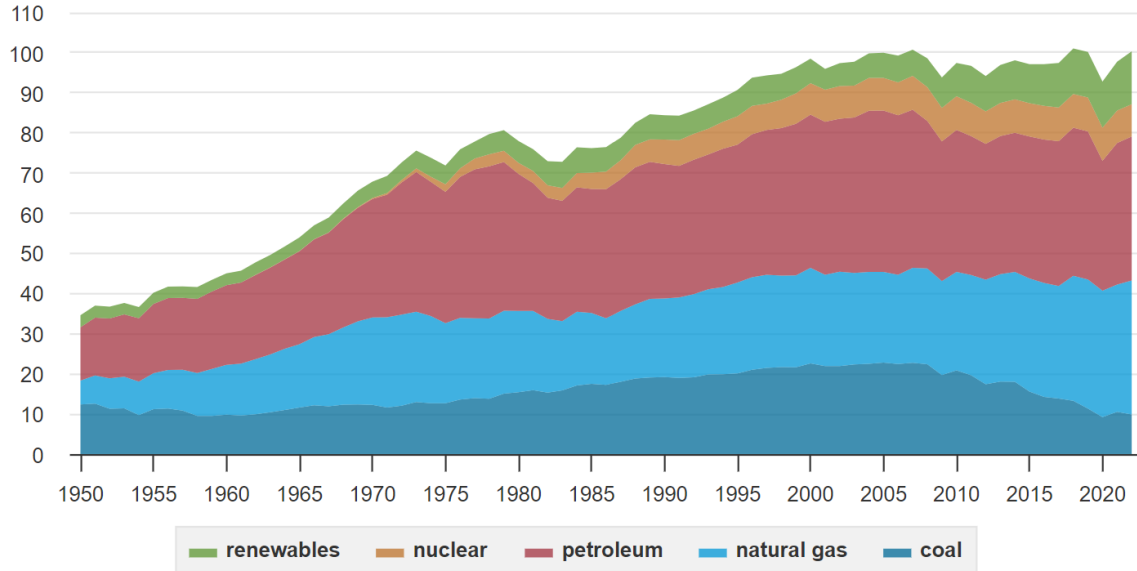
Source: Eurostat

Appendix 5: US energy consumption since 1950

U.S. primary energy consumption by major sources, 1950-2022

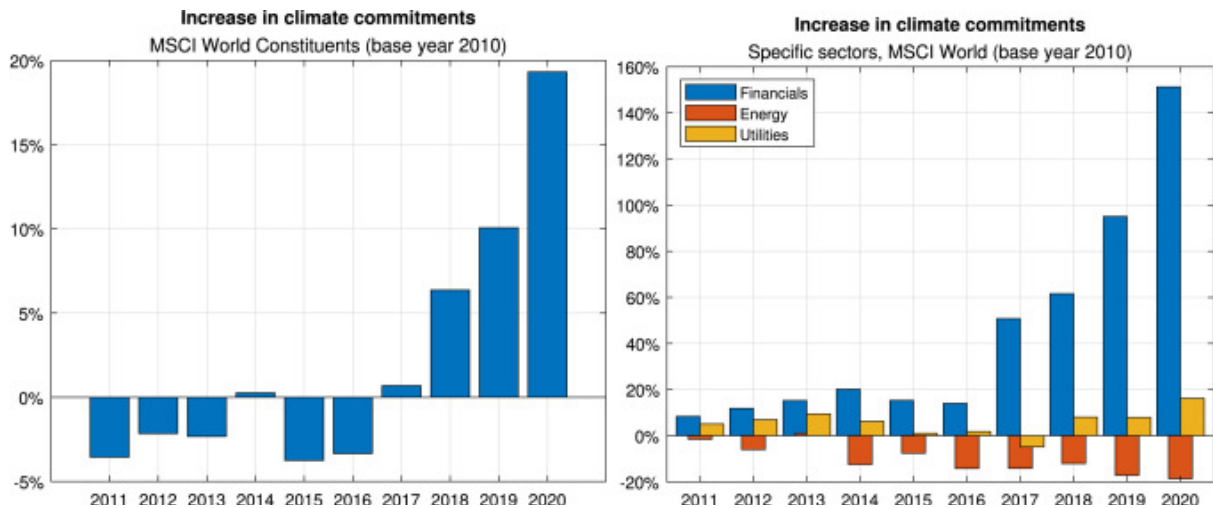


quadrillion British thermal units



Source: U. S. Energy Information Administration, monthly Energy review, Table 1.3, April 2023, preliminary data for 2022

Appendix 6: Evolution of climate-related text and commitments in annual reports



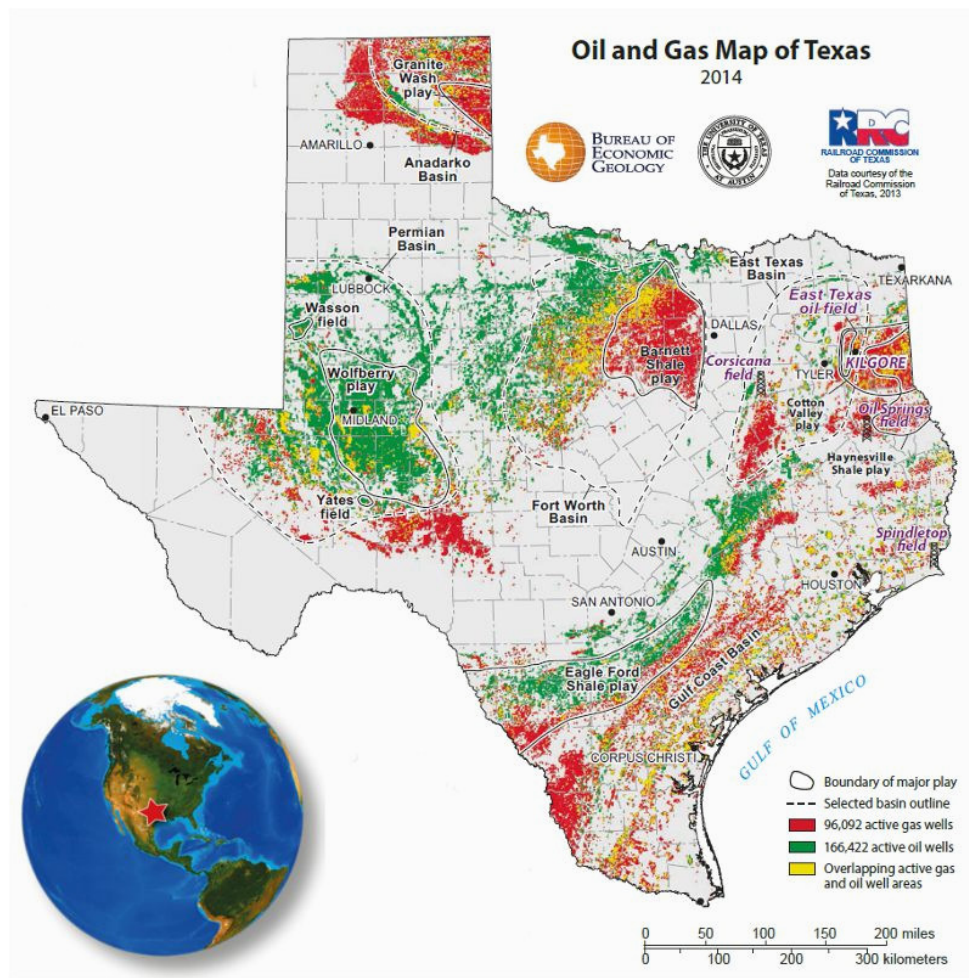
Source: <https://www.sciencedirect.com/science/article/pii/S0378426624001080#fn8> (consulted on 10/8/2024 at 9:11 am)

Appendix 7a: States of the United States



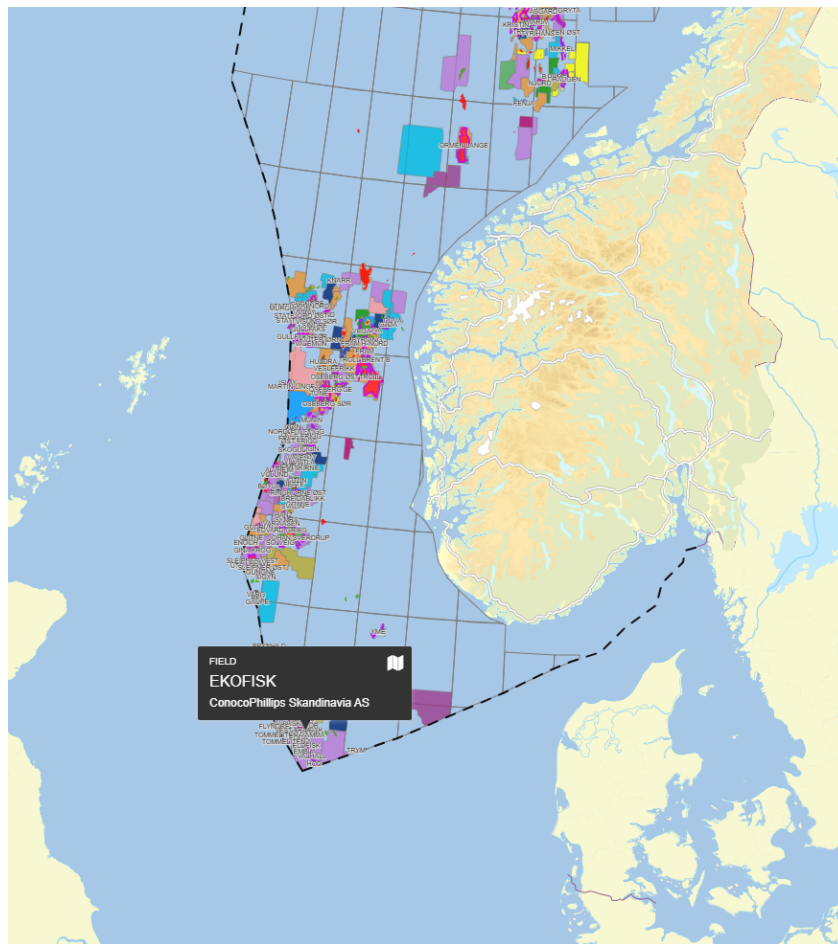
Source: <https://ontheworldmap.com/usa/us-states-map-max.jpg> (consulted on 13/7/2024 at 3:23 pm)

