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In line with climate justice, or spatiotemporal fix?

An analysis of Norway's Carbon Capture and Storage project "Longship".

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Abstract

This thesis aims to identify the Solberg government's narratives surrounding Longship and connect this portrayal to two theoretical frameworks to consider Norway's responsibility: climate justice and spatiotemporal fix. This thesis points to how the Solberg government portrayed Longship as a project that would ensure that Norway cost-effectively achieved the climate targets while securing continued economic growth. The Solberg government also applied CCS to legitimize continued oil and gas extraction. Moreover, Longship can be a vital contribution to reducing greenhouse gas emissions as CCS plays a central role in the climate targets and could prove to be a climate mitigation initiative that does not impose unjust burdens on the global South compared to other climate measures. However, Longship also has tendencies that can be viewed as a spatiotemporal fix: maintaining the status quo and downplaying the negative effects and uncertainties. Longship could also have negative consequences if it is not as successful as it is portrayed. Based on this, this thesis argues that Longship is a vital climate initiative. However, Longship's problematic parts are related to the Solberg government's application of the project in their narrative to continue oil and gas extraction, ensuring continued economic growth and downplaying the technological uncertainties.

Keywords: Carbon Capture and Storage (CCS), climate justice, spatiotemporal fix, Norway, petroleum industry.

1 Introduction

The world already experiences the consequences of the climate crisis. Extreme weather such as storms, hurricanes, floods, and droughts has increased all around the globe (IPCC, 2021). Common to all regions in the world, according to IPCC (2021), is that they will experience more heat simultaneously as extreme weather is becoming more and more frequent and severe. However, the consequences will be most significant, and the social and economic costs will be much more prevalent for vulnerable groups - especially for the global South. From a climate justice perspective, this exposes the unjust impacts of climate change: the ones that have contributed less to the crisis are hit hardest by the consequences.

To avoid even more severe consequences of climate change, the world must stay inside the total carbon budget: the remaining emissions of climate gasses that can occur without causing the global temperatures to pass 1.5 or 2°C above pre-industrial levels (IPCC, 2018, p. 3). To achieve this, IPCC states that we need strong, rapid, and sustained reductions in greenhouse gasses and proposes several different scenarios of how this might happen. In all of IPCCs (2018, p. 3) analyzed pathways to limit warming to 1.5°C, they have applied technology to some extent to *neutralize* emissions from sources.

Norway is in a key position regarding climate change initiatives and petroleum. Being a large exporter of oil and gas, one could argue that Norway has a historical responsibility for the climate crisis. Moreover, the Norwegian oil industry does not seem to have an end soon. At the same time as Norway sustains - and even increases - its fossil production at home, Norway also positions itself as an environmental leader. Here, Longship plays a vital part: Norway seems to have found a solution with CCS.

The aim of developing CCS technology is to enhance the sinks of CO₂, and therefore limit emissions of CO₂ in the atmosphere through capturing, transporting, and storing CO₂. Norway has invested a lot in CCS. In September 2020, the Norwegian government presented “Longship,” – a new Carbon Capture and Storage (CCS) project in Norway. At the Norwegian government's press conference, the government, which the Conservative Party then led, expressed its enthusiasm clearly. The Minister of Petroleum and Energy Tina Bru emphasized how this is “...the biggest ever climate project in Norwegian industry”, while the Norwegian minister of Climate and Environment Sveinung Rotevatn highlighted how Longship is “an

example of how emissions can be cut, without halting development” (Ministry of Climate and Environment, 2020c).

Considering the vital part technological initiatives such as CCS plays in IPCC’s pathways to limit warming to 1.5°C, Longship can be viewed as essential mitigation. However, as IPCC also states, these technical initiatives on which the IPCC bases its scenarios, such as CCS, have still not been successful in scale. For this reason, IPCC points out that it is a risk to rely this much on technology. Several other scholars also emphasize this risk. Hickel (2019), for example, has called initiatives to capture and store carbon an “allure” since it allows politicians to postpone the need for rapid emissions reductions. Dyke, Watson, and Knorr (2021), as well, argue that the concept of net-zero in general is dangerous. They explain that this principle is a great idea, but that it contributes to sustaining the status-quo by in practice “helps perpetuate a belief in technological salvation and diminishes the sense of urgency surrounding the need to curb emissions now.”. Moreover, before the climate negotiations in Glasgow, COP26, civil society from all around the globe called CCS a “dangerous distraction”. Despite this criticism, CCS is one of Norway’s main climate change mitigation initiatives.

At the same time as CCS is considered as vital in achieving the climate goals, scholars and activists have thus also criticized CCS initiatives, calling it a spatiotemporal fix - an allure that enables countries to maintain petroleum activities. Could Norway's attempt at capturing carbon be a vital initiative to reduce emissions in line with climate justice? Or are the critics correct: is this a climate change initiative that seemingly fixes the problem but, in reality, enables Norway to earn even more money on the fossil industry that has caused this problem in the first place?

1.1 Objective and Research Questions

The objective of this thesis is to understand how the Solberg government portrayed the Longship project and discuss how Longship can affect Norway’s responsibility in a climate justice perspective. I therefore aim to both identify how the Solberg government has portrayed longship, as well as comparing this portrayal to the project.

Through this thesis, I apply the following two research questions:

1. What narratives does the Solberg government communicate about Longship?

2. Can the Norwegian Solberg government's Carbon Capture and Storage (CCS) project "Longship" be understood as a climate change initiative in line with climate justice or as spatiotemporal fix?

Through these two research questions aim at both identifying the Solberg government narratives surrounding Longship, as well as connecting this portrayal to two theoretical frameworks to consider Norway's responsibility: climate justice and spatiotemporal fix. Through these two research questions, this thesis thus aims at exploring the achievability of the claims in the "win-win" discourse about CCS, and the claims in the criticism towards CCS by exploring the potential opportunities, risks, and trade-offs of with Longship.

A central element here is thus the focus on narratives. Benjaminsen and Svarstad (2021, p. 14) explain that social constructions often are studies in relation to discourses or narratives. Moreover, they define narratives as the following: "... we see discourses as ways of viewing specific topics, while narratives are stories about particular cases" (Benjaminsen & Svarstad, 2021, p. 14). This is also the definition I will apply. Through my first research question, I will therefore analyze which stories the Solberg government tell about the case of Longship.

It's important to highlight that these two research questions overlap in several aspect. The first research question aims at identifying the narrative the Solberg government portrays of Longship, while the second research question aims at examining these claims. I therefore looked actively for things that could answer the other research question of the analysis'.

1.2 Thesis Outline

Chapter 2 presents the background. This chapter gives an overview of Norway's climate policy leading up to the focus on cost-efficiency. Moreover, the background chapter is further centering on Norway's history with carbon capture and storage before giving an overview of the history of Longship.

Chapter 3 presents the theoretical framework. This chapter is divided into two: the first part is about climate justice, and the second is about the spatiotemporal fix. The part about climate justice starts by giving a historical overview of the term climate justice before moving to Caney's two kinds of climate justice: avoiding harm and sharing burdens. Moreover, the second part of the theoretical chapter starts by giving an overview of how the term spatiotemporal fix

developed before focusing on how it might be applied as a theoretical framework related to climate change.

Chapter 4 explains the methodological choices made for the thesis. This chapter starts by concentrating on the research questions, before focusing on how this thesis applies Longship as a case study. Moreover, this chapter also presents the different methods of collecting data applied in this thesis. This chapter continues by discussing the reliability and validity of the study, before focusing on ethical considerations.

The following three chapters provide the analysis of the thesis. Chapter 5 deals with the first research question. Through this chapter I explore what narratives the Solberg government communicates about Longship, focusing on identifying the narrative they portray. As mentioned in the previous sub-chapter as well, this analysis is also framed by the elements in the theoretical element. This subchapter is divided up in the main findings from this analysis.

The following two chapters, chapter 6 and 7, provide the analysis that answers the second research questions. Where the previous chapters have identified the narrative the Solberg government portrays of the project, these two chapters investigate these claims by analyzing elements of Longship which is relevant to their portrayal. In order to operationalize the research questions, I have applied elements from my theoretical framework. The chapter on each of the elements in the theory. Chapter 6 deals with climate justice, and respectively avoiding harm and sharing burdens, while chapter 7 analyses Longship concerning spatiotemporal fix. These subchapters are again divided based on the main findings related to different aspects of the research question. As stated earlier, my analysis of the narratives has also had a focus on the second research question as well. Through these chapters I will thus bring up the analysis of the narrative again and discuss how the findings from the first research question relate to the second research question.

Chapter 9 summarizes and concludes the thesis.

2 Background

Through this chapter I will present the background relevant to the focus in the research questions. This chapter starts by gives an overview of Norway's climate policy leading up to the focus on cost-efficiency in the first sub-chapter. Moreover, the background chapter is further centering on Norway's history with carbon capture and storage before giving an overview of the history of Longship in the second sub-chapter.

2.1 Norwegian Climate Policy: From Ambition to Cost-effectiveness

To get an understanding of Norway's climate policy today, it is beneficial to look at the history. In the Norwegian context, there were some significant changes in the climate change policy from the 1970s to the 1990s. This first subchapter aims at giving a brief overview of a change of focus in the Norwegian climate policy these decades.

Several scholars point to how Norway's climate policy has changed significantly in the last decades (Benjaminsen & Svarstad, 2021; Hovden & Lindseth, 2004; Kasa, 2016). In the 1970s and 1980s, the policy could be viewed as relatively ambitious. Norway was one of the first countries globally with its own Ministry of Environment in 1972, which for many years fought to protect considerations for the environment against the Department of Finance and economic interests (Kasa, 2016). The focus on global environmental issues in Norwegian politics in the late 1980s was further accentuated by the fact that Gro Harlem Brundtland led the World Commission on Environment and Development, which published its scathing report *Our Common Future* in 1987 (Kasa, 2016). Moreover, Norway was also one of the first countries to decide on a target for reducing climate emissions at the end of the 1980s. This target came only two years after the Brundtland Commission report - and recommended that the global consumption of fossil fuels be reduced by 50% over the following decades (Benjaminsen & Svarstad, 2021). Hovden and Lindseth (2004) also explain that there was a broad consensus around this target of stabilizing CO₂ emissions in the early 1980s.

