Energy Transition:

Impact on the factors shaping International Oil Companies strategy

Master thesis submitted to Delft University of Technology in partial fulfilment of the requirements for the degree of

MASTER OF SCIENCE
in Complex Systems Engineering and Management

Faculty of Technology, Policy and Management by
Tom Elsen
Student number: 4974018

Graduation committee

Chairperson:	Prof. dr. K. Blok	Engineering Systems and Services
First Supervisor:	Dr. D.J. Scholten	Economics of Technology and Innovation
Second Supervisor:	Prof. dr. K. Blok	Engineering Systems and Services

- This page is intentionally left blank -

Preface

Amsterdam, 6 October 2020

Dear reader,

In fulfillment of the MSc Complex Systems Engineering and Management at the Delft University of Technology, this report presents my MSc thesis findings that I have been working on for the last six months. This report is for people interested in strategy within the field of the oil and gas industry.

I sincerely enjoyed working together with my thesis committee members. I would like to thank Kornelis Blok for his overall supervision and creative thinking. I would also like to thank Daniel Scholten for his time, guidance, and constructive feedback during the meetings, which have improved this research quality.

Thanks to all interviewees who were willing to take the time to answer my questions and share their insights. I was grateful for their enthusiasm in partaking. Without their input, I would not have been able to execute this project.

Last but not least, I would like to thank my family and friends for their support during the entire process.

Kind regards,

Tom Elsen

Executive summary

This mixed-methods research obtains empirical insights into the impact of the energy transition on the factors shaping international oil companies' strategies. It starts with the search of the literature, which forms the basis of the framework of factors. A discourse analysis of annual reports using the framework reveals the results per factors and the interviews with industry experts provide an interpretation of the results. Based on these insights, several academic as well as practical recommendations for IOCs, are suggested.

In 2019, high carbon-emitting fossil fuels supplied 84% of global energy consumption. In addition to being essential for current transportation technologies, most products manufactured today, from clothing to automobiles to medical supplies, are derived from petroleum by-products. Hence, oil can be rightfully called the lifeblood of industrial civilization, and its ownership, reserves, price, and associated wealth have influenced world economics and politics.

International oil companies (IOCs) and national oil companies (NOCs) fulfill the worldwide oil and gas demand. The IOCs include the remnants of the so-called 'seven sisters' in ExxonMobil, Chevron, BP, and Royal Dutch Shell. In the 1990s, IOC's business strategy was mainly maximizing shareholder value by reducing costs and maximizing bookable reserves. Afterward, international oil companies surfed on the perpetually rising oil demand. However, the energy transition, the current shift towards a cleaner, low-carbon energy system, disturb this status quo. Various challenges face the energy industry related to the energy transition, from decreased access to sovereign reserves to declining fields, innovation challenges, and new regulations and energy policies. These challenges pose a threat to the primary industry structure and create a dynamic environment that shapes international oil companies' business strategies.

As the transition to low carbon creates a highly uncertain environment for the oil and gas industry, this research's main objective is to reveal the impact of the energy transition on the strategies of IOCs. This research aims explicitly at researching the influence of the energy transition on the factors shaping an IOC' strategy. Therefore, the research question is as follows:

Does the low carbon energy transition redefine the factors behind the business strategies of IOCs?

An extensive search of literature identifies numerous factors that shape an international oil company's business strategy and reveals factors specific to oil and gas companies. In addition, reviewing the energy transition implications on the oil and gas industry led to six new factors related to the energy transition. All factors accumulate to create the framework of factors used in further steps of this study. The study's data are annual reports of three IOCs (Royal Dutch Shell, BP, and Equinor) between 2007 and 2019.

First, an introduction to the oil and gas industry gives context to the annual reports. The discourse analysis on the annual reports solely includes the term energy transition, synonyms, and related words, and reveals the evolution of the energy transition as a topic. Moreover, although synonyms and related words are continually present since 2007, the term energy transition only emerges in the last three to four years.

Secondly, the discourse analysis shifts to the framework of factors to extract development of the business strategy's factors within the annual reports. Furthermore, to reveal variation in factors shaping business strategies in the oldest reports compared to factors shaping business strategies in the latest annual reports. Throughout the analysis, the framework of factors serves as a classification. The discourse analysis is performed separately for each factor in the framework and each IOC. However, this report only analyzes the outcome of five factors. And thus, this research highlights the most important factors according to the literature and this is verified through the interviews.

The discourse analysis results reveal that almost all factors in the framework of factors define strategies of IOCs. Moreover, it reveals discrepancies between the number of mentions in 2007 and 2019. Such as "Proven Reserves", which knows a considerable decrease in mentions over the research period. For the factor "Price of crude oil", the annual reports of BP and Equinor show a decrease in mentions, while alternatively, Royal Dutch Shell shows a minor increase. With other factors, as "Risks" and "Energy Scenarios", an increase in the number of mentions is visible. The extent of this increase varies between case-studied companies. Mostly, Equinor results differ from Royal Dutch Shell and BP results. For example, both "Proven Reserves" and "Risks" are constant in Equinor's case while respectively decreasing and increasing for the other two IOCs. Furthermore, several factors show a constant mentioning between 2007 and 2019. For instance, each annual report mentions the factor "Shareholders" almost equally for all three IOCs.

Next, the interviews with the strategy employees provide a qualitative check to the discourse analysis's quantitative results. In addition, the interview with an industry expert presents a critical voice. Interestingly, the interviews reveal that the impact of the energy transition explains, in some instances, the increase or decrease in the number of mentions of factors. However, interviewees presented contradicting interpretations, not agreeing on the impact of the energy transition on a specific factor. Nevertheless, these various developments have different degrees of power. Such as energy scenarios become visibly more critical due to the energy transition, while shareholders remain equally important. Likewise, the interviewees' explanations contradict the results of the factors "Proven Reserves" and "Risks". Some draw the line to the energy transition while others propose different explanations. In response to the main research question, we cannot explicitly conclude that the energy transition has redefined various factors shaping IOCs strategies. Though the variations of mentions seen in the discourse analysis suggest an impact of the energy transition, the interviews deliver contradicting explanations.

This study shows that in the annual reports of IOCs, the energy transition grows as a debate topic. And to compare the actions following the words, the amount of IOCs investment in renewables is discussed. Most current research finds that renewables or other energy transition-related technologies investment is a small portion of the total capital expenditure. Although, several explanations can support this fact as the small size of the low-carbon technologies industry compared to the oil industry; and the high risk due to the technological uncertainty around innovations.

The energy transition recently led to changes in strategy and sharper emission targets for all three researched IOCs. Due to this fact, this year may be remembered as the point when the long-anticipated energy transition to a low-carbon future moves unequivocally from being a topic of debate to a shift of substance. Nowadays, most oil and gas companies made headway in reducing their carbon intensity and assess which investments and technologies could drive further progress towards a low-carbon energy system. Therefore, further research possibilities focus on the past and future investment in renewables, or the expansion of the data with speeches, energy scenarios report, and other media outlets.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

List of abbreviations

IOC: International Oil companies
NOC: National Oil Companies
CO_2: Carbon Dioxide
OPEC: Organization of the Petroleum Exporting Countries

1. Introduction

Since the discovery of oil in the mid-19th century, petroleum has grown into a major role in the world economy. In the 20th century, oil emerged as an essential energy source due to technological breakthroughs (EKT, 2020). Furthermore, the use of oil has risen in parallel with the massive economic advances made in the century. The estimation is that industrial production grew by around 50 times during the 20th century and into the 21st century (OPEC, 2004). Moreover, for decades the global energy system has been entirely dependent on fossil fuels (Bahgat, 2003). Until the 1970s, International Oil Companies (IOCs) dominated the global oil industry outside North America and communist countries. Nowadays, the IOCs include the remnants of the so-called 'seven sisters' in ExxonMobil, Chevron, BP, and Royal Dutch Shell (EnergyToday, 2019).

Today, the global oil reserves are dominated by state-owned companies of various countries to a significant extent. In the last years, the role of IOCs in the oil markets has been in decline. Hence, IOCs focus on more challenging and less profitable domains, like deep-water operations, shale gas, and unconventional oil (Al-Fattah, 2013). In 2019, high carbon-emitting fossil fuels combined supplied 84% of global energy consumption (IEA, 2020). In addition to being essential for "current transportation technologies; most products manufactured today, from clothing to automobiles to medical supplies, are derived from petroleum by-products" (IEA, 2018, p.12). Oil can be rightfully called the lifeblood of industrial civilization (Matutinovic, 2009), and thus companies have proclaimed oil as the "black gold". Consequently, it is a tremendous geopolitical prize as an essential component of modern civilization, and a strategic energy source. The ownership, reserves, price of oil, and associated wealth have influenced world politics and economics (Matutinovic, 2009).

For a long time, international oil companies controlled the oil and gas industry. This dominance began to crumble due to the emergence of national oil companies (NOCs). Major exporting countries established NOCs, which took control over their oil and gas reserves. In response, the IOCs focused on finding and controlling more reserves and performed mergers that created the now renowned "Supermajors", while minimizing costs. The race for new oil and gas wells will exist as long as petroleum is a pillar of IOC's revenue. Nevertheless, IOCs' business strategies have slowly adjusted towards creating other revenue streams and the exploration of a new type of petroleum wells due to recent innovations such as fracking.

In consultation with company strategists, possibly external consultants, and higher management, its executives develop the business strategy. The current market conditions (Example: oil price trends, competitors), regulations (Example: CO2 tax), innovations (Example: artic oil, fracking, heavy oil), and other information form the basis of a business strategy. Factors specify which vision of success drives the endless choices. They are needed to shape a successful strategy, galvanize opportunities, overcome challenges, and mitigate risks (Entrepreneur, 2008).

However, the energy transition, the current shift towards a cleaner, low-carbon energy system, disturbs this status quo (IEA, 2017). The energy transition and the shale revolution in the United States, the technological change, and the drive for energy efficiency imply sustained pressure on developing company models that rely heavily on hydrocarbon revenues (Johnston et al., 2019). To illustrate, the chief executive officer of Royal Dutch Shell, Mr. Ben van Beurden, recently told investors that "Royal Dutch Shell is no longer an oil and gas company, but an energy transition company" (Financial Times, 2018, n.d.). The transition towards a low-carbon energy system demands a re-evaluation of the international oil companies' strategies, no longer fit for purpose (Stevens, 2016). Also, the resulting pressure forces organizations to adapt for survival.

The Paris Agreements provide oil companies with an additional drive to respond and adjust the business strategies to this new business climate of energy transition (UNFCCC, 2016). However, until now, the response from oil companies has varied significantly. Most failed to provide hard targets for the future and are investing more in projects contrary to the Paris goals (Carbon Tracker, 2018). As societies develop and people seek a higher quality of life, demand for energy increases. Consequently,

a dual societal challenge is the need for 'more energy and less carbon' (BP, 2018). In 2017, oil consumption thrived, and hydrocarbons accounted for more than 80% of the energy mix (IEA, 2018).

As previously stated, IOCs cannot ignore the energy transition, and business strategies need to adapt to future survival. The energy industry faces a variety of challenges, "from decreased access to sovereign reserves to declining fields, innovation challenges, increased regulation and new energy policies" (Singh, 2010, p.11). These challenges create a dynamic environment that poses a threat to the industry structure and shapes international oil companies' business strategies.

1.1 Problem Statement

The research problem focuses on the impact of the energy transition on the factors defining the business strategy of international oil companies (IOCs). As stated, Kraan et al. (2019): "Where previously policy targets and business strategies were focused on the depletion of fossil resources, in the last decades there is increased focus on the impact of the use of resources".

In the 1990s, IOC's business strategy was mainly maximizing shareholder value by reducing costs and maximizing bookable reserves (Stevens, 2016). Afterward, international oil company management has believed with quasi-religious fervor in the never-ending rise of oil demand. Consequently, it laid the focus on finding new reserves rather than maximizing value or cash distributions for shareholders. A new business strategy is needed, and some of the IOC's start to pay serious attention to how to achieve this. Some companies are frontrunners, while others remain behind. Factors influence the choice and formulation of business strategies (BMI, 2020). It also applies to the business strategy of international oil companies. Examples of factors are the regulatory framework, financial market, political playfield, proven reserves, and future oil price. Due to the energy transition, the influence of previously vital factors could ebb away while others could rise. Alternatively, new factors could emerge.

The energy transition originates several critical challenges for IOCs, like a response to maximizing value to shareholders and society or the uncertain time frame of decision-making (Caldecott et al., 2018). The entrance into alternative sectors, in which IOC personnel lacks expertise. A dynamic environment, an uncertain policy, and an economic environment lead to variations in factors and importance. An effective business strategy permits IOCs to overcome the newly arose challenges.

1.2 Research Objective and Question

The research objective is to show how the low-carbon transition affects the factors behind international oil companies' business strategies. An overview shows the factors that define the business strategies of Royal Dutch Shell, BP, and Equinor from 2007 until 2019. Additionally, the research presents a snapshot of the recent changes in 2020.

National oil companies (NOCs), like Saudi Aramco, Kuwait, CNPC, and Sinopec, are considered outside of the scope. The respective governments heavily influence their national oil company's business strategies (Pickl, 2019). Furthermore, state-owned companies' business strategies adapt less to global energy dynamics, and external factors have limited weight. For example, NOC's leave the investment in renewable energy to other parties in their country (Shojaeddini et al., 2019).

In the United States of America, the oil and gas lobby yield significantly influences US origin and operating oil companies. Furthermore, International Oil Companies as BP, Chevron, ExxonMobil, Royal Dutch Shell, and Equinor have more options than the other minor players or NOC's because IOC's are not bonded to a specific geographic territory and benefit from management skills and strategic views (Yun, 2018). For those reasons, the case studies focus on European origin oil companies. Furthermore, Royal Dutch Shell, BP, and Equinor are oil companies at the forefront of the energy transitions, according to Pickl (2019). They respectively rank second, third and fifth on the Power Plays 2020 ranking. It reflects the companies' existing footprint in renewable power generation and related activities (S&P Global, 2020). Moreover, all IOCs have no longer a focus on pure hydrocarbon, while a high activity in terms of renewable strategy.

I chose to analyze the annual reports between 2007 and 2019 due to the absence of available annual reports before 2007. Besides, the Kyoto Protocol is ratified in 2005, and it operationalizes the United Nations Framework Convention on Climate Change. And thus, the main driver behind the urgency of the energy transition has received a significant boost. Industrialized countries commit to limit and reduce greenhouse gases (GHG) emissions was achieved, admittedly with individual targets (UNFCCC, 2016). Some international oil companies accept and recognize the Kyoto Protocol. As a result of the economic crisis in 2008, the mindset of consumers and governments started to orient towards minimizing the threat of climate change and greenhouse gases emissions through renewables.

The energy transition is a phenomenon that ignites change and fuels modifications in numerous aspects of society. It has a profound impact on our society as we now know and is an imperative topic to research. Academic research is about researching the future and the past simultaneously. The energy transition is considered a massive wave of change, with many tentacles spreading into various aspects of society. And research reveal its implications and project future steps. Specifically, this study tries to reveal the implications of the energy transition on international oil companies' strategy.

As stated above, I expect the low-carbon energy transition to redefine the international oil companies' business strategies. Each International Oil Company (IOC) differs in history and risk attitude, in endowments, has different types of expertise, and operates in different geographies (Fattouh, 2018). And while their business strategies diverge, the factors influencing their business strategy are quite similar. Nonetheless, the knowledge gap is in the factors defining the business strategies of International Oil Companies. More specifically, will the factors be adjusted due to the low-carbon energy transition? And such, the research question is the following:

Does the low carbon energy transition redefine the factors behind the business strategies of IOCs?

1.3 Sub-questions

The following research sub-questions are formulated to answer the main research question:

- SQ1. What factors define business strategies, and which factors have shaped business strategies from international oil companies in the past decades?
- SQ2. What new factors are introduced due to the low-carbon energy transition?
- SQ3. What changes does the transition to a low-carbon society present to the current factors shaping the international oil companies' business strategies?
- SQ4. What is the influence of the low-carbon energy transition on business strategies?

1.4 General Approach

This basis of the research relies on extensive literature research and multiple interviews. First, a search of the literature establishes a theoretical basis. The theory introduces the concept of business strategies, factors, and their relationship, leading to a table of essential factors to shape a business strategy. Next, is a brief overview of the Oil and Gas Industry, and a description of the factors specific for international oil companies. After which this research explains the energy transition in detail and its implications on the oil and gas sector. As a result, the introduction of the hypothetical new energy transition-related factors. All the factors found in the different steps are combined to form the framework of factors, later used in the discourse analysis. These steps answer sub-questions 1 and 2 and provides a deeper introduction into essential aspects of the research topic.

Then, the discourse analysis is done on three levels: (i) as an analysis of the discourse practice, particularly the conditions under which texts are produced, distributed, and consumed; (ii) as an analysis of the formal features of the texts; and (iii) as an analysis of the social practice of which the discourse is a part (Laine, 2005).
In other words, part (i) begins with providing an introduction into the landscape of the oil and gas industry to provide context for the annual reports. Next, in part (ii), the discourse analysis of the annual reports of Royal Dutch Shell, BP, and Equinor between 2007 and 2019 is performed. First, solely the presence of the word energy transition, synonyms, and related words is treated to show the energy transition evolution as a topic in the annual reports. Then, the discourse analysis includes all factors of the framework found through the literature search. This constitutes showing the number of mentions of each factor for each year and each IOC. That is the factor, synonyms, and related words. The quantitative outcome states the influence of the energy transition on the framework's factors between 2007 and 2019.

The third part (iii) consists of four semi-structured interviews with an employee of each the case studied companies (Royal Dutch Shell, BP, and Equinor) and an industry expert. Most of the employees work at the strategy department since 2007, the date of the oldest available annual report. These interviews permit to check the quantitative findings of the previous part and interpret the results. It tries to explain the influence of the energy transition on the variations in mentions of factors shaping IOC's strategies. Furthermore, the analysis of the quantitative results leads to interview questions, and additionally, some questions reveal the role of IOC in the energy transition. The interpretation of the interviews answers sub-question 3 and tests the findings of part 2.

In the fourth part, answers out of the semi-structured interviews are used to interpret the effect on the IOCs' strategy. Additionally, this part provides practical recommendations to international oil companies, including future challenges and strategies to survive the energy transition. It answers sub-question 4. Furthermore, in the discussion part, the theory treated in part 1 is linked to the findings from parts 2, 3, and 4. And it presents the possible limits of the chosen research methods and research.

Last, the conclusion, positions this research in a broader perspective, and gives possible further research opportunities. Besides, the conclusion answers the main research question with the help of the four sub-questions treated in the previous parts.

1.5 Literature Review

The approach for this literature study was to collect several articles based on the following keywords: 'Business strategy; Factor; Energy transition; Oil and gas companies; low-carbon energy system' and by cross-referencing in the articles themselves. The keywords were combined in different ways to maximize the output of articles and project a better overview of the available literature.

All the articles are found through Scopus, Google Scholar, ScienceDirect, and snowballing. Several search terms are composed of the keywords, and its evolution steps throughout the literature search are shown in Appendix A. The articles' selection is based on a scan of the abstract, introduction, conclusion, and the central concept. All articles are summarized in a small paragraph highlighting the key takeaways per article, see Appendix B.

First, in a broader context, the role of oil and gas companies in the energy transition has been pinpointed by several articles. For example, Shojaeddini et al. (2019) differentiate International oil companies (IOC) and National oil companies (NOC) due to their differences in the governance structure. IOC's contemporary role is diversification of portfolio to maintain the trust of governments and stakeholders, granted if their economic activities are deemed socially acceptable. In contrast, NOC's leave the investment in renewable energy to other parties in their country. A prospective role in the collaboration between IOC and NOC is proposed, accelerating the energy transition. In the low carbon energy transition, Johnston et al. (2019) foresee an essential role for oil and gas companies as a catalyst for "its peers to undertake similar steps and partner with the renewable energy sector, policy community and stakeholders in the oil and gas industry" (Johnston et al., 2019). Five steps are determined if taken together, the oil and gas sector survives and leads the energy transition. First, creating low carbon strategies that is understandable for the financial markets and shareholders. And thus profitable. Second, following and promoting the development of Environmental Social Corporate Governance (ESG). Next, collaborating with partners toward net-zero emissions energy system fueled with appropriate policy incentives. Then, encouraging the growth of international carbon markets and expanding the "possibilities for government-to-government and business-to-business (B2B) joint cross-border projects for emissions reduction" (Johnston et al., 2019 (p.23)). Last, collaborate with partners to restore the oil and gas industry's attractiveness for talent, concerned with Paris climate goals and stranded asset risk of the industry.

Secondly, several articles concentrate on the rhetoric of oil and gas companies. For instance, Skjærseth et al. (2007) reviewed the renewable energy strategy formulation and implementation for three oil majors. A substantial difference between oil majors such as Exxon Mobil and Royal Dutch Shell is found. Interestingly, it also shows discrepancies between the strategy formulation and the actual fulfillment of the strategies in the form of investments. This research revealed that both BP and Royal Dutch Shell did not fulfill its proactive strategy formulation during the 1998-2005 period.

More recently, articles have analyzed oil and gas companies' investments and actions. While Pickl (2019) investigates the eight most representative oil majors, and Zhong (2018) sheds light on all international oil companies (IOC). The latter observes a diversity of business strategies and, in their success to embrace the developments due to the energy transition. Similarly, Pickl (2019) observes a heterogeneity and categorizes the oil majors in renewables leaders or laggards. Both studies suggest divergent perspectives regarding the long-term economic advantages, resulting in the choice of different business strategies, especially when business portfolios are shifting from fossil fuels to low-carbon energy sources.

Fattouh et al. (2018) determine the various business strategies for oil companies and oil-exporting companies with the knowledge and thinking of two years ago. It provides a specific recommendation to international oil companies to survive the energy transition: "they should aim to build an integrated portfolio that includes both hydrocarbon and low-carbon assets". Similarly, Yun et al. (2018) identify three low-carbon strategies from IOC'. First, a radical shift towards gas production to supply the growing demand. Second, direct involvement in the low-carbon sector, and last, investment or

intensifying collaboration with peers. While for survival, Stevens (2016) advises several different strategies for BP, Chevron, Royal Dutch Shell, ExxonMobil, and Total. For instance, to perform mega-merger, squeeze costs, or reshuffle portfolios.

On the other hand, West et al. (2018) recognize a current logical strategy in a highly uncertain environment supported by the energy transition speed. A strategy of diversification and adaptation, which proposes a focus on real opportunities to pinpoint the next big technologies. Nevertheless, to conclude, with the words of Fattouh et al. (2018): "due to the complex nature and high uncertainty, no strategy can be pitched as best ".

Other studies have focused on different oil companies such as Al-Fattah (2013), who found that national oil companies' (NOC) have changed their strategy and corresponding business model. In recent years, NOCs have started to expand beyond their national borders. As joint venture partners with IOCs and in the acquisition of international assets. Considering these dynamics, Al-Fattah (2018, p734) claims that IOCs must re-examine two strategic questions:" where to play and how to compete successfully with NOCs".

These reviewed articles are used to provide a contextual groundwork of the research problem. Most of the topics treated in this literature review are closely linked to the research steps which will respond to the research question, as seen in section 1.2. This literature lacks a theoretical part and focuses on finding key challenges, old and new business strategies to adapt and survive the low-carbon society transition. The theory is necessary to create the framework of factors and perform the discourse analysis, which is analyzed further in the research.

1.6 Fit to the master's program

The master's program in Complex Systems Engineering and Management at the TU Delft teaches students to design innovations in complex socio-technical environments with an international character. The social complexity can be found in the different levels shaping the context field of a business strategy. And in the relationships between various stakeholders, including the International oil companies and their external environment.

The low-carbon energy transition and the alternative energy sources are much-discussed topics in the Energy (E) track. Moreover, in courses as "Sociotechnology of future energy systems" in which contemporary energy systems are confronted by technical developments and socio-economic concerns. The multi-dimensional implications of the energy transition are discussed. This research focuses on detailed implications, the effects on factors shaping business strategies of international oil companies. From an academic perspective, IOCs' business strategies are currently understudied, and the discourse analysis is an analytical tool mostly used in the social science faculties. This research intends to provide a closer look into the changes related to the energy transition, as detailed as possible.

Furthermore, the Faculty of Technology, Policy and Management's mission is to develop solutions for today's complex challenges, based on insights from both the engineering as social sciences (TU Delft, n.d.). In addition, energy is one of the main application domains in which the Faculty's research projects are grouped. This underscores the relevance of this research for the Faculty.

In summary, this research is firmly linked to the objectives of the master's program Complex Systems Engineering and Management, and is in line with the mission statement of the Faculty.

1.7 Reporting structure

The remainder of this report is composed of five more chapters. In Chapter 2, a literature review conceptualizes the factors, and presents the framework of factors. The methods used to test the conceptual model from Chapter 2, include a discourse analysis and four semi-structured interviews. Chapter 3 describes both in detail. Chapter 4 presents the results from the analysis and interviews. These results are analyzed, and the interviews provide an interpretation. The discussion chapter outlines the conclusion and discusses the results. And Chapter 5, describes the practical implications for IOC, and suggestions to the current literature and scientific limitations to this research. Finally, Chapter 6 draws the main conclusions of the research with recommendations for further academic research and answers the main research question.

2. Theoretical Background

This research integrates a quantitative and qualitative part and an analytical approach to investigate how International Oil Companies deal with disruption in their business environment. I first root my research in the theory of business strategies and on the factors affecting international oil companies' business strategies. Next, introducing the energy transition and its widespread effects, and implications for the IOCs leads to developing of my hypotheses and the framework of factors.

2.1. Business strategy

First, the definition of business strategy is the subject of debates and controversies. It has a different meaning for different people. For example, Henderson (1989) states, ‘‘a deliberate search for a plan of action that will develop a business' competitive advantage and compound it". Porter (1996) describes it as ‘‘the creation of a unique and valued position, involving a different set of activities’’. Ultimately, business strategy is the determination of the long-term goals and objectives of a company. This includes the adoption of a set of competitive moves and actions necessary for achieving those objectives (Business Intelligence, 2008).

Business strategy is interpreted in various manners as the "firm's working plan for achieving its vision, prioritizing objectives, competing successfully, and optimizing financial performance with its business model" (Business Encyclopedia, 2020). It is also interpreted as "a coordinated series of actions which involve the deployment of resources to which one has access for the achievement of a given purpose" (UK Essays, 2018). A business strategy requires a combination of articulating human goals and the organization of human activities. At the same time, the sought results are different in each unique situation. For example, a company may require a strategy to reach its wanted market position, increase customer satisfaction, lower its product cost, increase simultaneously revenue and market share, and create a sustainable competitive advantage.

Business strategy can be positioned among other levels of strategy within the process of plan development. As seen in the figure below, strategies are halfway in the process of shifting from general to specific and from idea to real-time action (Ritson, 2011). Starting from a mission statement towards concrete and realistic actions, business strategy emerges as the link between two extremes.

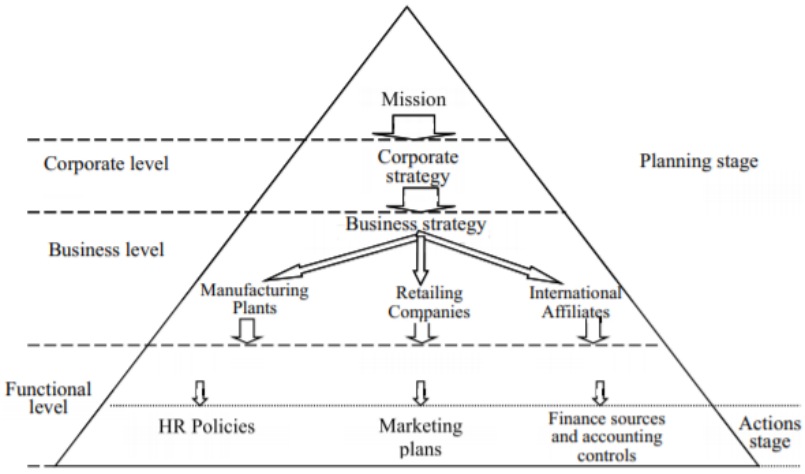


Figure 2.1: Levels of strategy (Souce: Riston, 2011)

As a result of the increase in market competition, the business strategy's value is becoming apparent. It provoked a tremendous increase in the variety of business strategies chosen by firms. The ultimate objective only can be achieved if the execution of smaller business strategies is effective. Specifically, employees, teams, and partners of the organization focus on fulfilling a single business goal. And according to their level in the organization, their activities are influenced by numerous business strategies. Business strategies are classified into three levels: The corporate level, the business unit

level, and the functional level (Pahwa, 2020). In this research, the focus lies on the corporate level. It is the highest and most broad level of the business strategy. It consists of the business plan, the mission, vision, and corporate objectives for the entire firm. Also, it sets the guidelines for the goals to be accomplished and the business steps to achieve it.