Appendix 7b: Texas' geology



Source: <https://www.secretmuseum.net/texas-oil-fields-map/texas-oil-fields-map-texas-oil-map-business-ideas-2013/> (consulted on 2/8/2024 at 11:15 am)

Appendix 8: EKOFISK oil field



Data source: <https://www.norskpetroleum.no/en/facts/field/ekofisk/> (consulted on 15/7/2024 at 2:27 pm)

Appendix 9: Disparities between Republicans and democrats in regards of climate change

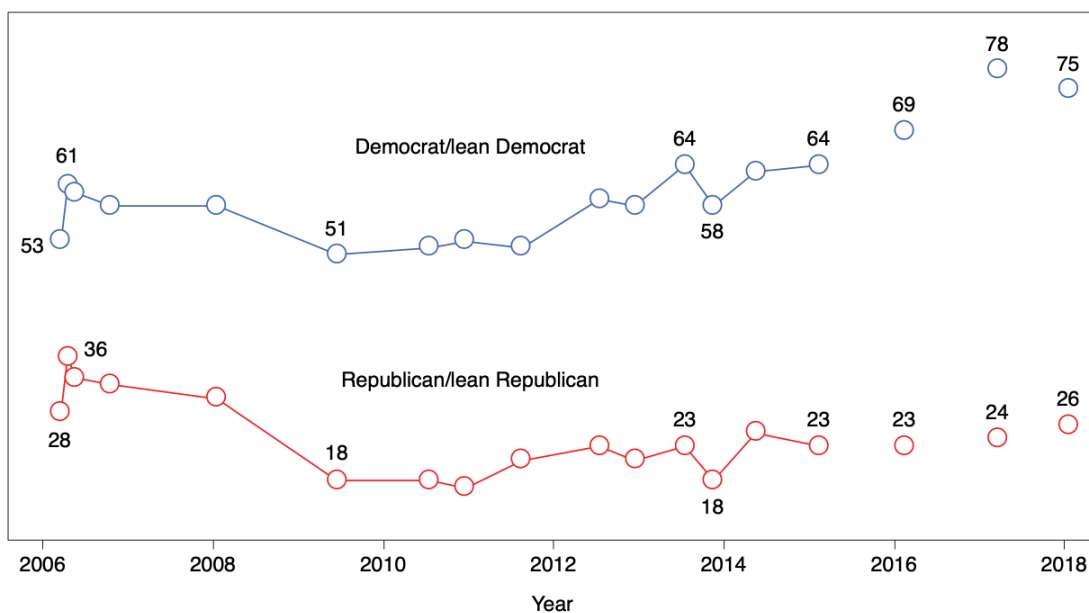
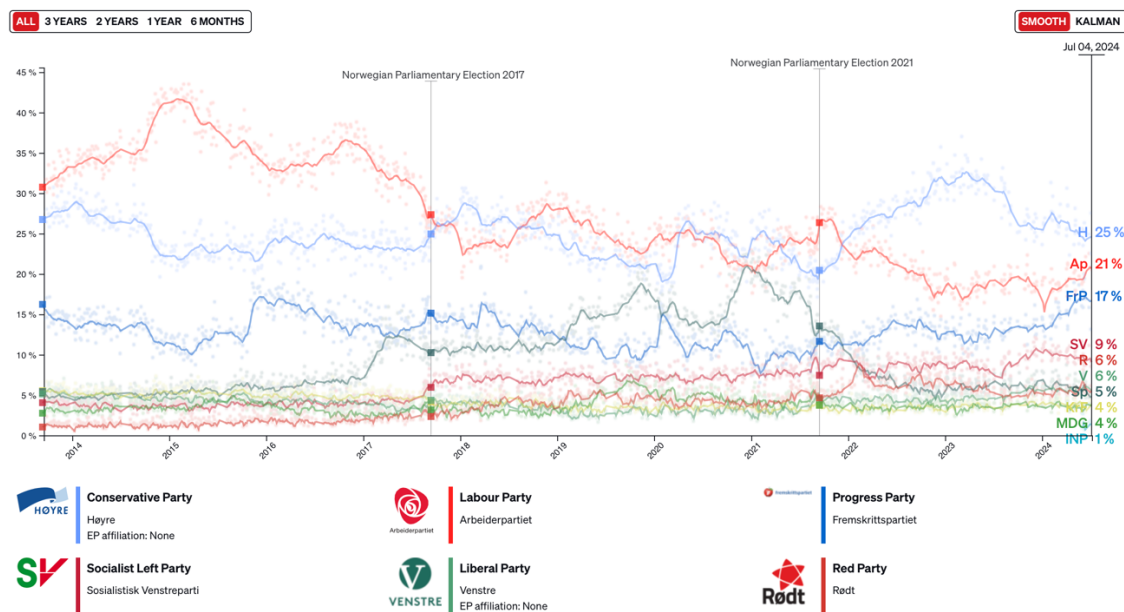


Fig. 1 | Percentage of US adults in each group who say the Earth is getting warmer mostly due to human activity. Numbers represent percentages of Democrats (blue) and Republicans (red), separately. Figure reproduced from ref. ¹.

Source: Ehret, P. Reaching Republicans on climate change. *Nat. Clim. Chang.* **11**, 560–561 (2021). <https://doi.org/10.1038/s41558-021-01071-0>

Appendix 10: Norwegian votes for its parliament from 2013

Norway — National parliament voting intention

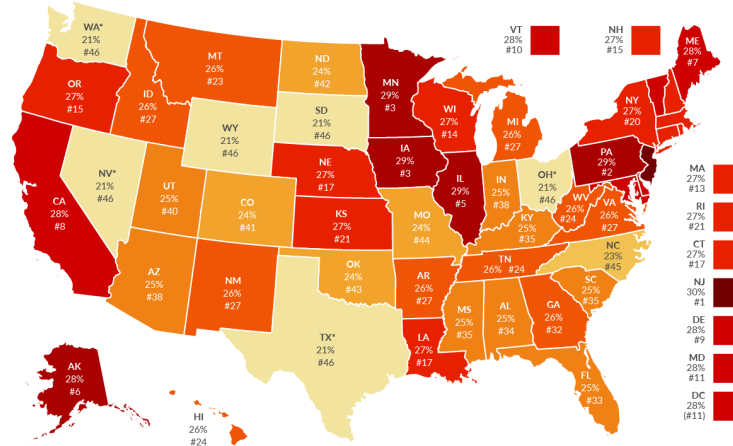


Source: <https://www.politico.eu/europe-poll-of-polls/norway/> (consulted on 2/8/2024 at 11:17 am)

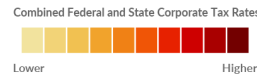
Appendix 11a: Corporate tax rate in different U. S. states as September 2022

How High are Combined Corporate Tax Rates in Your State?

Combined Federal and State Corporate Tax Rates as of September 1, 2022



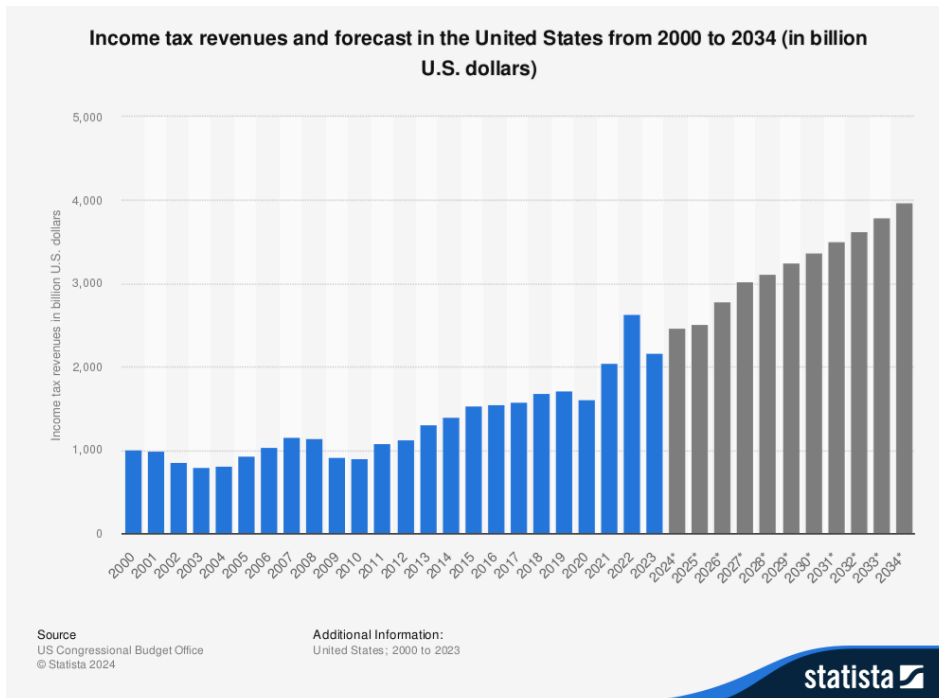
Note: Combined rates include the ability for corporations to deduct state income taxes against federal taxable income. Combined rates also include state deductibility of federal corporate income tax paid (Alabama) or half of federal corporate income tax paid (Missouri). *Nevada, Ohio, Texas, and Washington do not have a corporate income tax but do have a gross receipts tax with rates not strictly comparable to corporate income tax rates. Delaware and Oregon have gross receipts taxes in addition to corporate income taxes, as do several states like Pennsylvania, Virginia, and West Virginia.
Sources: State statutes, state tax forms and instructions, Tax Foundation calculations.