However, these ambitious initiatives did not sustain. Hovden and Lindseth (2004) add that the ambitious climate change initiatives took a "dramatic turn". Benjaminsen and Svarstad (2021) also maintain that this target for reducing climate emissions from the late 1980s was soon replaced by a principle of "international cost-effectiveness", which has been central to

Norway's climate policies ever since. It is clear that the climate policies changed, but what could have led to this change?

Norwegian companies and economic interests can have played a central role in this change. Benjaminsen and Svarstad (2021) explain that this change of focus in the 1990s has connections to these lobby activities from Norwegian companies. To emphasize this, they show to Kasa (2016), who argues that the Norwegian Climate policy, to a large extent, was influenced by lobby activities from companies and labor unions from large emitters such as the petroleum sector. Moreover, Benjaminsen and Svarstad (2021) show to Nilsen (2001), which presented a detailed record of different actors involved in the establishment of Norway's climate policy in the early 1990s, and Asdal (2014, cited in Benjaminsen and Svarstad 2001, p. 150) which argued that "economists in the Ministry of Finance played a central role in changing Norway's climate policy not to threaten Norway's long-term interests of securing continued petroleum revenues". This change of focus towards "cost-effectiveness" is also connected to carbon capture and storage.

In the 1990s, quite a lot happened in international climate policy as well. In 1992, countries from all around the world joined an international treaty, the United Nations Framework Convention on Climate Change (UNFCCC), as a framework for international cooperation to combat climate change. How did this affect the Norwegian climate policies? Kasa (2016, p. 316) argues that these negotiations were a central factor in this change of focus in Norwegian climate policy. Kasa (2016) emphasizes that the start of the UN negotiations in the 1990s made it clear that stabilization of climate emissions would be both politically and economically demanding.

The use of these "cost-effective" climate policies ultimately played a significant role in the United Nations Climate Change Framework Conventions (UNFCCC) as well. Benjaminsen and Svarstad (2021, p. 150) explain that already in the Rio Earth Summit in 1992, a wording that said countries' commitments should be carried out in cooperation resulted from "successful lobby activity from Norway". Moreover, Benjaminsen and Svarstad (2021, pp. 150-151) explain that this focus on climate finance in other countries has been significant for Norway: "this has made it possible for the government to present Norway internationally as well as to its own citizens as a leader in climate mitigation, while at the same time maintaining a high level of fossil fuel production".

2.2 Norwegian Carbon Capture and Storage (CCS)

Norway has a long history with CCS. Through this subchapter, the thesis will explore this history, focusing on both the debate around it as well as the CCS-projects in Norway: Sleipner, Melkøya and Mongstad. Moreover, this chapter continues by centering the focus on the newest project, which is also which is the focus in this thesis, Longship.

Tjernshaugen (2011) explain that greenhouse gas emissions became an important political issue in the second half of the 1980s. A contributing factor to this was the role the Norwegian prime minister at the time, Gro Harlem Brundtland, and the role she held at the World Commission on Environment and Development (WCED). This focus on greenhouse gases were also manifested in the politics. As mentioned earlier, the Norwegian Parliament declared the national stabilization target for CO₂ emissions in 1989. A major obstacle to meet this target, according to Tjernshaugen (2011), was the emissions from the offshore oil and gas extractions. This provided the first window of opportunity for CCS entrepreneurs in Norway, and *Sleipner* were planned (Tjernshaugen, 2011).

The planning of Sleipner started already in 1990 (Tjernshaugen, 2011). Six years later, in 1996, Statoil's Sleipner project was opened (Kasa, 2016; Tjernshaugen, 2011). Here, the gas was separated on the Sleipner platform and then injected into formation under the seabed (Kasa, 2016). Kasa (2016, p. 321), adds that the development of this project was based on a wish by Statoil to save money on the CO₂-taxes. Tønnesen (2021) also explain that Norway's first CCS project, Sleipner, were launched by the fact that Statoil wanted to avoid paying CO₂-taxes.

Carton, Asiyani, Beck, Buck, and Lund (2020) explain that carbon removal has been on the political agenda since the UNFCCC negotiations in the 1990s - and Norway has not played a neutral role in this either. Carton et al. (2020, p. 5) explain that the notion of "net emission accounting" and inclusion of Karbon sinks in the Kyoto Protocol was the outcome of intense political negotiations, being "...aggressively promoted by countries in the so-called Umbrella Group". Included in this Umbrella group was Norway, who, together with the rest of the group, made the inclusion of sinks a precondition for signing up to the agreement Carton et al. (2020, p. 5). As mentioned earlier, enhancing *sinks* is one of the mitigation efforts, and it includes technology such as CCS.

Tønnesen (2021) explain that Carbon capture and storage (CCS) has characterized the climate debate in Norway since the late 1990s. This attention to CCS was connected to the focus on gas power plants. Kasa (2016) notes that there was a growing resistance from environmental organizations against gas power plants, and in 1997 the environmental organization Friends of the Earth and its youth organization formed “The common action against gas power plants” organization, which applied civil obedience was an important tool. The background for the formation of this organization was that the Norwegian government had given permission to build two gas power plants at Kårsø and Kollsnes. This conflict, according to Tjernshaugen (2011, p. 232) provided a new opportunity for the advocates of CCS to push the focus towards CCS. One of the organizations that played a key role here was Bellona Foundation. During the years of 1995-1996, Bellona repeatedly promoted CCS as a potential compromise solution (Tjernshaugen, 2011)

Tønnesen (2021), also describes the start of CCS in the same manner as Kasa. Through showing to a citation from Tjernshaugen, Tønnesen (2021) describe that CCS became a politically attractive compromise after the climate policy debate had sharpened by being linked to energy policy. CCS thus “redefined” climate policy by providing an opportunity to continue to use fossil fuels while the emissions went down (Tønnesen, 2021). In 2002, the Norwegian government approved the construction of Statoil gas power facility at Melkøya (Kasa, 2016, p. 324). The Norwegian government was then formed by the Christian People’s Party (KrF), the Conservative Party (H) and the Liberal Party (V). Moreover, Kasa (2016) also adds that the facility at Melkøya was approved despite opposition and demonstrations from Nature and Youth.

Tjernshaugen (2011) explain that there is an unusually strong political support for CCS in Norway. A speech he highlights related to this is the prime minister at the time, Jens Stoltenberg speech at New Year’s Eve. At his new year’s speech in 2006, Stoltenberg termed a new CCS project “Norway’s moon landing”, comparing Norway’s CCS initiative to the Americans moon landing (Tjernshaugen, 2007). Tjernshaugen (2007, p. 194) further notes that Kristin Halvorsen, the leader of Socialist Left Party (SV) at the time, had used the same metaphor for CCS already in the autumn of 2004.

Another big climate project which was also relevant at about the same time as Mongstad, was Norway's International Climate and Forest Initiative (NICFI). In 2007, after the United Nations conference on climate change in Bali, the Reducing Emissions from Forest Degradation (REDD) programme was promoted as an important measure to mitigate climate change (Svarstad & Benjaminsen, 2017, p. 482). Arndt and Tarp (2017) explain that REDD arose as a solution to the dilemma in that conservation in the global South could have consequences for the economic development. The idea is to compensate for the economic consequences conserving an area could have (Arndt & Tarp, 2017). Norway, through NICFI, is the dominant donor behind REDD (Svarstad & Benjaminsen, 2017, p. 482).

Through this subchapter I have shown that CCS in Norway has a long history, where a broad range of political parties has supported and advocated for the technology throughout the years. CCS has been used deliberately as a compromise between oil interests and environmental interests. Moreover, the focus on CCS in Norway has focused a lot on gas power plants. However, Tønnesen (2021) notes the focus has shifted towards the projects in Longship, which this thesis will go into detail about in the analysis chapters. Furthermore, the following chapter will present the theoretical framework which will be applied to analyze Longship.

3 Theoretical Framework

Through the research question in this thesis, I explore Longship concerning climate justice and spatiotemporal fix. This chapter starts by focusing on each of the concepts separately. The chapter starts by focusing on climate justice before exploring the theory of spatiotemporal fix.

3.1 Climate justice

Through this subchapter, I will focus on climate justice. I start by giving a brief overview of the history of the concept, focusing primarily on its relation to Environmental Justice, before focusing on theorizing climate justice.

3.1.1 From Environmental Justice to Climate justice

Both the movement and the idea of environmental justice have greatly influenced how climate justice has been conceptualized (Schlosberg & Collins, 2014). Therefore, to address climate justice, one must also address environmental justice. The following subchapter aims to give an overview of the history of how the focus on climate justice emerged from the environmental justice movement.

Schlosberg and Collins (2014) explain that many academics and activists trace the beginning of the environmental justice movement to the 1982 protest against the disposal of PCB-tainted soil in North Carolina. Hazardous waste sites and polluting industries tended to be in poor neighborhoods, majority African American communities. Civil rights activists, black political activists, and environmentalists were brought together to resist this dumping. Schlosberg and Collins (2014, p. 360) emphasize that it is essential to note that such concerns were apparent before 1982 and highlight the Urban Environment Conference (UEC) in 1971 with its goal of linking environmental and social justice concerns.

Schlosberg and Collins (2014, p. 360) further explain that the environmental justice movement criticized and presented challenges with how the conventional focus on the richer and “almost exclusively white” environmental organizations. According to Wright (cited in Schlosberg and Collins, 2014) – the environmental justice movements criticized mainstream environment organizations for only caring for “wilderness”, thus disagreeing with them on the definition of environment. On the other hand, the environmental justice movements demanded a focus on how the environmental risks threaten everyday life – and thus focusing more on the humans in

the environment. However, this environmental justice movement did not exclude the non-human realms. Moreover, an essential trait of the movement was how it engaged indigenous conceptions of the relationship between human beings and non-human nature (Schlosberg & Collins, 2014).