In business, it is a carefully planned and flexible designed long-range sketch of the company's desired direction and objective. The purpose of a strategy is to "achieve effectiveness, perceive and utilizing opportunities, mobilize resources, secure an advantageous position, meet challenges and threats, and direct efforts and behavior" (Businessjargon, 2020).

The development of a strategy divides into two steps: formulation and implementation. The first is described as the process by which a strategy is created and stated. During the strategy formulation process, the strategy, plan, or solution are determined. That is to be implemented and followed throughout an organization (Ulwick, 1999).

During the strategy formulation process, an analysis of each of the following factors is necessary to understand how an organization or a company can create and sustain value (Harris et al., 2014). Most authors describe 5 steps necessary for business strategy development: First, examine the current state of the organizations, second, look at external factors, third, develop a mission statement, fourth, define the strategic objectives, and last, develop an execution plan.
The organization's existing and potential capabilities, strengths, and weaknesses are tremendously important, considering that both fuel its strategic intentions (Harris et al., 2014). A clear picture is needed to formulate an organization's strategy, a sense of what makes the organization distinctive from the competition, and a clear picture of its ability to mobilize resources and use capabilities toward desired organizational objectives.

In conclusion, the development of an effective strategy is a multi-dimensional project. First, it requires looking through a wide lens at the company. After that, the underlying insights should be reviewed because a business strategy is about combining these insights from various areas, such as marketing, human resources, finance, and operations, often bringing specific paradigmatic opinions and views onto organizational problems and considerations. Ultimately, business strategies try to navigate problems that enclose a broad range of complex, cross-disciplinary considerations.

2.2 Theory Factors and Strategies

Strategic management's management field involves the "formulation and implementation of the major goals and initiatives taken by an organization's top managers" (Nag et al., 2007). A strategy is shaped based on the environment in which the company operates. Specifically, on an assessment of the internal and external environments, and the consideration of resources. Chamberlain (2010) expands this viewpoint and states that an organization's strategy results from the interaction forces in and around the organization. These forces divide into three categories: internal, external, and shareholders. Academic researchers and experienced managers have invented countless models and frameworks to facilitate the decision-making process of a strategy in the context of complex and competitive environments (Ghemawat, 2002).

First, factors are the standard by which something is judged or assessed. Some examples of factors are Politics/Policy (influence of NGO, Governments), Economic (market price, market financial situation), and Technology (development costs of new technology or products).

The strategic management literature acknowledges the vital link between factors and strategy formulation and implementation. However, two streams differentiate: one suggests equal importance between internal and external factors. It is characterized by the academic contributions of researchers from the birth of strategic management. Nearly "all present-day literature can be found at least in a cryptic form in influential writings of the 1960s" according to Rumelt in 1994. The essential concept of this research stream is congruence between external and internal factors. The external assessment fixates on the threats and possibilities in the firm's operating environment. And organization's strengths and weaknesses are elaborated in the internal assessment, especially mapping the distinctive capabilities within the organization.

The latter implies that factors from the firm's environment are the key factors when creating and implementing a strategy. Firms or companies do not exist in a vacuum, and each exists within a complex network of environmental forces. Therefore, many factors enter in the process of forming and formulating a company's business strategy. Those factors collectively compose the organization's environment, and an organization has little to no control over its environment (Barnat, 2020). Factor influence and eventually take the role of the strategist (Jelenc, 2009). It thrives on the belief that strategy formation and development are processes in which the dominant and powerful factors influence with greater control the strategic decision-making. During the formation of a strategy, politics and power are used to compromise with different interest groups (McKiernan, 1996). According to Mintzberg et al., in 1998, there are two: micropower and macro power.

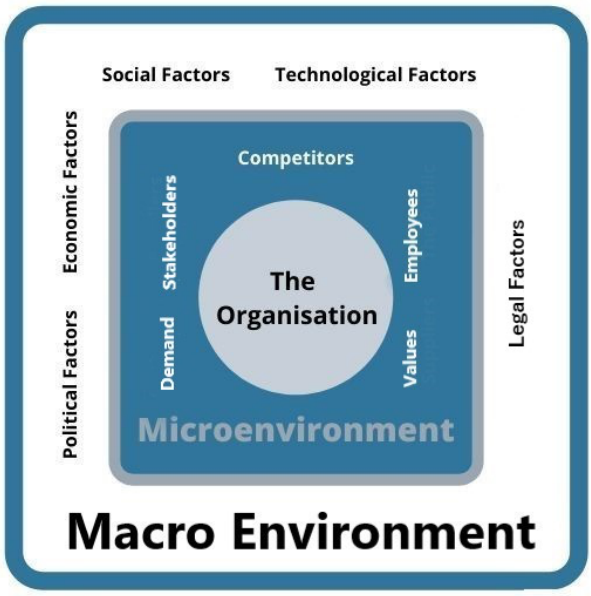


Figure 2.2: Macro and Microenvironment Factors (Source: Oxford College, 2014)

As previously explained, micro concentrates on the influence inside the organization, while macro power connects the firm with its environment and vice versa. The macro-environment factors can potentially impact that strategy and competitive landscape (Fern Fort University, 2020). In comparison, the micro-environment is composed of the factors that directly impact the company's operation, such as a stakeholder, employees, competitors, and regulatory agencies. Furthermore, Mintzberg et al. state that: "Strategy is formed under the influence of politics and power, as a process inside the firm but simultaneously occurring outside the firm" (Mintzberg et al., 1998, p.235). Through strategy, organization management must position the company within the industry in such a way that it can thrive and succeed despite competitive forces.

For strategy development purposes, an environment is "dynamic in nature if it is affected by a variety of factors, such as technological, socio-economic, governmental, legal, and competitive and supply chain events" (Nordmeyer, 2019). The instant change, even minor of one of the factors, results in a dynamic operating environment. For example, a technological breakthrough or political upheaval and the resulting environmental dynamism may potentially adjust a company's long-held competitive advantage. Strategy formulation forces a company to carefully study the changing environment and prepare for future adjustments (Evolution Acceleration, 2019). This turbulence in the environment affects the market conditions on which the company strategy is built and makes strategic management more challenging (Nordmeyer, 2019).

Certain factors apply to every industry and company to develop a business strategy: Values, Market Demand, Competitors, and Employees.

First, the values of an organization refer to the mission of an organization. The first critical step in creating an effective business strategy is understanding and establishing your organizational

values. Organizational values define the ambitions and the competitive environment in which it operates. Besides, it helps define what the organization is prepared to do to achieve your mission (Harris et al., 2014).

Furthermore, the demand of the market, knowing the demand wishes of your targeted industrial and private customer, is essential for an organizations' business strategy. The demand analysis is the process of understanding the consumers' demand for a product or service in a target market (BusinessWire, 2003). And the total demand is shared with the industry competition, which is the driving force behind the selection and adoption of strategies. The competition forces organizations to penetrate new markets, innovate, and diversify risks. And competitive opportunities, the possible competitive positions in the market, can create value for the stakeholders (Wandera, 2014).

Last, the employees are the main component of an organization and contribute significantly to its success. The quality of employees is a fundamental asset and base of an organization.

According to the literature, all key factors that shape the business strategy of companies in every sector are below:

Key Factors Business Strategy
High Political interference
Positive macro-economic climate
Dynamic Socio-Cultural environment
Innovative and high-technological environment
Functioning regulatory institutions
Shareholders
Employees
Industry Competitors
Market Demand
Company Values
Revenue

Table 2.1: Key Factors Business Strategies

2.3 International Oil Companies (IOC)

2.3.1 International Oil companies

The term international oil companies (IOCs) emerged from the Seven Sisters, seven transnational oil companies, which dominated the world oil scene in the aftermath of World War II. Although nowadays, due to mergers, only four remain, known as Royal Dutch Shell. BP, ExxonMobil, and Chevron. International oil companies operate in the Oil and Gas industry, also known as the petroleum industry. It is a sector composed of several global processes, from the exploration, and extraction of oil and gas to refining and transporting through containers or pipelines and marketing products with a petroleum basis. As shown in the figure below, the oil and gas industry operations are traditionally divided into three main divisions (Energy Institute, 2019).

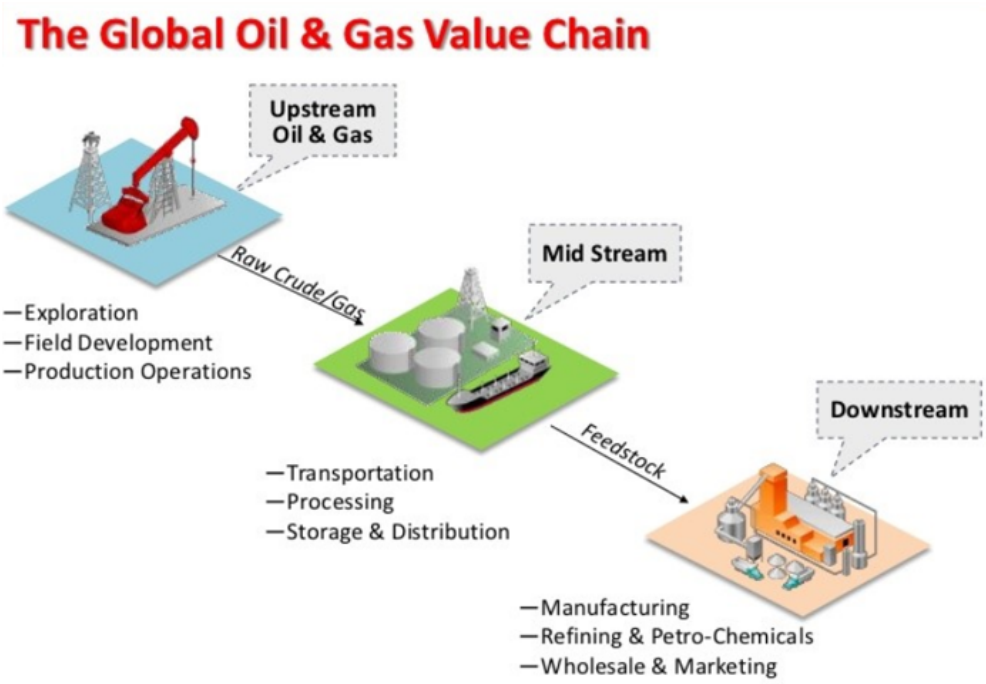


Figure 2.3: Outline the oil and gas sector (Source: Acheampong, 2012).

First, Upstream oil and gas is concerned with the phases, both onshore and offshore, of exploration for finding oil and gas reserves and hydrocarbons extraction. The initial processing and trading of oil and gas, the whole is generally known as Exploration and Production (E&P). Next, Midstream, which focuses on the transportation and storage phases, involving infrastructures like oil and gas pipelines or the maritime services of oil tankers. Last Downstream represents the final processing phases where the hydrocarbons are refined or transformed in chemical processes into a large variety of oil-based products (Investopedia, 2020). Also, the Midstream sometimes is involved in the refining of crude oil into marketable products (Penn State, 2020). In most cases, the Downstream is concerned with marketing and distribution to end consumers; the whole is generally known as Refining and Marketing (R&M).

International oil companies operate in all three divisions and are also known as Integrated Oil and Gas companies. The fact that integrated oil and gas companies are involved in so many facets of the fossil fuel industry often leads to a counterintuitive bottom line. For instance, lower profit margins are obtained with rising oil and gas prices than a nonintegrated rival due to the greater downstream than upstream operations (Chen, 2020). Since the discovery of oil, it has played a prominent role in the growth of the world economy and has increased the quality of life of societies worldwide. Since the economic growth is partially dependent on oil and gas supply, a certain amount of governmental pressure is exerted on IOCs. Local and global pressure to fulfill rising energy demand. According to Ahmad et al. (2017), next to political pressure, six external forces hinder or apply on IOCs: economic and political stability, competition, stakeholder pressure, regulations, and energy transition. While the first five forces have been around concurrently with the rise of oil, the latter has slowly arisen in the last two decades. Specific forces in the external environment have more impact and importance. However, this playfield is shifting in the last years.

Most international oil companies have survived throughout the several defining periods. First, the Organization of the Petroleum Exporting Countries (OPEC) era in which governments of oil-producing nations clutched together to negotiate with IOCs on oil production, oil prices, and future concession rights. Then, the rise of National Oil Companies and the entry of unconventional oil and gas. IOCs survived through mergers and securing petroleum reserves while investing in an efficient and profitable value chain. Their foremost mission has always been satisfying the world energy demand while being profitable for owners and later for shareholders. Throughout these different eras, the oil and gas industry's key factor has always been who controls the key asset, the oil and gas reserves.

International oil companies have had several business strategies during the fossil fuel era. As states Haller et al. (2007, p. 517): "Many companies are diversifying into the petrochemical industry and other industries (healthcare, beauty, pharmaceuticals, rubber, and polymers)" While on the other hand, some IOCs focused on consolidating product-wise as well as geographically. Many IOCs opted for joint ventures with other private or state companies to minimize the risks of oil exploration and production (Haller et al., 2007). Furthermore, Caldecott et al. (2018) observe a business strategy in which finding new reserves exceeded the importance of maximizing shareholders' value due to the assumption of ever-rising oil demand. A business strategy's main goal has always been to create profit, for the IOCs and their shareholders.

2.3.2 Characteristics (Features) of International Oil Companies

International Oil Companies have always been operating differently than other organizations or firms from different sectors. These discrepancies occur due to the oil and gas industry's specific attributes and necessities, for example, the mandatory liaison to geographical locations being sources of oil and gas wells. The drilling site coordinates impact most of the supply chain, and IOC's are, in fact, location dependent. Furthermore, acquisition and setup of new drilling wells, including operational support components, require incredibly high initial capital expenditure costs, and high operational costs. An IOC investment in new wells is next to geographically dependent also volume and time-dependent. The amount of oil and gas a reserve can provide before drying up and the respective schedule, most often multi-decade.

Next, upward of the oil and gas industry birth, International Oil Companies have been irreversibly connected and reliant on oil and gas prices. For instance, high oil prices can drive job creation and encourage investment as it becomes economically viable for oil companies to exploit higher-cost shale oil reserves (Investopedia, 2020). However, synchronic, consumers and businesses pay higher manufacturing and transportation costs. On the other side, oil and gas prices are challenging in the short term, requiring managers to reevaluate long-term expectations and decisions continually. As a result, international oil companies deal continuously with complex strategic challenges and significant decisions (Mc Kinsey, 2020).

Another discrepancy with other international or national organizations is that fossil fuels and especially oil are fundamental sources for other industrial sectors. A bedrock on which the transportation, manufacturing, and heating sectors are built (Federal Reserve Bank of San Francisco, 2007). Consequently, the fossil fuels industry is a cornerstone of the modern economy (Stevens, 2017). Thus, political and legal organizations have targeted the oil and gas industry to influence the its trajectory as well as the IOCs.

A vast catalog of different activities and processes constitute the fossil fuels sector. Which jointly contribute to the transformation of petroleum resources into useable end-products sold to industrial and private customers. These activities and processes connect inherently in various manners: contractually, physically, and conceptually. These connections might occur within or across individual firms and within or across national boundaries (Wolf, 2009).

The oil industry, due to exploration and production is one of the most capital-intensive industries with the highest capital expenditure (Energyst, 2020). Moreover, investments and oil projects (E&P) are often financed through loans from banks or other financial institutions. Due to the uncertain future Oil and Gas companies are trapped in long-term investments and returns.

Moreover, the long life of oil and gas wells cannot automatically cease operations on a project that becomes unprofitable due to a price dip (Beattie, 2020). In response, International oil and gas companies generate and publish scenarios for the future. For more than 45 years, energy scenarios have now been in use. However, energy scenarios have never really been about predicting the future. Its value lies in "how scenarios are embedded in and provide vital links between organizational processes such as strategy making" (Wilkinson et al., 2013).

Last, while all oil and gas companies have the same discrepancies with other international industries, there is no one-size-fits-all solution. International oil companies have had a different historical path

and risk attitude, and different endowments, operate in different geographies, and have different types of expertise (West et al., 2019).

After reflection of the researcher, the section above leads, to a list of main differences between International Oil Companies and other international or national organizations below:

- Geographically pinned down due to oil and gas wells
- Cornerstone of the world economy
- Political and legislative interest and influence
- Great dependency on oil and gas price
- Long-term investment and revenues (use of future scenario's)
- Extreme high Capex
- Fundamental importance in the success of the energy transition
- High and large scale of risks

Each of the abovementioned differences are explained in the paragraph above and leads to some factors specific to IOCs' business strategies. Most of the factors from table 2.2 below categorize under a more comprehensive factor from table 2.1. For example, the location and the limited number of oil and gas wells create a dependency on political stability. The named factors could be categorized in "Political interference" from table 2.1. The political interest in IOCs is in the first place due to oil in the global economy. and nowadays also due to the fundamental role in the energy transition' fulfillment. Furthermore, socio-cultural factors like global population growth rate shape IOCs' business strategies since the overall energy demand rises simultaneously with the global population.

Next, as explained in a previous paragraph, the oil and gas industry are a cornerstone of the world economy, from which countless industries are dependent. World energy demand is the oil and gas specified factor of market demand in table 2.1. Moreover, due to IOCs' international status and public status, the global and local economic situation can shape business strategies. For example, the dependency of oil and gas prices, affects IOCs revenue enormously, and consequently, oil prices predictions influence business strategies. Changing environmental circumstances and related environmental protection regulation is part of the legislative environment. If functional, it could steer business strategies. Due to the importance of oil in the world economy, a political interest exists. This interest transforms into influence through specific legislation.

Last, to back the long-term and capital-intensive investments needed in the oil and gas industry, it is essential to predict the industry developments, such as the rate of new technologies or future market demand. These predictions come together in the form of energy scenarios. In-house and external technological innovations could steer up and shift the entire revenue source of IOCs.

The discrepancies influence a range of factors that shape oil and gas companies' business strategies in different manners. The factors have been classified in a table below to create an overview of all factors found through the researcher's literature research and reasoning. All factors in the table below are found through the sources listed under the table.

Key Factors Business Strategy of IOCs
Prices of crude oil, natural gas, oil products, and chemicals
Total shareholders return/value (TSR)
Proven reserves
Capital of financial markets
Safety of employees
Trade regulations & tariffs
Recent technological developments company and competitors
Population growth rate
Geopolitical stability
Risks

Table 2.2: Factors for International Oil and Gas Companies
(Sources: Fern Fort University, 2020 & UK Essays, 2018)

2.4 Energy Transition

2.4.1 Introduction in Energy Transition

The Oil & Gas industry faces growing challenges, including rapidly depleting resources, increased regulation, and heightened public scrutiny. Consequently, IOC's are changing their business strategy, increasing upstream sector investments for reserve replacement, restructuring downstream sectors in mature countries, and developing downstream sectors in emerging economies (Capgemini, 2020). The increasing difficulties and expenses of oil exploration due to deeper exploration, lower quality rocks, and more expenses methods lead to a shift away from oil and gas, leading to the energy transition.

The International Energy Agency (IEA) describes the energy transition as "a pathway toward transforming the global energy sector from fossil-based to zero-carbon by the second half of this century". The foundation is to reduce energy-related CO2 emissions to limit climate change (IEA, 2020).

In the energy industry, demand and supply define a given cycle of an energy system. Changes from one cycle to another are called energy transitions. Energy transitions are part of longer overall trends towards more efficient and cleaner energy end-use and supply. It will continue to unravel, albeit at different rates across the globe (Grubler, 2015). Its origin lays during the Industrial Revolution, and since then, a few transitions have happened and continue to disentangle. The current transition is a technology-based shift from fossil-based energy to renewable energy sources supported by an almost universal societal push towards a sustainable future, from carbon-intensive fossil fuels to an increasing reliance on clean energy forms. Today, society faces a dual challenge on an unprecedented scale, increasing energy demand while minimizing carbon emission (Shell, 2019). As societies grow, incomes in emerging countries rise, and the global population heads towards nine billion by 2040, mainly driving the energy demand upward (BP, 2018). The aim is to reduce energy-related greenhouse gas emissions through various forms of decarbonization. It fuels through structural, and permanent changes to energy supply, demand, and prices (S&P Global, 2020).

In tangible terms, the energy transition provokes a lower demand for oil and gas, while reducing the CO2 emissions. Moreover, simultaneously providing the growing energy demand. Furthermore, the growing penetration of renewable energy sources into the energy supply mix is not the sole transformation. In parallel develops improvements in energy storage and the onset of electrification due to of cheap renewable energy sources, both critical drivers of the energy transition (S&P Global, 2020).

The corresponding energy system models and data must enable and accelerate the transition. A few examples as grid and capacity expansion, energy storage, and smart grids are essential components, alongside the power sector's continuous improvement and innovation. The latter leads to competitive prices of renewable sources, a renewable-dominated energy market, and an increase of flexibility and efficiency. Next, more efficient use of energy, using technological innovations as LEDs, smart appliances, and thermostats, is also a feature of the energy transition (WoodMackenzie, 2019). According to IRENA, the current energy transition matures through "information technology, smart technology, policy frameworks, and market instruments" (IRENA, 2019, n.d.).

Other research demonstrates that transitions are not solely a technological fix on new renewable energy sources (Berkhout et al., 2009). It is also about changes in user practices, cultural discourses, and broader political struggles. Furthermore, it requires "some combination of economic, political, institutional and socio-cultural changes" (Berkhout et al., (2012), p. 109). Consequently, the low-carbon transition does not stop with companies and consumers but involves a broader range of actors, such as civil society groups, the media, city authorities, political parties, advisory bodies, and government ministries. A large field of stakeholders comes along with numerous and broad list of objectives. Therefore, the present energy transition requires complex negotiations and trade-offs between multiple objectives and constraints. A continuous negotiation between "cost-effectiveness, equity, social acceptance, political feasibility, resilience, and flexibility" (Geels et al., 2017, p. 464) to achieve stakeholders' support, and represent all objectives in the end goal.

Oil and gas companies are considered key stakeholders in developing capital-intensive clean energy technologies to reach maturity. A shift from oil and gas to renewable energy takes international oil companies out of their comfort zone, but it provides a way to manage transition risks. The energy transition is an existential change in the environment in which oil and gas companies operate (Johnston et al., 2019). For the international oil companies, the energy transition challenge brings another challenge, which is how to be resilient to expected changes in the energy system and how the strategy should allow thriving as the world transitions to lower-carbon energy.

2.4.2 Energy Transition and Business Strategies

A more volatile and complex an organization's environment leads to a larger number of variations. Also, the greater the significance of those variations, the more frequently these occur. And the larger the number of variations, the greater their significance in creating a positive or negative impact on an organization's strategic management. Leading to the hypothesis that I expect the energy transition to add new factors shaping the business strategy of oil and gas companies. Nevertheless first, several practical implications of the energy transition on oil and gas companies are explained in the figure below:

How the energy transition's six channels will impact the oil and gas sector

Six channels	Impact on and opportunities for oil and gas companies
Decarbonizing energy sources	• Increased renewable power generation may decrease demand for natural gas and coal • Deep electrification will likely require extensive energy demand management services • Power transmission and battery storage will likely need to be expanded to significantly increase reliability
Increasing operational energy efficiency	• Renewables deployment in oil and gas operations may reduce field consumption of natural gas • Investment in manufacturing energy efficiency could lead to fossil fuel demand reduction • Reducing fugitive methane emissions could boost sales gas volumes
Identifying new investment priorities	• Oil and gas companies can leverage scale and international footprint to rapidly expand renewables, power trading, transport electrification, and biofuels investment • Portfolio greening by divesting higher carbon assets are likely to have minimal net effect on sectorwide emissions
Deploying new technologies	• Electric vehicle adoption may displace internal combustion-powered cars and light trucks • Biofuels could displace demand for fossil-sourced fuels in aviation, shipping, and trucking • Carbon capture could reduce net-carbon intensity of many fossil fuel uses • Crude to chemicals could improve petrochemical profit margins through economies of scale
Adjusting to new policy mandates	• Global carbon policy evolution remains uncertain, with US vehicle fuel efficiency standards being weakened and renewables subsidies sunsetting • International emissions restrictions could lead to border-adjusted carbon taxes
Managing consumer and shareholder expectations	• Consumers are increasingly expecting "greener" products, including fossil fuel alternatives • Shareholders remain concerned about unpredictable and low investment returns due to volatile fossil fuel prices, as well as potential for asset stranding as carbon emissions policies tighten • Stakeholders are looking to companies to reduce overall environmental footprint and increase ESG focus

Figure 2.4: Implication of energy transition on O&G companies
(Source: Porter & Hardin, 2020)

This previously stated hypothesis and the above-described impacts of the energy transition on the oil and gas companies, entails the rise of new factors or the shift in the importance of existing factors. New factors, which I expect to arise due to the energy transition are listed below:

A pressure applied by the public and shareholders on IOCs to lead the transition towards renewable energy sources. Therefore, their reputation is defined by the International Oil companies' response and steps to the low carbon energy transition (Johnston et al., 2020).

The reputation and image of polluting international oil companies do not help to secure the skilled personnel needed. Nowadays, personnel in general, are more and more concerned about the employers' image or activities concerning climate change.

Next to the total shareholder return, as seen in table 2.2, investors and shareholders are becoming strategic drivers due to their growing attention to the environmental impact of oil and gas production and growing concerns of the demand horizon for hydrocarbons. Besides, stranded assets are a significant risk as to the future energy mix forms.

Every year, all major international oil companies publish energy scenarios giving a peek into the future energy mix. The uncertainty around the long-term demand for oil and the technology race strengthened the fundamental position of scenarios for International Oil Companies. Energy scenarios include the speed of the energy transition and the surviving alternative energy sources.

The governmental influence to drive the International Oil Companies towards renewable energy sources has become more visible. Subsidized renewable energy projects, taxes on carbon emissions, and political propaganda against greenhouse gas emissions have led to a changing landscape for organizations. And last, the imminent environmental dangers that surge more and more often could influence IOCs' business strategies. Natural disasters such as the risk of floods and storms for oil platforms or other catastrophes leading to oil and gas spills.

Furthermore, besides introducing new factors shaping business strategies, the energy transition also has a significant influence on certain existing factors such as oil and gas price or energy demand. Due to the world's population constant increase, the latter is ensuing the need for more affordable and accessible energy (Pérez-Lombard, Ortiz, & Pout, 2008). The energy transition leads to a different kind of demand, more focused on electricity than oil and gas.

The present challenge for the oil and gas industry is how to survive in a shifting investment and policy landscape while contributing to a low-carbon energy society. Oil and gas companies respond by reevaluating business models, business strategies, and business opportunities in a decarbonizing world. There exist various business strategies for oil companies in reaction to the energy transition (Fattouh, 2018). Due to the rapidly increasing energy demand, oil and gas companies can opt for different business strategies. Currently, most International Oil Companies have formulated an explicit renewable energy strategy, such as "supporting coal-to-gas switching and investing in infrastructure that enables electrification to meet end-user demand and support lower GHG operations" (Johnston et al., 2020, p.1). Alternatively, investments in emerging renewable technologies and start-ups have been made using IOC's renewable venture capital funds (Pickl, 2019). For example, Royal Dutch Shell chose to grow primarily through acquisitions, while Eni develops mostly in-house activities. With new technologies and renewable energy sources, new business opportunities arise. Certain IOC's leverage their established expertise with supply chains and market development to reinforce and accelerate the energy transition.

The spectrum of chosen strategies to navigate through the energy transition is wide. According to Pickl (2019), the present proven oil and gas reserves influence the choice of IOCs' business strategy. Others argue that some IOCs are more proactive or more progressive in their approach to meeting the low carbon energy challenge. Compared to the more conservative US-based IOCs, the European founded IOCs have been considered more representative of the proactive approach (Andreasson, 2018). This research concentrates on three European IOCs. Once again, international oil companies are facing a strategic dilemma, either try the early but risky transition to low-carbon technologies by moving beyond their core business or steadily continue to focus on maximizing their return from their oil and gas assets (Fattouh et al., 2019). Previously, Fattouh et al. (2018, p.4) give a specific recommendation to oil companies: "they should aim to build an integrated portfolio which includes both hydrocarbon and low-carbon assets". At the same time, Yun et al. (2018) identify three low-carbon strategies from IOC', first a radical shift towards gas production to supply the growing demand, direct involvement in the low-carbon sector, meaning investment or intensifying collaboration with peers.

To survive, solutions to perform mega-merger, squeeze costs, or reshuffle portfolios, are advised for IOCs. In recent years, NOCs have started to expand beyond their national borders. As joint venture partners with IOCs and in the acquisition of international assets. Considering these dynamics, Al-

Fattah claims that IOCs must re-examine two strategic questions: "where to play and how to compete successfully with NOCs" (2013, p.734).