TAX FOUNDATION @TaxFoundation

Source: <https://taxfoundation.org/data/all/state/combined-federal-state-corporate-tax-rates-2022/> (consulted on 1/8/2024 at 10:19 am)

Appendix 11b: Income tax revenues and forecast from 2000 to 2034 (in the US)

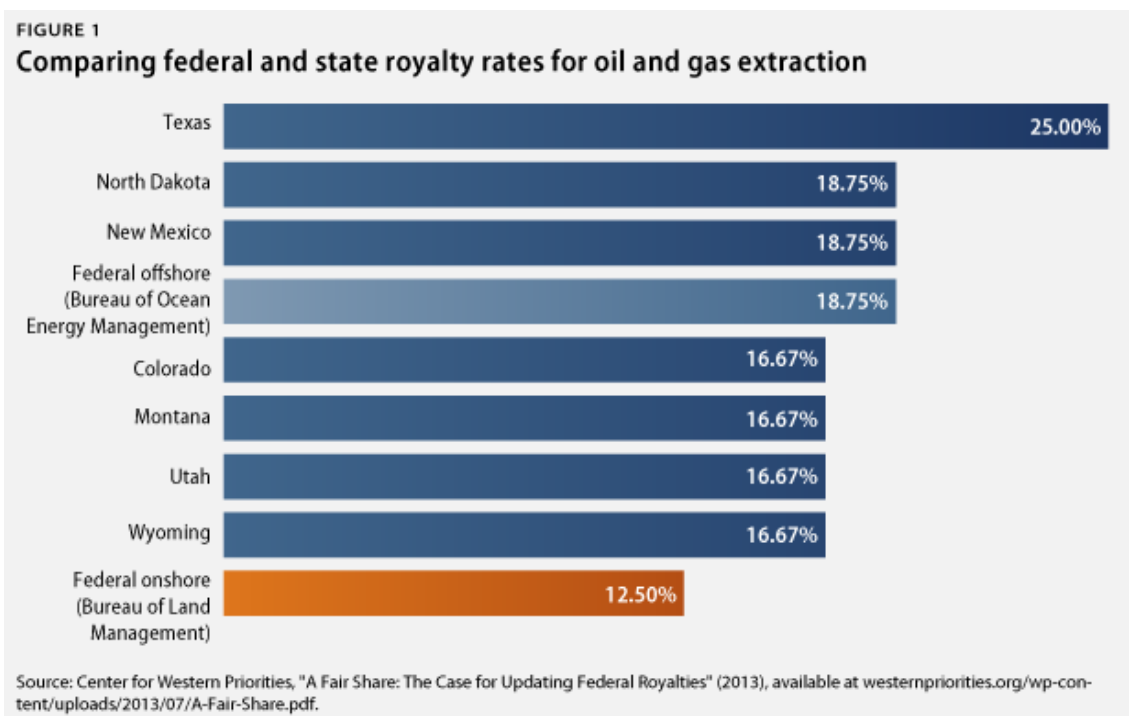


Source: U.S. Congressional Budget Office © Statista 2024
Additional Information: United States; 2000 to 2023



Source: Congressional Budget Office. (2023, February). *The Budget and Economic Outlook: 2023 to 2033*. <https://www.cbo.gov/system/files/2023-02/58848-Outlook.pdf> (consulted on 2/8/2024 at 11:27 am)

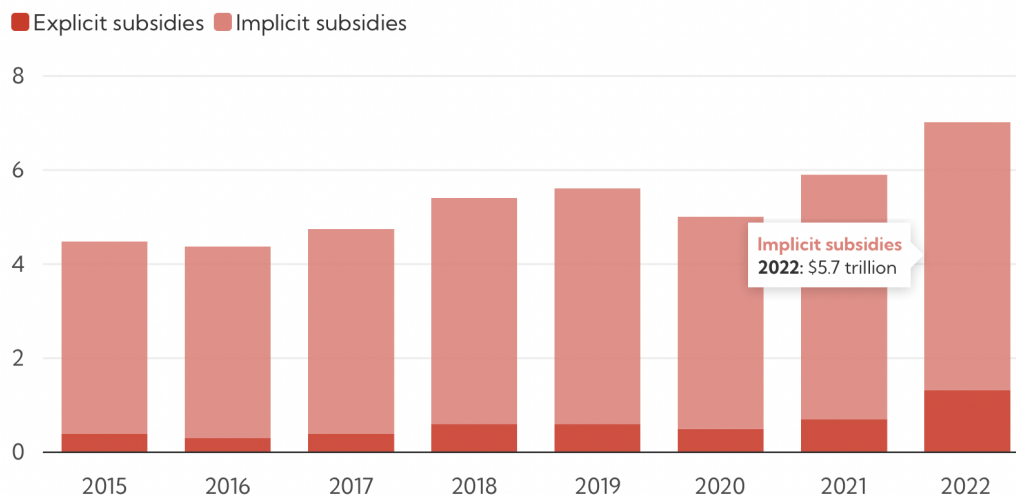
Appendix 12: Federal and state royalty rates for oil industry



Appendix 13: Fossil fuel subsidies

Fossil fuel subsidies topped \$7 trillion last year

(total fossil fuel subsidies, trillions of USD)



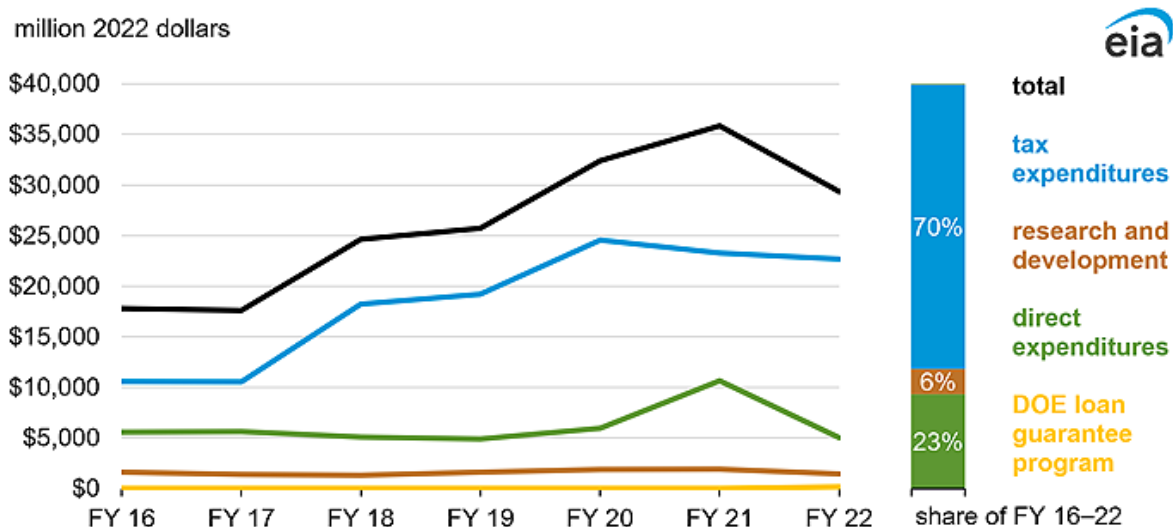
Source: IMF staff calculations.

Note: Figures from 2019 onwards use projections for fuel use. Explicit subsidies: undercharging for supply costs. Implicit subsidies: undercharging for environmental costs and forgone consumption taxes, after accounting for preexisting fuel taxes and carbon pricing.



Source: Black, Liu, Vernon, & Parry. (2024, August 24). *IMF Fossil Fuel Subsidies Data: 2023 Update*.

Appendix 14a: Energy specific subsidies and support FY 2016 to FY 2022



Source: U. S. Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy in Fiscal Years 2016–2022*, Table 1 and Table A3

Appendix 14b: Quantified table energy specific and support FY 2016 to FY 2022

Table 1. Quantified total energy-specific subsidies and support by type, FY 2016–22

million 2022 dollars

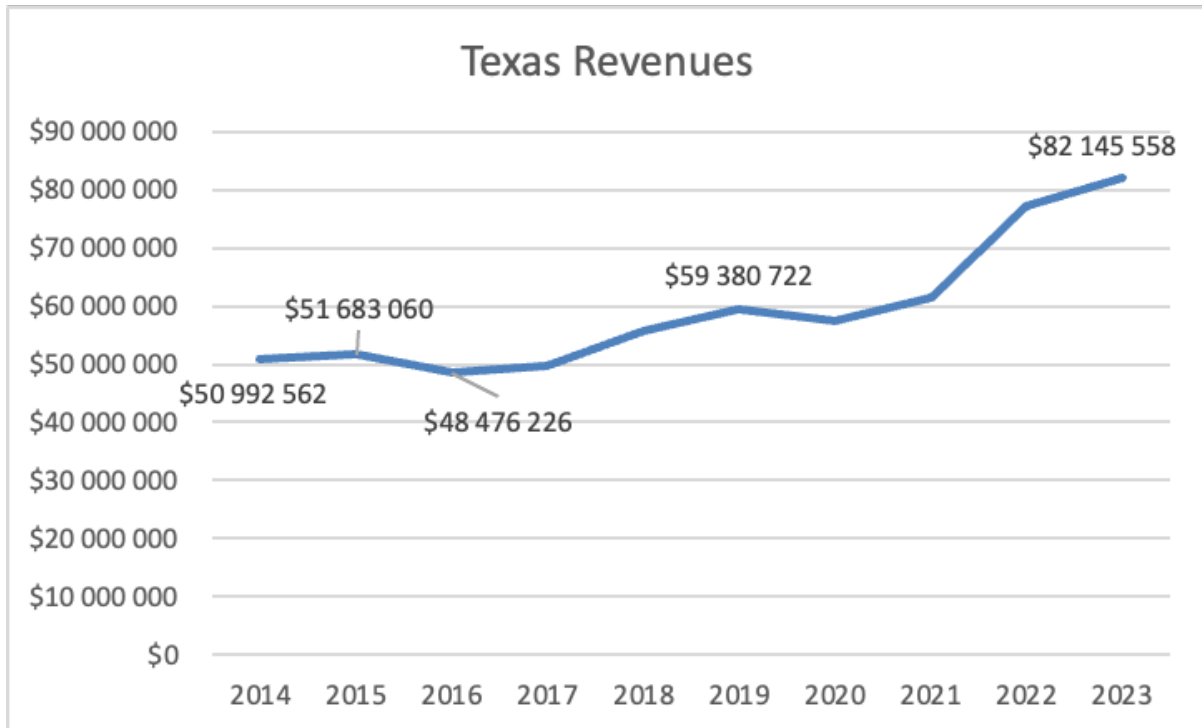
Fiscal year	Direct expenditures	Tax expenditures	Research and Development	DOE Loan Guarantee Program	Total	Annual share of FY 2016–22
2016	5,559	10,586	1,640	-	17,785	10%
2017	5,629	10,555	1,406	-	17,589	10%
2018	5,086	18,234	1,326	-	24,646	13%
2019	4,923	19,217	1,602	-	25,742	14%
2020	5,938	24,572	1,861	-	32,370	18%
2021	10,658	23,255	1,900	-	35,813	20%
2022	5,054	22,682	1,461	166	29,363	16%
Total	42,847	129,099	11,197	166	183,309	100%
Share of total	23%	70%	6%	0%	100%	

Data source: U.S. Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy in Fiscal Years 2016–2022*, Table A3

Notes: Totals may not equal sum due to independent rounding. 0 estimate rounds to zero; - estimate is zero. DOE=U.S. Department of Energy.