Schlosberg and Collins (2014) further explain that Hurricane Katarina in 2005 is generally understood as influential in developing the intersection between environmental and climate justice. The hurricane hit a community that was underprepared and vulnerable. After the storm, they received less information, government relief, and fewer loans. This exposed the unjust impacts of climate change. The ones who have contributed less to the crisis and are least prepared to tackle the change are hit hardest by the consequences. After this, environmental justice scholars and advocates began to see climate change as an environmental condition that demonstrates a broader social injustice to poor and minority communities (Schlosberg & Collins, 2014).

3.1.2 Two Kinds of Climate justice

Through this thesis, I will draw on Simon Caney's two kinds of climate justice as the theoretical framework for climate justice. The following sub-chapter thus concentrates on his theory. Caney introduces and elaborates on his two kinds of climate justice in his article "Two Kinds for climate justice: Avoiding Harm and Sharing Burdens" in 2014.

Here, he also notes that he has earlier referred to these two perspectives as "entitlement-bearer" and "duty-bearer" justice in an article from 2010. In order to get an understanding of his concepts of climate justice, it could be applicable to also look at what it builds on first. The following text thus starts by focusing on this before moving on to how Caney is theorizing climate justice with his two concepts.

In Caney's article from 2010, which is titled "Climate change and the duties of the advantaged", he opens by explaining that climate change poses a huge threat to many people. This has brought up the question of who should bear the burden of dealing with this climate crisis.

In relation to the who should bear this burden of dealing with the climate crisis, Caney (2010) explains that one can identify at least two principles: the Polluter Pays Principle, which can be defined as "those who caused the problem should pay", and the Ability to Pay Principle, which

defines as “those who have the greatest ability to pay” (p. 204). Moreover, Caney (2010) further argues that polluters' pay should play an important role in any adequate analysis of the responsibility to combat climate change. Falck (2020) also applies Caney to discuss a matter of climate justice. She applied the framework to analyze how participants at a Climate summit addressed climate justice. Through my thesis I will draw on the same framework, but I will focus more on how Longship might fit into Caney's categories.

3.1.2.1 Avoiding Harm

Caney (2014) argues that one can distinguish between two ways of addressing this from a climate justice perspective: “sharing burdens” and “avoiding harm”. Caney's (2014) first kind of climate justice, avoiding harm, focuses on *preventing* climate change. The focus is here primarily on ensuring that catastrophe is averted and on who should do what when it comes to climate change mitigation (Caney, 2014).

Caney (2010) explains that we can distinguish between two different kinds of duties related to climate change: “duty of mitigation” and “duty of adaptation”. The first focuses on mitigating climate change and the second one on facilitating and supporting activities that would enable adaptation to climate change. As Caney (2010) also notes here, he's following the vocabulary of the IPCC with these terms.

Caney (2010) further explains that the first duty often includes cutting back on activities that cause climate change, thereby mitigating further climate change. This mitigation would, in particular, require cutting back on emissions of carbon dioxide. However, he also notes that this duty, which aims to prevent further climate change, could also include “...creating and protecting carbon sinks” (p. 204). As this thesis focuses on CCS, which aims at mitigating climate change by creating carbon sinks, the thesis will concentrate on the duty of mitigation. Caney highlights two elements related to the duty of mitigation: the first element is reducing by cutting down on fossil fuel activities, and the second is creating and protecting carbon sinks. These two elements will also be applied in this analysis. Which arguments does the Solberg government mention related to Longship as creating sinks? And how does the Solberg government relate the Longship project to phasing out fossil fuel activities?

Caney (2014, p. 138) argues that if our aim is to succeed in averting dangerous climate change, then it is vital to do an analysis that focuses on what needs to be done to be able to achieve this

goal. Which role is Longship to play in the aim of avoiding harm? Can Longship ensure that catastrophe is averted? How does the Solberg government relate to Longship to avoid harm? These are all questions from the theoretical framework that will be brought up again in the analysis.

3.1.2.2 Sharing Burdens

The following subchapter will focus on sharing burdens. Caney's (2014) second kind of climate justice, burden sharing, focuses on how the burden of combating the problem of climate change should be shared fairly amongst the duty-bearers. He emphasizes that climate mitigation often contains a sacrifice.

Caney (2016) explain that some policies to mitigate and adapt to climate change impose unjustified burdens on third parties. One example of this is that using hydroelectric power might involve displacing indigenous peoples, imposing an unjust burden on indigenous people. Another burden could be how using nuclear energy might pose health risks (Caney, 2016). Another sacrifice that Caney (2014) show to is sacrifices for the workers in fossil fuels countries. As he notes, if we were to effectively mitigate climate change it would demand a phase out of polluting industries. This would require to lay off many workers, and thus lead to a burden and a sacrifice for the workers depending on the industry (Caney, 2014, p. 133). Moreover, it is important to note that Caney stresses that this claim does not entail that he argues that mitigation should not be pursued, but he reasons that it is important to note that the mitigating policies is "...likely to impose a considerable sacrifice on some" (Caney, 2014, p. 134). An agent's responsibility here, according to Caney, would then be to do her fair share compared to her duty. Moreover, (Caney, 2016) also argues agents should fulfill their duties to mitigate in such a way that they do not impose such unjustified burdens on third parties. However, in a non-ideal scenario this might not always be possible.

Within this second kind of climate justice, sharing burdens, Caney also shows to several principles of justice. He highlights three suggestions for principles in particular: "the principle that those who have caused the problem should bear the burden", "the principle that those who can pay should bear the burden, "and "the principle that those who have benefited from the activities that caused climate change should bear the burden" (Caney, 2014, pp. 125-126). Caney (2014) explains here that he has discussed these principles in earlier articles.

Moreover, Caney (2014) also argues that there's an imbalance between the two today, where much of the normative analysis of the responsibilities related to climate change today focuses solely on this second concept of sharing burdens. He notes that a discussion of the burdens is still crucial, but incomplete without the focus on harm avoidance as well. Given this, he argues that we should firstly address what would effectively prevent the onset of dangerous climate change, and then consider the responsibilities that would follow from this (Caney, 2014).

An agent's responsibility here, according to Caney, would then be to do her fair share compared to her duty. One of the scholars that has built on Caney, and discussed this in relation to CCS, is Tønnesen (2021). In the article "Carbon capture and storage (CCS) in light of intergenerational climate justice", Tønnesen (2021) argues that the storage of CO₂ puts an unjust burden on future generations, where he points to that this storage aspect of CCS in such a long time perspective lays an unjust responsibility to future generations: "It would also be fundamentally unjust in that it would burden future generations with much of the practical responsibility for dealing with environmental problems caused by current generations.". Tønnesen (2021, p. 91) also notes what he argues what kind of mitigation initiative one should carry out within intergenerational justice: "Emphasis on intergenerational justice should lead us to commit to rapid climate gas emission reductions today rather than relying on negative emissions at some point in the future." Tønnesen (2021, p. 91)

3.2 Spatiotemporal Fix

The term "spatiotemporal fix" was developed by the Marxist economic geographer David Harvey. To understand the term, it is beneficial to get an historical overview of how Harvey has conceptualized it. This subchapter thus starts by giving a brief historic overview of the evolution of Harvey's application of the term, before focusing on how the term can be applied to Climate Change.

3.2.1 The concept of Spatiotemporal Fix

Harvey (2001, p. 25) explains that his idea of the spatial fix initially came out of his attempts to reconstruct Marx's theory of the geography of capitalist accumulation. This first essay of the topic was published in the *Antipode* in 1975 (Harvey, 2005). Here, Harvey (1975) argues that economic growth under capitalism consequently leads to crises. It's a process of internal contradictions which frequently erupt as crises. An evidently harmonious or balanced growth

under capitalism is therefore purely accidental: it's bound to lead to some sort of crises. Harvey (1975) further argues that we can understand these innumerable possibilities for crises to occur if we recognize that the progress of accumulation of capital depends upon and presupposes three respects. The first respect is the existence of surplus labor: always having access to more workers which can feed the expansion of production. The second is the existents of a marketplace to permit expansion of production. This could be things such as machines, raw materials, or physical infrastructure. The third respect Harvey (1975) highlights is the existence of a market to absorb these increasing quantities of commodities produces. Moreover, Harvey (1975) argues that in each of these three respects, progress of accumulation may encounter a serious barrier will likely precipitate a crisis of some sort. Here, geographical expansion is vital. Harvey (1975) argues that to solve all these crisis's capitalism unavoidably produces, capitalist has turned to expanding geographically. Through this reasoning, Harvey argues that Marx's writings on can describe both the spatial and temporal dynamics of capitalism.

Harvey (2001, p. 25) describes that the later deepened his argument in the article "The Spatial Fix: Hegel, von Thunen and Marx", which is also where he first used the term spatial fix directly. The concept was also furthermore fundamental his book the Limits to capital, which was first published in 1982. The primary results of these analyses were three folded. Here, Harvey highlights innovation in transport and communication technology. The third result Harvey (2001) highlights from his writings about spatial fix in the early 1980s is in relation to the markets, which also has its similarities with the third respect of the Marx's geography of accumulation mentioned earlier.

Harvey (2001) further explains that there are several different interpretations of the term "spatial fix" and that it thus needs some clarification. Some of the different variations reflect an ambiguity of language where the word "fix" has multiple meanings in English. One meaning of the word is referring to something being pinned down, as in "the pole was fixed in the hole" (p. 24). Another meaning of the word could be resolving something or taking care of a problem. As in "fix a problem" (p. 24). Harvey (2001) further explains that both examples of meanings of the word "fix" are an understanding that the things have returned to a normal function again. The items were fixed, and thus not a problem anymore. However, Harvey (2001, p. 24) adds this second meaning also has a more symbolic derivative, as in "the drug addict needs a fix". Here, the "fix" is more temporary. Since the craving will soon return - it is not a permanent solution. Harvey adds that it was primarily in this last sense that he first deployed the term

“spatial fix” to describe capitalism’s insatiable drive to resolve its inner crisis. Moreover, while all these interpretations of “to fix” could be seen as contradictory, Harvey adds that they all relate to the idea that something can be pinned down and secured.