All factors, I expect to shape IOCs' business strategies due to the incorporation of the energy transition are given below:

Factors Energy Transition
Public and Shareholder Pressure
Attractivity for New Personnel
Risk of Stranded Assets
Energy Scenarios
Functioning Governmental Stimulus
Environmental Impact

Table 2.3: Factors Energy Transition

2.5 Framework

An analytical framework is built considering all the factors from previous sections. Some factors from chapter 2.2, are omitted and are not used in the framework below, due to their close relationship or appearance in other sections. For example, Market Demand incorporates the Demand for Oil & Gas in chapter 2.1. Other factors as Military invasion, Level of corruption, and Endangered species are deemed too specific or too invisible to be mentioned and to find a significant shift. All factors from section 2.2 and 2.4 are explained in previous sections. Still some factors from section 2.3 are self-explanatory, but others need to be specified and explained below:

- Total Shareholder Return/Value is the amount of return to the investors in capital gains or dividends.
- Oil and Gas Price is the market price for oil and gas, fluctuating every second. The two leading oil indexes are WTI Crude and Brent Crude, while for gas prices, Henry Hub mostly applies.
- The proven reserves of International Oil Companies are the total amount of natural resources that a company reasonably expects to extract from all reserves.
- The capital of financial markets is the capital the financial market makes available for IOCs to borrow or invest in new projects and technologies.
- The population growth rate is the average annual rate of change of population size during a specified period (UN, 2007).
- Geopolitical stability defines the stability and continuity of a country's government or region.
- Technology impact on product offering specifies the consequence of developing new technologies, do they increase efficiency or create a new market.

The framework below presents all factors determining a business strategy in general (2.2), explicit factors for International Oil Companies (2.3), and possible factors inherent to the energy transition (2.4).

Framework of Factors		Factors
	Factors Business Strategy (2.2)	High Political interference
		Positive Marco-economic climate
		Dynamic Socio-Cultural environment
		Innovative and high-technological environment
		Functioning regulatory institutions
		Shareholders
		Employees
		Industry Competitors
		Market Demand
		Company Values
		Revenue
	Factors Oil & Gas Companies (2.3)	Total Shareholder Return/Value
		Prices of crude oil, natural gas, oil products and chemicals
		Proven reserves
		Capital of financial markets
		Population growth rate
		Recent technological developments company and competitors
		Geopolitical stability
		Safety of employees
		Risks
	Factors Energy Transition (2.4)	Public and Shareholder Pressure
		Attractivity for New Personnel
		Risk of Stranded Assets
		Energy Scenarios
		Functioning Governmental Stimulus
		Environmental Impact

Table 2.4: Framework of Factors

2.6 Conclusion

In conclusion, the first section 2.1 defines the concept of business strategy. Next, the literature provides key factors that shape companies and organizations' strategies in general across all industries. It leads to the first table 2.1 in section 2.2. Further, the following section explains international oil companies (IOCs) and zooms in on IOCs' specific characteristics compared to other companies. This section leads to the second table 2.2 in section 2.3.
Moreover, in section 2.4 first, the concept of the energy transition is determined, and its implications for international oil companies are listed. After which the researcher proposes six energy transition-related factors. Under the hypothesis, I expect the energy transition to add new factors or be linked to impact factors. These factors are in table 2.3, in section 2.4. Last, in section 2.5, all the tables 2.1, 2.2, and 2.3 are added together to form the framework of factors. This framework was used during the discourse analysis in section 4.2. The discourse analysis analyzes all factors of the framework and the results are found in Appendix D.1-3

3. Methodology

This section describes and justifies the methodological choices made in this study. First, the stepwise process of data collection is explained. Second, the corresponding discourse analysis is presented. Finally, an historical overview of the studied companies is provided.

3.1 Data Collection

The first part of the data are the annual reports from Royal Dutch Shell, BP, and Equinor ranging from 2007 - 2019. These three IOCs are at the forefront of the energy transitions and rank in the top five of the Power Plays 2020 ranking (S&P Global, 2020). The section 1.2, gives the complete reasoning behind the choice of these three companies. All annual reports originate from the respective corporate websites [1 2 3]. The absence of older annual reports from all organizations delimits the time frame. And around 2007, the energy transition starts to gain traction. An annual report is "a publication that public corporations must provide annually to shareholders to describe their operations and financial conditions." (Kenton, 2019, n.d.). It is issued every year and is published for the shareholders, stakeholders, the media, and the employees. In the research, the focus lies on the "chairman's letter" or "CEO review" and the annual reports' strategic part. In the case of Royal Dutch Shell, BP and Equinor, it consists approximately of pages 1 up to 75. The research does not take the length of each annual report into account for the discourse analysis. Neither is the total number of words in each annual report.

This first part of the data is processed in the framework given in table 2.4 in order to create a clear distinction between factors affecting all business strategies from section 2.2, factors specific to international oil companies from section 2.3, and possible factors arising due to the low-carbon energy transition from section 2.4. The purpose of the data originating from the annual reports and respective classification is to show a variation in factors shaping business strategies in the oldest reports compared to factors shaping business strategies in the latest annual reports. A discourse analysis permits to fulfil this goal, and the explanation of its steps are in section 3.2.

The second part of the data originates from a series of semi-structured interviews with employees working in the strategy department at Royal Dutch Shell, BP, and Equinor. Additionally, an industry expert is interviewed to gather information and reflect on the results with the perspective of an outsider. The semi-structured interviews offer a considerable amount of flexibility to the researcher to probe the respondents and maintain a basic interview structure. Although, while preserving the structure in mind, the interview deviates to any idea or interesting topic at hand. The interview questions are in Appendix C, along with an introduction of the interviewees. In appendix E, there is a one-pager sent to the interviewees before the interviews.

The interviews serve as a check of the discourse analysis' quantitative outcome and try to interpret the results. Furthermore, the interviews draw links between the variation in mentions of a factor and the respective explanations. Also, through a series of questions, more insights are generated, specifically, insights into the changes for business strategies and the future of international oil companies.

3.2 Discourse Analysis

I chose the discourse analysis to analyze the annual reports to extract the factors shaping the business strategy of Royal Dutch Shell, BP, and Equinor. In social sciences, discourses serve as frames through which gives meaning to physical or social phenomena, and discourses can in part, explain how actors perceive and understand the world (Runhaar & Oegema, 2010). Numerous studies support the

[1] https://www.equinor.com/en/investors/our-dividend/annual-reports-archive.html
[2] https://www.bp.com/en/global/corporate/investors/results-and-reporting/annual-report.html
[3] https://www.shell.com/investors/financial-reporting/annual-publications/annual-reports-download-centre.html

concept that there are needs to be a communication channel or link between the organization's strategic decisions and its environment. And after the discourse analysis of annual reports, the connections reveal. Since annual report are the link between an organization and its investors or external environment. The discourse analysis tries to assemble facts regarding the impact of the energy transition during the given period, in numbers.

Discourse analysis is a proven research method for studying written or spoken language within its social context. (Scribbr, 2020). A key feature of the analytical approach is attention to context, taking into account the situational parameters and the broader socio-political environment in which texts are written or spoken (Fløttum et al., 2014). The discourse method focuses on comprehending the context around the writings of the annual reports, and, in this case, the context explains and identifies possible important factors. The discourse analysis is on three levels: "(i) as an analysis of the discourse practice, particularly the conditions under which texts are produced, distributed and consumed; (ii) as an analysis of the formal features of the texts; and (iii) as an analysis of the social practice of which the discourse is a part" (Laine, 2005). This paper interprets these three steps as a blueprint for the to be followed steps.

The discourse analysis results are shown in the framework of factors presented in section 2.5 to categorize all factors and discover variations if existent. The horizontal row states the three companies divided into 13 periodical sections. Each section represents one year and links to the respective annual report. On the vertical column, the framework from section 2.5 applies. Then, each mentioning of a factors or related words counts but only if a factor is deemed to shape the business strategy of Royal Dutch Shell, BP or Equinor in the annual report. The latter prerequisite is achieved through analyzing the context of the factor mentioning.

The analysis shows that the older annual reports published in the early stage of the energy transition used language that emphasized factors shaping the business strategy back then. While the recent annual report emphasized different factors shaping the business strategies nowadays. Afterwards, the discourse analysis results are compared, hypothetically inferring that the shifting context shaped the business strategies of International Oil Companies.

3.3 Case studies

This research focuses on three renowned international oil and gas companies. Royal Dutch Shell, BP, and Equinor are all from European origin organizations and rank among the top 10 biggest IOCs by revenue (Offshore Technology, 2019). The choice for the three companies has been explained in section 1.2. A short historical description of all three International Oil Companies is given below.

3.3.1 Case study 1: Royal Dutch Shell

Shell originates in London as an import-export business in 1833, when Marcus Samuel started selling shells from the Far East. His sons turned to oil shipping in the 1880s, commissioning the first steamers able to carry oil in bulk and introducing the Shell brand. The company merged with the smaller competitor Royal Dutch in 1907, forming Royal Dutch Shell Group, which expanded in Europe, Asia and Americas and then fueled the Allies in both World Wars. The post-war effort made Shell launch new exploration programs in Africa and Latin America and build refineries in the UK. In the 1960s, Shell strengthened its position in Middle East (particularly Oman) and in Europe, with large gas discoveries in the Netherlands and the North Sea and diversification towards new growth areas such China and Russia, but also LNG, chemicals, coal and nuclear power in those decades. In 2005, the Group restructured unifying 14 under a single holding company, Royal Dutch Shell plc (Royal Dutch Shell, 2019).

3.3.2 Case study 2: BP

BP was founded in 1909 by William Knox d'Arcy, as Anglo-Persian Oil Company, for exploiting a 60-year oil concession in Persia (today's Iran). It supplied the oil to British Navy in World War I and later to the Royal Air Force in WW2, gaining government's funding and ownership in return. It had expanded in Iraq when it was renamed Anglo-Iranian Oil Company in 1945. With many refineries across Europe and gas discoveries in the North Sea when it changed name again in 1954, as The British

Petroleum Company. With the nationalization of the oil industry in many Middle East countries, British Petroleum focused on other areas with an acquisition campaign to the present day. The British Government sold all its stakes of the company by 1987. The company changed its name again to BP in 2005 (BP, 2019).

3.3.3 Case study 3: Equinor

Equinor, was founded in 1972 under Den Norske Stats Oljeselskap AS—Statoil (the Norwegian State Oil company). It has grown up along discovering of the Norwegian oil and gas field and the emergence of the industry. Two years before to the discovery of the Statfjord field, it was formed as the Norwegian State Oil Company, Statoil (Equinor, 2020). The name changed to Equinor in 2018, but the Norwegian State government still possesses 67% of the shares, while the rest is public stock.

4. Results

This chapter shows the discourse analysis outcomes and the semi-structured interviews, which provide answers to the research sub-question S3, and S4.

In section 4.1, an industry introduction of the oil and gas industry gives the industry's insides and provide the context of the annual reports. Next, section 4.2, presents the discourse analysis results of the five chosen factors from the framework in section 2.5. The quantitative results of all the factors shaping IOCs' business strategies are in Appendix D.1-3. Then, section 4.3, shows the qualitative interpretations from the quantitative results of the discourse analysis.

4.1 Industry Introduction Oil & Gas

This section gives an overview of the oil and gas industry to provide context to the annual reports, especially the context in which they have been written. The next section provides an analysis of the annual reports. There are many ways to structure the introduction into the oil and gas industry as SWOT analysis, Porter's Five Forces, or strategic group analysis. To evaluate potential opportunities and threats/risks for the international oil companies in the oil and gas industry. The results derive from different sources (Energy Routes, 2016 & Malik, 2018 & Porter Analysis, 2019 & Hokroh, 2014).

In the oil and gas, a deeply rooted competitive rivalry exists, as some majors oil corporations have a stronghold on the sector. There are two different types of players; these are: International Oil Companies from the private sector (Royal Dutch Shell, BP, and Exxon Mobil), and the other group of companies are the National Oil Companies (Saudi Aramco, CNPC, and Petronas). According to Chandler (2018), the oil and gas industry is a competitive sector due to the presence of a few large players who have significant stakes in the sector on a global scale. Consequently, the profit margins are difficult to uphold, as companies are bound to oil and gas market prices and government regulations. Last, the permission for extracting oil and gas reserves and the level of competition to secure the petroleum wells are extreme (Fleisher et al., 2015).

Next, due to the massive capital investment required to set up a petroleum company, the oil and gas industry is perceived as having a low threat of new entrants (Zaidi, 2016). Considerable investments in acquiring petroleum reserves, extraction components, and a global supply chain are needed. The major IOCs such as Royal Dutch Shell, BP, and Equinor easily compete with new entrants due to the economies of scale and the longstanding presence in geographical areas with political instability. And what usually the location of the oil and gas reserves is (Malik, 2018). The financial company reserves must then withstand the oil and gas price volatility and huge investment in R & D spending to keep pace on innovations and existing technologies. Besides, the oil and gas business requires highly specialized workers to operate the equipment and be effective in a harsh environment. Last, due to the role of both NOC and IOC's holding together approximately 90 % of the proven oil and gas reserves, most oil and gas-rich countries are inaccessible, creating a scarcity of resources (Porter Analysis, 2019). Inherently, the possibility of new entrants does not threaten the position in the oil and gas industry of Royal Dutch Shell, BP, and Equinor.
On the other hand, the substitute energy sources for oil and gas, used for electricity, transportation, heating, and products, are many, such as nuclear energy, hydrogen, biofuels, and renewables sources. These low-carbon sources of energy can replace many fossil fuels used in the global energy mix according to their performance, quality, and price (Porter Analysis, 2019). The threat of energy source substitutes is real. However, International Oil companies are in the front seat to redefine portfolios due to their high current investment capital, worldwide presence, and brand loyalty.

In the oil and gas industry, buyers have relatively small bargaining. Due to the industry's nature, the main buyers, such as refineries, countries, traders, and distribution companies, are interested in the price and quality of oil and gas (Energy Routes, 2016). The leading global oil benchmarks determine the oil and gas price, Brent Blend and West Texas Intermediate (WTI). It is common knowledge that the buyers cannot affect oil and gas prices. Merely in a situation where a buyer such as the USA, China, or EU buys a substantial portion, higher bargaining power is obtained.

Contrarily to the buyers, suppliers' bargaining power is significant because international oil companies are involved in all the business segments of the oil and gas industry (Malik, 2018). Additionally, the oil-producing countries assembled in OPEC have relatively high bargaining power because it owns approximately 70% or the world's oil proven reserves. As a result, OPEC controls more than 30% of world oil production per day. This fact points to the ability to significantly influence global oil and gas prices by reducing or increasing daily production (Energy Routes, 2016). Furthermore, the extraction contracts signed with oil-rich nations' governments influence the bargaining power (Hokroh, 2014), which leads to a governmental influence exerted on IOC's decisions. Still only to a certain extent since oil-based economies are equivalently dependent on these operations.

In conclusion, the oil and gas industry is competitive due to a few large players who have significant stakes in the sector globally, for instance, the chosen IOC's Royal Dutch Shell, BP, and Equinor. The competitive nature, the large upfront capital, and the monopoly on reserves increases the new players' entry-level. Nonetheless, new alternatives energy sources emerge, less emitting, and more efficient. This growth poses a substantial threat to conventional energy sources, such as oil. And thus, to all oil and gas companies. While the oil and gas industry customer has little influence in the market, the oil companies as suppliers have a significant power-position.

4.2 Discourse Analysis

This section first shows the development of the energy transition concept within the annual reports before analyzing the effect of the energy transition on the factors from section 2.5. According to the literature in chapter 2 several factors shape the business strategies of the three IOCs. And the researcher expectations lead to six additional factors due to the energy transition. It shows the outcomes of the discourse analysis, first defining the rise of the energy transition concept within the annual reports. And then its effect on the associated factors shaping business strategies from the framework presented in section 2.5. A caveat, the use of "Energy Transition" refers to the concept, related words, and synonyms written below and used in the discourse analysis. At the same time, only the concept itself is meant when only energy transition is used.

4.2.1 Discourse Analysis: Energy transition

This section presents the variation in the usage of the energy transition concept or similar expressions in annual reports. The number of times it appears during the annual reports analysis shows the development of the energy transition in the annuals reports between 2007 and 2019.

To find the full-scale energy transition, I included synonyms and related words of the energy transition in the discourse analysis. The complete list of search terms is given below:

- Low-carbon transition or "lower-carbon transition" or "lower-carbon world" or "lower-carbon energy system" or "lower-carbon future" or "low-carbon evolution" or low-carbon businesses"
- Net-zero emissions energy system
- Decarbonization of the energy system
- Energy turnaround
- Alternative energy "sources" or "businesses" or "technologies" or "carrier"
- Renewable energy or "renewables" or "renewable sources"

In the case that the above-outlined words are in a title, in a picture, a graph, or as a reference, it does count. Or if used in a different meaning or context than applicable to the research topic. Although these steps improve the results, some additional variables could dispute the results such as the annual reports' length.

The annual report's analysis reveals an apparent rise in the usage of energy transition during the years. At first, international oil companies used other words or groups of words to define the energy

transition concept. For example, in the early years, IOCs described it as fulfilling "energy demand in environmentally responsible and social ways" (Royal Dutch Shell, AR 2008). More often, the early annual reports mention the terms low-carbon transition and variations.

Figure 4.1 shows that the annual reports just recently introduce the word energy transition. The moment of introduction within each IOC's annual reports is highlighted with a black square in figure 4.1 below, and similarly for table 4.1, with the colored field. Royal Dutch Shell was first in 2015, while BP and Equinor followed suit a year later. However, in terms of the above-given synonyms and related words, the energy transition concept is present in the annual reports for a more extended period. After introducing the word energy transition in the respective annual reports, the following years, it is written up to 28 times for Royal Dutch Shell, and 23 times for BP while only seven times for Equinor. On the next page, table 4. shows the exact and complete information. The Royal Dutch Shell annual report of 2017 introduces a section under the name "Climate change and energy transition". And in the same year, a clear change in discourse is seen, mentioning the energy transition more than three times the previous year. While BP's annual report in 2019 is named "Growing the business and advancing the energy transition".

The graph below shows a clear rise in the usage of energy transition and synonyms in the analyzed annual reports. Moreover, the focus on the strategic part of the annual report fuels the idea that the energy transition influences the IOCs' business strategies. While table 4.1 presents the developments of energy transition and synonyms per word within each annual report.

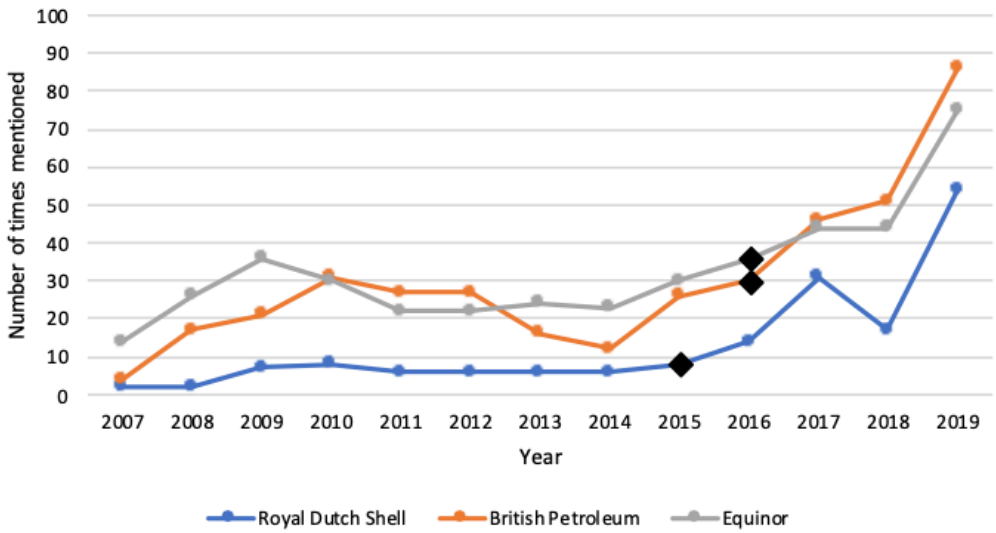


Figure 4.1: Results Discourse Analysis "Energy Transition" and related words

	Royal Dutch Shell	BP	Equinor
2007	**2x** alternative energy	**4x** low carbon transition	**1x** low carbon transition **2x** alternative energy **11x** renewable(s)
2008	**2x** alternative energy	**10x** low-carbon transition **7x** alternative energy	**2x** low-carbon transition **3x** alternative energy **21x** renewable(s)
2009	**2x** low-carbon transition **3x** alternatives energy **2x** renewable(s)	**12x** low-carbon transition **6x** alternative energy **3x** renewable(s)	**2x** low-carbon transition **3x** alternative energy **32x** renewable(s)
2010	**1x** low-carbon transition **3x** alternatives energy **5x** renewable(s)	**20x** low-carbon transition **4x** alternative energy **7x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **25x** renewable(s)
2011	**1x** low-carbon transition **2x** alternatives energy **3x** renewable(s)	**13x** low-carbon transition **4x** alternative energy **10x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **17x** renewable(s)
2012	**2x** alternatives energy **4x** renewable(s)	**10x** low-carbon transition **2x** alternative energy **15x** renewable(s)	**1x** low-carbon transition **2x** alternative energy **19x** renewable(s)
2013	**2x** alternatives energy **4x** renewable(s)	**7x** low-carbon transition **2x** alternative energy **7x** renewable(s)	**1x** low-carbon transition **2x** alternative energy **21x** renewable(s)
2014	**2x** alternatives energy **4x** renewable(s)	**5x** low-carbon transition **3x** alternative energy **4x** renewable(s)	**2x** low-carbon transition **2x** alternative energy **19x** renewable(s)
2015	**2x energy transition** **6x** renewables	**9x** low-carbon transition **17x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **25x** renewable(s)
2016	**5x energy transition** **2x** low-carbon energy transition **2x** alternative energy **5x** renewable	**3x energy transition** **6x** low-carbon transition **2x** alternative energy **18x** renewable(s) **1x** decarbonization of energy system	**2x energy transition** **10x** low-carbon transition **2x** alternative energy **22x** renewable(s)
2017	**17x energy transition** **3x** low-carbon energy transition **1x** Net-zero emissions energy system **10x** renewable(s)	**6x energy transition** **18x** low-carbon transition **2x** alternative energy **20x** renewable(s)	**3x energy transition** **16x** low-carbon transition **2x** alternative energy **23x** renewable(s)
2018	**5x energy transition** **9x** low-carbon energy transition **1x** Net-zero emissions energy **1x** renewable(s) **1x** decarbonization of energy system	**15x energy transition** **20x** low-carbon transition **2x** alternative energy **14x** renewable(s)	**4x energy transition** **14x** low-carbon transition **2x** alternative energy 24x renewable(s)
2019	**28x energy transition** **16x** low-carbon transition **9x** renewable(s) **1x** Net-zero emissions portfolio	**23x energy transition** **41x** low-carbon transition **2x** alternative energy **15x** renewable(s) **5x** decarbonization of energy system	**7x energy transition** **17x** low-carbon transition **2x** alternative energy **47x** renewable(s) **2x** decarbonization

Table 4.1: Number of times usage of "energy transition" and synonyms in annual reports.

In conclusion, the synonyms and related words of "Energy Transition" are present from the start throughout each annual report. In contrast, the word energy transition is introduced in the last years. This discourse analysis gives an overview of the development of the energy transition, which I expect to impact the factors shaping the IOC's business strategies. The discourse analysis of all the factors included in the framework of factors follows in 4.2.2. Although, not the all results of the discourse analysis are shared in the next section.

4.2.2 Discourse Analysis: Factors

In this section, the results of the discourse analysis are presented. The discourse analysis is performed on the annual reports following the framework of factors from section 2.5. The written influence of the energy transition on the factors shaping the business strategies is exposed through the number of mentions of the factors in the annual reports. The results show the development of the factors in the annuals reports between 2007 and 2019. The resulting framework of factors and the discourse analysis for every factor are shown in Appendix D. In this chapter, an overview of the significant

changes is given, and thus not all factors are treated. The choice of the to-be highlighted factors below is made based on the most mentioned factors as shown in table 4.2 and verified in the interviews. The reduction is made for several reasons, first, the importance is given by the literature to factors. And secondly, to prepare a specific set of questions for the interviews to understand in dept their interpretation of the results.
A caveat, the use of "Risks" refers to the factor, related words, and synonyms as shown below. While the use of risk(s) means only the word itself. Similarly, this applies to all other factors.

To find the full presence of the factors from the framework of factors (Table 2.4), I included synonyms and related words of each factor in the discourse analysis. The context of each mention is checked and evaluated to produce the most accurate results. The list of search terms for the factors treated further on are given below:

Shareholders

- "Shareholders" or "investors" or "owners" or "share"

Attractivity for new Personnel

- "Personnel" or "our people" or "employees"

Innovative and technological environment

- "Technologies" or "technological development" or "technology"

Proven reserves

- "Oil reserve(s)" or "gas reserve(s)" or "proven reserve(s)" or "petrochemical reserve(s)"

Price of crude oil

- "Price" or "oil price" or "gas price" or "petroleum price" or "crude oil price"

Energy Scenario

- "Scenario" or "future"

Risks

- "Risk" or "liability"

The choice to highlight the to-be followed factors is based on the importance of certain factors in the literature and based on the most mentioned factor, as in table 4.2. Additionally, this choice is validated with the opinion of the interviewees in section 4.2.3. Some factors show a greater change percentage in the discourse analysis results but are not treated in this section, due to their applicability to many organizations and not specific to international oil companies.

Constant Factors

Some factors as "Shareholders", "Attractivity for new personnel" and "Innovative and technological environment" see little change in the number of mentions throughout the analysis. As seen in figure 4.1 below, the factors' written presence in 2007 is relatively equal to 2019 in terms of the number of times mentioned. However, minor ups and downs are noticed due to actual events or circumstances affecting all factors.
For example, "Attractivity for new personnel" is mentioned less after the financial crisis in 2008 for Royal Dutch Shell, due to the financial impact on the organization and thus less need for new personnel. Similarly, BP's annual reports mention more the "Shareholders" after the Deepwater Horizon oil spill in 2010. To rebuild the trust and the confidence of shareholders after a critical blow for the organization. Overall, the factors presented in figure 4.1 are considered constant over the period and, thus, not considerably affected through the energy transition.

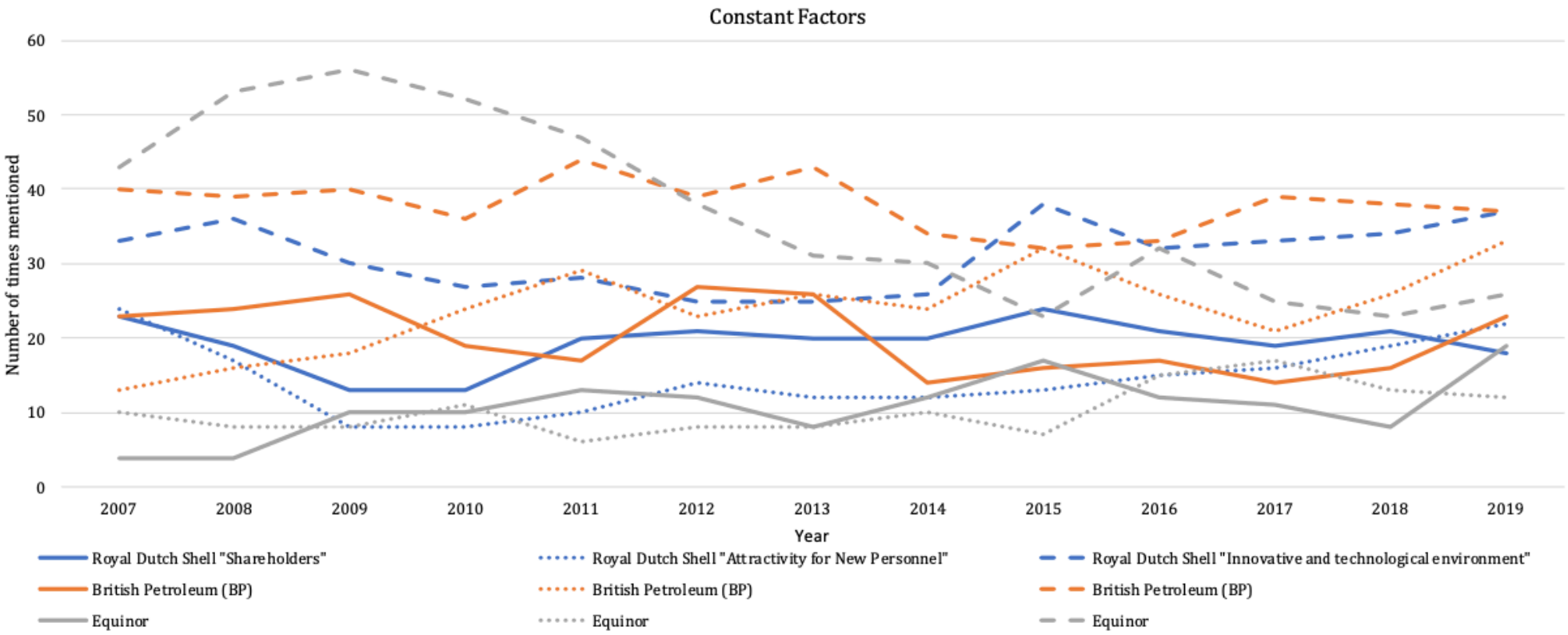


Figure 4.2: Results Discourse Analysis constant factor

Other factors are found to run through a significant change between the annual report in the first and the latest annual report. The factors mentioned more or less throughout the researched time are presented below.