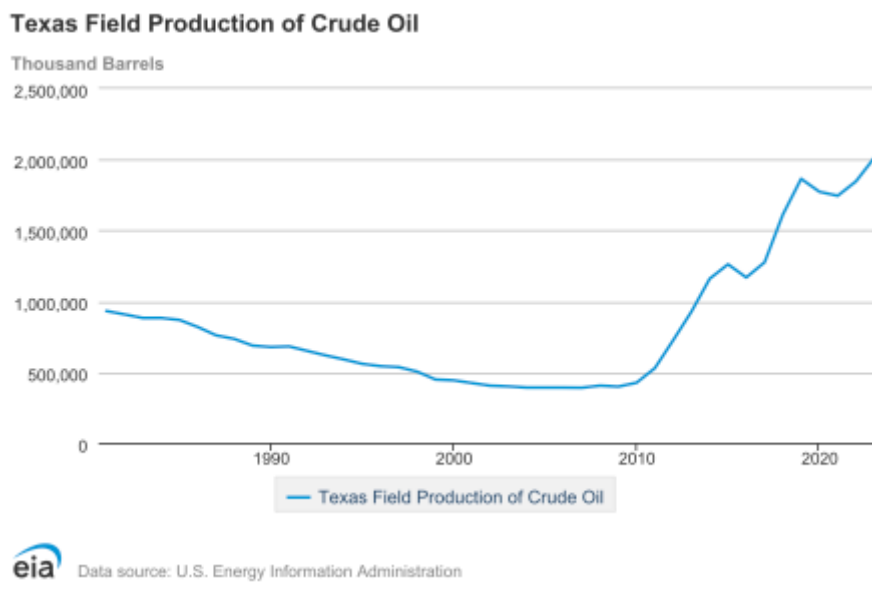
Source: U. S. Energy Information Administration, *Federal Financial Interventions and Subsidies in Energy in Fiscal Years 2016–2022*, Table 1 and Table A3

Appendix 15a: Evolution of Texas revenues from 2014



Manually extracted based on Texas revenues from Hegar. (2024, January). *A Field Guide to Taxes of Texas*. TEXAS COMPTROLLER OF PUBLIC ACCOUNTS.

Appendix 15b: Texas field production of crude oil



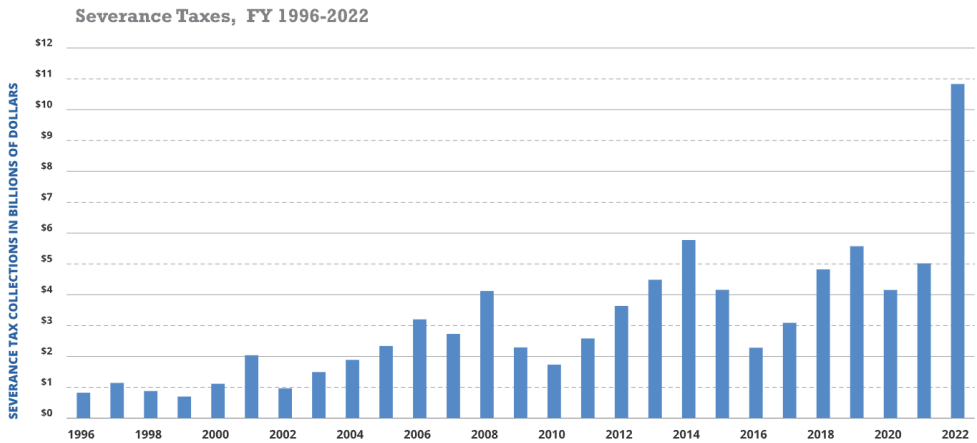
Source: U. S. Energy Information Administration (EIA)

Appendix 16: Severance taxes collected in Texas since 1996

SEVERANCE TAXES: A STORY OF VOLATILITY IN REVENUE AND PRICES

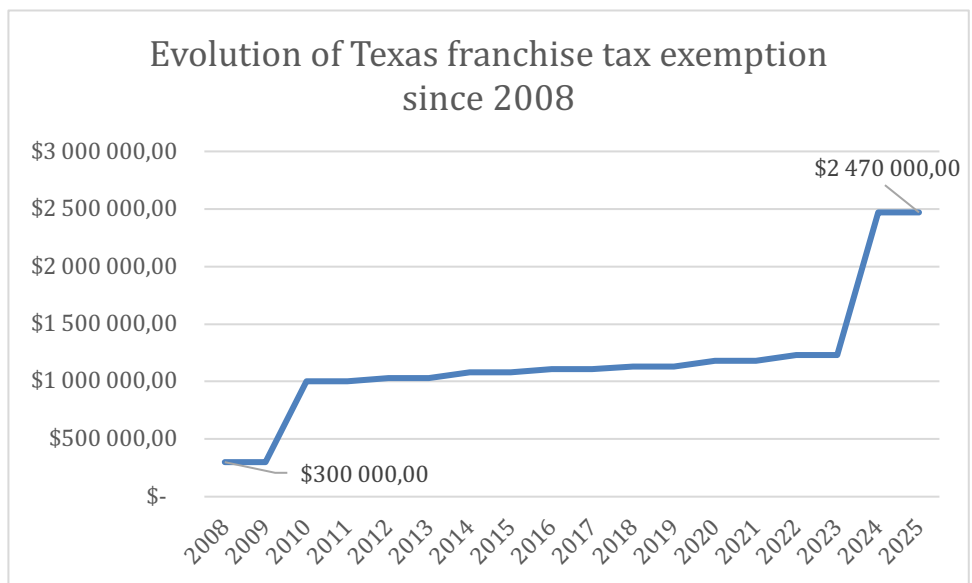
Severance taxes make up the most volatile tax revenue category. The average annual rate of growth of severance taxes for the last 26 years was 10.4 percent; however, the highest annual growth was 115.9 percent in FY 2022 and the deepest decline was 52.6 percent in FY 2002.

SEVERANCE TAXES consist of oil and natural gas production taxes. FY 2022 collections totaled \$10.83 billion – the highest annual collections on record – and contributed 14 percent to total tax collections.



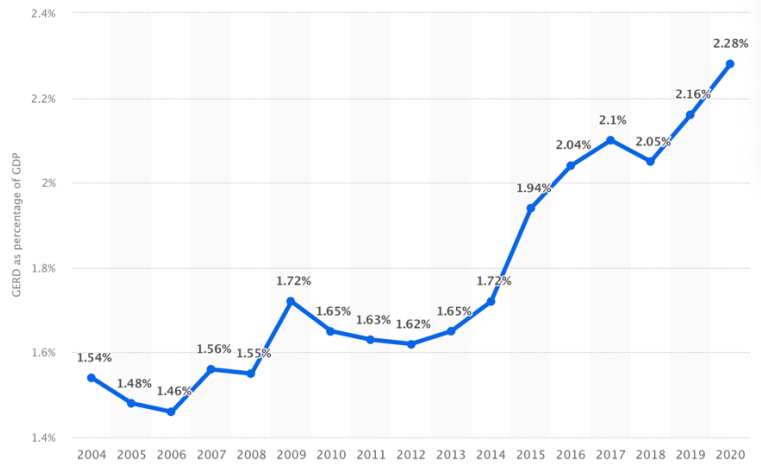
Source: Texas Comptroller of Public Accounts; U. S. Energy Information Agency (EIA).

Appendix 17: Evolution of Texas franchise tax exemption since 2008



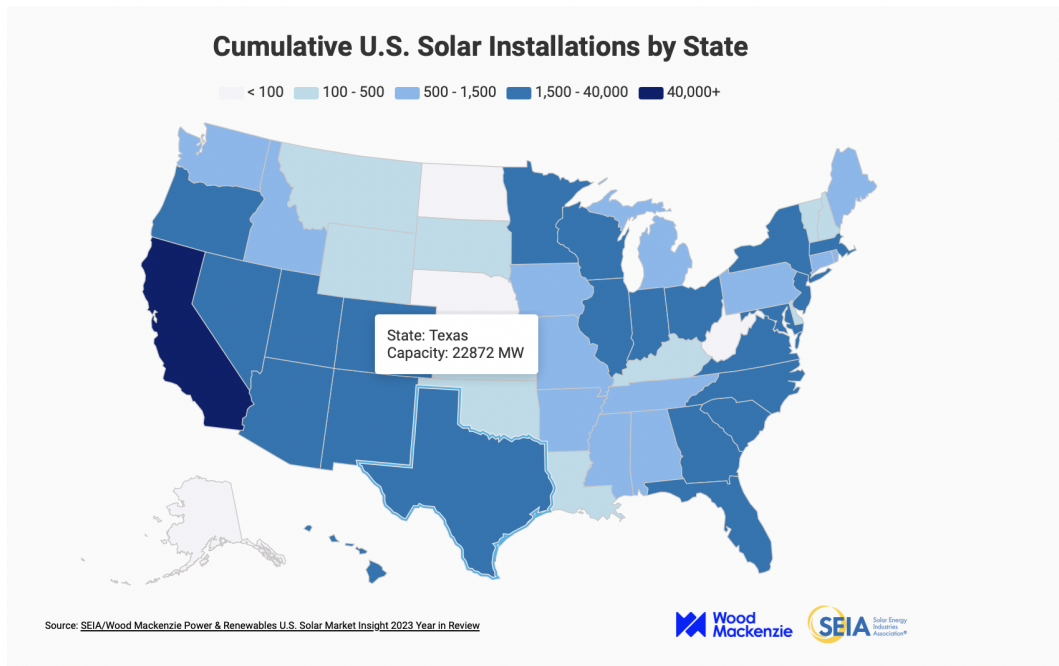
Manually extracted from <https://comptroller.texas.gov/taxes/franchise/> (consulted on 17/7/2024 at 4:10 pm)