Harvey (2001) further argues that capitalism is addicted to technological change and endless expansion through economic growth. He refers to this as capitalism being addicted to geographical expansion. A definition of spatiotemporal fix can be, according to Harvey, a “...metaphor for solutions to capitalist crises through temporal deferment and geographical expansion” (Harvey, 2004, p. 65).

3.2.2 Spatiotemporal Fix and Climate Change

Critical scholars have had interests in the relation between capitalism and environmental change for a long time. To elucidate the internal contradictions of capitalism, as well as attempts to resolve them, some scholars have turned to Harvey’s spatiotemporal fix (Carton, 2019; Surprise, 2018). How have they done this? The following subchapter explores how different scholars have connected Harvey’s spatiotemporal fix to climate change in their literature.

Surprise (2018) examines solar geoengineering: A proposed type of climate engineering which aims to reflect sunlight back to space to limit or reverse climate change. This technology has earlier been referred to as both as an “emergency plan B (Surprise, 2018, p. 1229). He further notes that solar geoengineering is increasingly understood as a mechanism to buy more time to allow mitigation and adaptation to take effect. However, Surprise (2018) argues that solar geoengineering should be understood as a spatiotemporal fix. More directly, he argues that it is a spatiotemporal fix for the second contradiction of capitalism: the contradiction encompassing that capitalism, through its endless drive for accumulations, is underproducing its conditions of production to such an extent that it is triggering a systemic crisis. Surprise (2018) thus argues that climate change is as a crisis of capitalism.

To combat this crisis, there has been developed several strategies. The primary strategy, according to Surprise (2018), has been the so-called green capitalism, which he describes as the following: “...the emergent, ad hoc attempt to transition to sustainability via renewable energy, carbon markets, privatized conservation, natural capital, green consumerism, carbon capture and storage, bioenergy, and so on, without fundamentally altering capitalist forms of class domination, exploitation, and accumulation.” (Surprise, 2018, pp. 1232-1233). Through this,

Surprise thus connects CCS to green capitalism, and points to this technology as one of the means to not having to alter capitalism. Moreover, Surprise (2018, p. 1233), continues by connecting green capitalism to spatiotemporal fix: “the broad umbrella of green capitalism can potentially inaugurate a host of spatiotemporal and socioecological fixes aimed at managing entwined crises of the first and second contradictions.”.

Surprise (2018) continues by arguing that even though the transition could be possible, it would take several decades and require finance and state-investment. This leads to an element, or what he terms as the central variable: “Can it prove effective faster than the rate of climate change comes to threaten capitalist (re)production?” (Surprise, 2018, p. 1233). To clarify this point, he shows to a report from World Economic Forums Global Risk Report from 2017, which identified climate change as the primary threat to economic growth. This includes losses from for example crop yields and labor productivity, as well as urban flooding and the impact of weather events. In addition, there’s also the factor of “abatement costs” (Surprise, 2018).

Surprise (2018) adds that this threat to economic growth also involves the assets the fossil fuel companies might lose in having to be able to exhaust in order to reduce climate change. An article from Dietz et al (2016, cited in Surprise, 2018) notes that in a 2 degrees Celsius scenario only 20% of the total fossil fuels reserves can be burnt to 2050. This means that 80% of the valued assets has to be intact, which would then have an economic consequence for actors that could have attained economic growth on this fossil fuel. SAI, on the other hand, offers a “fix” to this threat (Surprise, 2018).

Surprise shows to Harvey’s (2003, p. 115, cited in Surprise 2018, p. 1239) definition of spatiotemporal fix, which has also been referred to earlier in this text: spatiotemporal fixes offer particular solutions to capitalist crisis “through temporal deferral and geographical expansion”. Moreover, Surprise (2018, p. 1239) continues by explaining his take on this definition: “In other words, they do not solve the internal contradictions of capitalism but delay them in time through the production of space.”, before concluding with that SAI appears to be a “classic” spatiotemporal fix. He adds that SAI could be effective to neutralize so called climate change tipping points. However, there is no guarantee if or how it will work. This is also an argument Surprises stresses in relation to why SAI should not be a plan B. Surprise (2018), instead, argues that SAI should be a preemptive intervention; forestalling the climate crisis.

Another article that deals with Harvey David's concept of spatial fix is Chambers (2021) in his article "a critique of the socio-ecological fix and towards revolutionary rupture". Chambers (2021) stress, that several geographers that has turned to the famous geographical concept of "spatial fix" to understand the climate crisis. Chambers (2021, p. 115) explain that Harvey's classical concept of the spatial fix has now advanced and transformed into what he terms as a "relatively popular term" within Marxian nature-society studies: the "socio-ecological fix". In his review of the literature on this socio-ecological, Chambers (2021), notes that within the "socio-ecological fix", the focus is on both the economic and environmental crises at the same time. One of the scholars which Chambers point to in relation to this is an article from McCarthy from 2015. McCarthy (2015) also explain that a central theme over the past decades, especially in critical geography, has been to understand how space can provide a "fix" for the crisis's capitalism has led to. He continues to stress that Harvey has been very central here, and especially his idea of a "spatial fix" to crisis tendencies. The idea behind spatial fix is, as (Chambers, 2021) highlight here, that geographical expansion can provide a "fix". He further argues that it is theoretically possible to conceive a "fix" to the problems of capitalism has led to. However, even though it might be possible technically – we must not assume that it would be anti-capitalist (Chambers, 2021).

To the concept of "socio-ecological fix", which as described earlier has derived from Harvey's spatial fix, Chambers makes two critiques. Chambers (2021, p. 115) first argument is that the concept is trapped in what he terms as "a specific historical understanding of 20th-century capitalism that goes through "crises" and "fixes". His second critique against the concept of "socio-ecological fix" is that this understanding of history largely ignores the potential for "revolutionary ruptures that create social systems entirely at odds with capital" (Chambers, 2021, p. 115). He further adds that the climate crisis is so severe, that it will not allow for such clean fixes. Climate change will, on the other hand, according to Chambers (2021), be the condition necessary for a possible revolution against the confused reproduction of capitalism. Chambers thus critiques the concept of socio-ecological fix by arguing that it does not portray an adequate understanding of the crises, and thus also fixes within capitalism. At the same time, he also argues that the problem of climate change can't be "fixed", but that it instead should be the condition for revolution against climate change. And an important part of this revolution, according to Chambers (2021), is the workers movement. However, as noted earlier, if one were to take the last concluding sentence of McCarthy (2015, p. 2499) serious, where he concludes with that an overhaul of the energy system "...could and should provide multiple openings for

rethinking, rather than merely reproducing our political economic system”, their arguments does have similarities. McCarthy also stresses the need for a change away from capitalism.

Chambers (2021) point about whether or not the crisis is actually fixed is also a very central part within the discussion on spatiotemporal fix. As stated earlier, the definition of the word fix is something Harvey focuses on as well. In his article “Globalization and the spatial fix”, Harvey (2001), explain that it was primarily in the sense that it would not be a permanent solution he first deployed the term. Moreover, McCarthy (2015, p. 2487) also states that the term does not mean that the situation is fully solved by this “fix”: “Yet by reproducing capitalist social relations and accumulation at expanded scales on new terrain, they plant the seeds of larger subsequent crises as they fix the present one.”.

A scholar that connects spatiotemporal fix to a technology that’s even more closely connected to Longship is Wim Carton (2019). In his article from 2019, “Fixing Climate Change by Mortgaging the Future: Negative Emissions, Spatiotemporal Fixes and the Political Economy of Delay”, he starts by stating that the projections of how the world can avoid climate change is “increasingly resembling science fiction” (Carton, 2019, p. 750), before referring to the scenarios from IPCC. As also shown to earlier in this thesis, Carton (2019) emphasize the fact that all of these mitigation scenarios rely on negative emissions. The technology that’s most favored in these models, according to Carton, is Bioenergy with Carbon Capture and Storage (BECCS), which he defines as the following: “...a so far commercially unproven proposal to combine the cultivation of bioenergy crops (...) with their combustion for energy generation, and the capturing and long-term geological storage of the resulting CO₂ emissions” (Carton, 2019, pp. 750-751).

Carton (2019) continues with stating that the belief in BECCS is debated, as well as pointing to an element within spatiotemporal fix that’s also connected to burdens: “If past experiences with carbon forestry and bioenergy projects are anything to go by, this burden would mostly fall on poor and vulnerable communities, primarily in the global South, where land is cheapest and dissenting voices most easily marginalized...” (Carton, 2019, p. 751). BECCS can thus be burden for third parties in the global South especially. Carton (2019) argues that spatiotemporal fixes should be seen as a strategy to delay the devaluing of carbon-intensive accumulation processes, and that negative emissions can be conceived as a spatiotemporal fix that promises to defer the devaluation of fixed capital.

Moreover, Carton (2019) reasons that the fossil fuel industry has strong interests in the focus on net zero and CCS. Carton further proposes that its helpful to analyze how the “promised” emissions perform for fossil capital. Markusson, Dahl Gjefsen, Stephens, and Tyfield (2017, p. 4) proposes a similar distinction. They argue that spatio-temporal fixes *legitimize* and *enable* specific political regimes. If Norway’s CCS project Longship is a spatiotemporal fix, it could then be argued that it would be applied to legitimize and enable Norway’s continued oil and gas extraction. This elements within spatiotemporal fix will be brought up again in the analysis.

This chapter has presented the theoretical framework in this thesis. Through this subchapter particularly I have examined the theory of spatiotemporal fix. First, I went through how Harvey introduces the concept with a historic view before I focused on how scholars have connected the theory to climate change especially. I have presented several elements that scholars point to as tendencies within projects that could be seen as spatiotemporal fixes. As spatiotemporal fix is one of the theories mentioned in my second research questions, these elements identify here are also central in answering my second research question. I will therefore bring several of these elements up again in chapter seven where I discuss whether or not Longship can be seen as a spatiotemporal fix. In the following chapter, however, I will present the methodological choices made for this thesis.

4 Research Methodology

This chapter presents the methodological choices made for the thesis.