Proven Reserves

First, to provide a distinct context to the "Proven Reserves" factor, the proven reserves in million barrels of oil equivalent between 2007 and 2019 is displayed below. It shows a massive difference between the researched IOC's, Equinor has the least proven reserves, and BP has the most proven reserves.

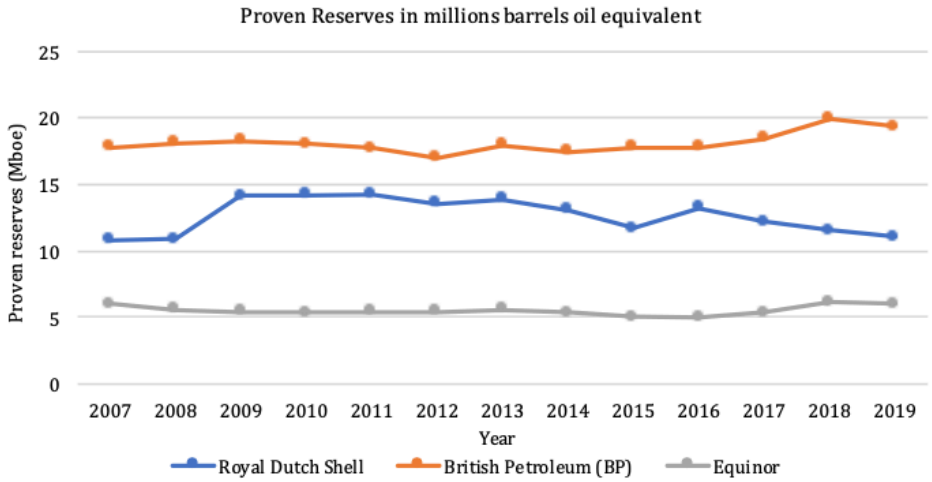


Figure 4.3: Proven Reserves (Mboe)

Second, the factor "Proven Reserves" knows a sizable decrease in the number of times mentioned in Royal Dutch Shell, BP's annual reports. From respectively 90 and 132 mentions to 38 and 25 mentions. The IOC' "Proven Reserves" were among the main talking points of the earlier annual reports, but a visible change in importance shows throughout the years. Whereas, in Equinor's annual reports, it remains a permanent and stable factor, starting at 120 and ending at 140 mentions. Hence, not following the decline from the other two IOC's. In reflection to figure 4.3, Equinor mentions the "Proven Reserves" factor more often but has the least amount of proven reserves. At the same time, the contrary applies to Royal Dutch Shell.

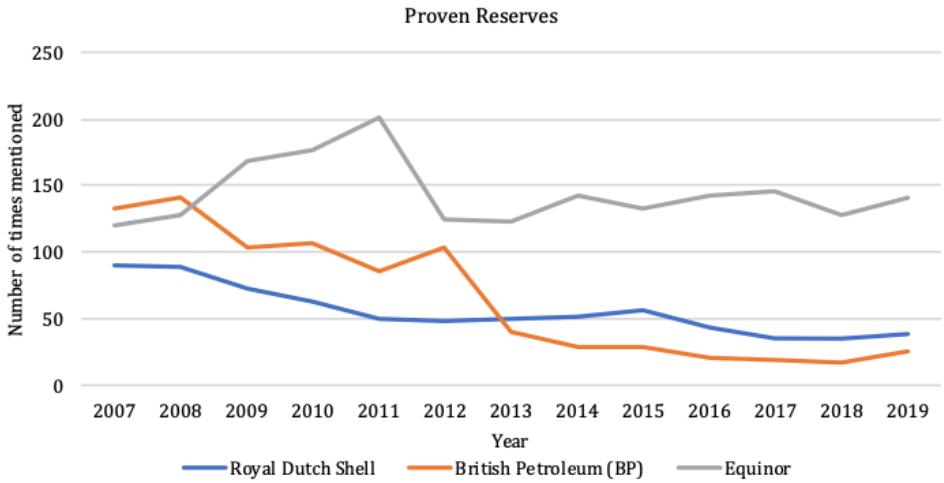


Figure 4.4: Results Discourse Analysis "Proven Reserves"

Price of Crude oil

As shown, in figure 4.4 and 4.5, the graphs curvatures of factors "Proven reserves" and "Price of crude oil" have a certain resemblance. Both factors show a decrease in the number of mentions, mostly in BP and Equinor's annual reports. From respectively, 106 to 57 mentions and 160 to 123 mentions. While, in Royal Dutch Shell' annual reports, after an extensive increase between 2013 and 2015, the number of mentions returns to the initial number. In 2007, "Price of crude oil" is mentioned 118 times,

and 2019 counts 124 mentions. In summary, the factor "Price of crude oil" shows fluctuation throughout the researched period and for each IOC; nevertheless, while overall, BP and Equinor decrease, Royal Dutch Shell sees the number of mentions increasing and then returns to the initial level.

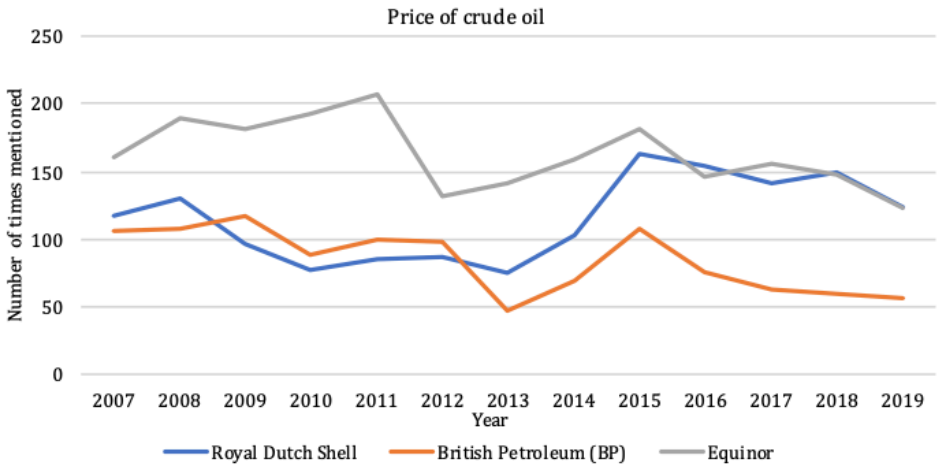


Figure 4.5: Results Discourse Analysis "Price of crude oil"

An overview of the Brent price of crude oil between 2004 and 2020 provides context to the latter factor. Both in 2008 and 2011, an increase in crude oil price is followed with a decrease (Shell and Equinor) or a relatively small increase (BP) of the number of mentions. On the contrary, 2015 reveals a significant decrease in the Brent crude oil price and an increase in the factor "Price of crude oil" mentions. Note that a high oil price is not an issue for IOCs, but a low oil price is a fundamental problem for profitability. A correlation between the price fluctuation and the number of mentions of the factor "Price of crude oil" is seen.

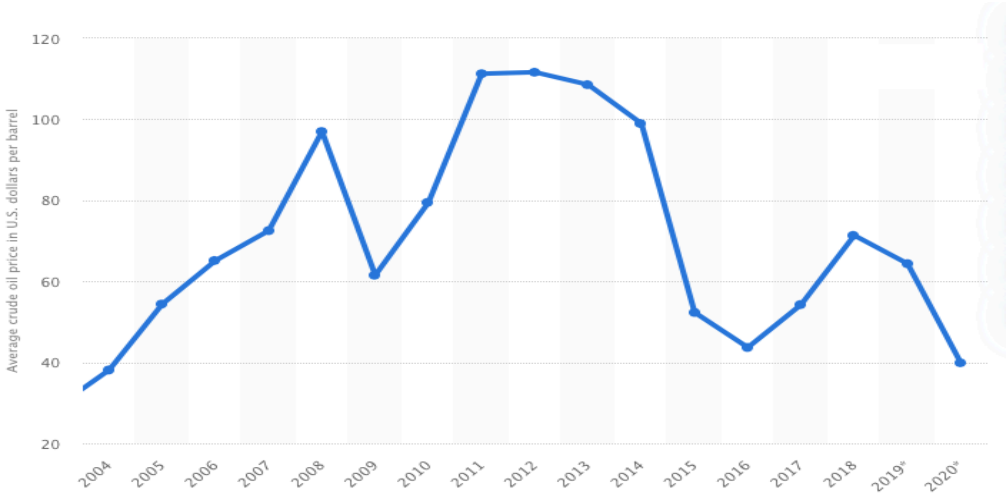


Figure 4.6: Price of crude oil UK Brent 2007-2020 (Source: Statistica, 2020)

Energy Scenario

On the other hand, the factor "Energy Scenario" rises from a practically null position to an extensive topic in Royal Dutch Shell, BP, and Equinor's annual reports. The factor "Energy Scenario" grows from three, one, and two mentions to 27, 53, and 11 mentions without counting the referrals to additional reports. Although Royal Dutch Shell starts in the 1970s with energy scenarios, it is not extensively displayed or mentioned in the analyzed annual reports (Shell, 2020).
To illustrate this incremental growth in importance, we see that the energy scenario reports, as "BP Energy Outlook", and "Shell Scenarios" are more mentioned and cited in the last annual reports. Additional reports in which the companies explain in greater detail the outlook and future expectations. It does not apply to each IOC; a shifting moment is seen in 2016 when all three IOCs had

approximately the same number of mentions. In 2019, Royal Dutch Shell had almost five times more mentions of the factor "Energy Scenarios" than Equinor.

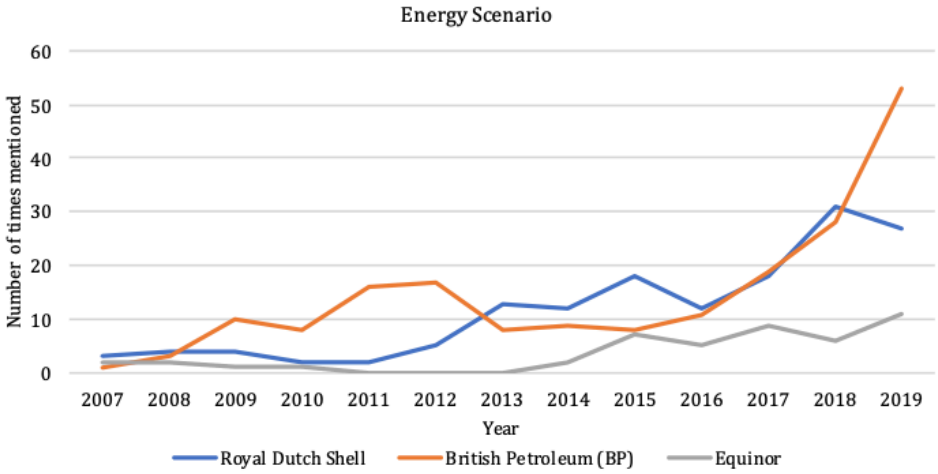


Figure 4.7: Results Discourse Analysis "Energy Scenario"

Risks

In a like manner, the "Risks" factor knows a consistent rise in the number of mentions over the years. It insinuates the inflation in importance for the "Risks" factor on Royal Dutch Shell and BP's business strategies. The "Risks" factor englobes every possible risk mentioned in the annual report, such as price risks, climate risks, or political risk. A steep increment shows after the Deepwater Horizon oil spill for BP. Subsequently, the organization increase awareness about the industry and work field risks to the shareholders and investors, almost quintupling the mentions of the "Risks" factor. While the number of mentions of the "Risks" factor for Royal Dutch and BP rises, it is constant in the annual reports of Equinor. Noted must be the increase between 2008 and 2010.

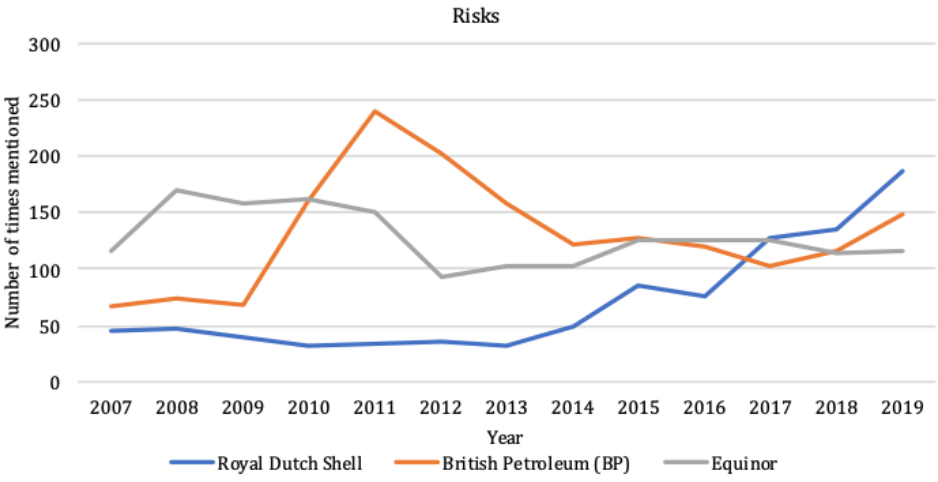


Figure 4.8: Results Discourse Analysis "Risks"

Some factors identified in the literature and included in the framework of factors are practically not found in the annual reports from all three IOC's. For example, "Population growth rate" and, to a lesser extent, "Public and Shareholder pressure" were almost not mentioned in every annual report.

Last, out of the discourse analysis results, a ranking of the most mentioned factors is established. This ranking encompasses all factors from the framework in section 2.5, and the factors analyzed in the previous section. It shows the disappearance of factors such as "Environmental Impact" within the research period. On the other hand, a clear line appears between the research's start date and the latest annual report. Most factors conserve a place in the top 5 most mentioned factors in the annual reports and are considered as essential factors for IOCs' business strategies. For example, "Price of oil

and gas", and "Employees" have sustained in the top 5 of Royal Dutch Shell and BP. That is, probably no changes in importance due to the energy transition. In the case of Equinor, all the most mentioned factors in 2007 have endured until 2019. A switch-up between "Proven Reserves" and "Prices of crude oil" is the only variation.

2007				2019		
BP	Shell	Equinor		BP	Shell	Equinor
Proven reserves	Prices of crude oil, natural gas, oil products and chemicals	Prices of crude oil, natural gas, oil products and chemicals	**1**	Risks	Risks	Proven reserves
Prices of crude oil, natural gas, oil products and chemicals	Proven reserves	Proven reserves	**2**	Prices of crude oil, natural gas, oil products and chemicals	Prices of crude oil, natural gas, oil products and chemicals	Prices of crude oil, natural gas, oil products and chemicals
Environmental Impact	Risk of Stranded Assets	Risks	**3**	Employees	Employees	Risks
Safety of employees	Employees	Functioning regulatory institutions	**4**	Energy Scenarios	Market Demand	Functioning regulatory institutions
Risks	Environmental Impact	High Political interference	**5**	Safety of employees	Safety of employees	High Political interference

Table 4.2: Ranking most mentioned factors

4.2.3 Conclusion

In chapter 2, the business strategy of International Oil Companies is found dependent on its external environment. To illustrate in each annual report, Royal Dutch Shell warns investors and shareholders of the influence of the external playing field on their operations and earnings: "Shell's operations and earnings are subject to risks from changing conditions in competitive, economic, political, legal, regulatory, social, industry, business, and financial fields**"** (Annual report Royal Dutch Shell, 2007-2019). In other words, the framework of factors does influence the business strategy of IOC's.

Since most of the framework factors are mentioned, we can conclude that most of the factors from the framework in chapter 3 coincide with the factors that shape the business strategies of IOCs. However, differences are present in the number of mentions and the related importance of the specific factor. Some factors as "Public and Shareholder pressure", "Values" and "Population growth rate" have almost null mentions, but several reasons can explain the fact. For example, "Public and Shareholder pressure" may have a more considerable impact on the IOC's strategies. However, it could be harmful or not desired by IOCs to mention it in the annual reports.

The discourse analysis shows some explicit substitutions in terms of the importance of a factor. For example, the fall of the "Proven Reserves" and the simultaneous rise of "Energy scenario" and "Risks" factors for Royal Dutch Shell and BP. Furthermore, while the relation between "Proven Reserves" and the actual proven reserves is not clear, more is to say about the fluctuation of the "price of crude oil" and the real-time Brent crude oil price. Also, the disappearance of "Environmental Impact", one of the most mentioned factors in 2007, is shown. While on the other hand, Equinor's discourse analysis revealed more consistency in the important factors throughout the research period. Other factors, as "Geopolitical stability", "Shareholders" and "Price of crude oil … and chemicals" remain constant. That is, still showing small fluctuations, mainly attributed to the events.

In summary, the discourse analysis reveals fluctuations in the number of mentions for the analyzed factors. In between IOCs, the results sometimes differ, but, in most cases, all three graphical lines follow the same direction. The mentions of the factor "Proven Reserves" decrease over time, except for Equinor. The factor "Energy Scenarios" knows a steep rise in the number of mentions over the

years, exploding around 2016. Similarly, the factor "Risks" sees an increase in the number of mentions, while "Price of crude oil" varies highly per IOC and reflects the oil price fluctuations.

4.3 Interviews

4.3.1 Interviews Questions

The outcomes of the discourse analysis presented in section 4.2 lead to several questions for the semi-structured interviews. The following questions serve as a guide throughout the interviews but note that side-steps into different branches certainly occur. The questions are personalized for each interviewee and his/her international oil company or employment. The first question is general and tries to define the role of IOC's in a successful energy transition. The second question verifies the framework of factors established in 2.5, and the choice of analyzed factors in the previous section. The next questions concentrate on the results of the factors shaping the business strategies from section 4.2.2. For example, the results in 4.2.2 show an increase in the number of mentions in the factors "Risks" between 2007 and 2019. The aim is to check and interpret the results. If the energy transition is the reason behind the increase/decrease. And if not, what is the reason for this result. The last two questions are again more general and zoom out of the factors onto the investment in renewables and IOCs' business strategies. All questions are given below:

- What is the role of International Oil Companies in the energy transition?
- Which factors influence or are important in deciding on the business strategy for Royal Dutch Shell/BP/Equinor?
- In the discourse analysis, the factor "Proven O&G reserves" has been decreasing steeply over the research period. Do you think "Proven O&G reserves" have become less important in defining the business strategy of Royal Dutch Shell/BP/Equinor due to the energy transition? Does Royal Dutch Shell/BP/Equinor invest more in Renewables compared to Oil and Gas investments?
- In the discourse analysis, the factor "Shareholders" has known a constant presence in the annual reports during the research period. Do you see a change in the importance of the shareholder due to the energy transition?
- Have "Risks" increasingly shaped the business strategy of Royal Dutch Shell/BP/Equinor between 2007-2019?
- Has the "Price of crude oil" become more important for Royal Dutch Shell/BP/Equinor?
- Have "Energy Scenarios" become more important for Royal Dutch Shell/BP/Equinor?
- What is the effect of the energy transition on the business strategies of IOC's?
- How do IOCs survive in the face of the energy transition? Which are the future challenges the IOCs face due to the energy transition? What is the business strategy to survive the changing environment?

4.3.2 Introduction of Interviewees

All interviewees agreed to be recorded, and the transcript of each interview is in Appendix F. The group of interviewees consist of three (ex)- employees of Royal Dutch Shell, BP, and Equinor. Also, an external expert in the oil industry is interviewed to present a critical outside perspective. However, note, that the interviewees differ broadly in position within the company, years of experience within the oil industry, and in career level. A short description of each interviewee is given below.

Interview 1: Peter van Driel, *Chief Financial Officer (CFO) at Naftogaz of Ukraine and previously, Vice president Investor Relations at Royal Dutch Shell.*

A highly experienced finance executive who has built a broad and international career through a wide range of roles, mainly in Royal Dutch Shell. Worked for 22 years at Royal Dutch Shell and had as final position Vice President of Accounting & Reporting.

Interview 2: Eugenia Pocoroba & Mathijs Groeneveld, *respectively Business Development Manager and Business Development Engineer at BP.*

Both members of the Business Development team of BP in Rotterdam, respectively as manager and engineer.

Interview 3: Jacopo Iorino, *Strategy Consultant at Equinor.*

An experienced consultant currently working for Norway's state-owned Oil & Gas company Equinor (formerly known as Statoil) on corporate strategy projects ranging from the renewables and climate/sustainability strategy.

Interview 4: Mirte Boot, *Strategy at Follow This.*

Follow This is a group of over 5,700 shareholders in oil and gas companies. Follow This compelled Shell, Equinor, BP, and Total to set climate ambitions, thanks to the support of institutional investors for the Follow This Climate Targets Resolutions. It supports oil and gas companies to set Paris-aligned targets for all emissions.

4.3.3 Interviews Interpretation

The interviews serve as a qualitative check of the quantitative findings from the discourse analysis and interpret the results from section 4.2. The guideline during semi-structured interviews were the questions presented in section 4.3.1. The structure of this section follows the same structure as the questions. First, each interviewee's view on the global position and role of IOCs in the energy transition is presented. Then, the results presented in section 4.2.2 are interpreted through the answers of the interviewees. Starting with the factor "Proven Reserves", then "Shareholders", "Risks", "Price of crude oil", and ending with the factor "Energy Scenarios". All interviews are conducted through Skype or phone due to the current strict regulations concerning the Covid-19 virus. The transcript of each interview is found in Appendix F1-F4.

Role of IOC's

All interviewees acknowledge the major role of IOCs in the success of the energy transition as all pressed the fact that for a successful transition. It ultimately needs to be a collaboration between IOCs, governments, consumers, and countless other companies from other sectors such as the automotive industry. As described in section 2.4, the energy transition is a process starting in the niche layer. Without the support of the political, legal, social systems, it cannot flourish into full amplitude.

Pocoroba & Groeneveld (BP) describe a leadership role for IOCs in the energy transition. In light of the past, where IOCs played a key role developing current economies through energy provision, from coal to oil. Although, Pocoroba & Groeneveld (BP) remain conscious of the complex dual challenge, more demand less emission, laying ahead.

Whereas, Peter van Driel (Royal Dutch Shell) presses that "you cannot expect that IOCs alone can bring major changes towards the carbon-neutral world", a public and private collaboration is imperative. And in his opinion, governments need to take the leading role instead of the current providing role. Similarly, Jacopo Iorino (Equinor) agrees on the need for collaboration but sees a different role for each international oil company in the energy transition depending on its specific competitive advantage. Moreover, each IOC is still required to create value for shareholders and figure out a way to contribute to the energy transition.

In contrast, Mirte Boot (Follow This) states that the IOCs see themselves more as components of the energy transition and not as the leaders they could or even should be. In her opinion, taking into account the huge budgets and the existing knowledge present in international oil companies, it would lead to a massive acceleration in the transition.

Proven Reserves

In figure 4.4, a decreasing trend of the "Proven Reserves" factor in BP and Royal Dutch Shell' annual reports is noticed, while an uninterrupted presence applies for Equinor. Jacopo Iorino (Equinor), declares this disruption in overall trend, as seen in figure 4.4. First, proven reserves remain important for the investors and shareholder because it shows the business's resilience and a long-term volume Equinor can acquire. Secondly, Equinor thinks that oil and gas still bring good profit for some years, which can, later on, be re-invested elsewhere. Iorino also denounces that annual reports are written in a standardized manner each year and, thus, could lead to a similar number of mentions.

In the case of Royal Dutch Shell, Peter van Driel attributes the decrease of the "Proven Reserves" factor not directly to the energy transition. On one side, IOCs are afraid of stranded assets and thus invest less in the exploration and production of oil and gas. On the other hand, Royal Dutch Shell has chosen to focus on the value of an investment instead of the proven reserves. Additionally, Royal Dutch Shell has known multiple proven reserves scandals, such as the overbooking of the number of proven reserves in 2004 (Global Witness, 2015), which led to a conservative valuation of the proven reserves and less mentioning in the annual reports. So, on one side, IOCs are afraid of stranded assets and invest less in the exploration and production of oil and gas. While on the other side, the earlier mentioned counterarguments, more focus on value than proven reserves, and scandals surrounding proven reserves. Similarly, Pocoroba & Groeneveld (BP) attribute the decline in mentions to the way of calculating the proven reserves at BP, which depends mostly on the oil price. If the reserve is profitable to become proven or not. And thus, if mentioned or not.

Mirte Boot (Follow This) attributes the lower amount of mentions of the factor "Proven Reserves" directly to the energy transition. However, acknowledges that the focus of recent annual reports on renewables, emissions targets, and other energy transition-related topics explains a part of it. To put the different opinions and answers in perspectives, results from other studies are added. In 2018, Pickl found a strong linkage between IOCs' renewable energy activity and the proven oil and gas reserves, as shown in figure 4.9 below. And Pickl acknowledges that Royal Dutch Shell, BP, and Equinor embarked on their transition from oil companies to energy companies.

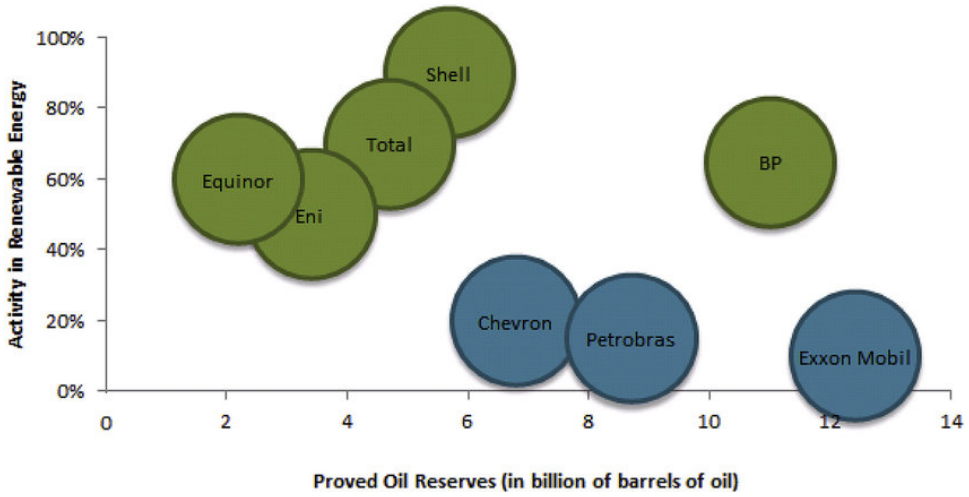


Figure 4.9: Leaders and Laggards Oil Majors (Source: Pickl, 2018)

No unanimity was found during the interviews about the impact of the energy transition on the importance of proven reserves in forming the IOC' strategy. Nevertheless, previous studies (Pickl (2019) & Zhong (2018)) found the amount of proven reserves to influence the investments in renewables, which are a part of a strategy.

Shareholders

According to the discourse analysis results, "Shareholders" have had a constant number of mentions in the reviewed annual reports. During the interviews, this result is verified and, at the same time, contradicted. Although all interviewees acknowledge the economic importance and influence of shareholders in defining an IOC' strategy, not all agree on the level of importance. And on the current role of the shareholders.

Peter van Driel (Royal Dutch Shell) identifies a growing influence of banks and shareholders, who want clarity about how the company remains viable in the long term if fossil fuels do not have a place anymore. And nowadays, the influence of shareholders is enormous. It has significantly increased in the last five years due to the energy transition, which contradicts the discourse analysis results. A different case is Equinor, which is 67% state-owned, by the government of Norway as the largest shareholder. Furthermore, this discrepancy leads to a different situation than the other IOCs. The political pressure stands in relation to the shareholders' importance and investment goals. Jacopo Iorino (Equinor) acknowledges that Equinor is such an important company in Norway, which comes with many expectations from outside, from society.

At Follow This, Mirte Boot notices a relative change in the shareholders' activism due to the energy transition, as she describes it, "shareholders are more and more becoming the conscience of the IOC's". In her opinion, and parallel to the result, no change in importance has been seen in the last years. Pocoroba & Groeneveld (BP) share this opinion and add that shareholders frequently asked questions or raised concerns about BP's energy transition progress in the last years. However, note the difference in types of shareholders, each dealing with their respective ideals and investment targets. Although, ending with the reasoning that shareholders still want dividends and are in it for financial reasons. A statement all interviewees agree.

Risks

The discourse analysis revealed a clear growth in mentions of the "Risks" factor. However, Peter van Driel (Royal Dutch Shell) rejects the idea that the energy transition fueled this growth. According to him, the developments are due to new regulations and the change in the regulation of stock market watchdogs to map all possible risks involving IOC's. An indirect link to the energy transition because these regulations arose after the risks of stranded assets became known, and a carbon-neutral future was predicted. However, the rise in "Risks" factors is also attributed to the litigation risks arising if an IOC is not utterly transparent to shareholders and investors.