Appendix 18: GERD as a % of Norway's GDP since 2004



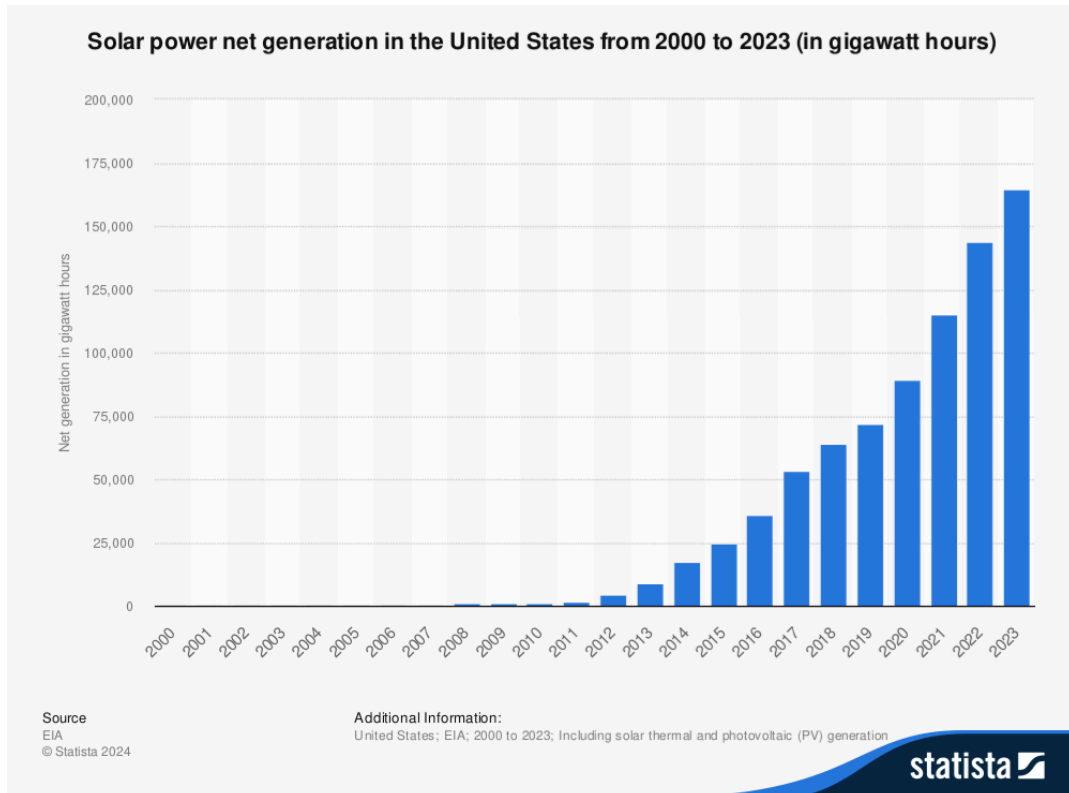
Source: <https://www.statista.com/statistics/420992/gross-domestic-expenditure-on-research-and-development-gdp-norway/> (consulted on 13/8/2024 at 5:45 pm)

Appendix 19: Cumulative US Solar installations by State



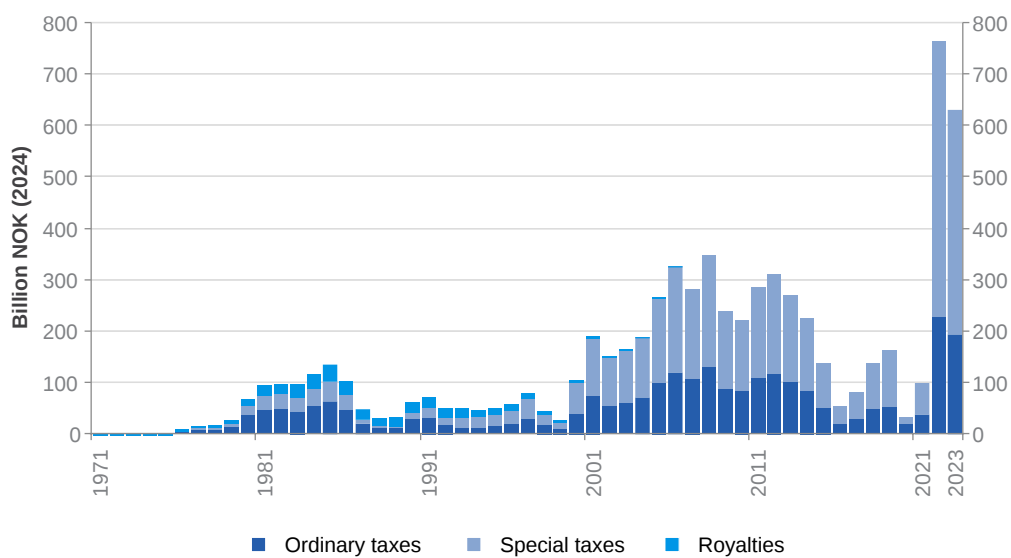
Source: The Solar Energy Industries Association (SEIA) & Wood Mackenzie Power & Renewables. (2023, March 6). *US Solar Market Insight: 2023 year-in-review*

Appendix 20: Solar power net generation in the US from 2000 to 2023



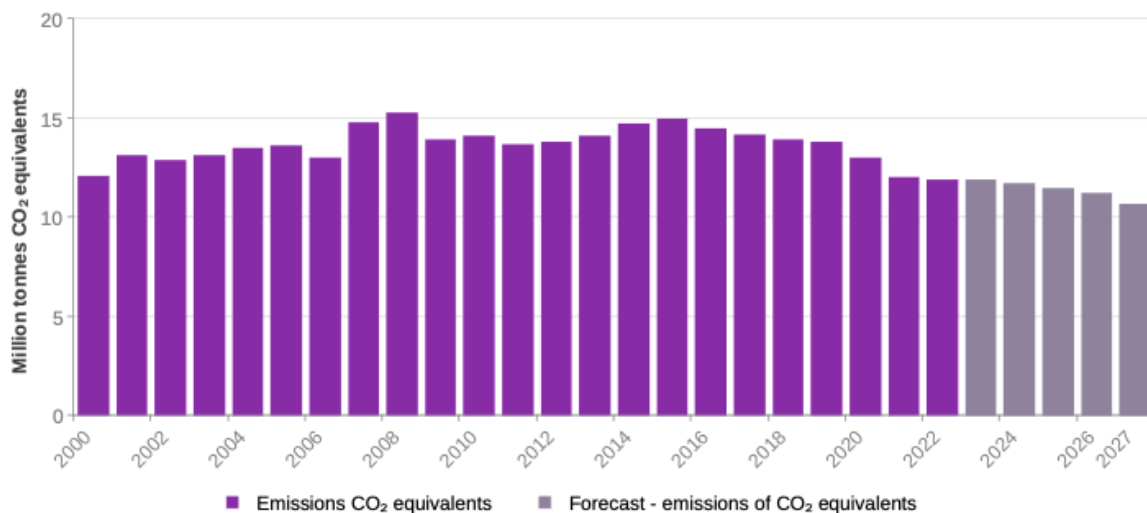
Source: *Monthly Energy Review*. (2024, April). US Energy Information Administration. <https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf> (consulted on 17/7/2024 at 4:13 pm)

Appendix 21: The net Norway government cash flow from petroleum activities from 1971 to 2023



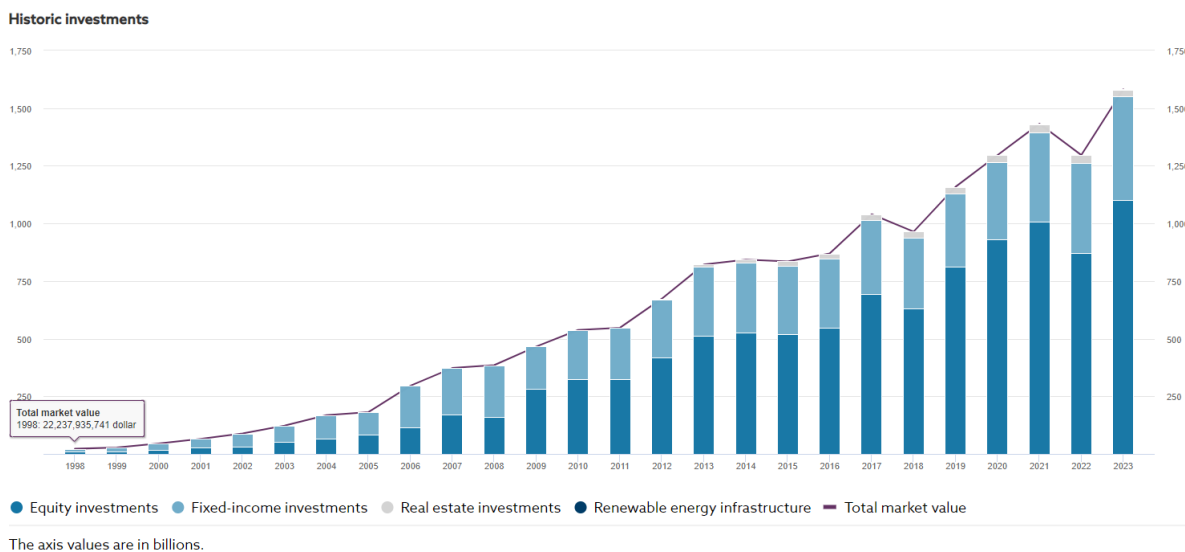
Source: Ministry of Finance, Statistics Norway

Appendix 22: Greenhouse gas emissions from the Norway petroleum sector from 2000 to 2022