4.1 Research questions

Through this subchapter I focus on the methodological choices related to the research questions. First, I start by maintaining why I chose to focus both on narratives as well as a comparison of the project with the research questions. Secondly, I consider what kind of research questions these two questions are.

As mentioned in the introduction chapter, through my research questions I focus on both identifying the claims in the narrative the Solberg government portrays of longship, as well as investigating these claims by analyzing elements from the project. Benjaminsen and Svarstad (2021) argue that this is a suitable strategy. They explain that when they analyze discursive narratives, they often combine the analysis with an examination of central claims of the leading discourse, which is constructive related to the case of Longship as well. By connecting the social constructivist study to realist knowledge, I aim to identify claims and then investigate the reality of the claims.

In order to answer the research questions, it is also important to distinguish between what kind of research questions it is. Benjaminsen and Svarstad (2021, p. 23) distinguish between three categories of research questions: descriptive, explanatory, and normative. They explain that the descriptive questions aim to identify what aspects to focus on through gathering knowledge. Explanatory questions focus on the causes explaining the situation. Within the third category, the normative questions, Benjaminsen and Svarstad (2021) explain that one can distinguish between two types of questions within this category again. The first type normative question is to assess a situation. They add that this often assesses a situation compared to specific standards, for example targets for environmental justice. The second type of normative question is questions that investigates what could be done to improve a problematic situation.

The first research question applied in this thesis, which is “What narratives does the Solberg government communicate about Longship?”, can be categorized as the first kind of research questions: a descriptive research question. Benjaminsen and Svarstad (2021, p. 23) argues that it can be beneficial to start with this type of describing question, before following up with an

explanatory of normative question which builds on the insight from the descriptive question. Through applying this first research question, I aim at investigating what this this narrative is and gather knowledge as a basis for further investigation.

The second research question applied in this thesis can be viewed as the first type of the normative research question: exploring the case of Longship in comparison with elements from climate justice and temporal fix. Is Longship a just project in relation to climate justice on the one hand, or is it temporal fix on the other hand and thus not just?

Moreover, as I also pointed at in the introduction: the two research questions applied in this thesis are closely connected. The first focuses on identifying the narrative, while to second explores these claims. I therefore did not just focus on one question at a time, but I analyzed and looked for findings that could answer them both correspondingly. This means that I did analyze the narrative, for example, I also had the elements from the theoretical framework in mind – and applied the same themes in the thematic analysis.

4.2 Longship as a Case Study

This thesis study Longship as a case study. Lund (2014, p. 224) describes a case as an “edited chunk of empirical reality where certain features are marked out, emphasized and privileged while others recede into the background” and add that a case can be seen as an analytical construct “aimed at organizing knowledge about reality in a manageable way.” Lund (2014) further describes that the case material is often presented as self-evident, but *what* it is a case of is less evident.

What can Longship be a case of? Lund (2014) argues that what makes a case a case lies outside of the data in itself: how we generalize, abstract, and theorize makes a case of the phenomena. Precisely what the case would be a case of would thus rely on how the argument is organized and reasoned. This study of Longship can be a case of a climate change mitigation project in Norway. In a general sense, the work can also be a case of a countries’ initiatives towards achieving net zero emission. In a more conceptual sense, the study might be a case of a Spatiotemporal fix – building on Harvey’s work and engaging with Marx’s method and theory of capitalist dynamics.

Through this research, I investigate if Longship could be a case of the two theories mentioned in the second research question. In order to operationalize this, I apply the theoretical framework on climate justice and spatiotemporal fix to investigate if Longship could be a case of these two theories. Could Longship be a case of a climate change mitigating initiative in line with climate justice? Or could Longship be a case of a spatiotemporal fix?

Through this thesis, I argue that Longship has tendencies with it that it can be argued that Norway is indeed a case of a project in line with climate justice. CCS is emphasized as vital to achieving the climate goals and could thus be vital in the first kind of climate justice: harm avoidance. Moreover, it doesn't impose unjust burdens third parties such as the global south and could thus be seen as a case of a just sharing burden as well. However, I also argue that Longship indeed also has tendencies with it than can be seen as a spatiotemporal fix as well. Here, the analysis of the Solberg governments portrayal of the project is connected to the I argue that Longship is a case of a CCS project that the government has under communicated the uncertainties with is, as well as contributing to maintaining status quo. Based on this, I also question if it is really a project which can be termed as a case of a project in line with climate justice after all.

4.3 Methods of Data Collection

This thesis has applied document analysis as the main method. Bowen (2009, p. 27) defines document analysis as a “systematic procedure for reviewing or evaluating documents” and specifies that this includes both printed and electronic material. The following subchapters describe which documents I have analyzed and how. Moreover, I have also combined this document analysis with observation. The last subchapter describes how this method was relevant to this research.

4.3.1 Document Analysis

I have analyzed the documents in what Bowen (2009) refers to as a “thematic analysis”, which categorizes patterns of the data into different themes. Bowen (2009) adds that this includes coding and constructing categories to investigate themes to a phenomenon. Moreover, the different kinds of documents have been dealt with differently. The following subchapters will go more into detail about this.

4.3.1.1 White Papers

In order to examine how The Norwegian government portrays longships, I have analyzed the Norwegian governments white paper on Longship: Meld St. 33 (2019-2020) . As this is the Solberg governments' official presentation of the project to the Norwegian parliament and were also applied as the official announcement of the project, I considered this as a very vital document in the Solberg governments more detailed presentation of the project.

As this white paper has played a vital part in this research, I analyzed the paper in several different stages of the research. The first time I read through the white paper in this research project, the aim was to better understand what Longship is and what the Solberg government focused on. I developed a coding guide for the white paper based on this read-through. At the second read-through, I got the first thematic analysis of the white paper. I also noticed that the coding guide could benefit from being revised in this analysis. Some of the categories needed to be divided into several subcategories, while others could be merged. Simultaneously, I also worked on the background chapter and developed the theoretical framework further. Based on the findings in both the second read-through and the concretization of the theoretical framework especially, I revised the coding guide further for the third analysis of the white paper.

In the analysis of the historical archive, which I will go into shortly, I found that the Solberg government connected Longship to two more white papers as well: the Climate Plan and the Energy Plan. The white paper on climate policies, Meld. St. 13 (2020-2021) , is referred to as the “Climate plan” by the Solberg government. This paper is central related to how the Solberg government connects longship to their overall aim of cutting emissions. The white paper on energy policy, Meld. St. 36 (2020-2021) , was called “Energy plan” by the Solberg government. The analysis of the historical archive revealed that the Climate plan were central related to how the Solberg government connects Longship to their overall aim of cutting emissions, and the Energy plan central in how Longship were connected to the overall energy policies. Consequently, both of these white papers are therefore very central. In order to get a broad analysis of Longship, I therefore decided to analyze these two white papers in this thesis as well. These two white papers on climate and energy were analyzed with the same coding guide as the white paper on Longship. In total, I have thus conducted a thematic analysis of in total three white papers in this thesis.

4.3.1.2 Official Speeches

Since an essential part of the research question in this thesis is how Longships is portrayed, it is also relevant to study how the Norwegian government has communicated the project in different arenas. I thus wanted to go more into how the Solberg government described the projects elsewhere. Which narratives were the different ministers portraying of the projects? To examine this, I chose to analyze what the Solberg government has communicated about Longship in their official speeches. I argue that these speeches, in combination with the white paper, gives a thorough overview of the narrative the Solberg government portrays about Longship.

The speeches I have analyzed are all accessible on the Norwegian government's historical archives at Regjeringen.no. In this historical archive, there is information about from previous governments, such as press releases, news, and speeches from previous government periods.

I wanted to focus on which stories the Solberg government connected directly to Longship. To find this, I searched for Langskip, which is Longship in Norwegian, in the historical archive. This search provided 50 different speeches from the Solberg government, and I thus had 50 speeches in total from where the Solberg government referred to Longship to analyze.

These 50 speeches from the Norwegian Solberg government were first analyzed in the same manner as the initial coding stage of the white paper: taking notes and marking up text, documenting receptions, looking for major themes. Since the analysis of the speeches was done after I had analyzed the white paper several times, I also noted down relevant codes from the last thematic analysis of the white paper as well. I could therefore compare the different findings from both the white paper and the speeches straightforward – looking for common or diffracting findings.

In this historical archive there is a lot of different information. For example, three of them were solely calendar events which provided updates about the different minister's schedules. In addition, there were also several press releases that solely focused on the ministers' calendars as well. I therefore did not find all of these documents as relevant to analyze further. I thus decided to analyze some of the articles more thoroughly in a thematic analysis. Based on the first read through I chose out 15 articles which I found especially relevant. Nonetheless, the initial analysis of all the speeches was still valuable for background information, as well as for

me as a researcher to ensure that I had an overview of the vital dates and meetings, as well as a broad view on how the Solberg governments communicates about Longship.

4.3.2 Participant Observation

Within qualitative research, several different forms of observation are used, but one of the most prominent ways of doing observation has been participant observation (Flick, 2019a). Flick (2019b, p. 329) explains that Denzin (1989b, p. 157-8) sees participant observation as a “field strategy that simultaneously combines document analysis, interviewing of respondents and informants, direct participation, and observation, and introspection”. Following this view of the method, I believe participant observation is a helpful element in this research project as a supplement to the document analysis.

There are several different phases of participant observation, often relying on when in the research project the observation is conducted. Spradley (1980, cited in Flick, 2019) distinguished between three phases of participant observation. The first phase is the *descriptive observation*, which is at the beginning of the project. According to Spradley (1980, cited in Flick, 2019), this serves as a means to provide the researched with an orientation of the field: aiming to understand more of the complexity of the field, as well as concretizing the research questions. The second phase is termed *focused observation*. This phase is meant to narrow the researcher’s perspective most essential parts of the research question. The third phase is a *selective observation*, which is towards the end of the data collection – focusing on finding further evidence and examples. I conducted the observation on Longship in-between the second and third phase. Since I had already conducted the analysis of the white paper and found the connection Longship has to Norwegian oil and gas, I wanted to investigate this further.