On the other hand, Mirte Boot (Follow This) and Jacopo Iorino (Equinor) both attribute the increase in mentions of the "Risks" factor in part to the energy transition. Because in the process of the energy transition, more risks emerge and are exposed. Pocoroba & Groeneveld (BP), agree with the latter statement but, in their specific case, recognize the impact of the Macondo oil spill and other incidents which have revealed risks, not always measurable.

Price of crude oil

All interviewees agree on the complex story behind the price of crude oil and its importance to the IOC strategy. None of the interviewees could solely confirm that the energy transition lowered or increased the influence of the oil price in forming of an IOC' strategy. Jacopo Iorino (Equinor) and Pocoroba & Groeneveld (BP) recognized that the price of crude oil is influences by large number of factors itself, such as political stability, economic situation, supply, demand, and even OPEC negotiations. Unanimously it is believed that oil is still needed in the energy transition because oil demand cannot easily be substituted in areas such as freight or air transport. Hence, the interviewees projected that the price of crude oil remains essential in the coming years.

Energy Scenarios

An upturn in the number of mentions the factor "Energy Scenarios" and a difference in the growth percentage between IOC's are shown in figure 4.5. Royal Dutch Shell published the first energy scenario report in the 1970s, and Shell Scenarios are still considered prominent in the industry. Nowadays, to understand Shell's strategy, Peter van Driel (Royal Dutch Shell) refers to the Shell Energy Transition Report as more important than the annual reports. And this change can be linked to the energy transition. The Shell Energy Scenarios are often long-term and are an enormously important input for the strategy of Royal Dutch Shell.

Whereas the Royal Dutch Shell' energy scenarios are embedded in the company, Equinor has an independent team working on their energy scenarios. A reason Jacopo Iorino (Equinor) presented when served with the lower results of the factor "Energy Scenarios" than the two other IOCs. Although the strategy team and the energy scenario team at Equinor are independent, Equinor's energy scenarios still influence the formation of the strategy more than in the early years of the research period. Jacopo Iorino (Equinor) can reasonably attribute this development to the evolution of the energy transition.

Pocoroba & Groeneveld (BP) states that BP strategy's focus up until 2014-2015 has been the conservation of safety and fulfilling all financial obligations after the Macondo oil spill. This statement concurs with the results for the factor "Energy Scenarios" from the discourse analysis. Both interviewees believe that the energy transition alongside the Paris climate accords has given new space to energy scenarios to shape BP's strategy.

4.4 Conclusion

In the previous paragraphs, sub-questions 3 and 4 are answered. The role of the international oil companies in the energy transition is defined; the results of the discourse analysis are related to the energy transition or other reasons.

First, the international oil companies' primordial role in the energy transition's success is determined throughout the research. Both the research and the interviews have emphasized this fact. A successful energy transition needs collaboration with governments, stakeholders, and companies in different industries. Some point to IOCs in search for leaders, while Peter van Driel (Royal Dutch Shell) advocates for a leading role of the government.

The interviews have revealed insightful information and different interpretations about the discourse analysis results. Some changes in the number of mentions of factors shaping an IOC' strategy have been linked to the energy transition, for instance, the factor "Energy Scenarios". In other cases, the changes in the number of mentions were, according to the interviewees, partially linked to the energy transition. For example, the energy transition is not defined as the most important driver behind the changes in the number of mentions of the factor "Risks", but its impact cannot be ignored. However, note the different opinions of the interviewees in this case.
Similarly, the factor "Proven Reserves" shows a negative curvature in mentions and the interviewees' explanation differs. Other factors, such as "Price of crude oil" which has kept a constant presence in the annual reports, seem not to be impacted in terms of importance. In other words, equally important to the IOCs' strategy as in 2007, and the interviewees projected no changes in the coming years. The price of crude oil is dependent on numerous factors, and in this case, the energy transition suffers more by a fluctuation of the oil price than vice versa.

This research objective was to investigate the impact of the energy transition on the factors shaping IOCs strategies. An interplay between discourse analysis and interviews was performed to answer this question. We conclude that certain factors are impacted within the time frame, to become more important in defining an IOC' strategy, or less important. However, the interviews do not recognize the energy transition as the one driver behind these changes. Some interviewees do, while others do not see the energy transition as the reason. Thus, the effect is not proven due to the contradictory outcomes of the interviews.

5. Discussion

This chapter elaborates on this research results and places them within both the scientific literature and the practical domain. First, a reflection on IOC's investment in renewables. Then, a discussion of the recent developments as the impact of the Covid-19 crisis and the new strategies. Third, a review of practical implications that stress societal relevance. Further on in this section, the scientific contributions and limitations are discussed.

5.1 IOC' investments in renewables

In the previous paragraphs, the discourse analysis results, and the qualitative insights of the semi-structured interviews are presented. It shows that all three researched IOCs have changed the narrative towards the energy transition and the importance of lowering emissions. Although the energy transition has a significant presence in annual reports and speeches, the questions remain if IOCs follow suit with investment in renewables and low-carbon technological development. Thus, this next section sheds more insights on the investments in renewables of international oil companies.

In 2019, according to the IEA, the average total investment by big oil and gas companies in renewables or other energy transition-related technologies accounted for less than 1% of total capital expenditure (see figure 5.1). This research concentrates on the three studies IOCs in addition to Chevron and ExxonMobil. It presents adverse outcomes such as the low amount of investment in renewables, the increasing extraction and production of oil and gas in the coming decade, and the lack of strategical commitment from the industry most responsible for causing the climate crisis. The oil and gas industry has already invested in producing more fossil fuels than we can afford to burn, following the Paris Agreement. Other sources find that oil majors are investing 3% of their combined capital expenditure on renewable energy sources (CityA.M, 2020). Both cases reveal few numerical signs of an essential turnaround in oil company's investments (IEA, 2020). The percentages of investment in renewables differ in various sources and interviews, maybe due to the multi-interpretability of investment in renewables.

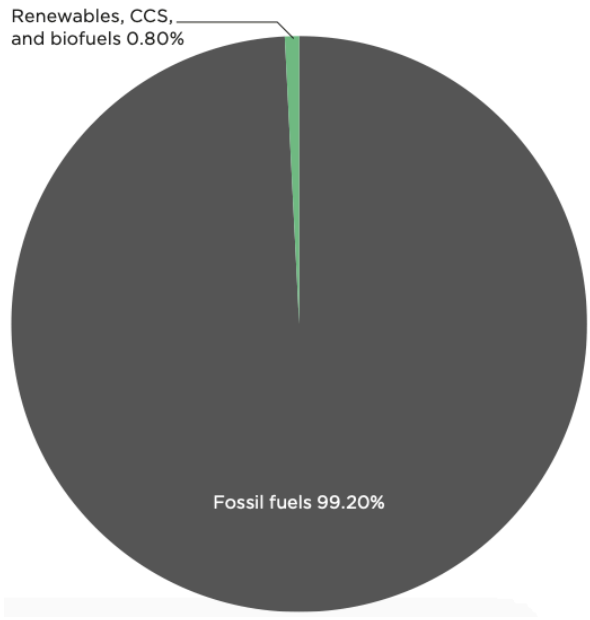


Figure 5.1: Big oil and gas capital expenditures in 2019
(Source: IEA data, Tong et al. (2020))

Next, the interviews revealed information about the current IOCs' investment in renewables. Equinor follows a guidance of 4-6% of total investment in renewables, dependent on running projects and the project pipeline. As seen in figure 5.2, Equinor singly accounts for more than half of this figure, which plans to invest $10bn into clean energy by 2025, mainly through its offshore wind portfolio. If Equinor

is removed from the equation, big oil majors' investments in renewables are in decline over the next three years (NS Energy Business, 2020). At Follow This, it is characterized as: "More talks than actions from an energy transition perspective". The investments necessary for the energy transition's success, such as investments in renewables have been lagging (see figure 5.2). Most of IOC's investments in renewables are buying large parts of equity in new smaller companies at the forefront of renewables innovation, as seen with BP ventures. The industry analysis in section 4.1 stimulates these structured investments as the low threat of new entrants is due to economies of scale.

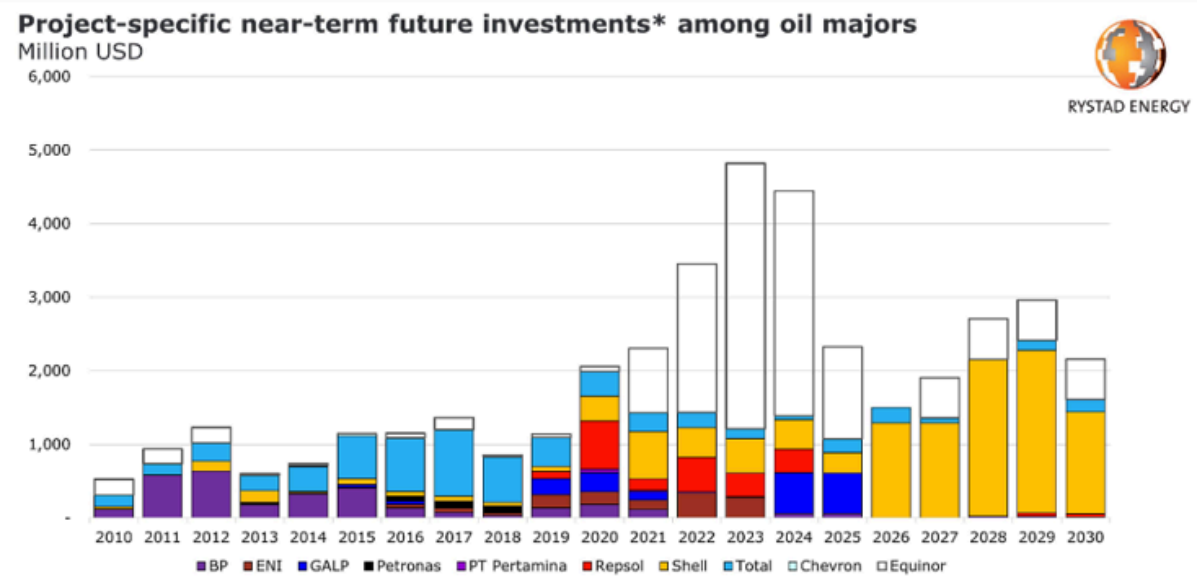


Figure 5.2: Recent and Future Investments among oil majors
(Source: Rystad Energy, 2020)

This research did not englobe the analysis of IOCs' investments in renewables and other technologies impelling the energy transition. But discussing these investments brings in perspective that the energy transition is a major topic in the annual reports and other media outlets of IOCs, as concluded in previous sections. As shown in Figure 5.1, the International Energy Agency (IEA) data reveals that 99.2 percent of big oil companies' capital expenditure still went towards fossil fuels in 2019. Besides that, none of the oil majors have meaningful phase-out plans, only ambitions, and not binding goals (see section 5.2.2). Different researchers denounce the possibility for international oil companies to increase their investment in renewable energy and increase its overall contribution to the climate crisis if the investment is not paired with a commensurate phase-out (Tong et al., 2020).

On the other hand, the small portion of investments in renewables and other low-carbon technologies has various possible explanations. First, it is difficult to make a wholesale shift to a new business model; IOCs have overwhelmingly a business model focused on oil and gas extraction and production (see Chapter 2). Next, the rapid changes and developments in these industries, such as the solar industry, changes so quickly that companies must continuously adjust on the fly. Rapid changes and developments similarly increase the risk for IOCs, not knowing which low-carbon technology will prevail at the end (Hoium, 2017). Last, the renewable technologies industries have not the size of the oil industry, so the current investments in renewables fall short compared to IOCs' immense capital expenditures. In my opinion, the uncertainty surrounding the new energy mix, the fundamental need for oil and gas, and the risk-averse IOCs' strategies are the origin of the low amount of renewable investments.

In conclusion, although the energy transition is significantly present in annual reports as a topic, IOCs do not back these words with a high amount of investment in renewables. It differs per company, as seen in figure 5.2. The lack of investment knows several reasons; high risks due to rapid developments, the difference in size between renewables and the oil industry; and large business model shifts take time.

5.2 Recent developments

In the next section, we zoom out and show the effects of the energy transition on IOC's current strategies and the effects of the current crisis. This discussion is done to show the importance of the energy transition and its implications on strategy. And to put the current time of crisis in perspective with the development and rise of the energy transition.

5.2.1 Impact of the COVID-crisis

The current environment with the COVID-19 crisis has brought the oil and gas price towards an even lower point. Today, with economies in lockdown and companies fighting to survive, the oil and gas sector's incremental move into alternative energy looks over-cautious (SPglobal, 2020). Due to the rapid decrease in the value of their oil and gas assets, the current crisis sheds light on these companies' exposure to a future world, which includes smaller oil and gas demand.

Certain researchers point to the real driver the international oil companies' choice to be on the green side of the future, for commercial reasons (Financial Times, 2020). And, in particular European-based companies as Royal Dutch Shell, BP, and Equinor. Other such as Peter van Driel, does not see this crisis as something that would undo all positive steps towards the energy transition's success. He states: "Covid-19 is just one factor in what is a more complex story". While McKinsey (2020, n.d.) states that "the COVID-19 crisis accelerates what was already shaping up to be one of the industry's most transformative moments". This relatively new strategic thinking has emerged now because, among other factors, a sustained surplus of potential supply over demand exists. As a result, OPEC has lost its ability to control oil prices. Although both oil and gas prices have declined since 2014, the COVID-19 pandemic has drowned prices even further this year (SPglobal, 2020). These hard hits force the oil and gas industry into a meaningful re-think of their capital spending plans as they seek to protect their balance sheets where possible (NS Energy Business, 2020).

Recently, Europe's four leading producers announced net-zero strategies (see section 5.2.2); oil companies worldwide reduced their hydrocarbons spending while keeping energy-transition plans on track, and executives from Royal Dutch Shell openly questioned the return of pre-coronavirus oil demand. The question remains if the coronavirus is a substantial driver of these developments. However, the wave of climate-friendly strategies results from intensifying pressures from governments, investors, and the public. These organizations and groups are present in the framework of factors. The short-term effect may be critical of oil price and demand but less significant on the strategies. However, note that the long-term impact of the coronavirus on oil companies' strategies is still uncertain.

5.2.2 Recent Strategical Developments

In 2020, BP and Equinor respectively published new strategies and new targets. Both IOC's presented ambitious targets towards a low-carbon energy world, while Shell announced minor adjustments. BP introduced a new strategy that pivots BP from being an international oil company focused on producing resources to an integrated energy company, investing more and more in renewables. According to Helge Lund, chairman at BP, the strategy has evolved because "energy markets are fundamentally changing, shifting towards low carbon, driven by societal expectations, technology and changes in consumer preferences". BP aims its investments in low carbon energy to have increased from around $500 million to around $5 billion a year in 2030. Additionally, BP predicts that oil and gas production reduces by at least 40%, from 2019 levels. The remaining hydrocarbon portfolio will be more cost and carbon-efficient to fulfill the growing demand (BP corporate website, 2020). With the new CEO, Bernard Looney, BP has ambitiously committed the company to net-zero carbon emissions by 2050. Last April, Shell followed suit and announced to target net-zero emissions by 2050, in parallel to increasing cuts to the company's carbon emission footprint. These objectives are more ambitious compared to the previously announced goals.

Equinor aims to maximize and develop the value of the Norwegian Continental Shelf position and international oil and gas business, focusing on safety, cost, and carbon efficiency (Equinor, 2020). Furthermore, at the start of 2020, several ambitious targets are presented. To decrease its net carbon intensity along the value chain of energy production by at least 50% by 2050, And 15-20% of the

investments to be directed towards new energy solutions by 2030 while growing renewable energy capacity tenfold. Equinor's strategic direction is developing a broad energy company, maximizing the strong synergies between oil, gas, and alternative energy sources (Equinor corporate website, 2020).

In conclusion, most research and experts think that the current coronavirus crisis has a critical effect on short-term demand and prices. However, the foundations remain in place for alternative energy sources to dominate the future's energy landscape. And the IOCs' long-term strategies are often updated, including new ambitions towards lower carbon emissions due to carbon efficiency strategies and higher investment in renewables. I think that the energy transition is a driver in the latter strategical developments.

5.3 Practical and Societal contributions

This research introduces several implications for various stakeholders, such as international oil companies, governmental organizations, and companies from other industries. This section discusses these implications and provides recommendations.

5.3.1 Collaboration to success

In the literature review in section 1.4, articles mention the possible strategies for international oil companies to adapt to the energy transition. However, this research results reveal IOCs' role in achieving the energy transition, a highly uncertain environment. This study claims that collaboration with a vast range of stakeholders is needed for the energy transition to be successful. For example, IOC' collaborating with governmental organizations, companies operating in other industries, and consumers.

Second, the search of literature and the interviews discusses an essential role of IOCs in the achieving a successful energy transition. Although not twisting the previous statement, some interviewees advocated for a leading government. As noted in the previous paragraph, a call for collaboration between stakeholders in the energy transition is made. In particular, collaboration starts with negotiations and thus, the outcome of the primordial role leads to an advantage in the negotiation. For example, in the negotiations with the government in the development of new low-carbon policies or laws.

I agree with the requirement for collaborations between parties on numerous projects, such as subsidies, policies, renewable projects, and innovations. The most significant partnership is between IOCs, the governments, universities, and start-ups should be involved. In my opinion, the latter has a fundamental role in accelerating technological innovations, and investors and leaders of energy companies should pay attention to them and fund their ideas. So that startups can take advantage of an IOC scale, footprint, and brand. Next, the energy transition's success relies also on the interconnection between territories such as the European Union. To enable more energy trading and guarantee that the consumer is at the center of the energy transition.

Last, the energy transition is a phenomenon that ignites incentives for change and fuels modifications in numerous aspects of society. It has a profound impact on our society as we know it. The discussion of the energy transition implications clarifies and brings a better understanding of the phenomenon. This different understanding on the impact of the energy transition is interesting for all involved parties.

5.3.2 Strategic implications IOCs

The past years IOCs responded to intensifying climate campaigning with minor investment in low-carbon technologies, the power-sector, and mobility (S&P Global, 2020). This growing sound has also fueled activism among IOCs traditional investors. If the pressure from investors, shareholders and external stakeholders intensifies, I expect that the switch towards an energy integrated company could be an option. This shift has been challenging to achieve due to the historical events putting a price on the IOCs. Furthermore, while sentiment among the international oil companies is turning around, as seen in the annual reports' analysis, the low-carbon investments remain small in comparison to their overall capital expenditures. However, this remains closely linked to the

uncertainty of the right future strategies, which can adversely affect IOCs' total profitability. Even more so new strategies and business models have yet to be proven successful (West et al. 2018).

Second, the implications of this study's results on strategies of international oil companies are various. The changes in the number of mentions of factors; increasing for "Energy Scenarios" and "Risks", decreasing for "Proven Reserves" and "Price of crude oil"; and related topic importance in annual reports show the energy transition developing into a major topic, if not already. Thus, I expect the new strategy's drivers to differ due to the power shift of factors defining the strategy, seen in the results. Energy scenarios' importance, focusing on a concrete vision of the future energy mix, changes a strategy at his core.
Each IOCs publish its future scenarios, and therefore, as the energy transition advances, I expect to see more divergence in strategies and approaches across international oil companies. Furthermore, I expect that while "Proven Reserves" and Price of crude oil" are found to be decreasingly mentioned in the annual reports, both are still important in defining future strategies since IOCs have not yet disconnected themselves from old business models. Due to the uncertainty of low-carbon technologies and continuous developments.

Third, the pace towards energy integrated companies is not uniform across oil and gas companies, and some consider the move beyond the core businesses to be unattractive. The oil and gas companies that stay on the sidelines and resist a more significant strategical shift may find they have missed the boat later on. In other cases, the pressure resulting from the energy transition is not yet powerful enough to change strategy. The discrepancy between IOCs is also detected in this paper when studying at the discourse analysis results. In some cases, such as with the "Energy Scenarios" factor, the number of mentions and the graph's shape differs per IOC. Even more so, with the "Proven reserves" which decreases for Royal Dutch Shell and BP, Equinor' annual reports show a slight increase in the number of mentions.

Last, this paper showed that certain factors in the annual reports are affected by the energy transition. However, in some cases, the energy transition is not a factor in the evolution of factors as with the "Risks" factor. In other words, although changes occur in the factors shaping the strategy of an IOC, the energy transition is not always the force behind these changes. Though the results of the discourse analysis and interviews have limitations such as the standardized manner in which annual reports are written and the large difference between the interviewees' positions. Interesting would be to further research the societal movements steering these changes.

5.4 Scientific Contribution

The research approach and findings deliver new additions to the present literature in the research field of strategy, and energy transition. In addition, this section discusses insights in comparison to similar studies.

5.4.1 Literature on factors

Before this research, no research was done on this specific topic, and no theories were developed to substantiate the research process. The current literature on factors defining oil and gas companies' strategies, as seen in chapter 2, lacks a framework including all factors. Besides, it lacks factors surging due to the energy transition. To put it another way, the current body of knowledge does not include a full list of factors that shape an oil and gas company's strategy in times of an energy transition. Or for companies in any other industries.

This study proposes a framework of factors in section 2.5 that is added to the strategy literature. Therefore, the novelty lies in combining different sources of literature to compile the list of factors, a framework of factors. This framework is used in the discourse analysis to sort the results. As previously stated, all framework factors are used in the discourse analysis, but not all are recognized in the annual reports. The framework of factors serves as a classification for the discourse analysis, and so it was tested.

Second, this research reveals that some factors from the framework are not found in the annual reports' discourse analysis, such as "Public and Shareholder pressure" and "Company Values". It leads

to the question if those factors matter for oil and gas companies in defining a strategy. The body of knowledge on factors influencing an IOC' strategy is expanded with the energy transition-related factors. The annual reports reveal most introduced energy transition-related factors; "Public and Shareholders Pressure"; "Attractivity for New Personnel"; "Risk of Stranded Assets"; "Energy Scenarios"; "Functioning Governmental Stimulus"; "Environmental Impact". Additionally, this research claims that the energy transition impacts certain factors, which lead to a different division of the roles in terms of the importance of these factors. For example, we observe that factors as "Energy Scenario" was more mentioned parallel to the development of the energy transition.

Last, this study claims that the energy transition does not only fuel the changes number of mentions in the annual reports of factors. The interviewees provide contradicting explanations on the reasons behind an increase or decrease in the number of mentions, such as the factor "Proven Reserves". Leading to the belief that although the energy transition is a major phenomenon and driver for change, other forces impact the factors.

5.4.2 Literature on energy transition

The body of knowledge on the energy transition is an exponentially growing research area. The lessons this research adds to previous studies are the various forces or factors that impact the formulation and choice of strategy of an international oil company. Next, previous studies present the primordial role IOCs in a successful energy transition, and this research confirms this finding. This outcome could increase the focus on oil companies of governmental entities, the shareholders, and the customers and increase awareness around need for a change of oil companies' strategy. Additionally, looking for a policy perspective, a more prominent spotlight could be set on laws and policies encouraging IOCs to invest in renewable energy sources and zero-carbon related innovations.

Furthermore, these research results are coherent with several papers from the literature. For example, Johnston et al. (2019) call for collaboration with partners to restore the oil and gas industry's attractiveness for talent, concerned with Paris climate goals and the industry's stranded asset risk. Likewise, this study claims that collaboration with different stakeholders is the best way for IOCs in the energy transition. In addition, Shojaeddini et al. (2019) see a future role in the collaboration between IOC and NOC, accelerating the energy transition.

Last, similar to previous research in 'Transitions Studies', this research states that some combinations of "economic, political, institutional and socio-cultural changes" are required (Berkout et al. 2012, p110). The energy transition is not solely a technological change (Berkhout et al. 2009; Cohen et al. 2010; Stephens et al. 2008). This research affirms the statement because the discourse analysis results in part reflect that the energy transition impacts factors in all these previously mentioned areas.

5.4.3 Literature on similar studies

Similarly to the research of Skjærseth et al. (2007), this study reveals discrepancies between strategy formulation and the actual fulfillment of the strategies in the form of investments. Although the chosen period differs, Skjærseth' research focuses on between 1998 and 2005, a similar conclusion is formulated. The conclusion that both Royal Dutch Shell and BP did and still do not fulfill its proactive strategy formulation with corresponding investments.

Second, the literature search reveals that several studies have made suggestions about the possible strategies for IOCs to survive the energy transition. However, none focus on the process of choosing the strategies or the forces influencing this decision. These papers propose low-carbon strategies as reshuffle portfolios, perform mega-mergers, invest directly into renewables or grow gas production to fulfill demand (Fattouh et al., 2018; Yun et al., 2018; and Stevens, 2016).

This research reveals some crucial factors in the choice of strategy. For example, the rise of the factor "Energy Scenarios" and the decrease of "Proven Reserves". These factors develop in opposite direction, parallel to the growth of the energy transition. Alternatively, other studies (Pickl, 2019) find a connection between the total proven reserves and the renewables strategy and investments. Due to the novelty of focusing on the factors behind strategies, as shown in section 1.5, the results can difficulty be aligned with other literature.

5.5 Reflection on methods

This research is subject to several scientific limitations. This section discusses the limitations of discourse analysis and the use of semi-structured interviews.

5.5.1 Discourse Analysis limitations

This research considers a total of twenty-six factors in table 2.4 for the discourse analysis. However, the discourse analysis, the factors, and the framework of factors have limitations. Furthermore, data collection can include other sources.

Although the created framework consists of most of the relevant factors found in the literature and through researcher's reflection, further testing of this framework should be carried out. The proposed framework of factors needs to be used to validate the factors and add additional relevant factors in the formation of international oil companies' strategies. Including new factors would lead to more in-depth knowledge of the shaping of a strategy. Furthermore, scrutinizing the most relevant factors in the early stage of the research could lead to a deeper understanding. Factors such as the "Price of crude oil" are dependent on many other variables, as is shown in 4.3.3.

Second, the focus of the discourse analysis is the annual reports of IOCs. While an annual report contains an enormous amount of relevant information, it is a snapshot of the previous year and can bring flawed information or not fully detailed information. Furthermore, annual reports are written in a standardized manner, the same sections are yearly used, and sometimes paragraphs from previous reports are copied. It could lead to a similar number of mentions in annual reports and flaws in the research results. Thus, expanding the data collection of the discourse analysis with speeches and energy scenario reports would lead to an even more complete overview of the IOC strategy formation.

Certain factors shaping the strategy of IOC's are not mentioned during the discourse analysis. These factors could be challenging to capture in the annual report's strategic part or non-influential for shaping the strategy. For instance, on many occasions, the factor "Public and Shareholder pressure" is not found in the annual reports. This result could be because that it is not in an IOC's best interest to admit being pressured and not easily defined in words. Or other reasons may lie at the basis.

Fourth, the performed discourse analysis is subject to the understanding and personal views of the researcher. In this specific case, the factors word, related-words or synonyms are found in the text, but the context is scanned to decide the legitimacy of the mention in the research. Additionally, the focus on the number of mentions leads to omitting the variances in the factors itself. Such as with "Risks", a large number of different risks apply, and not all related to the energy transition.

Last, a limitation is leaving out a detailed analysis of the investments to substantiate the annual reports' discourse analysis. Most interviewees referred to investment as a tool to verify the promises made by IOCs. Solely focusing on the discourse analysis does not provide the exact picture. Mirte Boot describes, "More talks than actions from an energy transition perspective". A statement that is not verified or contradicted in this research. Ultimately, the investments of IOCs reveal IOC's real vision and strategy for the future.

5.5.2 Semi-Structured Interviews limitations

This study uses semi-structured interviews to help analyze the quantitative results from the discourse analysis. This qualitative support provides context and an explanation. However, interviews do have some limitations.

The interview selection may have been prone to selection bias because only professionals interested in the topic are inclined to accept the interview request. And, the interviewees are found inside the researcher's personal/professional network. It might have also been the case that the interviewees did not fully understand the questions or research topic, which may have resulted in meaningless responses. As the interviews in this research are limited to one (ex)-employee of each case studied IOC, they cannot fully represent their IOC beliefs or thinking process. It is important to bear in mind the possible bias and personal opinions in the interview results.

The interviewees vastly differ in years of experience, focus within the oil industry, and the career level. In other words, each interviewee differs in in-depth knowledge about the strategy, the formation of the strategy, and the factors influencing the strategy. Furthermore, the position of each interviewee diverges and thus could lead to contrasting statements and answers.

The interviewer's personal opinion and experiences must be neutral before starting the interview so as not to lead the interviewees towards a response, hence minimizing bias. Moreover, a limitation with interviews, is deliberate lying or omit information. Because the interviewee does not want to "give a socially undesirable answer; unconscious mistakes, which mostly occurs when the respondent has socially undesirable traits that he does not want to accept; or cannot give openness due to his/her job" (Bailey, 1994).