Source: Norwegian Offshore Directorate

Appendix 23: Asset allocation of Norges Bank Investment Management from 1998



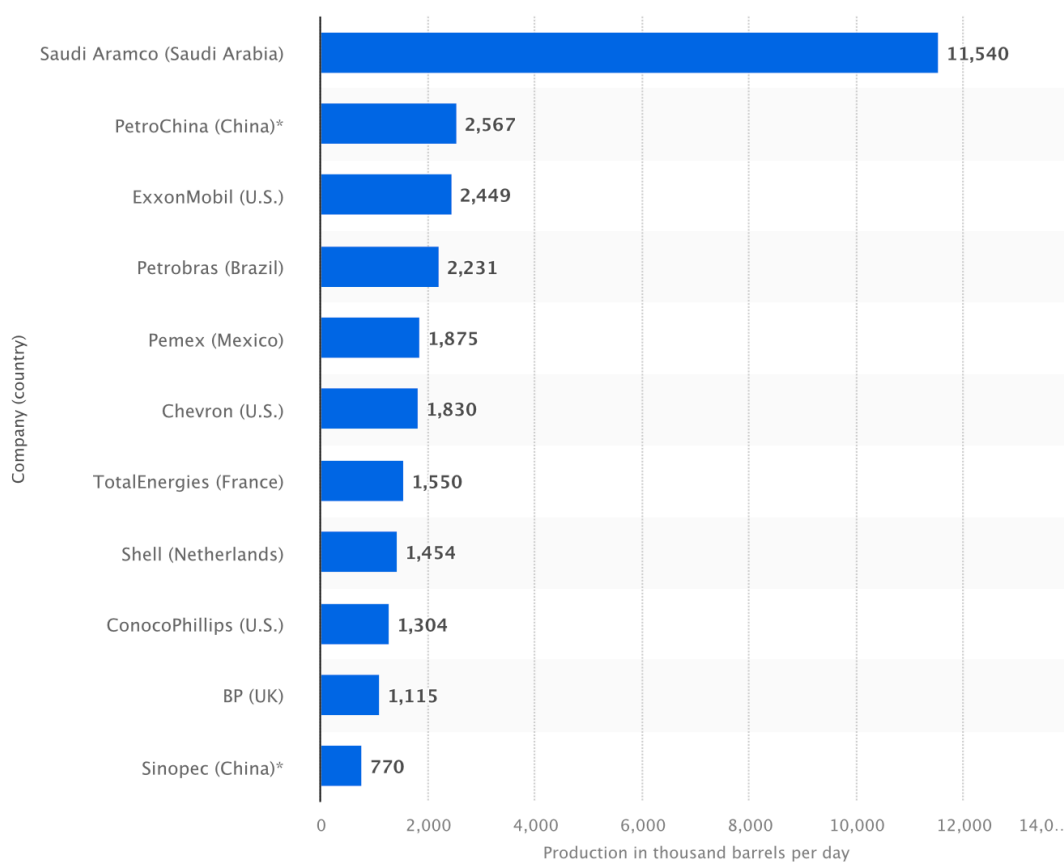
Source : <https://www.nbim.no/en/the-fund/Market-Value/> (consulted on 10/7/2024 at 6:05 pm)

Appendix 24: List of Norwegian oil companies operating in 2023

Operator	Oil	Condensate	NGL	Gas	Sum o.e.
Equinor Energy AS >	73.59	0.85	8.55	94.23	177.22
Aker BP ASA >	13.31	0.00	1.64	9.15	24.09
Vår Energi ASA >	4.75	0.00	0.73	3.28	8.76
ConocoPhillips Skandinavia AS >	7.00	0.00	0.32	1.18	8.50
A/S Norske Shell >	0.00	0.30	0.00	6.75	7.05
Wintershall Dea Norge AS >	2.31	0.01	0.48	2.50	5.30
OKEA ASA >	1.36	0.00	0.09	0.21	1.66
Repsol Norge AS >	1.09	0.00	0.00	0.00	1.09
Sval Energi AS >	0.57	0.00	0.02	0.00	0.58
TotalEnergies EP Norge AS >	0.00	0.00	0.00	0.03	0.03

Sources: <https://www.norskpetroleum.no/en/facts/historical-production/> (consulted on 17/7/2024 at 3:01 pm)

Appendix 25: Oil production of largest companies worldwide in 2023



Sources: <https://www.statista.com/statistics/280705/leading-oil-companies-worldwide-based-on-daily-oil-production/> (consulted on 17/7/2024 at 3:08 pm)

Appendix 26: Aker BP's sustainability dashboard from 2017 to 2022

Aker BP	2017	2019	2022
Total production of oil	50,671,230 barrels of oil	56,886,136 barrels of oil	112 853 barrels of oil = 113 million barrels of oil
Long term objective	<ul style="list-style-type: none"> Reduce CO2 emissions intensity at 8 kilograms of CO2 per barrel of oil 	<ul style="list-style-type: none"> By 2020, emission intensity below 5 kilograms of CO2 per barrel of oil. Reduction of 140 000 tons of CO2 produced by 2030, with 2016 as a baseline. 	<ul style="list-style-type: none"> Net zero emissions in their operations scope 1 and 2 by 2030. Net zero across operations by 2030 GHG intensity level under 4 kilograms of CO2 per barrel of oil by 2022. Absolute reduction close to 100% or emissions close to 0, in scope 1 and 2 by 2050.
CO2 intensity target	Less than 8 kilograms of CO2 per barrel of oil	5 kilograms of CO2 per barrel of oil by 2020.	Below 4 kilograms of CO2 per barrel of oil
Actual CO2 level	7.2 kilograms of CO2 per barrel of oil	6.9 kilograms of CO2 per barrel of oil	3.7 kilograms of CO2 per barrel of oil
Total emissions of CO2 (Scope 1)	913 796 tons CO2	897 478 tons of CO2	1.066 million tons CO2
Regulatory reporting	<ul style="list-style-type: none"> Global Reporting Initiative – G4 guideline 	<ul style="list-style-type: none"> Carbon disclosure project TCFD recommendations Global Reporting initiative 	<ul style="list-style-type: none"> Carbon disclosure project TCFD recommendations Global Reporting initiative
Renewable Investments	<ul style="list-style-type: none"> Energy efficiency: power from shore for fields Valhall (5.5 NOK billion) and Ivar Aasen 	<ul style="list-style-type: none"> Energy efficiency: power from shore for Valhall and Ivar Aasen. Assets had discharges and emissions exceeding the limit set out in the field's discharge permit. Investments: collaboration with AI companies, focus on digitalization and alliances with organizations to develop data-driven energy optimization. 	<ul style="list-style-type: none"> Norwegian state taxes: 80 billion NOK. Aker BP Taxes to the Norwegian state is used to be redeployed in green industries and energy transition. Net investments: 18.5 billion USD, focus on digitalization (Yggdrasil project) and partnerships with other companies such as Aize, Cognite, etc.
Independent assessment	No external evaluation	No external evaluation	PwC A S – limited assurance. The sustainability data is accurate and reliable within the scope reviewed. GRI index is not assured by PwC.
Carbon disclosure project	Level B	Level B	Level A-

Sources: <https://akerbp.com/en/sustainability/> (consulted on 20/7/2024 at 1:25 pm)

Appendix 27: Var Energi's sustainability dashboard from 2019 to 2022

Var Energi	2019	2022
Total production of oil	107,3 Million barrels of oil equivalents <ul style="list-style-type: none"> • 300 000 barrels of oil per day 	80,319 million barrels of oil equivalents <ul style="list-style-type: none"> • Target to produce 350 000 barrels per day by the end of 2025 with a reduction production costs
Long term objective	<ul style="list-style-type: none"> • Decrease of 40% the greenhouse gas emissions by 2030 • Net zero emissions by 2050 	<ul style="list-style-type: none"> • Net zero emissions (scope 2 and 3) by 2025 • Reducing by 50% operational emissions by 2030: from 350 000 to 175 000 tons of CO2 per year with 2005 as a base year • Net zero emissions by 2050
CO2 intensity target	9 kilograms of CO2 per barrel of oil	9 kilograms of CO2 per barrel of oil
Actual CO2 intensity	9, 84 kilograms of CO2 per barrel of oil	9 kilograms of CO2 per barrel of oil
Total emissions of CO2 (Scope 1)	291 283 tons of CO2	181 150 tons of CO2
Regulatory reporting	<ul style="list-style-type: none"> - Global Reporting Initiative - TCFD recommendations - ISO 50001, ISO 14001 	<ul style="list-style-type: none"> - Global Reporting Initiative - TCFD recommendations - ISO 50001, ISO 14001
Renewable Investments	<ul style="list-style-type: none"> • Investments in research and development to reduce GHG emissions: NOK 81 million in 46 R&D projects. • Offshore wind project with the Hywind Tampen, low-emissions technology and electrification of its assets). • Highlights on collaborations with the support to the KonKraft strategy: help to reduce GHG emissions by 2030 including offshore wind and CCS projects. 	<ul style="list-style-type: none"> • Highlights on collaborations with the support to the KonKraft strategy: help to reduce GHG emissions by 2030 including offshore wind (Hywind Tampen), CCS projects and electrification of assets with renewable power from shore or offshore.
Independent assessment	No third-party verification	PWC ASA – limited assurance on GRI index and KPI
Carbon disclosure project	No participation	Level B

Source: <https://varenergi.no/en/investor/reports-presentations/> (consulted on 20/7/2024 at 1:25 pm)

Appendix 28: ConocoPhillips' sustainability dashboard from 2017 to 2022

ConocoPhillips	2017	2019	2022
Total production of oil	2,405 million barrels oil	2,635 million barrels of oil	3,068 million barrels of oil
Long term objective	<ul style="list-style-type: none"> Reduce GHG intensity by between 5% to 15% by 2030, 2017 as a baseline. 	<ul style="list-style-type: none"> Reduce GHG intensity by between 5% to 15% by 2030, 2017 as a baseline. 	<ul style="list-style-type: none"> Reduce GHG intensity by between 50% to 60% by 2030, 2016 as a baseline. Net zero scope 1 emissions by 2050
CO2 intensity target	No specific target set on the short term	No specific target set on the short term	No specific target set on the short term
Actual CO2 level	Decreased by 12.2%	Decreased by 26% gross since 2009	Decreased of 36% net since 2016
Total emissions of CO2 (Scope 1)	20.9 million tons of CO2	19 175 798 tons of CO2	16 million tons of CO2
Regulatory reporting	<ul style="list-style-type: none"> Global reporting Initiative TCFD recommendations Carbon Disclosure project Dow Jones sustainability Index 	<ul style="list-style-type: none"> Global reporting Initiative TCFD recommendations Carbon Disclosure project Dow Jones sustainability Index 	<ul style="list-style-type: none"> Global reporting Initiative TCFD recommendations Carbon Disclosure project Dow Jones sustainability Index
Renewable Investments	<ul style="list-style-type: none"> Capital expenditure: 4.6 billion USD. Compliance with the EU ETS cost: 1.5 million USD. 	<ul style="list-style-type: none"> Capital expenditure: 6.6 billion USD. Compliance with the EU ETS cost: 8 million USD. Energy efficiency: Since 2017, Research and development dedicated was 2 million USD. 	<ul style="list-style-type: none"> Capital expenditure: 10.2 billion USD. Compliance with the EU ETS cost: 22 million USD. Energy efficiency: Research and development dedicated was 5 million USD.
Independent assessment	No company name – voluntary independent emissions verification	ERM Certification & Verification Services (ERM CVS) – changes in total of GHG emitted.	ERM Certification & Verification Services (ERM CVS) – limited assurance.
Carbon disclosure project	Level B	Level B	Level D

Sources: <https://www.conocophillips.com/company-reports-resources/sustainability-reporting/sustainability-report-regional-archives/> (consulted on 20/7/2024 at 2:40 pm)