Since observation is not the primary method for answering the research question, I decided it would not be constructive to visit all three of the projects in Longship, and I wanted to select one. In my analysis of the speeches, I found that the Solberg government puts a great emphasis on the Northern Lights project especially. This is a project that is especially connected to their narratives. I, therefore, found Northern Lights particularly interesting to visit. In addition, I also put an emphasis on which firms that were involved in the project. As argued in the theoretical framework, a vital part of CCS criticism is that the projects are in the petroleum industry's interest. As Northern lights is a partnership between Equinor, Shell, and TotalEnergies, the

petroleum industry's connection to the project is therefore very apparent here. Based on these factors, I decided to visit Northern Lights.

The participant observation was conducted in the early spring of 2022. I had I contacted Northern Lights by email and requested opportunities to visit the construction site. I received a positive response with the message that they would like to facilitate for this. My supervisor also attended the observation, which was very beneficial. The observation consisted of a presentation by the employee first, where participant 1 presented the project. In this presentation, there was also a lot of room for me and my supervisor to ask questions as well, so the format had similarities with an unstructured interview. After the presentation, we went on a guided walk around the construction site.

The observation was conducted without any collection of personal data, which means that we did not record the conversation with the employee at Northern Lights. However, after the observation, we recorded a conversation between me and my supervisor where compared our notes and talked through the findings. This was further transcribed. It was very helpful to be able to discuss the findings directly with my supervisor right after the observation.

I consider the participant observation to be very valuable to answer the second research question applied in this thesis. I got more information about the progress at Northern Lights, in addition to a deeper understanding of the project as a whole. I also believe it was beneficial to conduct the participant observation at the stage I was at in my research. Since it was later in my research stage, I had already worked with the project for a long time and knew about all the different planned stages of Longship beforehand. This allowed me to ask more detailed questions about the different elements Northern Lights.

4.3.3 Semi-structured Interview

As stressed earlier in this chapter, I apply document analysis as main method in this thesis, where I have analyzed white papers and official speeches about Longship from the Solberg government. However, the second research question focuses on the reality of these claims. As a final supplement to my analysis, I wanted to conduct a semi-structured interview with someone from the state-administration to gather some more knowledge related to this second research question in my thesis.

As for the implementation of this interview, I contacted the Ministry of Climate and Environment over mail and requested to have an interview with 1-2 employees. I received a positive response from one of the employees that is responsible for the Longship project on behalf of the Ministry of Climate and Environment. The interview was conducted over zoom and recorded with an external recorder. Before the interview, I had sent the employee the consent form (see appendix 1) and gave some general information about my focus in the project.

My first objective with this interview was that I wanted to learn more about how the Ministry of Climate and Environment has been involved. As mentioned earlier, the Longship project is under the Ministry of Petroleum and Energy. Much of the communication about the project in the speeches, as well as the general information in the white papers, are therefore published by the Ministry of Petroleum and Energy. Since I focus on climate justice, I saw a need to get deeper understanding of how the Ministry of Climate and Environment had been involved.

My second objective with this interview was to get a more comprehensive understanding of some of the dilemmas raised by critics of CCS. Even though Longship is under the Ministry of Petroleum and Energy, the Ministry of Climate and Environment has the main responsibility for the sum of the Norwegian Government's climate and environmental policy. I therefore found it very relevant to discuss some of the dilemmas and questions critics of CCS have highlighted.

I made an interview guide with questions concerning both the cooperation between the different Ministry's, as well as some specific questions about some of the elements that I had found in my analysis of the Longship already. See appendix 2 for the interview guide. I wanted to conduct the interview semi-structured to allow the participant to contribute with what the participant wanted to, as well as getting answers for the specific elements in my second research question.

I believe this interview was very valuable in answering my second research question. The interview was quite brief, but we were able to discuss a lot of relevant things. The employee had a very deep insight in the project and contributed with a lot with insight. As I show in my discussion, the employee gave a lot of insight into which elements they are involved in. The interview also gave me a deeper insight into the practicality of the project. Moreover, I also found it very beneficial to conduct the interview after I had finished my document analysis.

This allowed me to bring up some of the findings I had and ask specifically for more information about elements that I wanted more information on.

4.4 Reliability and Validity

This chapter will discuss the reliability and validity of the different methodological choices I have made. As mentioned at the beginning of this chapter, this thesis analyses Longship as a case study. This subchapter thus follows by discussing the reliability and validity of this. Moreover, the primary method in this thesis is documents analysis. This subchapter follows by discussing the reliability and validity of this method in general and how this relates to Longship.

4.4.1 Case Study

I argue that the case of Longship is a very interesting example that can contribute to insight in the field. As to what insights a study of this case might bring, there are different opinions about case studies in general. Flyvbjerg (2006) explains that a critique of case studies is that it cannot lead to generalized knowledge nor provide reliable information about the broader class. Benjaminsen and Svarstad (2021) also describe that this was a criticism they met when they communicated their research findings of a case study of a NICFI project. They explain that the Norwegian Minister of Climate and Environment at the time, Ola Elvestuen, dismissed their critique because it was based on a single case study. Following this, one could argue that studying Longship alone could not provide reliable information about the portrayal of CCS. However, both Benjaminsen and Svarstad (2021) and Flyvbjerg (2006) argue that this does not have to be the case.

Benjaminsen and Svarstad (2021) emphasize three different ways studying cases can bring essential knowledge and are thus crucial in understanding more prominent topics. Their first argument is that there might be a feature about a case that makes an in-depth study especially valuable compared to other cases. They add that cases with strong narrative claims make in-depth insights especially valuable. As I have shown earlier in this thesis, the case of Longship is indeed a case that has strong narrative claims in the center as the criticism towards CCS often encompasses how the dominant narrative is not in line with the actual uncertainties of the projects. Following Benjaminsen and Svarstad's argument, a case study of Longship could thus be especially relevant.

The second feature that Benjaminsen and Svarstad (2021) highlight is how a case study may provide knowledge about mechanisms that also might be relevant to other cases. A clear example of this is the petroleum's sectors involvement in Longship. One of the projects in Longship, Northern Lights, is a collaboration between Equinor Shell. This makes the mechanisms in Carton's argument about net zero-focus very relevant.

The third feature with case studies that Benjaminsen and Svarstad (2021) highlight as making case studies important is the contribution to *cumulative knowledge*. I argue that the case of Longship clearly has this feature as well. A clear example of this is the tendencies Carton et al. (2020) found with the existing literature on CCS. As referred to in the theoretical framework chapter, Carton et al. (2020) state that extensive literature now explores the potential opportunities, risks, and trade-offs of relying on negative emissions. A case study of Longship could thus be a contribution to this literature to provide cumulative knowledge in this manner.

To sum up, several aspects of Longship could make it suitable for a case study. However, it is essential to note that the goal here is not to generalize, and I will study Longship as an individual case. If the case of Longship could contribute to understanding other cases of CCS as well, this would be a supplementary gain.

4.4.2 Document analysis

Bowen (2009) highlights both advantages and limitations in applying document analysis as a method. As for the advantages, he firstly emphasizes that it is an efficient method, and it can be less time-consuming to apply document analysis than doing interviews, for example. However, it is worth noting that this may depend on the case, and document analysis is not in all situations as efficient. Moreover, related to the advantages of document analysis, Bowen (2009) also points to the lack of obtrusiveness. He adds that the documents are unaffected by the research processes, as opposed to other research methods such as observation, where an event might proceed differently because it is observed.

Bowen (2009) also emphasizes possible limitations inherent in applying document analysis as a method. Firstly, he argues that the documents may provide insufficient details. He adds that the documents are produced for another purpose and therefore do not usually provide sufficient detail to answer a research question. They might only provide information about one part of it, as well. This is something I have taken into consideration in this analysis.

Moreover, Bowen (2009) also points to that another limitation could be low retrievability. He adds that it might be challenging to retrieve the relevant document. In this case, this has not been a limit as I have chosen to focus on official statements and documents available for everyone. The fact that all of the documents are so open and accessible also makes this analysis easy to verify.

4.4.3 Participant Observation

The observation conducted at Norther lights was very brief, which could be a limitation. Given that the document analysis is the primary method I apply to answer the research questions and that this is more of a supplementary element, I still believe the observation time is adequate. The intention of the visit was to collect information about the project, not about the employees, and I did therefore not collect any other personal information. I also based the observation on notes and did not record the conversation, but I took notes of the conversation. This could affect the accuracy of the findings.

Moreover, I did take steps to ensure accurateness. After the observation, me and my supervisor talked through the findings of the visit and compared notes. This conversation after the observation was recorded and then transcribed. After the transcription, I analyzed in the same thematic analysis as the other documents. The participant observation and the instructed interviews with participant 1 was also conducted in Norwegian.

It is important to stress that the observation was only a supplement, as the primary method in this analysis to answer the research question is the document analysis. However, I considered a visit to one of Longship's projects, and thus observation as a method, as useful for me as a researcher as it contributed to gaining an understanding of this CCS initiative.

4.4.4 Semi-structured interview

My principal idea was to have semi-structured interviews with employees from both. However, due to the time limit of this thesis I was only able to interview one employee from the ministry of Climate and Environment.

The interview was conducted in Norwegian, as both me and participant speak Norwegian. The findings are therefore presented with my own translation of the interview. This could be a limit with. However, after the interview I sent the text associated with the interview, so that the participant could ensure that the text was correct from the Ministry of Climate and Environment. The text being presented here in the thesis has thus been approved by the participant, where the participant also added some points after as well.

4.5 Ethical Considerations

Since this is a thesis is based on documents as the main method, I can avoid several ethical considerations. The documents I have analyzed is also documents the Norwegian government has published themselves. This is thus what they have chosen to communicate, and I do not need to question the author's interest in the document in itself and can thus assume that this is communication that the Solberg government approves. However, it is important to be aware of how I analyze the documents can be affected by me as a researcher. The fact that all of the documents are open and available for everyone makes it easier for others to analyze the documents themselves as well.