5.5.3 Conclusion

In summary, the chosen research methods, discourse analysis, and semi-structured interviews have limitations, as presented in the previous paragraphs. However, I think that the choice to analyze the annual reports of IOCs, a crucial and constant outlet to investors and shareholders, and substantiate the results with semi-structured interviews with employees and an industry expert was the right one. Checking quantitative results with qualitative information is an often-used research combination. As in the number of mentions per factor, the quantitative results do not have the same meaning and impact without the interviewees' checking and providing additional context. However, considering the limitations of both research methods and the core of the main research question, I would have made some modifications, such as delivering similar interviewees in terms of career level, experience, and position, or increasing the number of interviewees of each IOC. Moreover, expanding the data with speeches and energy scenario reports for the discourse analysis, and adding an in-depth analysis of the IOCs' investment in renewables.

6. Conclusion

6.1 Conclusion

This thesis aims to provide deeper insights into the effects of the energy transition on the factors shaping IOCs strategies. For decades, International oil companies are supplying oil and gas and are considered a motor of our current society. The energy transition creates an interesting but highly uncertain environment supported by the speed of the transition. It challenges the entire energy sector, from producing to consuming energy, and mirrors a massive wave of change with tentacles spreading into various aspects of society. Due to the broad impact of the transition, its implications must be researched. However, little empirical research on the impact of the energy transition on the factors shaping IOC's strategy is currently available in the literature. Therefore, to contribute to the energy transition field, this research creates the framework of factors and tests it in the annual reports' analysis. Also, several interviews with O&G professionals check the quantitative results and shed light on the effects of the energy transition on IOCs' strategies.

The search of literature proposes several factors influencing all companies' strategies, as shown in table 2.1. Then, oil and gas companies' specific factors are established in table 2.2. And in table 2.3, the researcher introduces six energy transition-related factors. These factors result from an analysis of the implication of the energy transition on international oil companies. The three previous tables form the framework of factors in section 2.5.

The discourse analysis, which is performed, including all factors from the framework, reveals exciting discrepancies in the number of mentions throughout the research period. The results of the pinpointed factors are analyzed. Factors such as "Proven Reserves" know a considerable decrease in mentions. The factor "Price of crude oil" is seemingly linked to the real-time oil price, but no conclusion is possible due to its dependency on numerous other events. Other factors, as "Risks" and "Energy Scenarios", reveal an increase in the number of mentions. The extent of this increase varies between case-studied companies.
Furthermore, several factors show a constant presence between 2007 and 2019. For instance, the factor "Shareholders" is almost equally mentioned in each annual report for all three IOCs. However, note the limitations of this research described in the previous chapter.

In addition to the quantitative results of the discourse analysis, interviews with industry experts propose an interpretation of the results. First, all interviewees agree that international oil companies are an indispensable part to the energy transition puzzle. Until now, the supply of oil and gas was the basis of today's society's evolution. Moreover, if IOCs can adapt in the coming decades, IOCs remain crucial in the coming decades. A possible adaptation is to switch from international oil companies to energy integrated companies in the future. Covering different energy sources, fulfilling more demand, and fewer emissions. However, note that it cannot be achieved without collaboration with governments, banks, and other industrial sectors. And neither will the energy transition.

Interestingly, in some instances, the increase or decrease in the number of mentions is partially explained by the energy transition's impact. These various influences have different degrees of power. Energy scenarios have become more important in the annual reports due to the energy transition. While shareholders remain equally important, the shareholders' role changes due to the energy transition towards a more activist profile. A statement not acknowledged by all interviewees. Similarly, discussion points between interviewees over the results of the factors "Proven Reserves" and "Risks". Some draw the line to the energy transition while others propose different explanations. Thus, due to the interviewees' contradicting responses, it cannot be concluded with certainty that the energy transition impacts these factors shaping an IOC' strategy. However, I think that although the interviewees provided contradicting responses, the energy transition impacts the importance of the factors, even partially.

This study shows that the energy transition is a major topic of debate within annual reports and takes a larger place in IOCs' narrative. Despite being a major topic, investment in renewables and related

activities do not follow suit. IOC's currently invest only 1% of total investments in renewables, while in annual reports and other media statements. However, recently, the energy transition has led to changes in strategy and sharper emission targets for all three researched IOCs. Due to this fact, this year may be remembered as the point when the long-anticipated energy transition to a low-carbon future moved unequivocally from being a topic of debate to a shift of substance. Nowadays, most oil and gas companies have made headway in reducing their carbon intensity and are assessing which investments and technologies could drive further progress towards a low-carbon energy system.

The decarbonization environment leads to new opportunities, but whether oil companies morph into something new that is not in the oil and gas business or do they see a future into a decarbonized world with oil and gas. Specifically, can IOCs create successful and sustainable new strategies and in which shape.

This study is conducted to answer the following main research question:

Does the low carbon energy transition redefine the factors behind the business strategies of IOCs?

In response to the main research question, we cannot conclude that the energy transition has redefined various factors shaping IOCs strategies with certainty. Not all changes within the number of mentions of factors are linked to the energy transition. and interviewees propose contradicting explanations. On some factors, the impact of the energy transition is seen in the discourse analysis but only partially verified in the interviews. With the increase of "Energy Scenarios" and "Risks" but the interviews did not explicitly pinpointed energy transition as the main reason. Alternatively, with the decrease in mentions of "Price of crude oil" and "Proven Reserves". Note that Equinor' results often vary in the overall decrease or increase, as the "Risks" factor remains constant, and "Energy Scenarios" does not increase with the same amplitude as Royal Dutch Shell and BP. Therefore, as described in chapter 2, the energy transition is not solely a transition from a fossil-based to a zero-carbon energy sector, but it is also about changes in user practices, cultural discourses, and broader political struggles. The latter is found in the broad range of impacted factors.

As discussed in the previous chapter, this correlation between the energy transition and the factors shaping an IOC' strategy has specific practical implications. The energy transition is found to affect some factors shaping the strategies of IOCs in the last years, and ultimately the strategies themselves. For example, the ambitious strategies recently presented by Royal Dutch Shell, BP, and Equinor. However, solely the shift in strategy from IOCs is not enough. Collaboration is needed between certain parties to achieve a successful transition. A collaboration in which IOCs stand firm due to their primordial role in realizing the low-carbon energy system.

6.2 Research in a broader perspective

One of the most critical societal concerns of our time is climate change. And likewise, to other major societal issues or events, it influences our political and strategic decisions. Overcome the climate change requires a collective effort, from large international organizations to citizens. Each and everyone must put forward their best effort to reduce their carbon footprint. The energy transition is a part of the solution, one of many pieces to overcome this challenge. The decarbonization of the worldwide energy system, from production to the supplying of consumers, has a significant impact and is a large part of the solution. However, the overall implications of the energy transition and the steps for a successful transition are unknown.

This study proposes a better global understanding of the impact the energy transition has on oil companies' current strategies. The energy transition has impacted individual companies in defining their strategy which means that it is essential to be aware of it. Due to the broadness of the energy transition, and its implications, it is interesting to unlock doors to a better understanding through research. While in the same manner, creating a mutual understanding of how to achieve a new low-carbon energy system. Knowledge and insights should be shared, and collective actions should be taken to reduce environmental change. To some extent, this thesis contributes to helping better understand the implication on various levels of the energy transition.

6.3 Recommendations for further scientific research

This section proposes recommendations for further scientific research and suggestions based on the previously discussed limitations.

In this research, the discourse analysis included a total of 26 factors in the framework. It is chosen to focus on some factors deemed more important in defining an IOC strategy according to the literature and verified in the interviews. It would be interesting to diminish the number of factors and focus on the important ones while expanding the data. Therefore, including executives' speeches, published energy reports, and any media outlets of the case study IOCs in the discourse analysis. Similarly, the semi-structured interviews propose the possibility to add an extra factor in the framework created in section 2.5. The climate emission targets as signed-off in the Paris climate goals could be a factor that influences the business strategy of international oil companies.

Next, the differences between the effect of the energy transition on international oil companies (IOCs) and national oil companies (NOCs) can be interesting to research. A similar research approach can be performed, using the framework of factors to perform a discourse analysis. Switching the case studied international oil companies to national oil companies such as Saudi Aramco and China's CNPC, which are far more insulated from societal and investor calls to decarbonize. Additionally, NOCs own the majority of the world' oil and gas reserves. However, note that NOCs are not subject to the same kinds of "environmental scrutiny and disinvestment pressures as IOCs" (WoodMackenzie, 2019).

Furthermore, since this study did not make an explicit distinction between factors for IOCs and NOCs, this could serve as a research opening. Thus, it would be interesting to perform similar research, including NOC's annual reports and ultimately compare IOCs and NOCs under the effect of the energy transition. Firstly, on the factors shaping their strategies, and then on the strategies. In any event, the transition from fossils fuels to a low-carbon energy system may be perceived as a major shift in the strategic direction of international oil companies (Pickl, 2018) As a result, it opens up several possibilities for future research. It would be interesting to dig deeper into the past, current, and future investments in renewable of IOCs as every interviewee acknowledges that the real step in the direction of a successful energy transition is set if IOCs actions follow their words and ambitious goals. Investments are a numerical way to check the real effect of the energy transition on international oil companies.

References

Abitona, L.P. (2014). Strategy formulation and Assessment of the environment. MPA Silliman University. Last accessed on 8th June 2020. https://www.coursehero.com/file/56756004/Strategy-Formulation-and-Assessment-of-tdocx/

Ahmad, W.N., Rezaei, J., Sadaghiani, S. & Tavasszya, L.A. (2017). Evaluation of the external forces affecting the sustainability of oil and gas supply chain using Best Worst Method. *Journal of Cleaner Production*, Vol. 153, pp. 242-252.

Al-Fattah, S.M. (2013). National Oil Companies: Business models, challenges, and emerging trends. Corporate Ownership & Control, Vol. 11(1).

Andreasson, S. (2018). Survival of the fittest: what future for Big Oil in the transition to a low carbon economy. Queen's University Belfast.

Bahgat, G. (2003). The new geopolitics of oil: The United States, Saudi Arabia, and Russia. *Orbis*, Vol. 47, pp. 447–461.

Bailey, K. (1994). Interview Studies in Methods of social research. Simon and Schuster, 4th ed. The Free Press, New York NY 10020. Vol. 8. pp.173-213.

Barnat, R. (2020). Strategic Management: Formulation and Implementation. Last accessed on 27th May 2020. https://www.24xls.com/

BBA Mantra (2017). Last accessed on 10th March 2020. https://bbamantra.com/strategic-choice/

Beattie, A. (2020). 5 of the Biggest Risks Faced by Oil and Gas Companies, *Investopedia.* https://www.investopedia.com/articles/fundamental-analysis/12/5-biggest-risks-faced-by-gas-and-oil-companies.asp

Berkhout, F., Marcotullio, P.& Hanaoka, T. (2012). Understanding energy transitions. *Sustainability Sciences*, Vol. 7, pp. 109–111.

Berkhout, F., Angel, D. & Wieczorek, A.J. (2009). Asian development pathways and sustainable socio-technical regimes. *Technological Forecasting and Social Change,* Vol. 76, pp. 218–228.

Black Sea Trade and Development Bank (2020). Energy sector operational strategy. Last accessed on 24th May 2020. https://www.bstdb.org/Sector_Strategy_Energy.pdf

Business Management Ideas (2020). Last accessed on 23rd April 2020 https://www.businessmanagementideas.com/strategic-management/factors-affecting-strategic-choice/21044

British Petroleum (BP) (2015). Statistical review of world energy 2015. Last accessed on 21st February 2020. https://www.bp.com/content/dam/bp/pdf/energy-economics/statistical-review-2015/bp-statistical-review-of-world-energy-2015-full-report.pdf

British Petroleum (BP) (2018). Advancing the energy transition. Last accessed on 3rd June 2020 https://www.bp.com/content/dam/bp/businesssites/en/global/corporate/pdfs/sustainability/group-reports/bp-advancing-the-energy-transition.pdf

BP Energy Outlook (2019). Last accessed on 25th March 2020 https://www.bp.com/content/dam/bp/business-sites/en/global/corporate/pdfs/energy-economics/energy-outlook/bp-energy-outlook-2019.pdf

British Petroleum plc. (2019). Corporate website. Last accessed on 5th June 2020 https://www.bp.com/

Business Encyclopedia (2020). Last accessed on 25th May 2020
https://www.business-case-analysis.com/business-strategy.html#business-strategy-model-defined

Business Intelligence (2008). Last accessed on 24th March 2020
http://www.rapid-business-intelligence-success.com/definition-of-business-strategy.html

Business Jargon (2020). Last accessed on 11th June 2020
https://businessjargons.com/business-strategy.html

Business Wire (2003). Last accessed on 6th June 2020
https://www.businesswire.com/news/home/20190410005530/en/Demand-Analysis-Essential-Business-Infiniti-Research-Reveals

Caldecott, B., Holmes, I., Kruitwagen, L., Orozco, D. & Tomlinson, S. (2018). Crude awakening: Making oil majors business models climate compatible. E3G, University of Oxford & SFP.

Capgemini (2020). Sustainability in Energy and Utilities.

CarbonTracker (2018). Accessed on 24th February 2020
https://carbontracker.org/oil-and-gas-companies-approve-50-billion-of-major-projects-that-undermine-climate-targets-and-risk-shareholder-returns/

Chaiyapa, W., Esteban, M. & Kameyama, Y. (2018). Why go green? Discourse analysis of motivations for Thailand's oil and gas companies to invest in renewable energy.

Chamberlain, G.P. (2010). Understanding Strategy, CreateSpace, Charleston.

Chandler, J. (2018). Petroleum Ressource Management: How governments manage their offshore petroleum ressources. *UK Edward Elgar Publishing Inc*.

Chen, J. (2020). Last accessed on 19th June 2020
https://www.investopedia.com/terms/i/integrated-oil-gas-company.asp#:~:text=Some%20of%20the%20largest%20and,Chevron%2C%20Exxon%2C%20and%20BP.

CityA.M. (2020). Last accessed on 19th August 2020.
https://www.cityam.com/oil-majors-investing-only-three-per-cent-of-capital-into-renewables/

Cohen, M.J., Brown H.J. & Vergragt P.J. (2010) Individual consumption and systemic societal transformation: introduction to the special issue. *Sustainability Sciences Practical Policy,* Vol. 6 (2), pp. 6–12.

Dahl, T. & Fløttum, K. (2019). Climate change as a corporate strategy issue: A discourse analysis of three climate reports from the energy sector. Emerald Insight, Vol. 24 (3).

DNV GL (2019). Towards low carbon energy systems. Last accessed on 2nd April 2020
https://www.dnvgl.com/to2030/trend/towards-low-carbon-energy-systems.html

EKT Interactive (2020). Last accessed on 25th February 2020
https://www.ektinteractive.com/history-of-oil/

Energy Routes (2016). Last accessed on 6th June 2020
https://energyroutes.eu/2016/05/23/porters-five-forces-model-for-oil-and-gas-industry/

Energy Today (2019). Last accessed on 14th March 2020
https://www.energytoday.net/conventional-energy/the-seven-sisters-the-great-oil-companies-and-the-world-they-shaped/

Energyst (2020). Last accessed on 17th August 2020
https://www.energyst.com/uk/news/capex-vs-opex/

Entrepreneur (2008). Last accessed on 25th March 2020
https://www.entrepreneur.com/article/199154

Essays, UK. (2018). Changes in the Business Environment of Shell and Subsequent Strategy. Last accessed on 15th March 2020
https://www.ukessays.com/essays/business/changes-in-the-business-environment-and-strategy-of-shell-business-essay.php?vref=1

Essays, UK. (2018). Literature related to Strategy Theories and Strategy Management Business Essay. Last accessed on 5th April 2020
https://www.ukessays.com/essays/business/literature-related-to-strategy-theories-and-strategy-management-business-essay.php?vref=1

Equinor corporate website, 2020. Last accessed on 14th of August
https://www.equinor.com/en/how-and-why.html

Fattouh, B., Poudineh, R. & R. West (2018). The rise of renewables and energy transition: what adaptation strategy for oil companies and oil-exporting countries. OIES.

Fattouh, B., Poudineh, R. & R. West (2019). Energy Transition, Uncertainty, and the Implications of Change in the Risk Preferences of Fossil Fuels Investors.

Farla, J., Markard, J., Raven, R.P.J.M., &Coenen, L. (2012). Sustainability transitions in the making: a closer look at actors, strategies and resources. *Technological. Forecasting and Social Change*, Vol. 79, pp. 991–998.

Federal Reserve Bank of San Francisco (2007). What are the possible causes and consequences of higher oil prices on the overall economy. Last accessed on 10th June 2020
https://www.frbsf.org/education/publications/doctor-econ/2007/november/oil-prices-impact-economy/

Fern Fort University (2020). Last accessed on 15th August 2020
http://fernfortuniversity.com/term-papers/pestel/nyse4/386-royal-dutch-shell-plc.php

Fleisher, C. & Bensoussan, B. (2015). Business and competitive analysis: effective application of new and classic methods. *USA Financial Times Press*.

Fløttum, K., Gjesdal, A.M., Gjerstad, Ø., Koteyko, N. & Salway, A. (2014). "Representations of the future in English language blogs on climate change". *Global Environmental Change*, Vol. 29, pp. 213-222.

Financial Times (2018). Oil Producers Face Their Life or Death Question: Fear of an Imminent Peak in Demand Means Companies Are Less Likely to Invest. So, does that Make Shortages and a Price Rise Inevitable.

Fuenfschilling, L. & Truffer, B. (2014). The structuration of socio-technical regimes—Conceptual foundations from institutional theory. Research Policy, 43(4), 772–791.

Garcia, R., Lessard, D. & Singh, A. (2014). Strategic partnering in oil and gas: A capabilities perspective. *Energy Strategy Reviews*, Vol. 3, pp. 21-29.

Geels, F. W. (2002). Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. Research Policy, 31(8-9), 1257–1274.

Geels, F. W. & Schot, J. (2007). Typology of sociotechnical transition pathways. Research Policy, 36(3), 399–417.

Geels, F. W. (2011). The multi-level perspective on sustainability transitions: Responses to seven criticisms. Environmental Innovation and Societal Transitions, 1(1), 24–40.

Ghemawat, P (2002). "Competition and Business Strategy in Historical Perspective". Business History Review. 76 (1): 37–74.

Global Witness (2015). Last accessed on 14th August 2020 https://www.globalwitness.org/en/press-releases/shell-shareholders-risk-billion-dollar-nigerian-oil-scandal-says-global-witness/

Gruber, A. (2015). Dictionary of Energy (Second Edition), pp. 177-216.

Haller, T., Blochlinger, A., John, M., Marthaler, E. & Ziegler, S. (2007). Fossil Fuels, Oil Companies, and Indigenous Peoples: Strategies of multinational oil companies, states, and ethnic minorities. Impact on environment, livelihoods, and cultural change.

Harris, J.D. & Lenox, M. (2014). Three critical factors of business strategy. University of Viginia, Darden School of Business. Last accessed on 7th June 2020 https://ideas.darden.virginia.edu/three-critical-factors-of-business-strategy

Henderson, B.D. (1989). The Origin of Strategy. *Harvard Business Review*, pp. 139–143.

Hokroh, M. (2014). An analysis of the oil and gas industry's competiveness using Porter's Five Forces framework. *Global Journal of Commerce and Management*, Vol. 3(2), pp. 76-82.

Hoium, T. (2017). Why Big Oil Can't Make the Renewable Energy Transition. *The Motley Fool*.

IEA & IRENA (2017). Perspectives for the energy transition: Investment Needs for a Low-Carbon Energy System.

International Energy Agency IEA (2019). Global Energy & CO2 Status Report 2019, The latest trends in energy and emissions in 2018.

International Energy Agency IEA (2018). The Future of Petrochemicals: Towards more sustainable plastics and fertilisers.

Investopedia (2020). Last accessed on 25th June 2020 https://www.investopedia.com/ask/answers/09/antitrust-law.asp

IRENA (2019). Energy Transition. Last accessed on 3rd June 2020 https://www.irena.org/energytransition#:~:text=The%20energy%20transition%20is%20a,emissions%20to%20limit%20climate%20change

Jelenc, L. (2009). Review of Theories in Strategic Management field-toward the Creation of Schools of Strategic Management. The Business Review. Vol. 14 (1), pp 240-247.

Johnston, R.J., Blakemore, R. & Bell, R. (2019). The Role of Oil and Gas Companies in the Energy Transition. Atlantic Council.

Katsikeas, C.S & Christodoulides, P. (2012). Internal and external drivers of green export business strategy: Their impact on competitive advantage and performance. Academy of Marketing Conference, Southampton. pp. 1-10.

Kenton, W. (2019). Corporate finance & Accounting financial statements & Annual Report. Last accessed on 15th June 2020 https://www.investopedia.com/terms/a/annualreport.asp

KPMG. Energy transition: Next step for oil, gas & petrochems. Visited on March 23, 2020

https://home.kpmg/uk/en/home/insights/2018/08/energy-transition-climate-change-next-step-for-oil-gas-and-petrochemicals.html

Kraan, O., Chappin, E., Kramer, G.J. & Nikolic, I. (2019). The influence of the energy transition on the significance of key energy metrics. *Renewable and Sustainable Energy Reviews*, Vol. 111, pp. 215-223.

Laine, M. (2005), Meanings of the term ´sustainable development` in Finnish corporate disclosures. *Accounting Forum*, Vol. 29(4), pp. 395-413.

Levy, D. & Kolk, A. (2002). Strategic Responses to Global Climate Change: Conflicting Pressures on Multinationals in the Oil Industry. *Business and Politics*, Vol. 4(3).

Malik, T (2018). Competitive Analysis of the Global Oil and Gas Industry using Porters Five Forces Model. *Conference paper, The 7th Annual Conference of Economic Forum of Entrepreneurship & International Business.*

Matutinovic, I. (2009). Oil and the Political Economy of Energy. *Energy Policy,* Vol. 37(11), pp. 4251-4258.

McKinsey&Company (2020). Last accessed on 3rd September 2020
https://www.mckinsey.com/industries/oil-and-gas/our-insights/oil-and-gas-after-covid-19-the-day-of-reckoning-or-a-new-age-of-opportunity#

Mindtools (2019). Last accessed on 14th March 2020
https://www.mindtools.com/pages/article/newTMC_08.htm

Mintzberg, H., Ahlstrand, B. & Lampel, J. (1998). Strategy Safari, A Guided Tour Through the Wilds of Strategic Management. New York: The Free Press.

Nag, R., Hambrick, D. C. & Chen, M.-J (2007). "What is strategic management, really? Inductive derivation of a consensus definition of the field". Strategic Management Journal. 28 (9): 935–955.

NS Energy (2019). Last accessed on 2nd March 2020
https://www.nsenergybusiness.com/news/major-state-owned-oil-and-gas-companies-in-the-world/

NS Energy Business (2020). Big Oil's near-term clean energy spending plans fail to impress. Last Accessed on 4th October
https://www.nsenergybusiness.com/features/renewables-spending-oil-companies/

Offshore Technology (2019). The world's biggest oil and gas companies. Last accessed on 11 June 2020
https://www.offshore-technology.com/features/largest-oil-and-gas-companies-in-2018/

OPEC speech from M. Rahman (2004). Last accessed on 1st March 2020
https://www.opec.org/opec_web/en/900.htm

Oxford College of Marketing (2014). Last accessed on 2nd June 2020
https://blog.oxfordcollegeofmarketing.com/2014/11/04/the-impact-of-micro-and-macro-environment-factors-on-marketing/

Pahwa, A. (2020). Last accessed on 23rd May 2020
https://www.feedough.com/business-strategy-definition-levels-examples/

Penn State (2020). Last accessed on 13rd August 2020
https://www.e-education.psu.edu/eme801/node/470

PESTLE (2020). Last accessed on 28th May 2020
https://pestleanalysis.com/what-is-pestle-analysis/

Pickl, M. J. (2019). The renewable energy strategies of oil majors – From oil to energy. Energy Strategy Reviews, Vol. 26.

Porter Analysis (2019). Last accessed on 7th June 2020 https://www.porteranalysis.com/porters-five-forces-of-oil-industry/

Porter, M (1996). What Is Strategy. *Harvard Business Review*, pp. 61–78.

Porter, S. & Hardin, K. (2020). Oil, gas, and the energy transition – How the oil and gas industry can prepare for a lower-carbon future. *Deloitte Insights.*

Rastogi, N. & Trivedi, M.K. (2016). Pestle technique – a tool to identify external risks in construction projects. *International Research Journal of Engineering and Technology (IRJET)*, Vol. 3(1), pp. 384-388.

Ritson, N. (2011). Strategic Management. *Ventus Publishing ApS*.

Robinson, C. & Scott, A. (2010). Strategic Planning for the Oil and Gas Industry. *Edinburgh Business School Heriot-Watt University*.

Rumelt, R. (1994). Invited Forward to Hamel, G. & Hene, A., (ed.) Strategic Thinking—Capability Based Competition, Sussex, England: John Wiley & Sons.

Rystad Energy (2020). Last Accessed on 4th October https://www.nsenergybusiness.com/features/renewables-spending-oil-companies/

Scribbr (2019). Last accessed on 6th April 2020 https://www.scribbr.com/methodology/discourse-analysis/

Shell (2019). Energy transition report. Last accessed on 3rd June 2020 https://www.shell.com/energy-and-innovation/the-energy-future/shell-energy-transition-report/_jcr_content/par/toptasks.stream/1524757699226/3f2ad7f01e2181c302cdc453c5642c77acb48ca3/web-shell-energy-transition-report.pdf

Shell (2020). Corporate website. Last accessed on 5th June 2020 https://www.shell.com/

Shell (2020). Shell Scenarios Last accessed on 5th August 2020 https://www.shell.com/energy-and-innovation/the-energy-future/scenarios.html

Shojaeddini, E., Naimoli, S., Ladislaw, S. & Bazilian, M. (2019). Oil and gas company strategies regarding the energy transition. *Progress in Energy*, Vol. 1.

Skjærseth, J. B. & Sæverud, I.A. (2007). Oil Companies and Climate Change: Inconsistencies between Strategy Formulation and Implementation. Fridtjof Nansens Institutt. *Global Environmental Politics*, Vol. 7(3), pp. 42-62.

Skjærseth, J. B. & Skodvin, T. (2001). Climate Change and the Oil Industry: Common Problems, Different Strategies. *MIT Global Environmental Politic*, Vol. 1(4).

Statistica (2020). Last accessed on 14st August 2020 https://www.statista.com/statistics/1085091/low-carbon-investment-oil-companies-worldwide/

Statistica (2020). Last accessed on 11st August 2020 https://www.statista.com/statistics/262860/uk-brent-crude-oil-price-changes-since-1976/

Stevens, P. (2016). International Oil Companies: The Death of the Old Business Model. *Energy, Environment and Resources.*

Stevens, P. (2017). The Role of Oil and Gas in the Economic Development of the Global Economy. https://oxford.universitypressscholarship.com/view/10.1093/oso/9780198817369.001.0001/oso-9780198817369-chapter-4

Stephens J.C., Wilson E.J. & Peterson T.R. (2008) Socio-political evaluation of energy deployment (SPEED): an integrated research framework analyzing energy technology deployment. *Technological Forecast Societal Change*, Vol. 75, pp.1224–1426

Steward, T. (2012). A Brief Introduction to the Multi-Level Perspective (MLP). Last accessed on 7 May 2020 http://projects.exeter.ac.uk/igov/wp-content/uploads/2012/12/DOWNLOAD-Multi-Level-Perspectives.pdf

S&P Global (2020). Last accessed on 4th June 2020 https://www.spglobal.com/en/research-insights/articles/what-is-energy-transition

Thompson, A., McGraw, H. & Nordmeyer, B. (2019). Strategic Management: Concepts and Cases. Last accessed on 21st May 2020 https://yourbusiness.azcentral.com/characteristics-dynamic-environment-strategic-management-15768.html

Tong, D., Trout, K., Mckinnon, H. & Stockman, L. (2020). Big Oil reality check assessing oil and gas company climate plans. Oil Change International.

UKEssays (2018). Shell's strategic position in the light of its external and internal environment. Last accessed on 22 May 2020 https://www.ukessays.com/essays/business/shells-strategic-position-in-light-of-its-external-and-internal-environment-business-essay.php

UN (2007). Last accessed on 25th June 2020 https://www.un.org/esa/sustdev/natlinfo/indicators/methodology_sheets/demographics/population_growth_rate.pdf

UNFCCC (2016). Paris Agreement - Status of Ratification, United Nations Framework Convention on Climate Change. Last accessed on 19th February 2020 http://unfccc.int/paris_agreement/items/9444.php.

Van Bree, B., Verbong, G.P.J, & Kramer, G.J. (2010). A multi-level perspective on the introduction of hydrogen and battery-electric vehicles. *Technological Forecasting and Social Change*, 77(4), 529–540.

Wandera, O.L. (2014). Factors Affecting the Choice and Adoption of Business Strategies in Financial Sector: A Survey of Banking Institutions in Eldoret Kenya. *Research Journal of Finance and Accounting*, Vol. 5(21).

Weijermars, R., Clint, O. & Pyle, I. (2014). Competing and partnering for resources and profits: Strategic shifts of oil Majors during the past quarter of a century. *Energy Strategy Reviews*.