Appendix 29: ExxonMobil dashboard on sustainability reports from 2017 to 2022

ExxonMobil	2017	2019	2022
Total production of oil	3 985 barrels of oil per day	3 952 barrels of oil per day	3 737 barrels of oil per day
Long term objective	<ul style="list-style-type: none"> Net zero scope 1 and 2 greenhouse gas emissions in operated assets by 2050. 	<ul style="list-style-type: none"> Net zero scope 1 and 2 greenhouse gas emissions in operated assets by 2050. Decrease greenhouse gas intensity by 15% to 20% by 2025, compared to 2016 levels. 	<ul style="list-style-type: none"> Net zero scope 1 and 2 greenhouse gas emissions in operated assets by 2050. Decrease greenhouse gas intensity by 40% to 50% by 2030, compared to 2016 levels. Decrease from 20% to 30% the corporate-wide greenhouse gas intensity by 2030. As well as Achieving net zero scope 1 and 2 greenhouse gas emissions in the Permian Basin unconventional operated assets by 2030. Maintain capital investments in the range of 20 to 25 billion USD per year through 2027.
Short term CO2 intensity target	No short-term goals set	No short-term goals set	No short-term goals set
Actual CO2 level	24.6 metric tons CO2 per 100 metric tons of throughput or production (GHG intensity – upstream)	25.4 metric tons CO2 per 100 metric tons of throughput or production (GHG intensity – upstream)	22.9 metric tons CO2 per 100 metric tons of throughput or production (GHG intensity – upstream)
Total emissions of CO2 (Scope 1)	122 million metric tons of CO2 per barrel of oil	120 million metric tons of CO2 per barrel of oil	96 million metric tons of CO2 per barrel of oil
Regulatory reporting	<ul style="list-style-type: none"> Global Reporting Initiative IPIECA 	<ul style="list-style-type: none"> Global Reporting Initiative IPIECA TCFD recommendations 	<ul style="list-style-type: none"> Global Reporting Initiative IPIECA
Renewable Investments	<ul style="list-style-type: none"> Carbon capture: 6.6 million metric tons of CO₂ captured for storage. Partnership with FuelCell Energy to improve existing technologies. Research and development: 1,063 million USD research and development Lower-emission energy solutions investments: 9 billion USD invested to develop since 2000. Capital expenditures: 23,080 million USD 	<ul style="list-style-type: none"> Carbon capture: partnership with FuelCell to further develop carbonate fuel cell system technology, no data disclosed. Research and development: In 2019, 1,214 million USD spent in R&D. 10 billion USD invested to develop lower-emission energy solutions over the past two decades. Capital expenditures: 31,148 million USD 	<ul style="list-style-type: none"> Carbon capture: CF industries, Linde and Nucor Corp – 5 million metric tons of CO₂ captured per year. Research and development: to optimize techniques to understand CO₂ storage and electrification of processes, lower emissions fuels – 20 billion USD in lower-emission investments from 2022. 50% of lower-emissions investments are dedicated to target reducing emissions from operated assets. Capital expenditures: 5.7 billion USD
Independent assessment	No company name was mentioned	No company name was mentioned	No company name was mentioned
Carbon disclosure project	No participation	Level F – declined to participate	Level F- declined to participate

Sources: <https://corporate.exxonmobil.com/sustainability-and-reports/sustainability/report-archive>
(consulted on 20/7/2024 at 5:37 pm)

Appendix 30: Aker BP's annual report

Aker BP Group	2017	2019	2022
Leasing costs	1.07 billion USD	365.21 million USD	156.22 million USD
Petroleum income	2.57 billion USD	3.33 billion USD	12.89 billion USD
Research and Development	23,35 million USD	56,79 million USD	51,9 million USD
CAPEX	5,58 million USD	7,023 million USD	15,88 million USD
<ul style="list-style-type: none"> • Production costs • Exploration expenses • Depreciation • Impairments • Other operating expenses 	<ul style="list-style-type: none"> • 523.38 million USD • 225.70 million USD • 726.67 million USD • 52.35 million USD • 27.60 million USD 	<ul style="list-style-type: none"> • 720.32 million USD • 305.51 million USD • 811.87 million USD • 146.80 million USD • 35.32 million USD 	<ul style="list-style-type: none"> • 932.87 million USD • 242.19 million USD • 1.78 billion USD • 1.03 billion USD • 52.57 million USD
Total deducibility expenses	= 1.55 billion USD	= 2.01 billion USD	= 4.03 billion USD
Total taxes	536.34 million USD	943.20 million USD	7.17 billion USD
78% tax rate in profit before tax	632.68 million USD	845.71 million USD	6.84 billion USD
Net profit/loss	274.78 million USD	141.051 million USD	1.60 billion USD
Carbon taxes	346 083 774 NOK* = 41 883 550,04 million USD	373 048 460 NOK** = 42 374 054,09 million USD	442 764 779 NOK*** = 46 003 925,29 million USD
Effective tax rate	66%	87%	82%
Independent company	KPMG	KPMG	PwC

Sources: <https://akerbp.com/en/report-archive/> (consulted on 1/8/2024 at 9:25 am)

*The average exchange rate from 1/1/2017 to 31/12/2017 was 1 USD = 8,2630 NOK

**The average exchange rate from 1/1/2019 to 31/12/2019 was 1 USD = 8,8037 NOK

***The average exchange rate from 1/1/2022 to 31/12/2022 was 1 USD = 9,6245 NOK

All the exchange rates were collected on the Norges Bank website: https://www.norges-bank.no/en/topics/Statistics/exchange_rates/?tab=currency&id=USD&frequencyTab=3 (consulted on 1/8/2024 at 5:25 pm)

Appendix 31: Var Energi's annual report

Var Energi	2019 (NOK)	2019 (USD)*	2022
Royalties/Leasing costs	5 665 080 billion NOK	643.48 million USD	245.49 million USD
Research and development expenditures	170 727 million NOK	19.39 million USD	31.54 million USD
Petroleum revenues	24 866 949 million NOK	2.82 billion USD	9.781 billion USD
<ul style="list-style-type: none"> • Production costs • Transportation costs • Other operating expenses (R&D costs, etc) • Exploration costs • Depreciation (3 to 15 years) and amortization 	<ul style="list-style-type: none"> • -7 769 118 million NOK • -1 250 571 million NOK • -405 125 million NOK • -932 128 million NOK • -8 634 916 million NOK 	<ul style="list-style-type: none"> • -882.48 million USD • -142.050 million USD • -46.017 million USD • -105.88 million USD • -980.82 million USD 	<ul style="list-style-type: none"> • -1.143 billion USD • -72.06 million USD • -137.72 million USD • -657.92 million USD • -1.44 billion USD
Total deductibility expenses:		= 2,15 million USD	= 3,45 million USD
Net income	2 516 461 million NOK	285.83 million USD	936.40 million USD
Total Norwegian taxes (corporate tax)	1 848 192 million NOK	209.93 million USD	2.678 billion USD
Taxes payable	10 110 920 million NOK	1.14 billion USD	4.91 billion USD
CO2 taxes	418 961 million NOK	47.59 million USD	122.98 million USD
Effective tax rate	Not disclosed	Not disclosed	84%
Independent company	PwC ASA	PwC ASA	PwC ASA

Source: <https://www.equinor.com/investors/annual-reports-archive> (consulted on 1/8/2024 at 11:28 am)

*The average exchange rate from 1/1/2019 to 31/12/2019 was 1 USD = 8,8037 NOK based on the Norges Bank website: https://www.norges-bank.no/en/topics/Statistics/exchange_rates/?tab=currency&id=USD&frequencyTab=3 (consulted on 1/8/2024 at 5:25 pm)

Appendix 32: ExxonMobil 's annual report

ExxonMobil	2017	2019	2022
Oil production	3,985 barrels of oil per day	3,952 barrels of oil per day	3,737 barrels of oil per day
Sales and other operating revenue	237,162 million USD	255,583 million USD	398,675 million USD
Total leasing costs	1,103 million USD	1,156 million USD	1,776 million USD
Net income	19 710 million USD	14,340 million USD	55,740 million USD
Total Income taxes including non-US taxes, states and federal taxes	(1,174) million USD	5,282 million USD	20,176 million USD
Effective income tax rate	5%	34%	33%
Total taxes paid	31,285 million USD	38,468 million USD	51,631 million USD
Independent company	PwC	PwC	PwC

Sources: <https://investor.exxonmobil.com/company-information/annual-reports-proxy> (consulted on 2/8/2024 at 10:18 am)

Appendix 33: ConocoPhillips 's annual report

Consolidated ConocoPhillips	2017	2019	2022
Crude oil	2,405 million barrels oil	2,635 million barrels of oil	3,068 million barrels of oil
Current federal taxes	79 million USD	18 million USD	1,263 million USD
Current foreign taxes	1,729 million USD	2,545 million USD	5,813 million USD
Current State and local taxes	51 million USD	148 million USD	386 million USD
Total income taxes	1,822 million USD	2,267 million USD	9,548 million USD
Norwegian Carbon Tax legislation	29 million USD	30 million USD	36 million USD
Total revenues and other income	32,584 million USD	36,670 million USD	82,156 million USD
Taxes and other than income taxes	809 million USD	953 million USD	3 364 million USD
Net income/loss	-855 million USD (loss)	7,189 million USD	18,680 million USD
Cost of compliance to the EU ETS	1,5 million USD	8 million USD	22 million
Effective tax rate	69,7%	23,8%	33,8%
Independent company	EY LLP	EY LLP	EY LLP

Sources: <https://static.conocophillips.com/files/resources/2017-annual-report.pdf> (consulted on 3/8/2024 at 11:56 am)

Sources: <https://static.conocophillips.com/files/resources/2019-conocophillips-annual-report-19-0895.pdf> (consulted on 3/8/2024 at 11:56 am)

Sources: <https://static.conocophillips.com/files/resources/conocophillips-2022-annual-report.pdf> (consulted on 3/8/2024 at 11:56 am)

Appendix 34: Comparison between Aker BP and Var Energi (sustainable situations)