Regarding ethical considerations related to my role as a researcher, it is important to note that my initial interest in CCS comes from my current work with the topic in the Norwegian Civil Society. I currently work in a Norwegian environment and development organization with Norwegian climate change Policy and climate justice. Through my work here I have also focused on CCS and the connection to Norway's economic interests. Therefore, it is important to note that I do not approach this subject as an outsider. As a researcher, it is crucial to be aware of this and be open and disclose it accordingly. However, I believe that my experience with the field beforehand has allowed me to understand the issue deeper. Since I had already worked with the topic before I started with this thesis, I was familiar with several relevant reports and political decisions before starting the work with the thesis. I believe this helped me focus my research earlier in the process.

5 The Portrayal of Longship

Through this chapter, I analyze the Longship project concerning my first research question: how the Solberg government presents Longship. In the first subchapter, I argue that the Solberg government focused on Norwegian identity and history in their portrayal of Longship.

5.1 Norwegian Identity and History

Through this subchapter, I show that a central part of the Solberg government's narrative of Longship when they presented the project was the focus on Norwegian Viking history. Moreover, I argue that the Solberg government connects Longship to Norway's history with earlier experience with CCS in their portrayal.

With Longship, the Solberg government proposes to implement the a carbon capture and storage project, which consists of three projects: Northern Lights, Norcem and Fortum Oslo Varme (Meld St. 33 (2019-2020)). Northern Lights functions as the transport and storage part, while Norcem and Fortum Varme are both carbon capture projects. The Solberg government suggest implementing Norcem as the first carbon capture project followed by Fortum Oslo Varme's carbon capture project. The funding for Fortum Varme is conditional on sufficient funding from the EU or other sources (Meld St. 33 (2019-2020)).

Longship was launched on the 21st of September in 2020 (Ministry of Climate and Environment, 2020b). On this day, the government released a press release and held a press conference to present the white paper (Ministry of Climate and Environment, 2020b, 2020c). This is the first time Longship was mentioned in the speeches in the historical archive. Four representatives from the Solberg Government held speeches: the Minister of Petroleum and Energy Tina Bru, the Minister of Climate and Environment Sveinung Rotevatn, the Minister of Children and Family Affairs Kjell Ingolf Ropstad as well as Prime Minister Erna Solberg. Bru, the Minister of Petroleum and Energy at the time, started the press conference on the launch of Longship (Ministry of Climate and Environment, 2020c). Here, she opened by referring to the Norwegian Viking history immediately:

It is 100 years this year since the Kvalsund longship was found at Kvalsund in Herøy municipality in Møre og Romsdal. The Kvalsund longship dates back to around the year 690. Today, we are launching a brand new longship. The Government is now presenting

a white paper in which we recommend initiating a Norwegian carbon capture and storage project. A project we have decided to call 'Longship'. (Ministry of Climate and Environment, 2020c)

Bru thus connected the Solberg government's CCS project Longship to the Norwegian Viking era and explained that the project's name, Longship, is named after this history. Bru continued by comparing the technology in the ships in the Viking era with this technology: "The Viking longship was state-of-the-art ship technology in its day and the result of innovation and hard work. Our Longship is also the result of new technology and cooperation between industry and the public authorities." (Ministry of Climate and Environment, 2020c)

This focus on the Viking era was also focused on in the white paper, which was evident already on the front page. As figure 1 shows, the front page of the white paper consists of an illustration of a Norwegian Viking longship (Meld St. 33 (2019-2020)). Through this, the Solberg government again accentuated that the name of the Longship is termed after the Norwegian Viking history.

In the preface before the introduction in the white paper, the name and history of Longship also got attention (Meld St. 33 (2019-2020), p. 3). The white paper explained what the Solberg government had named the project and connected this to innovations especially: "The Norwegian Government has decided to call the Norwegian project on carbon capture, transport and storage Longship, in Norwegian 'Langskip'. Moreover, this sentence was followed up with a connection to innovation again in the same manner as the speeches: "The characteristic shape and flexible, supple construction of the Vikings' long-ships made them one of the greatest innovations and most ground-breaking ship-building technologies of their day." (Meld St. 33 (2019-2020), p. 3).

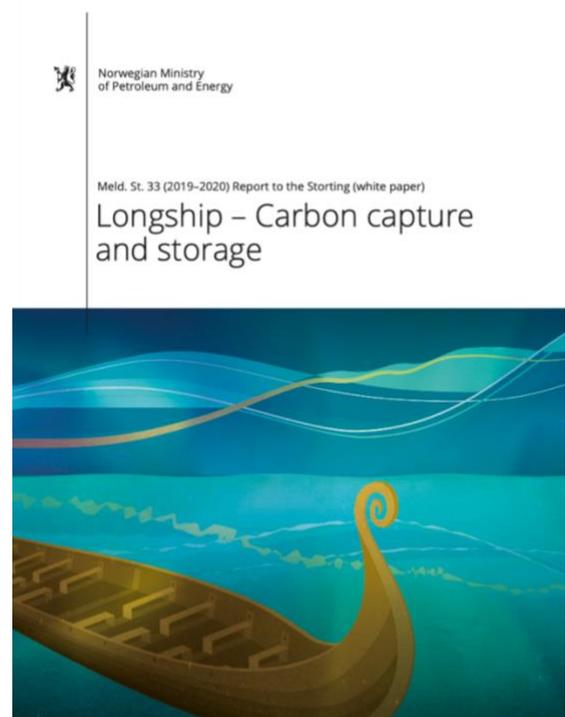


Figure 1: The front page of the white paper on Longship. Illustration of a Viking longship.

Furthermore, Longship was also connected directly to the Norwegian identity in the white paper: "Despite our ancestors often spreading fear along their path, longships have become a familiar symbol worldwide of the Viking Age and are associated with Norway. Like those who built the longships, we also aim to take our technology out into the world, but only by peaceful means." (Meld St. 33 (2019-2020), p. 3). To sum up, the Solberg government connected the CCS project Longship distinctly to the Norwegian Viking history.

Moreover, the Solberg government also presented a narrative that CCS in itself was something distinct about Norway. As shown in the background chapter, Norway has a long history with CCS. There were also several references to this history throughout the speeches and the white papers. A prominent example of this was in Brus' speech at the press conference of the launch of Longship, where she explained that Longship has built on the work of several different governments: "A huge number of hours have been devoted to develop technology, and quality assuring and assessing the costs. Both industry and the authorities have made targeted efforts to this end over many years." (Ministry of Climate and Environment, 2020c). Another example is in a press release some months later, where the Ministry of Petroleum and Energy (2020d) repeated the same narrative of Longship. They stated that Norway is in a distinct situation because of the history with Sleipner and Snøhvit: "Norway has a comprehensive basis for contributing to the development of technology and solutions for CO₂ management. Our long experience with safe storage at Sleipner and Snøhvit is good examples." (Ministry of Petroleum and Energy, 2020d, own translation).

This connection to Norway's history with CCS was also central in the white papers. The white paper on Longship emphasized how there are "relatively few" carbon and storage facilities in the world and none that tries to capture CO₂ from cement and waste facilities – such as Fortum Varme and Norcem (Meld St. 33 (2019-2020)). According to the white paper, Longship was thus the first project of its kind. However, the white paper on Longship continued by highlighting the experience Norway had: "Norway is in a pole position to contribute to CCS technology" (Meld St. 33 (2019-2020), p. 7). This point was also explicitly connected to the attempt to plan a full-scale CCS project in Mongstad, where the Technology Centre Mongstad (TCM) was highlighted several times as a clear indicator of Norway's expertise in CCS.

Sleipner and Snøhvit were also referred to several times in the white paper on Longship. In the background chapter where the Solberg government presented their background for prioritizing

CCS, they explain that: "Norway has stored CO₂ from the Sleipner field for nearly 25 years and from the Snøhvit field since 2008." (Meld St. 33 (2019-2020), p. 11). The white paper highlighted how these two projects make Norway "...the only country in Europe with projects in the operational phase". It stated that Norway, in these 25 years, have developed "extensive expertise in the area" (Meld St. 33 (2019-2020), p. 16). Later in the same chapter, the Solberg government also referred to these two projects again up again, and stressed how Norway had done this for decades: "For decades, the development and operation of CCS projects on Sleipner and Snøhvit have demonstrated safe CO₂ storage in geological formations beneath the seabed on the Norwegian continental shelf." (Meld St. 33 (2019-2020), p. 20)

This connection to Norway's history and the experience was also apparent in the white paper on energy (Meld. St. 36 (2020-2021)). Here, the Ministry of Petroleum and energy showed to Norway's history and experience with both the oil industry and CCS: "Norway's leading position in CO₂ management is based on over 50 years of experience from oil and gas operations on the Norwegian shelf, 25 years of experience in offshore CO₂ storage, supplier industry, and world-class research environment." (Meld. St. 36 (2020-2021), p. 116, own translation). Moreover, they also added that Norway has a suitable geographical formation that makes it possible to store CO₂. Because of these reasons, the Solberg government argues that "...Norway can play an important part in the development of CO₂-management as an instrument for cutting climate emissions" (Meld. St. 36 (2020-2021), pp. 116-117, own translation).

The Solberg government thus focuses a lot on earlier experiences, and Norway's history with the technology, in their portrayal of the Longship. This history Norway has with CCS through different governments is also connected to the Viking narrative, and thus the Norwegian identity, in the white paper as well:

In the same way as it was hard work to build a longship using the clinker method, a major effort from companies and a significant amount of public financing are required to realise a cost-effective solution for carbon capture and storage. Longship is the result of many years of hard work across several Norwegian governments. Authorities and industry representatives have worked together towards a shared goal, and the decision basis the Government is now presenting to the Storting is extensive, robust and quality-assured. (Meld St. 33 (2019-2020), p. 3)

Through this subchapter, I have shown that the Solberg government connects the CCS project distinctly to the Norwegian Viking history and produces a narrative that CCS is something very Norwegian.

5.2 Economic Growth

This subchapter argues that economic growth is central in the Solberg government's narrative of Longship. In the first part, I show how fundamental their mantra "cut emissions, not development" was in their portrayal of Longship. In the second part of this subchapter, I argue that creating and sustaining jobs was also central to their narrative. The Solberg government connected this point about jobs to economic growth.