West, R, & Fattouh, B. (2019). The Energy Transition and Oil Companies' Hard Choices. *Oxford Institute for Energy Studies*.

Wilkinson, A. & Kupers, R. (2013). Living in the Futures. *Harvard Business Review*.

WoodMackenzie (2018). How deep-water projects can compete with tight oil - more progress on costs and tight oil may get a run for its money. Last accessed on 5th September 2020 https://www.woodmac.com/news/the-edge/deepwater- projects-compete-tight-oil/

World Economic Forum (2013). Energy transitions: Past and Future. *Energy Vision 2013.*

Yun, P., Jia, L. & JieXin, Y. (2018). International Oil Companies' Low-Carbon Strategies: Confronting the Challenges and Opportunities of Global Energy Transition. IOP Conf. Series: Earth and Environmental Science, Vol. 237.

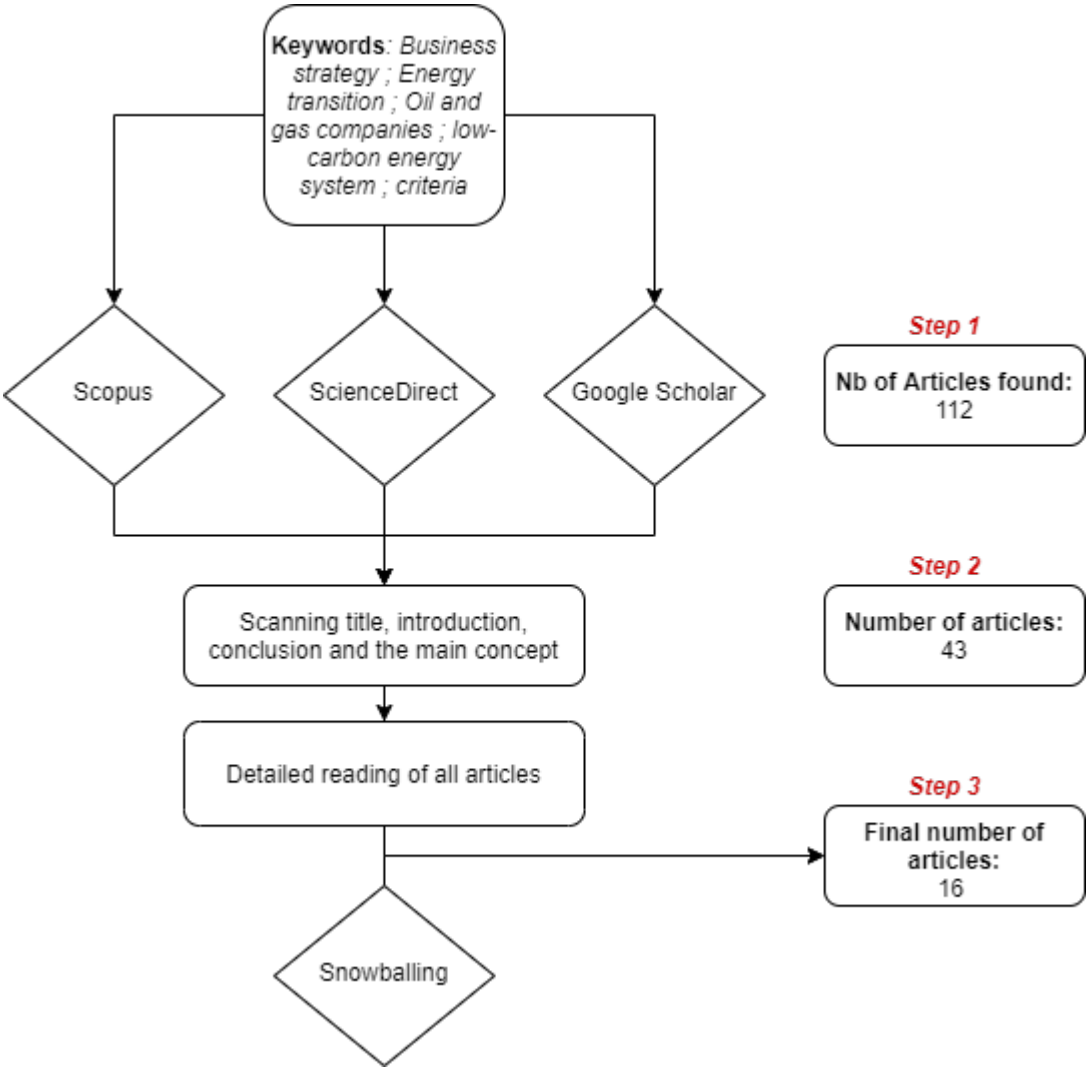
Zaidi, S.M.R. (2016). Oil and Gas industries Analysis. *CDU Sydney.*

Zhong, M. M. M. (2018). Contours of the energy transition: Investment by international oil and gas companies in renewable energy. *Electricity Journal*, Vol. 31(1), pp. 82-91.

2B1stConsulting (2012). Last accessed on 2nd April 2020
https://www.2b1stconsulting.com/ioc/

Appendix

Appendix A: Prism table



Appendix B: Summary of reviewed articles

Author	Aspects reviewed	Main Findings
Zhong, M.	Map the investments of IOC (oil majors) in renewable energy sources.	Different success has been noticed due to a rapidly changing landscape. And show a diversity of strategies chosen to enter the renewables markets.
Fattouh, B. Poudineh, R. & R. West	Business strategy adaptation possibilities for both oil companies and for oil exporting countries.	Gradual investment in a portfolio of proven renewable energy technologies that complement their pre-existing value chains is advised. But due to the complex nature and high uncertainty no strategy can be pitched as best.
Skjærseth, J. & Sæverud, I.	Focus on period between 1998 to 2005. Reviews the consistency between renewable energy strategy formulation and implementation. Investigate the actions behind the rhetoric of big oil and gas companies.	There is a general consistency between words and actions of Shell, BPO and ExxonMobil. Dedication of the company leadership and correlation with international policy will improve consistency.
Pickl, M.	Investigation of the oil 8 majors' renewable energy strategies and investments. Transformation from oil and gas companies into energy companies?	Focus on investment and if renewables strategies have been followed. Strong link between oil reserves and renewable energy strategies.
Weijermars, R., Clint, O. & Pyle, I.	The focus lies on the economic strategic shift of oil majors (1990-2014).	To meet rising demand, oil and gas companies must increasingly produce from very complex fields Requires high development costs and high O&G prices to be profitable. The rising cost of hydrocarbon extraction creates a strong incentive to accelerate the energy transition toward progressively more affordable renewable energy resources.
Yun, P., Jia, L. & JieXin, Y.	Monitors the changes in low-carbon strategies of IOC's. Describes the future challenges, opportunities and advantages of renewable energy for IOCs.	IOCs are on a strategic verge, between first mover advantages and investing too late into renewable energy. Three categories of strategies: Investment in gas, involvement in low-carbon sector, and collaboration.
Stevens, P.	Focus on BP, Chevron, Shell, ExxonMobil and Total. Overview of the possible solution to counter the outdated business models of major oil companies.	Several options to improve IOC business models are proposed. Description of old business model and reasons why changes need to occur. Ex: Mega-merger, squeeze costs, reshuffle portfolio, diversification...
Shojaeddini, E., Naimoli, S., Ladislaw, S & Bazilian, M.	Defines the roles of oil and gas companies within the energy transition. Response with strategy to challenges inherent to the transition	Differences between IOCs and NOCs in term of importance of policy and such in low-carbon related strategies. IOC has started investing in renewable source while NOC are inexistent in this domain.
J. B. Skjærseth & T. Skodvin	Observes and tries to describe the differences in the climate strategies of the large oil companies	Basic factors that can shape a company's climate strategy: environmental risk, environmental reputation, and organizational learning. Secondly, broader domestic political context is important.

S.M. Al-Fattah	Review of the national oil companies' (NOCs) business models, challenges and opportunities, their strategies and emerging trends	Comparison table IOC and NOC. IOCs, in developing expertise in these areas, as well as acquiring or partnering with firms having this expertise, are diversifying in a wise manner and they're buying into renewable technologies as well to cover all bets.
R.J. Johnston, R Blakemore & R. Bell	Defines and predicts the role of oil and gas companies in the energy transition	Several steps are recommended for O&G companies to survive and even lead the energy transition. Options for strategies can be 1. to support coal-to-gas switching and investing in infrastructure that enables electrification or 2. focus on using renewables and new technologies to leverage their expertise with supply chains and market development to support
Caldecott, B., Holmes, I., Kruitwagen, L., Orozco, D. & Tomlinson, S.	Investigates different business strategies for IOC' in relation to climate goals.	Business strategies for IOC's (First one out and Planned transformation) had the potential to be commercially viable. Size and portfolio of company limits Business strategies possibilities.
Fattouh, B., Poudineh, R. & West, R.	The Energy Transition and Oil Companies' Hard Choices	Several challenges of the energy transition for international oil companies (IOCs) are presented, along with risks and opportunities for the future.

Table B: Summary of reviewed articles

Appendix C: Discourse Analysis "Energy Transition"

	Royal Dutch Shell	BP	Equinor
2007	**2x** alternative energy	**4x** low carbon transition	**1x** low carbon transition **2x** alternative energy **11x** renewable(s)
2008	**2x** alternative energy	**10x** low-carbon transition **7x** alternative energy	**2x** low-carbon transition **3x** alternative energy **21x** renewable(s)
2009	**2x** low-carbon transition **3x** alternatives energy **2x** renewable(s)	**12x** low-carbon transition **6x** alternative energy **3x** renewable(s)	**2x** low-carbon transition **3x** alternative energy **32x** renewable(s)
2010	**1x** low-carbon transition **3x** alternatives energy **5x** renewable(s)	**20x** low-carbon transition **4x** alternative energy **7x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **25x** renewable(s)
2011	**1x** low-carbon transition **2x** alternatives energy **3x** renewable(s)	**13x** low-carbon transition **4x** alternative energy **10x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **17x** renewable(s)
2012	**2x** alternatives energy **4x** renewable(s)	**10x** low-carbon transition **2x** alternative energy **15x** renewable(s)	**1x** low-carbon transition **2x** alternative energy **19x** renewable(s)
2013	**2x** alternatives energy **4x** renewable(s)	**7x** low-carbon transition **2x** alternative energy **7x** renewable(s)	**1x** low-carbon transition **2x** alternative energy **21x** renewable(s)
2014	**2x** alternatives energy **4x** renewable(s)	**5x** low-carbon transition **3x** alternative energy **4x** renewable(s)	**2x** low-carbon transition **2x** alternative energy **19x** renewable(s)
2015	**2x energy transition** **6x** renewables	**9x** low-carbon transition **17x** renewable(s)	**3x** low-carbon transition **2x** alternative energy **25x** renewable(s)
2016	**5x energy transition** **2x** low-carbon energy transition **2x** alternative energy **5x** renewable	**3x energy transition** **6x** low-carbon transition **2x** alternative energy **18x** renewable(s) **1x** decarbonization of energy system	**2x energy transition** **10x** low-carbon transition **2x** alternative energy **22x** renewable(s)
2017	**17x energy transition** **3x** low-carbon energy transition **1x** Net-zero emissions energy system **10x** renewable(s)	**6x energy transition** **18x** low-carbon transition **2x** alternative energy **20x** renewable(s)	**3x energy transition** **16x** low-carbon transition **2x** alternative energy **23x** renewable(s)
2018	**5x energy transition** **9x** low-carbon energy transition **1x** Net-zero emissions energy system **1x** renewable(s) **1x** decarbonization of energy system	**15x energy transition** **20x** low-carbon transition **2x** alternative energy **14x** renewable(s)	**4x energy transition** **14x** low-carbon transition **2x** alternative energy 24x renewable(s)
2019	**28x energy transition** **16x** low-carbon transition **9x** renewable(s) **1x** Net-zero emissions portfolio	**23x energy transition** **41x** low-carbon transition **2x** alternative energy **15x** renewable(s) **5x** decarbonization of energy system	**7x energy transition** **17x** low-carbon transition **2x** alternative energy **47x** renewable(s) **2x** decarbonization

Table C: Number of times usage of "energy transition" and synonyms in annual reports.

Appendix D.1: Discourse Analysis of factors in Royal Dutch Shell

	Royal Dutch Shell												
Factors	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
High Political interference	17	15	15	12	17	14	16	13	22	26	29	32	33
Positive Marco-economic climate	23	40	43	31	31	40	29	28	34	39	30	35	36
Dynamic Socio-Cultural environment	14	13	10	12	14	15	12	8	13	12	11	11	12
Innovative and high-technological environment	33	36	30	27	28	25	25	26	38	32	33	34	37
Functioning regulatory institutions	24	30	31	32	23	34	41	46	39	39	39	35	40
Shareholders	23	19	13	13	20	21	20	20	24	21	19	21	18
Employees	58	51	23	26	29	34	42	39	47	56	65	65	80
Industry Competitors	15	17	15	16	12	16	16	12	14	15	10	13	9
Market Demand	33	52	44	40	41	46	48	51	54	68	76	63	78
Company Values	1	7	2	2	5	6	5	4	3	4	2	2	9
Revenue	25	36	16	12	12	17	17	16	18	12	12	11	10
Total Shareholder Return/Value (TSR)	15	15	13	14	16	13	23	16	14	19	21	26	20
Prices of crude oil, natural gas, oil products and chemicals	118	130	96	77	85	87	75	103	163	154	141	150	124
Proven reserves	90	88	73	62	50	48	49	51	56	43	36	35	38
Capital of financial markets	43	53	47	41	41	28	30	25	31	28	25	29	36
Population growth rate	3	4	2	2	3	3	3	3	4	5	6	5	6
Recent technological developments company and competitors	38	44	30	29	25	28	24	25	37	23	26	19	27
Geopolitical stability	14	16	17	17	20	18	17	16	16	17	13	15	19
Safety of employees	32	31	15	21	25	20	23	22	30	32	42	46	67
Risks	45	47	40	32	33	36	32	49	86	75	128	135	187
Public and Shareholders Pressure	0	0	1	0	1	1	0	2	1	3	2	3	4
Attractivity for New Personnel	24	17	8	8	10	14	12	12	13	15	16	19	22
Risk of Stranded Assets	60	59	20	31	40	38	27	45	49	41	54	56	36
Energy Scenarios	3	4	4	2	2	5	13	12	18	12	18	31	27
Functioning Governmental Stimulus	8	16	10	9	9	7	8	14	18	28	26	18	18
Environmental Impact	47	45	23	34	36	32	30	32	31	35	42	42	54

Appendix D.2: Discourse Analysis of factors in BP

	British Petroleum												
Factors	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
High Political interference	15	16	13	42	40	48	23	19	15	22	27	30	29
Positive Marco-economic climate	12	24	48	32	39	42	23	17	20	21	14	15	27
Dynamic Socio-Cultural environment	8	6	5	9	5	11	9	5	6	8	10	12	9
Innovative and high-technological environment	40	39	40	36	44	39	43	34	32	33	39	38	37
Functioning regulatory institutions	34	34	33	35	68	64	45	21	13	12	9	14	19
Shareholders	23	24	26	19	17	27	26	14	16	17	14	16	23
Employees	14	37	40	50	52	68	45	49	48	43	38	41	55
Industry Competitors	10	12	9	11	7	12	11	4	5	6	5	5	3
Market Demand	12	39	61	56	82	74	42	24	28	35	24	32	41
Company Values	7	14	13	12	23	24	9	9	6	5	5	12	7
Revenue	27	21	20	14	19	17	19	18	14	10	30	10	9
Total Shareholder Return/Value	9	9	12	18	23	17	24	6	9	9	7	10	11
Prices of crude oil, natural gas, oil products and chemicals	106	107	117	88	99	98	47	69	108	76	63	59	57
Proven reserves	132	141	104	106	85	104	40	29	28	20	19	17	25
Capital of financial markets	9	12	15	8	8	5	8	6	6	4	6	7	12
Population growth rate	0	0	4	5	5	6	6	4	4	0	1	2	3
Recent technological developments company and competitors	27	29	35	36	26	46	35	20	34	34	45	37	23
Geopolitical stability	5	7	5	15	14	13	12	15	19	17	15	14	15
Safety of employees	69	81	56	115	140	166	98	76	84	67	46	51	46
Risks	67	74	68	161	240	203	158	122	127	120	102	117	148
Public and Shareholders Pressure	1	0	1	2	0	0	2	3	1	1	3	5	5
Attractivity for New Personnel	13	16	18	24	29	23	26	24	32	26	21	26	40
Risk of Stranded Assets	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Scenarios	1	3	10	8	16	17	8	9	8	11	19	28	53
Functioning Governmental Stimulus	0	0	4	7	10	6	7	6	14	15	15	4	23
Environmental Impact	84	79	62	108	97	100	57	45	40	35	25	25	26

Appendix D.3: Discourse Analysis of factors in Equinor

	Equinor												
Factors	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
High Political interference	47	49	51	46	45	35	33	36	35	26	29	56	59
Positive Marco-economic climate	24	50	55	52	33	32	29	26	29	23	23	22	17
Dynamic Socio-Cultural environment	7	8	7	5	12	8	8	10	9	9	12	8	11
Innovative and high-technological environment	43	53	56	52	47	38	31	30	23	32	25	23	26
Functioning regulatory institutions	50	62	67	68	68	54	50	67	88	62	64	67	71
Shareholders	4	4	10	10	13	12	8	12	17	12	11	8	19
Employees	34	37	30	25	30	18	22	27	26	35	33	32	24
Industry Competitors	14	22	22	19	22	17	19	18	14	11	10	7	9
Market Demand	28	40	51	53	43	36	30	36	38	15	15	21	29
Company Values	3	3	2	1	1	0	0	2	2	9	12	6	5
Revenue	44	62	71	79	72	60	70	61	66	55	55	56	49
Total Shareholder Return/Value (TSR)	12	15	18	18	14	10	10	13	18	11	10	18	24
Prices of crude oil, natural gas, oil products and chemicals	160	189	181	192	207	132	141	159	181	146	155	147	123
Proven reserves	120	127	168	176	201	124	123	142	133	143	146	128	140
Population growth rate	2	3	3	3	5	2	2	3	1	1	2	3	2
Recent technological developments company and competitors	43	50	53	41	41	23	23	21	17	16	11	12	18
Geopolitical stability	13	15	14	18	19	10	14	15	14	11	14	12	11
Safety of employees	19	18	16	19	19	17	17	17	23	30	39	46	48
Risks	117	170	159	163	150	93	102	103	125	125	126	115	116
Public and Shareholders Pressure	0	0	2	2	3	0	1	3	3	1	2	1	4
Attractivity for New Personnel	10	8	8	11	6	8	8	10	7	15	17	13	12
Risk of Stranded Assets	7	8	12	15	28	14	28	29	25	20	17	11	24
Energy Scenarios	2	2	1	1	0	0	0	2	7	5	9	6	11
Functioning Governmental Stimulus	1	1	4	3	3	2	3	2	5	8	11	5	6
Environmental Impact	29	46	35	44	34	21	25	26	25	20	24	34	37

Appendix E: One-pager interview requests

Energy Transition:

Influence on factors defining IOCs Strategies

Tom Elsen is a Complex System Engineering and Management master student at the Technical University of Delft, the Netherlands.

For decades, the global energy system has been completely dependent on fossil fuels. In addition to being essential for current transportation technologies; most products manufactured today, from clothing to automobiles to medical supplies, are derived from petroleum by-products. Oil can be rightfully called the lifeblood of industrial civilization. It's ownership, reserve, price and associated wealth have influenced world politics, and economics.

TU Delft

Delft University of Technology

The energy transition, the current shift towards a cleaner, low-carbon energy system, disturbs this status quo. And, the resulting pressure forces organizations to adapt for survival, reviewing and reshaping business strategies. The research problem focuses on the impact of the energy transition on the factors shaping the business strategy of international oil companies (IOCs).

How does the energy transition redefine the factors behind IOCs business strategies?

The regulatory framework, financial market, political playfield, proven reserves, and future oil price are all factors which have influenced the choice for a certain business strategy of international oil companies. Due to the energy transition, the influence of previously vital factors could ebb away while others could rise. Or new factors could arise.

An annual reports analysis of three International oil companies: Shell, BP and Equinor. To extract the factors that have determined business strategies between 2007 and 2019. Next, a series of interviews with external specialist (NGO's, consultants) and IOCs' strategy employees are conducted. To verify the findings, determine the future challenges and opportunities for IOCs.

If you have any questions related to the research topic, I am available at all contact information.

Appendix F.1: Transcript Interview Peter van Driel at Naftogaz, previously at Royal Dutch Shell

P. van Driel (former Royal Dutch Shell): I worked for 29 years at Royal Dutch Shell, always in oil and gas, directly from university. Throughout the years when becoming more senior, you get to understand more of the strategy and contribute in defining. In my last positions at Shell, I had much to do with the strategy and especially in combination with the energy transition. First as investor relations, I had to explain the company strategy to investors and shareholders. After which, I was responsible for Shell' acquisitions and responsible for checking the results of the strategy. Especially, with strategies you can invent all sort of ambitious plans but the question after all is can Shell afford it. On the basis of how much money streams back to the company and how much to the shareholder. A simple but essential question. Then I left Shell, to start as CFO at Naftogaz, a state-owned company in Ukraine.

Researcher: What has been the influence of the energy transition on strategies of IOC?

P. van Driel (former Royal Dutch Shell): If you are looking at the strategy of IOCs and how they all are changing in this moment. Clearly working towards a carbon neutral world, and how this has developed in a short time. It leads to the question of leaders and followers, both options have advantages and disadvantages. In my opinion it is important to mention in the thesis the influence from external environment, and how the influence has increased on the formation of the strategy of an IOC or even NOCs.

Researcher: And so which external environment are you specifically referring to?

P. van Driel (former Royal Dutch Shell): In particular, the growing influence of banks and shareholders, who want clarity about how the company will remain viable on the long term if fossil fuels will not have a place anymore. And nowadays the influence of shareholders, government and banks who provide loans is enormous. It has greatly increased in the last five years.

Researcher: In the discourse analysis, the factor "Proven O&G reserves" has been decreasing steeply over the research period. Do you think "Proven O&G reserves" have become less important in defining the business strategy of Shell due to the energy transition?

P. van Driel (former Royal Dutch Shell): That is an interesting result, essentially, we are talking about reserve replacement ratio (RRR). You see that Shell' RRR is lower than competitors. This is due to two things, and I think that this decrease is not due to the energy transition contrary to what you would expect. Because Shell, started early on to ignore the production so RRR and to focus on the value. As example, when Shell bought the LNG portfolio part of Repsol, and this transaction did not increase our proven reserve. Because what was essentially bought were LNG contracts, so the focus was on value creation. This is an example that the energy transition did not have a role in the lower focus/importance of proven reserve. Only effect linked to the energy transition is the focus on gas, liquified gas instead of oil.
Another point, specifically for Shell are the proven reserves scandals Shell come across the last decades. Which led to a conservative valuation of the proven reserves and less mentioning in the annual reports. So, on one side, IOCs are afraid of stranded assets and invest less in the exploration and production of oil and gas. While on the other side, the earlier mentioned counter arguments, more focus on value instead of proven reserves and scandals surrounding proven reserves.

Researcher: Have energy scenarios become more important over the years for the strategy of Royal Dutch Shell?

P. van Driel (former Royal Dutch Shell): The scenarios are maybe more important than the annual reports to read, because they are long-term often 40/50 years in the future. And the energy scenarios are an enormously important input for the strategy of Shell. Shell' energy scenarios does not predict with certainty how the supply of energy will look like in the future but proposes several potential future worlds. For each scenario, a strategy is developed, and we saw in all these strategies that the ultimate goal should be a carbon neutral environment. In which electricity will have an important role in the energy mix and less dependence on fossil fuels. Where the energy scenarios define an IOC'

strategy, the annual report refers more to the progress made of the strategy. And during the last annual reports the key factors was that not enough progress has been made. Mostly plans which have not been accomplished yet. The change came after the Paris agreement, because then everyone knew in which direction we need to work towards, essentially targets. Then the realization of IOCs, government, banks, and shareholders sunk in that if we continue in this trajectory, we will not make the agreed targets, such carbon neutral in 2050. And thus, internal and external questions were raised, such as "what are you going to change in order to make the targets?". Around that moment the influence of shareholders and banks became really important. As example, banks like ING not wanting to finance coal production and later fossil fuels production.
And to be specific, this change in the role of shareholders is not because they care so much about the environment of the climate change but mainly because of financial reasons, and money talk in the end.

Researcher: What is the role of International Oil Companies in the energy transition?

P. van Driel (former Royal Dutch Shell): My opinion is that oil and gas companies will still play a major role in the energy supply for the next 10 to 15 years, in which fossil fuels will remain superior in the energy mix. This is because of the international role of IOCs and deliver energy to not only prosperous but also poor countries. And the supply of energy has a lot of impact on economic positive side benefits for these countries. Also, in the technological aspect, a lot of machinery and transport which are essential to society cannot yet be operated without fossil fuels, such as airplanes or iron machinery. If we talk about the role of IOCs in the energy transition, the question if what are our expectation from the IOCs but also our expectation from the government and public instances. Example of hydrogen cars (need for cheap car, batteries, regulation, charging points). You cannot expect that IOCs alone can bring major changes towards the carbon neutral world. Not only private but also public partners, think about subsidies, permits etc.

Researcher: So, to come back to the original question. In summary, IOCs cannot do it alone but are an important piece of the puzzle to the success of the energy transition.

P. van Driel (former Royal Dutch Shell): Exactly, collaboration is imperative, government can increase awareness, create subsidies, implement new regulations, in which the government will take a guiding role, a compelling role instead of a providing role. Now you can see with the Green Deal of Mr. Timmermans on a European level that the governments are taking this role and companies can follow. And in my opinion the Green Deal will bring change and the next step can be set. Because now more clarity is given to the Paris Agreements, those agreements have now been filled in. Of course, the green deal is not possible without the input of not only IOCs but also car manufacturers and others.

Researcher: In the results of Shell, an enormous increase in the factors "risks" can be seen. Are risks increasingly shaped the business strategy of Shell over time?

P. van Driel (former Royal Dutch Shell): This is regulation, in this specific case it is the change in regulation of stock market watchdogs/agencies such as SEC in the US or FRC in the UK. The governor of the central bank in the UK started with the stranded assets, and both the SEC and the FRC agreed that the risks of an investment in an IOC in a world in which fossil fuels will be left behind, have to be made clearer. Example of Exxon Mobil in the US, which has numerous lawsuits from shareholders. Because since the 70's Exxon knew the impact of fossil fuels on the climate and have never warned or explained the risks to the shareholders.
And thus, it is regulation from the stock market watchdogs but also litigation risks are an IOC is not completely transparent. All risks have to be clear for any shareholder without knowledge in the oil and gas business. No direct link to the energy transition, but indirect.
Nowadays, the annual reports have been written in a different composition, whereas previously the financial aspects of a company were highlighted. Now annual reports are 70% strategy, risks of not achieving the strategy, values, and sustainable plan.

Researcher: But this increases the chance that IOCs can easier write ambitious plans in terms of energy transition and the climate without fulfilling with real investment.

P. van Driel (former Royal Dutch Shell): This is exactly the questions which has been asked by some shareholder in the last 1-2 years. And that is clearly a change in attitude from the shareholders.

Shareholders want to know the progress, the real facts instead of trusting the company. Transparency and the obligation to show the progress made in achieving the targets. Also, in my opinion, the remuneration for managers at IOCs should be linked to the reduction in carbon footprint. Which has been installed at Shell in 2019. So, three steps, first, targets, second measuring the progress and last linking the targets to the remuneration of employees on the basis of NCF.

Researcher: In your opinion, what is the impact of the current development, covid-19 crisis has on the steps which have been made towards the energy transition and which impact will it have?

P. van Driel (former Royal Dutch Shell): No in my opinion, the targets and the strategies of IOCs are all focused on the long-term and will not be affected by the current crisis. The only risk is that people could think that we are heading in the right direction and thus will not continue to put pressure on the developments.

Researcher: But the current crisis also has dropped the oil price up to a low point.

P. van Driel (former Royal Dutch Shell): Yes, but the price was already quite low due to the other development. But unmistakably, the price of oil has always had an enormous importance in defining and influencing the strategy of IOCs.

Appendix F.2: Transcript Interview Eugenia Pocoroda & Mathijs Groenewegen at BP

E. Pocoroba & M. Groeneveld (BP): We kunnen beginnen met een algemene context over BP, want er zijn een paar belangrijke gebeurtenissen die buiten jouw research periode van 2007-2019 vallen. Belangrijke evenementen waaruit ook de huidige strategie maar ook de strategie in jouw research periode door zijn gevormd.

Eerste belangrijke moment, is in het time frame 2000-2001, waar de naam van British Petroleum naar Beyond Petroleum is veranderd en nu naar alleen BP. Toenmalige CEO Lord Brown, had in die tijd de strategie om verder te kijken dan olie. Hierop is de huidige strategie van Bernard Looney op geïnspireerd. De reden van het gat van bijna 20 jaar tussen beide, komt door andere gebeurtenissen/incidenten.