	Aker BP	Var Energi
Similarities	<ul style="list-style-type: none"> • Climate goals: specific targets were developed to reduce CO2 intensity and GHG emissions. • Significant reduction in carbon intensity: from 7.2 to 3.7 kilograms CO2 per barrel of oil. • Investment specificities: on digitalization and electrification of existing operations. • Use of multiple frameworks: Global Reporting Initiative, TCFD recommendations. • Carbon Disclosure Project: Level A- for in 2022 • Third-party verification: independent auditors reviewed their sustainability reports in 2022. 	<ul style="list-style-type: none"> • Climate goals: broader focus on reducing CO2 intensity and GHG emissions. • Reduction in carbon intensity: from 9,84 to 9 kilograms CO2 per barrel of oil. • Investment specificities: electrification of assets as well as • Use of multiple frameworks: Global Reporting Initiative, TCFD recommendations • Carbon Disclosure Project: Level B for in 2022 • Third-party verification: independent auditors reviewed their sustainability reports in 2022.
Differences	<ul style="list-style-type: none"> • Oil production trends: significant increase • Increase in Total emissions: from 913,796 tons CO2 in 2017 to 1,066,000 tons CO2 in 2022. • TPI assessments: level 4 in 2022. 	<ul style="list-style-type: none"> • Oil production trends: decrease from 2019 to 2022 but ambition to increase it by the end of 2025. • Decrease in Total emissions: from 913,796 tons CO2 in 2017 to 1,066,000 tons CO2 in 2022. • ISO certification: ISO 50001 and ISO 14001

Appendix 35: Comparison between ExxonMobil and ConocoPhillips (sustainable situations)

	ExxonMobil	ConocoPhillips
Similarities	<ul style="list-style-type: none"> • Decrease in CO2 emissions: from 3,985 barrels per day in 2017 to 3,737 barrels per day in 2022. • Decrease in oil production level: from 3,985 barrels per day in 2017 to 3,737 barrels per day in 2022. • Decrease in CO2 intensity level: from 24,6 metric tons in 2017 to 22,9 metric tons in 2022. • Increase in capital expenditures: from 23,080 million USD to 5,7 billion USD. • Low score in Carbon disclosure project: Level F in 2022 • Transition Pathway Initiative: level 3 	<ul style="list-style-type: none"> • Decrease in CO2 emissions: from 20.9 million tons in 2017 to 16 million tons in 2022. • Increase in oil production level: from 2,405 million barrels in 2017 to 3,068 million barrels in 2022. • Decrease in CO2 intensity level: percentage improvement from 12,2% in 2017 to 36% in 2022. • Increase in capital expenditures: from 4,6 billion USD in 2017 to 10,2 billion USD in 2022. • Low score in Carbon disclosure project: level D in 2022 • Transition Pathway Initiative: level 4
Differences	<ul style="list-style-type: none"> • Specificities investments: focus on low-emission energy solutions investments and carbon capture technologies. • Use of regulatory framework: only based on the Global Reporting initiative. • Third party verification: none reported between 2017 and 2022. 	<ul style="list-style-type: none"> • Specificities investments: focus on energy efficiency. • Use of regulatory framework: Global Reporting initiative and TCFD recommendations. • Third party verification: ERM Certification & Verification Services (ERM CVS) since 2019.

Appendix 36: Comparison between Norwegian and Texan companies (sustainable situations)

	Norwegian companies	Texan companies
Similarities	<ul style="list-style-type: none"> • Decrease in CO2 intensity. • Diverse investment strategies. • Low score of CDP except for Aker BP • Recent third-party verification • Consistently used regulatory frameworks such as GRI and TCFD recommendations 	<ul style="list-style-type: none"> • Decrease in CO2 intensity. • Diverse investment strategies. • Low score of CDP • Recent third-party verification • Consistently used regulatory frameworks such as GRI and TCFD recommendations except for ExxonMobil
Differences	<ul style="list-style-type: none"> • Decrease in CO2 emissions except for Aker BP increased its CO2 emissions by 2022 in parallel with an Increase in oil production. • Voluntary commitments: ISO certification for Var Energi 	<ul style="list-style-type: none"> • Decrease in CO2 emissions. • Increase in oil production except for ExxonMobil which decreased its oil production level by 2022. • Voluntary commitments: Dow Jones Sustainability Index (DJSI)

Appendix 37: Comparison between Aker BP and Var Energi (tax situations)

	Aker BP	Var Energi
Similarities	<ul style="list-style-type: none"> - Increase petroleum revenues (significant): from 2.57 billion USD in 2017 to 12.89 billion USD in 2022 - Increase in total tax paid: from 536.34 million USD in 2017 to 7.17 billion USD in 2022 - Decrease in lease costs: from 1.07 billion USD in 2017 to 156.22 million UD in 2022 - Deductibility expenses increase: rose from 1.55 billion USD in 2017 to 4.03 billion USD in 2022 - Decrease leasing costs: From 1.07 billion USD in 2017 to 156.22 million USD in 2022 - Increase in CO2 tax payments: from 41.88 million USD in 2017 to 46 million USD in 2022. - Increase in net income: from 274.78 million in 2017 to 1.6 billion USD in 2022. - Big four verification: KPMG and PwC A.S. 	<ul style="list-style-type: none"> - Increase petroleum revenues: from 2.82 billion USD in 2019 to 9.78 billion USD in 2022 - Increase in total tax paid: from 1.14 billion USD in 2019 to 4.91 billion USD in 2022. - Decrease in leasing costs: from 643.49 million USD in 2019 to 245.49 million USD in 2022 - Deductibility expenses increase: grew from 2.15 billion USD in 2019 to 3.45 million USD in 2022. - Decrease leasing costs: from 643.49 million USD in 2019 to 245.49 million USD in 2022. - Increase in CO2 tax payments: from 47.59 million USD in 2019 to 122.98 million USD in 2022. - Increase in net income: from 285.83 million USD in 2019 to 936.4 million USD in 2022. - Big four verification: PwC A.S
Differences	/	/

Appendix 38: Comparison between ExxonMobil and ConocoPhillips (tax situations)











	ConocoPhillips	ExxonMobil
Similarities	<ul style="list-style-type: none"> - Increase in revenues: from 32.58 million USD in 2017 to 82.16 million USD in 2022 - Increase in total taxes paid: from 1.82 billion USD to 9.55 billion USD in 2022 - Increase in income taxes: 1.82 billion USD in 2017 to 9.55 billion USD in 2022. - Low effective rate: fluctuating between 23,8% to 33,8% - Increase net income: from 855 million USD in 2017 to 18.68 billion USD in 2022 - Third-party verification by Big Four companies: EY, confirmed that the financial statements were fairly prepared in compliance with laws and regulations. - Increase in CAPEX: from 4.6 billion USD in 2017 to 	<ul style="list-style-type: none"> - Increase in revenues: from 237.16 million USD in 2017 to 398.68 million USD in 2022 - Increase in total taxes paid: from 1.17 billion USD in 2017 to 20.18 billion USD in 2022. - Increase in income taxes: from 1;17 billion USD in 2017 to 20.18 billion USD in 2022. - Low effective rate: from 33% to 34% - Increase net income: from 19.71 billion USD in 2017 to 55.74 billion USD in 2022 - Third-party verification by Big Four companies: PwC, confirmed that the financial statements were fairly prepared in compliance with laws and regulations. - Increase in CAPEX
Differences	<ul style="list-style-type: none"> - Increase in oil production: from 2,405 million barrels in 2017 to 3,068 million barrels in 2022. - Additional costs lowering the net income: EU ETS compliance costs which 1.5 million USD in 2017 to 22 million USD in 2022. 	<ul style="list-style-type: none"> - Decline in production: from 3,985 barrels of oil per day in 2017 to 3,737 in 2022.

Appendix 39: Comparison between Norwegian and Texan companies (tax situations)

	Norwegian companies	Texan companies
Similarities	<ul style="list-style-type: none"> - Increase in revenues - Increase in total taxes paid - Increase in net income 	<ul style="list-style-type: none"> - Increase in revenues - Increase in total taxes paid - Increase in net income
Differences	<ul style="list-style-type: none"> - Divergent oil production trend - Higher effective tax rate 	<ul style="list-style-type: none"> - Divergent oil production trend - Lower effective tax rate

Appendix 40: United States' progress on climate actions, under President Biden

Tracking the Biden Administration's Progress on Climate Action

ACTION	STATUS
 Set target to cut emissions by at least 50% by 2030	●
 Pass a major climate-smart stimulus package after COVID-19	●
 Tackle super pollutants	●
 Require all new passenger vehicles produce zero emissions by 2035	●
 Scale up carbon removal	●
 Ramp up clean electricity standards	●
 Set appliance and equipment standards to replace fossil fuels with electricity whenever feasible	●
 Set emission performance standards for cement, steel and plastics	●
 Reestablish international leadership	●
 Tax pollution	●

● Achieved
 ● Significant Progress
 ● Some Progress
 ● Off Track

Source: WRI.
23.0139

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Sources: <https://www.wri.org/insights/biden-administration-tracking-climate-action-progress> (consulted on 5/8/2024 at 6:30 pm)

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Executive summary

The oil industry is a major contributor to greenhouse gasses emissions. As these are responsible for global warming with its many nefarious effects, various environmental regulations and tax policies have been implemented to mitigate climate change, such as the Paris Agreement and the European Green Deal. These regulations pose significant challenges to the oil industry, impacting their profitability and operations.

This purpose of this research is to analyze the different strategies implemented by Norwegian and Texan companies, and the impact of tax regulations on their financial performance and strategic decisions. The study explores the different trends that have emerged in Norway and Texas, two regions that play significant roles as major oil producers. By focusing on four key companies – Aker BP, Var Energi in Norway, ExxonMobil and ConocoPhillips in Texas, the research examines the period from 2017 to 2022.

The findings reveal that all four oil companies have indeed integrated environmental risks in their businesses and have made progress towards mitigating their impact on the environment: they successfully decrease their CO2 intensity and CO2 emissions. However, balancing economic growth with sustainability remains a challenge, leading to divergent oil trends emerged.

Norwegian companies are more restricted by EU regulations, have shown higher transparency in their sustainability reporting compared to Texan companies. The latter seem to be driven by financial returns and reputation rather than by environmental concerns.

Financially, the oil industry grew substantially during the time period considered, with increases in net income, capital expenditures and R&D investments, reflecting an expansion in their operations. Within their divergent tax framework, Norwegian companies benefited from significant tax deductions while Texan companies gained lower tax rates and incentives from the Tax Cuts and Jobs Act. Both regions were encouraged to boost investments with deductible R&D expenses, decreasing their overall tax burden. This research underscores the complex relations between environmental regulations, tax policies and strategic decision-making within the oil industry, highlighting the ongoing challenges and opportunities as the energy industry has to move towards sustainability.

Word count: 22,119