In 2005, heeft BP een incident gehad bij de Texas City raffinaderij. Voor het incident veel focus op persoonlijke veiligheid en in mindere maten op proces veiligheid. Naar aanleiding van het incident is er meer focus op proces veiligheid gekomen, niet alleen binnen BP maar in de algehele O&G-industrie.

In 2007, CEO-verandering van Lord Brown naar Tony Hayward. Door laatste is de focus nog meer op proces veiligheid gekomen. Andere incidenten zoals de oil spill in Alaska en in 2010 Deepwater Horizon. En sinds Deepwater Horizon of Macondo blowout zijn om alle financiële verplichting na te komen, is de strategie veranderd. Er is veel gekocht, 38 miljard, wat de strategie tekent voor de toekomst en in de jaren erna. Hieronder is Beyond Petroleum aan de kant geschoven en hebben veel bezuinigingen plaatsgevonden en delen van de business verkocht worden.
In de eerste jaren na 2010, waren renewables en dus beyond petroleum totaal geen focus, de focus lag toentertijd op veiligheid en het voortbestaan van het bedrijf.

Researcher: Wat is de rol van IOCs in de totstandkoming van de energie transitie?

E. Pocoroba & M. Groeneveld (BP): De IOCs hebben een leidende rol in de energy transitie. IOCs hebben ook een grote rol gehad in de ontwikkeling van onze huidige economieën, door de voorziening van energie. En er zijn tegenwoordig ook een aantal landen die nu midden in deze ontwikkeling zitten, en dus waar de vraag naar energie omhooggaat. De nieuwe stap, de energie transitie, daar willen wij als BP zeker bij helpen maar aan de andere kant moet BP als bedrijf ook geld verdienen. De dual-challenge wordt erkend, meer vraag naar energie en minder emissie.

Researcher: In discourse analyseresultaten komt de factor “Shareholders” elk jaar ongeveer hetzelfde aantal keer voor. Maar klopt volgens jullie het plaatje dat aandeelhouders niet belangrijker zijn geworden tussen 2007-2019 en heeft de energie transitie invloed hierop?

E. Pocoroba & M. Groeneveld (BP): Ten eerste zijn er uiteraard veel verschillende aandeelhouders, en je ziet dat door de meer activistische aandeelhouders zoals “Follow This” BP duidelijkere standpunten inneemt over energie transitie en klimaat doelen. In het laatste jaar, zie je dat meer institutionele aandeelhouders zich bewuster zijn gaan mengen in het pad richting de energie transitie. De aandeelhouders hebben niet een belangrijkere rol gekregen maar naar de aandeelhouders worden wel nauw naar geluisterd. En bij BP zien wij in de laatste jaren meer vragen van aandeelhouders over duurzaamheid of stappen richting de energie transitie. De situatie is in vergelijking met 5 jaar geleden wel anders. Want nu is duidelijk geworden dat de energie transitie bij olie en gasbedrijven gaat plaatsvinden want hierin zit natuurlijk veel kapitaal.

Researcher: De factor “Proven reserves” kent een duidelijke daling gedurende 2007 t/m 2019. Ter vergelijking met Shell en Equinor hebben jullie 2x en 3x zoveel proven reserves. Zijn de proven reserves en de hoogte hiervan minder belangrijk geworden voor de strategie van IOCs door de energie transitie?

E. Pocoroba & M. Groeneveld (BP): Wij kunnen niet spreken namens de executives van BP, en dat moet wel als we het antwoord op deze vraag willen weten. Onze mening, zeker in de periode waar je naar kijkt, met name in 2010-2011 BP de grootste was in upstream, en dus in proven reserves. Sinds 2010, is er enorm veel veranderd en daar was de energie transitie zeker in die tijd niet een belangrijke factor. Ik denk dat de financiële verplichtingen nakomen naar aanleiding van Macondo blowout maar

ook zeker de olieprijs volatiliteiten in die tijd belangrijker waren. De prijs volatiliteiten beïnvloeden je proven reserves omdat deze worden berekend aan de hand van de olieprijs. Het verkopen van proven reserves na Macondo blowout, was belangrijk om aan de financiele verplichtingen te voldoen. Het afnemen van de proven reserves ligt aan de interne prijsveranderingen en niet aan de eenrgie transitie. Een ressources (olieveld) wordt pas een proven reserves indien het rendabel is. En dat hangt of van de interne verwachte olieprijs. Dus als net zoals in juni 2020, hoe verwachte interne olieprijs lager is, hoe minder ressources een proven reserve worden. En dus inherent hoe minder vaak ze worden genoemd in een jaarverslag.

Researcher: Heeft het afstellen van de verwachte interne prijs niet te maken met de energie transitie?

E. Pocoroba & M. Groeneveld (BP): Deels natuurlijk, als de energie transitie vaart heeft, dan beinvloed dat de prijs van ruwe olie/gas. Maar het is niet zo dat omdat wij een net-zero bedrijf willen zijn, dat de verwachte interne prijs naar beneden wordt gesteld. Want dit laatste is gebaseerd op data en niet op de strategie van het bedrijf. De huidige Covid 19 crisis, de OPEC-situatie, Shale Oil en prijs gevecht met Rusland hebben invloed op de olieprijs. Meer een optelsom dan alleen de energie transitie.

Researcher: De factor "Energie Scenarios" heeft een stijging gezien vanaf 2014-2015 in aantal keren genoemd in de jaarverslagen van BP. Hoe komt deze veranderingen en heeft de energie transitie invloed hierop?

E. Pocoroba & M. Groeneveld (BP): Ik denk dat in 2007 tot circa 2014, de energie scenario nog weinig invloed op de strategie van BP hadden. Toentertijd was het meer gericht op puur geld verdienen om de financieel verplichtingen te voldoen en niet failliet te gaan. Investeringen werden gedaan in proces veiligheid en weinig aandacht voor energie scenario.
Tegenwoordig, ik denk sinds 2015 dat de energie scenario weer wat ruimte hebben gekregen om de strategie te beïnvloeden. De verplichtingen waren afgewikkeld en het klimaatakkoord van Parijs heeft ook die bewustwording bijgedragen.

Researcher: De factor "safety of employees" heeft uiteraard een piek gekend in 2010 door Macondo maar hierna is deze factor gestaagd gedaald tot op het punt dat het aantal keer genoemd minder is dan Shell en Equinor. Best een opmerkelijk ontwikkeling, hoe komt dit?

E. Pocoroba & M. Groeneveld (BP): Dit vind ik inderdaad echt vreemd want elke meeting binnen BP begint met veiligheid, veiligheid is onze belangrijkste value. In alles wat we als bedrijf doen, staat veiligheid bovenaan. Dus wij zouden deze resultaten ook niet kunnen verklaren. Het zou mogelijk zijn dat er in andere rapporten meer aandacht aan is gegeven.

Researcher: De factor "Risks" heeft een indrukwekkende stijging meegemaakt in aantal keren genoemd in de jaarverslagen van BP. Hoe komt deze veranderingen en heeft de energie transitie invloed hierop?

E. Pocoroba & M. Groeneveld (BP): Dit heeft met Macondo, en het er opvolgende enorme disinvestment programma. Voor de majors, blijft het risico avers investeren belangrijk om het dividend te kunnen uitkeren. Risico's zijn gespreid in investeringen in kleine ondernemingen die innoveren op het gebied van de energie transitie. BP heeft niet een groot eigen ontwikkelingsprogramma, weinig R&D.
Niet alle risico's zijn meetbaar of kunnen genoemd worden. In het geval van BP, door de samenloop van Macondo en de energie transitie, heeft BP gedwongen om in 2010, het hele portofolio onder de loep te nemen. Om daaruit de best renderende en waarde gevende assets (Reliant investeringen) te behouden. BP heeft door de samenloop al genoodzaakt veel afgestoten.
Na de incidenten van 2010, was een van de hoofdoelen het vertrouwen van de US terugwinnen, aandeelhouders en banken. Om die reden i

Researcher: Wat zijn in jullie ogen de toekomstige obstacles voor IOCs om te overleven in tijden van de energie transitie? (Eerst algemeen en dan BP specifiek)

E. Pocoroba & M. Groeneveld (BP): Ik denk het vertrouwen van de aandeelhouders, investeerders maar ook zeker de publieke opinie dat BP het verschil en de stappen richting duurzaamheid kan maken. We zijn natuurlijk van origine een ouderwetse vervuilers. Het vertrouwen is nodig om een grote rol te kunnen spelen. Het vertrouwen kan je vaak terugzien in de waarde van BP-aandelen. Na de presentatie van de strategie twee weken geleden is de waarde omhooggeschoten.
Verder, een van de grote uitdagingen zit hem ook binnen de organisatie. Een mindset change, en culture change is nodig en het is niet noodzakelijk dat mensen niet willen. Maar de energie transitie vergt een bepaalde mate van ondernemerschap en durf. Cultuurveranderingen zijn van beneden naar boven.

Appendix F.3: Transcript Interview Jacopo Iorino at Equinor

Researcher: Could you tell me a bit more about your background and current position at Equinor?

J. Iorino (Equinor): I work in the strategy team here at Equinor, a pool of people working on different project which are prioritized by the company. So, I primarily worked on the renewables strategy which we launched a couple of years ago as well as the climate strategy launched in February 2020. And I am acting as an advisor to the head of Corporate Strategy and future business.

Researcher: How do you see the role of international oil companies in the energy transition?

J. Iorino (Equinor): I think now is an exciting period, a lot of companies come out with new strategies. Everyone is now basically coming out with new strategies, an approach towards the energy transition. And I think that the role of each IOCs is different in the energy transition since it depends on your competitive advantage. You have to still create value for shareholders and figure out a way to contribute to the energy transition. At Equinor we have offshore wind, which is similar to offshore oil and gas. Focus on own oil and gas, produced in the cleanest way possible. Example meaning electrifying offshore platforms. What can we do to help accelerate decarbonization?

Researcher: If I may summarize, you see a major role for IOCs to accelerate and to succeed the energy transition?

J. Iorino (Equinor): Yes definitely, it is almost mandatory, that the oil and gas companies have a role in the energy transition. Beyond the growth and investment in renewables, there is also something oil and gas companies can deliver natural gas as a transition fuel.

Researcher: What is in your opinion the impact of the energy transition on the strategy of Equinor up until now?

J. Iorino (Equinor): I think Equinor, is one of the IOCs which has focused on climate targets and renewables, as a company we have half of the industry average in carbon intensity from oil and gas production. The shift has been from what can we do with our own operations, what we control towards to growing renewables and now even going beyond that (looking at what can we do together with society). And that affected the business opportunities we see and how Equinor conducts its business.

Researcher: Since Equinor is for a large part state-owned, do you see a political pressure to change the strategy towards renewables?

J. Iorino (Equinor): Definitely, I think in Norway Equinor is such an important company with a lot of expectation from outside, society. Much more than with other IOCs I believe. Not same level of pressure from society and government to IOCs. Of course, it is hard to measure (societal pressure) but not only that, renewables are also a business opportunity. We think that staying in oil and gas forever you are destined to fail. But the extent and the speed to which one drives on the other one, I don't really know. 30% by 2030 and 0% by 2050 on all operations. Working close with Norwegian government to electrify the offshore oil platform, mixing renewables with oil.

Researcher: One of the results of the discourse analysis was an increase in the mentions of the factor proven reserve of oil and gas. Assumption was if more proven reserve then difficulty of shifting to renewables is higher. In annual report of Equinor, this factor had a constant presence and even a slight increase while Shell and BP the factor decreased. Do you have an explanation?

J. Iorino (Equinor): It might be a bit about how annual reports are written, standardized format to some extent. Not sure. The strategic part of the annual report should be reflecting the business, but maybe look at the speeches given by the leaders.

Researcher: It is surprising that Equinor, embraces the energy transition even changes its name but still mentions proven reserves of oil and gas three times more than their competitors. The focus really lies on proven reserves in the annual report.

J. Iorino (Equinor): Yes, well it is a really important for the investors and shareholder because it shows the resilience you have as a business and a long-term volume can a company bring in. Beyond that Equinor thinks that the oil and gas is still bringing cash/good profit which can be re-invested elsewhere.

Researcher: Equinor also produces energy scenarios for the coming years, likewise to all IOCs. I see in the results that Equinor mentions and refers a lot less to their "Energy scenarios" named Energy perspectives than other two IOCs. Is this because energy scenarios are not a factor in deciding the strategy?

J. Iorino (Equinor): The way we do the energy scenario, is in an independent team and thus independent from the strategy team. This is because we want our Energy scenarios to not be only for Equinor but also for other people and companies. In order to have an unbiased reporting and predictions. That might be part of the reason, but we definitely look at the scenarios to define our strategy but as a different process basically. We develop several scenario, more positive ones and negatives ones. But you must beware that Equinor is only a part of the puzzle. If we produce 100% electricity in a clean way, you still need electric cars, regulations, consumer behavior, electric heating in the house. So, it is important that Equinor drives the speed as well, but we need to balance out while looking at our stakeholders. Since we all need to move at the same speed in order to succeed the transition.

Researcher: What does an international oil company need to do in order to survive the energy transition? What are in your opinion the steps IOCs need to take in order to survive?

J. Iorino (Equinor): We have certain boundaries in what we should and should not do, such the carbon intensity target and thus a boundary. But not a strict and mandatory boundary but it may lead to investment in lower carbon intensity projects in order to preserve and reach the target.
If you look at the way at how IOCs are behaving there is quite a bit of difference, between European and Us majors, certainly in strategy. But I can understand both sides, since American IOCs might be thinking oil and gas is going to stay here for decades to come, and oil price is going to go up. And so, we going to double down on this for instance. It might make sense from a business point of view.
But Equinor and other European peers think that the opportunity lays within renewables, and oil and gas is a transition fuel.

Researcher: But as I see it American and European IOCs have the same numbers and projections for the decades to come. Only different people making the strategic decisions. But still American IOC are choosing for oil and gas while European IOCs chose more for renewables. So, what are then the factors which influence this strategic decision?

J. Iorino (Equinor): Surely, we can say that societal pressure has an influence, government have an impact. But this has also something to do with the number and business opportunities. Look in the Us, they have Shale gas which cost much less in capex than oil platforms and easier to ramp up and down. So, more flexibility. Their strategy maybe would have been different without shale gas. But if you want to add some facts, look at the investment of renewables of each company. Since it is a lot of talk.

Researcher: That is exactly my last questions, what is the percentage of your total investment Equinor is investing in renewables and lowering the CO2 emissions?

J. Iorino (Equinor): We provide a guidance of 4-6%, it depends on how many projects and what the project pipeline is. And it will be a substantial part 15-20% of our investment in 2030. If you look at our current percentage, it is one of the highest of the IOCs. But other IOCs have recently presented bold ambitions.

Researcher: Since you just compared Equinor goals with all the main European competitors, does the strategic course of your competitors has anything influence on your strategy?

J. Iorino (Equinor): It would be wrong to say that it does not have any impact, maybe not in setting the ambition but more in terms what is the competitive landscape looks like and if players are coming in the space. Leading to more competitions in auctions and so on. So of course, you need to monitor but we do not want to set our strategic choice or ambition in terms of what our peers are doing. We look at them as competitors but also as potential partners during this transition journey. In the same way as IOCs have a lot of partnerships in oil field and platforms.

J. Iorino (Equinor): What is particularly hard in an oil and gas company is to balance, doing your business, create value for shareholders, but of course you want to help accelerate the transition and there are the expectations of society.

Appendix F.4: Transcript Interview Mirte Boot at Follow This

M. Boot (Follow This): Ik spreek namens Follow This maar af en toe komt mijn eigen mening naar voren. Mijn uitspraken en meningen wijken iets af van oprichter van Follow This, Mark van Baal.

Researcher: Als NGO, en als externe partij rondom de olie en gasindustrie zien jullie veranderingen in strategie van olie- en gasbedrijven aan de hand van de energietransitie?

M. Boot (Follow This): Kun je strategie iets meer definiëren bedoel je daarmee investeringen?

Researcher: Ja, ik wil eerst kijken naar de communicatie naar buiten, hun doelen die de bedrijven stellen voor de komende jaren, waar ze naartoe willen, of ze daar verandering in aanbrengen, vergeleken met de jaren daarvoor.

M. Boot (Follow This): De ambities van deze bedrijven kun je tracken en kijken wat er verandert in wat ze hebben aangekondigd. Bij Shell was natuurlijk de eerste die 2017 aankondigt, dat ze 50 procent intensiteit targets zouden stellen op al hun producten. De scope drie target.
Want Shell eerste die de stap heft gemaakt en sindsdien hebben BP en Equinor ook grote ambities aangekondigd. Eigenlijk is sinds vorig jaar dus we hebben voor het eerst een resolutie ingediend – deze tijd vorig jaar bij BP. De aankondigingen kwamen rond december, dat ze dus die ambitie zouden stellen voor nou ja in één keer door ze een beetje hetzelfde als zelf 50 procent, intensiteit reductie. Je hebt natuurlijk nu BP met een nog ambitieuzer beleid, net zero, dus nul procent uitstoot van hun eigen producten voor 2050.

Ik zie hele erge veranderingen in de manier waarop de ambities naar buiten communiceren en ook als je kijkt naar de websites van bedrijf, zie je nergens meer een plaatje van een olieplatform. Je ziet alleen maar zonnepanelen, teksten over klimaatverandering en hoe belangrijk het is en hoe grote rol ze hebben. Maar dat is wel iets heel anders dan wat olie en gasbedrijven echt doen met hun investeringen, daar kan je de echte strategische intenties uit halen.

Researcher: Ja, dat is mijn volgende vraag. Ja, inderdaad dat wel waar je eigenlijk naar moet kijken, dus maken ze hun uitspraken en woorden waar. De proven olie en gasreserves, daarmee bedoel ik de reserves die ze nog hebben, dat zie ik als er een factor voor de gekozen strategie. Dus stel een bedrijf heeft nog veel reserves, dan is de stap naar groene energie veel moeilijker. En ik zie dat in de jaarverslagen dat daar veel minder over gesproken wordt naarmate de jaarverslagen recenter worden. Dus daar zit een daling in.

M. Boot (Follow This): Dus hoe vaak het genoemd wordt?

Researcher: Ja exact, hoe vaak de factor wordt genoemd en daarin heb ik een onderscheid gemaakt door te kijken naar de context waarin de woorden gebruikt worden. Zien jullie nu meer investeringen in renewables en minder in olie en gas?

M. Boot (Follow This): Ja er zijn investeringen in renewables maar nog een heel klein gedeelte van de totale investeringen. Het percentage verschilt per bedrijf natuurlijk dus als we het hebben over Shell, dan is het volgens mij is iets van een tot twee procent van het totale budget.

Researcher: Oké, dat klinkt erg weinig.

M. Boot (Follow This): Ik zie het niet als een fundamentele verandering in strategie, het wordt een zijtak voor Shell en die ze vooral steeds groter en groter willen maken. Maar het afbouwen van olie en gas en dus renewables in plaats daarvan als hoofd business daar zie ik te weinig bewijs voor. Verder worden de cijfers van investeringen in renewables worden nooit duidelijk genoemd maar achteraf op pagina's 40 van een PowerPoint genoemd uit een presentatie in 2018. Ze hebben het in abstracte termen over wat ze willen doen maar niet over wat er nou echt gebeurd.

Researcher: En dus heel veel woorden over de energietransitie, als ik het zo begrijp, maar weinig daden die de woorden waarmaken.

M. Boot (Follow This): Ja exact en de resolutie van Follow This dit jaar, als NGO zeggen wij, wat jullie nu doen is niet goed genoeg. De ambitie is niet genoeg en jullie hebben niet genoeg bewijzen dat er echt een verandering komt. Dus ja, veel praten maar zonder bewijzen van echte veranderingen. En dit wordt ook gezegd in privégesprekken die wij met de mensen van Shell, BP en Equinor houden.

Researcher: Maar zou je het dan kunnen omschrijven als een soort van marketing truc?

M. Boot (Follow This): Nee, een marketingtruc is het niet. Ze willen wel degelijk de renewables tak van het bedrijf laten groeien en ze zien de energietransitie wel echt zien als een investerings-kans. Maar niet als zeg maar fundamentele transitie van olie en gas naar hernieuwbare energie binnen het bedrijf. En ik weet je onderzoeksvraag is gericht op de energie transitie maar als het gaat over klimaatverandering dan moeten we olie en gas in de grond laten. Renewables als extra en niet als vervanging dan gaan de emissie net zo snel omhoog. Ik zie dat er bij Shell, dat ze denken als renewables blijven groeien dan kan olie en gas ook meegroeien.

Researcher: Ja, ze willen bij het beste van beide werelden. Zien jullie welke factoren die keuzes bepalen waarom olie en gasbedrijven niet voor de renewables gaan, maar nog steeds blijven hangen in olie en gas?

M. Boot (Follow This): Ja, ik hoor heel vaak natuurlijk dat het rendement op olie en gas is groter, zeg maar dus aandeelhouders krijgen meer dividend, denk ik. Terwijl renewables nog wel een onzekere investering is. Verder de bedrijfscultuur en gedachte over klimaatverandering is heel anders dan in de gewone wereld of politieke wereld. Maar het wordt vanuit de oliebedrijven ook gezien als een gevaar in termen van regelgeving en daarop moeten we veranderen en aanpassen.
En ik denk gewoon dat er gewoon nog niet genoeg druk is vanuit de samenleving of de politiek, en nog te weinig wetgeving om te bekrachtigen. Dus wat Follow This doet is erg slim, want je organiseert druk vanuit de aandeelhouders, die dan zeggen: kijk deze investeringen zetten ons hele investeringen portfolio in gevaar dus jullie als oliebedrijf moet gaan veranderen. De druk vanuit de aandeelhouders heeft echt een heel groot verschil gemaakt. Door aandeelhouders achter onze resolutie te scharen, kun je zeggen: nou, kijk bijvoorbeeld, dit jaar hadden we 14 procent van investeerders in Shell die zeggen je doet niet genoeg.

M. Boot (Follow This): De belangrijkste factoren waarom ze niet veranderen, ik denk dat het veel te maken heeft met geld dus winst, dividend, rendement. Maar ook heel veel met de cultuur en met hoe erover na wordt gedacht binnen de oliebedrijven. En dat er nog niet genoeg, echt harde druk van buitenaf om te veranderen.

Researcher: Dus te weinig druk van de politiek, druk van de maatschappij, maar ook druk van de aandeelhouders. En denk je dan ook dat de positie van aandeelhouders veranderd door de energietransitie? Zijn ze belangrijker geworden voor het bepalen van de strategie van de oliebedrijven.

M. Boot (Follow This): Ik denk niet dat aandeelhouder belangrijker zijn geworden door de energie transitie in termen van hoeveel invloed ze hebben op een bedrijf. Want de bedrijven luisteren altijd naar hun aandeelhouders, maar ik denk dat ze belangrijker zijn geworden in de zin van activistisch op een bepaalde manier dus. Zeg maar het sturen van een bedrijf met Environment Social Governance (ESG). Dat is wel een groter geworden in de laatste paar jaar en de aandeelhouders zijn meer het geweten van het bedrijf geworden. Voorbeeld is hoeveel er wordt gepraat met bedrijven over human right issues of klimaatverdrag? Dat is niet alleen activistisch, maar ook gewoon voor hun eigen portefeuille. Dat het gewoon heel erg belangrijk wordt en dat dat steeds belangrijker gaat worden, Dat aandeelhouders iets moeten doen, omdat het gewoon niet snel genoeg. En deze bedrijven moeten hun vermogen beheren.

M. Boot (Follow This): Er zijn veel mensen in de O&G industrie die weinig risico's nemen omdat ze bang zijn voor "rock the boat". En dus een goede relatie willen behouden. Voor deze mensen is de stap zetten naar voor het klimaat stemmen in een resolutie, al best een grote stap omdat ze direct een belletje van Shell krijgen. Follow This is gewoon veel groter geworden. Dat is ook onverwacht rond, dus ik vind het wel heel interessant en ik denk dat het wel te maken heeft met de kroon crisis nu heel

interessant van. Alle oliebedrijven hebben veel geld verloren door de corona crisis en nu is de vraag hoe gaan ze hierop inspelen? Gaan fundamenteel dit gebruiken om te veranderen. En daar zie ik bij BP wel een duidelijk verandering in maar bij Shell heb ik dat wel minder.

Researcher: Ja, daar kan ik op inhaken. Welke stappen moeten olie en gasbedrijven ondernemen om te overleven in deze energietransitie? En spelen ze een belangrijke rol in het tot stand brengen van de energie transitie?

M. Boot (Follow This): De bedrijven zien zichzelf heel erg als poppetje in de energie transitie terwijl ze de energie transitie kunnen en misschien wel moeten leiden. Vooral kijkend naar de hoeveelheid macht politieke macht, maar ook hoe veel mankracht, hoeveel superslimme mensen management. Plus de grote budgetten van de bedrijven dan zouden ze de energietransitie zo kunnen versnellen. Het is natuurlijk een factor dat hun beïnvloed, maar zij beïnvloeden het zelf ook.

Researcher: Dat is een wisselwerking tussen de oliebedrijven en de omgeving, in de zin van overheid, aandeelhouders etc. Zie jij voorlopers en achterlopers binnen deze drie bedrijven?

M. Boot (Follow This): Sinds vorig jaar, heeft BP een andere CEO, Bernard Looney, en daarna is wel een verandering te merken. In de communicatie, en in de gesprekken met BP, waarin ze nu toegeven dat een intensiteit target betekent dat je kan blijven investeren. Om daarop in te haken, ik denk dat klimaat emissie doelen een factor moeten zijn voor het bepalen van de strategie van een olie en gasbedrijf. Maar terugkomend op jouw vraag, zou ik nu BP, Shell en dan Equinor zeggen.

Researcher: Ja, maar bij Equinor is de Noorse staat voor driekwart, aandeelhouder dus zit daar nog iets achter? Met 67%.

M. Boot (Follow This): Gewoon tegen de resolutie gestemd, hè dus de Noorse staat stemt tegen het Parijs akkoord.

Researcher: Dus bij Equinor is het weer een heel ander verhaal, qua aandeelhouders, want als zij tegenstemmen, dan kun je niks bereiken. En dus hebben de overige aandeelhouders een andere rol dan bij Shell en BP, correct?

M. Boot (Follow This): Ja, klopt. En bij Shell denk ik wel dat het door grondig in meerdere delen van dat moet jij maar vragen, maar meerdere delen van het bedrijf. Maar het is niet alleen de sustainable departement, maar ze zijn echt aan het kijken van. Hoe kunnen we fundament meedoen aan energietransitie en onze emissies omlaag bij kan zijn? Investeringen nog gewoon.

Researcher: Want dat wil ik als afsluiting van mijn onderzoek, dus ik heb nu gekeken naar de jaarverslagen. Ik heb aan mensen die ervoor werken en/of externe personen die dicht op de oliebedrijven zitten. Maar wat maken ze waren dus dan wil ik nog een kleine blik in die investeringen eigenlijk geven. Dat leek me een leuke invalshoek, maar jullie zien eigenlijk dat er te weinig investeringen in renewables worden gedaan. Veel meer woorden, heel veel verhalen over de klimaatverandering, energietransitie, maar de investeringen blijven daarop achter.

M. Boot (Follow This): Ja, zeker. Want als je kijkt naar de investeringen dat is het echte bewijs.
Ik zou ook is het een nieuw rapport. Daar staan ook dingen in, zoals het 10 miljoen extra klanten in de volgende tien jaar in Afrika en Azië maar hoe gaan ze dat combineren met de ambitie van 50 procent reductie in CO2. En, want als je het hebt over energietransitie, kun je eigenlijk verschillende factoren daaruit ook kiezen.

Researcher: Nou, ik ben begonnen met het opstellen van factoren die effect kunnen ondervinden van de energie transitie. De druk van buitenaf, aandeelhouders, overheden etc. Het risico op stranded assets, de energie scenarios. En daar zie je duidelijk in dat aan het begin, in 2007 er bijna niet over werd gepraat en nu heel veel. Verder nog de stimulans die ze krijgen vanuit de overheden in de zin van subsidies zoals carbon pricing. En als laatst het imago van de oliebedrijven i.v.m. nieuw werknemers. De rest van de factoren heb ik allemaal uit de literatuur gehaald.

M. Boot (Follow This): Ja die factoren lijken we allemaal erg belangrijk. Inderdaad. Maar ik zou ook

naar externe rapporten kijken want ik denk dat het moeilijk is voor een bedrijf om toe te geven dat aandeelhouders druk of een imagoprobleem belangrijk is. Want ja, ik denk dat een medewerker er nooit in een interview eerlijk over zou toegeven dat ze moeite hebben met mensen aantrekken.

Researcher: Daar loop ik inderdaad al tegenaan, dat dat ik nu gewoon de druk van buitenaf en het imago dat zijn beide factoren die bijna niet worden genoemd in die jaarverslagen.