5.2.1 Cutting Emissions, Not Development

This subchapter shows that the central part of the Solberg government's narrative communicated around Longship was their mantra: "cut emission, not development". I show that they referred to this mantra throughout the white paper and the speeches and that this is a central part of their portrayal. Moreover, I also show that they connected this mantra to the importance of economic growth.

At the Norwegian government's press conference of the launch of Longship the government, the Solberg government expressed its enthusiasm toward Longship clearly. The Minister of Petroleum and Energy Tina Bru emphasized how this is "...the biggest ever climate project in Norwegian industry", while the Norwegian minister of Climate and Environment Sveinung Rotevatn highlighted how Longship is "an example of how emissions can be cut, without halting development" (Ministry of Climate and Environment, 2020c). This quote from Rotevatn proved to be very central in the Solberg government's narrative of Longship.

This quote is repeated several times related to Longship and is often referred to by the Solberg government as their "mantra" of Longship. At a speech Bru held when a letter of intent was signed related to Equinor in October 2020, Bru started by emphasizing how Norway wants to be a driving force of international climate work before connecting this work, as well as the mantra again, directly to Longship:

Norway wants to be a driving force in international climate work and was one of the first countries in the world to report a strengthened goal of climate cuts to the UN under the Paris Agreement. The government believes that CO₂ capture and storage is a necessary climate measure to reduce greenhouse gas emissions without slowing down development. (Ministry of Petroleum and Energy, 2020e, own translation)

Bru thus connects Longship directly to their mantra. A week after this, at a launch of a hydrogen project later in October 2020, Bru mentions the mantra again. Bru starts by focusing on the importance of economic growth before repeating the mantra:

We must not just reduce emissions. We will also make money and create new green jobs. The Prime Minister is right when she says that the green shift cannot be done with a red bottom line. It is not sustainable in the long run. We have to cut emissions - not development. (Ministry of Petroleum and Energy, 2020a, own translation)

These two speeches were directed toward the industry. However, the mantra is also brought up again concerning the climate plan. At the press conference at the presentation of the white paper on the climate plan, former prime minister Erna Solberg also held a speech (Office of the Prime Minister, 2021b). In this speech, Solberg started by referring to green growth, as well as repeating the same mantra: «The government will cut emissions in a way that transforms Norway into a low-emission society and facilitates green, sustainable growth. We must cut emissions, not development." (Office of the Prime Minister, 2021b, own translation). The focus on economic growth is an aspect that's repeated several times in the speech and the same accounts for the view on the businesses and the conditions for them.

On the 11th of June 2021, five months after the launch of the white paper on the climate plan, the Solberg government presented a new white paper connected to Longship and the mantra: the energy plan (Office of the Prime Minister, 2021c).

Moreover, Solberg continues by connecting their Energy plan to the Climate plan: "With the Climate Plan, we have clarified both ambitions and a clear plan for emission reductions, and with this plan, we fulfill our mantra of cutting emissions, not development, with more content.". Thus, according to Solberg here, this climate plan is the plan on *how* the Solberg Government will cut emissions and not development.

At the press conference of this white paper on energy, the former prime minister Erna Solberg started by explaining how the different white papers are connected to the mantra and Longship: "With the Climate Plan, we have clarified both ambitions and a clear plan for emission reductions, and with this plan, we fulfill our mantra of cutting emissions, not development, with more content." (Office of the Prime Minister, 2021c). Solberg thus notes that the energy plan builds on the climate plans ambitions and adds more content on how they will achieve their mantra.

Sanner, the former finance minister in the Solberg Government, also refers to this mantra as late as the 12th of October 2021 (Ministry of Finance, 2021). This was at the final press release Sanner held about the state budget before the Støre government took over two days later on the 14th of October 2021. This type of speech is often seen as an opportunity for the finance ministers to show what the Solberg Government has succeeded in for the last couple of years, in addition to presenting what the government proposes as the state budget. Here, in Sanners' speech, he stated the mantra again: "We have cut emissions, not development! We have managed to combine economic growth with lower greenhouse gas emissions" (Ministry of Finance, 2021). A fascinating factor with this is that it presented the mantra in past tense: something that has happened. Following this repetition of the mantra, Sanner states what the government will grant more money on as proof of this. Here, Longship was mentioned again, where Sanner pointed to how the Solberg government proposed to increase the grant to the Longship projects

5.2.2 Creating and Sustaining Jobs

This subchapter shows that a central part of the Solberg government's narrative of Longship was that Longship would contribute to creating and sustaining jobs.

The analysis also shows that petroleum workers are a high priority for the Solberg government. In the press conference at the launch of Longship, Bru referred to an element related to Sharing Burden within climate justice: "Industry and enterprises across Norway, which creates jobs and welfare, also emit CO₂ that contributes to climate change. Therefore, many people have been concerned with working out how CO₂ can be captured and stored" (Ministry of Climate and Environment, 2020b). In the speech at the launch of Longship, the former Minister of Children and Family affairs, Rotevatn, also connected Longship to jobs. He stressed that even though

CCS is a climate project, Longship is also vital in achieving jobs and further economic development in Norway: "Although Longship is first and foremost a climate project whose goal is to reduce CO₂ emissions, the development and operation of carbon capture and storage facilities will pave the way for jobs and economic development in Norway." (Ministry of Climate and Environment, 2020c).

At the Ministry of Climate and Environment (2020d) press release of the National Budget, where Longship got its first funding, Bru again repeats how vital Longship is to create new jobs in Norway. Here, Bru connects Longship, especially to new jobs and economic growth: "A successful project will make a significant contribution to the development of CO₂ management as an effective climate measure and can be an important project for creating green growth and new jobs in Norway." (Ministry of Petroleum and Energy, 2020c). She also mentions growth, which is a point this thesis will come back to later.

Moreover, Solberg explains what Longship is: "It is the largest climate project in Norwegian industry ever. It will demonstrate that CO₂ management is safe and that it is possible. At the same time, it will help to preserve, restructure, and create new industry and business in Norway." (Office of the Prime Minister, 2020a, own translation). In addition, she also notes that Longship is one of the central parts of the work with cutting emissions and contributing to green growth. The Climate Plan was connected to both Longship and green growth even before the release of the white paper.

The Solberg government also pointed out early on how new technology is necessary to cut emissions: "To manage the large emission cuts, we must develop and use new technology and new solutions related to both the production and use of goods and services." (p. 13). This sentence is further connected to business development, and then, especially to Longship:

The business policy must provide climate cuts, and the climate policy must provide business development. The longship project, which supports the capture, transport, and storage of CO₂ in Norway, is a milestone in the government's industrial and climate efforts. The project will cut emissions and facilitate new technology and thus new jobs. Meld. St. 13 (2020-2021) (p. 13, own translation)

The Solberg government thus places business development as central in their priorities and connects Longship, especially to this priority. Moreover, this point is thus followed up by an issue that is central in both Burden Sharing and avoiding harm:

Although the transition to more sustainable industries can provide more value creation in the long run, it will also have costs. An offensive climate policy can strengthen the competitiveness of the Norwegian economy and secure us against even more significant costs in the future. In the short term, we must try to avoid the negative consequences for the individual becoming too great. (Meld. St. 13 (2020-2021), p. 13, own translation)

Five months after the launch of the white paper on the climate plan, on the 11th of June 2021, the Solberg government connected Longship to a new white paper: the energy plan. In the press conference which presented this new white paper, the former prime minister Solberg started by emphasizing how crucial Norwegian energy resources will be for the development of a "sustainable welfare society" (Office of the Prime Minister, 2021c, own translation). Moreover, Solberg also pointed to Longship as one of the technological solutions relevant here.

The title of the white paper on energy describes some of the focus; it is titled: "Energy to work – long term value creation from Norwegian energy resources" (Meld. St. 36 (2020-2021), p. 1, own translation). This was also apparent in the introduction. The Solberg government started by explaining that the Solberg government wants to "...maintain Norway's position as an energy nation" before adding that the Solberg governments policy will be vital in creating jobs and welfare in Norway: "The government's policy will lay the foundation for the energy resources to continue to be used to create value, work, and welfare in Norway. The energy policy builds on the government's overall goal of creating more profitable jobs in the private sector, and cutting emissions, not development" (Meld. St. 36 (2020-2021), p. 5, own translation). The Solberg government again states that their overall goal is to create more profitable jobs in Norway and repeat their mantra of cutting emissions, not development.

Through this subchapter, I have shown that the Solberg government focused a lot on the possible benefits of Longship. This point will later be connected to the analysis of Longship concerning sharing burdens.

5.3 Longship and the Climate Targets

Through this subchapter, I assess how the Solberg government connects the Longship project to achieving the climate targets. This subchapter introduces how the Solberg government connected Longship to climate targets in the speeches and white papers.

At the launch of Longship, on the 21st of September in 2020, Bru started the press conference. Early in her speech, she stresses how substantial this project is: “It is the biggest ever climate project in Norwegian industry”. Bru also provides a lot of general information about the project, stating the information about the project, which is also referred to in the white paper. A factor she points to here is the costs of Longship. Bru explains that the project is estimated to cost NOK 25.1 billion NOK, whereas the Norwegian state will cover NOK 16.8 billion of this.



Figure 2. 2020 The press conference launching the white paper on Longship the 21st of September 2020. Photo: Eirin Larsen, SMK

Following Bru, Norway’s Minister of Climate and Environment, Sveinung Rotevatn, held his speech (Ministry of Climate and Environment, 2020c). Rotevatn is a representative of the Liberal Party (V). He starts the speech with the following sentence: “The Government is presenting an important white paper today that heralds great opportunities for significant

emission cuts and economic development”. Right away, stating the importance of Longship related to opportunities for both emissions cuts *and* economic development. Moreover, he shows how important the project is by referring to IPCCs reports on this in the same way as the white paper. Rotevatn then brings up the mantra again and then communicates a sentence that will be repeated several times: “Longship is an example of how emissions can be cut, without halting development”. Rotevatn also brings up jobs again.

The former Minister of Children and Family Affairs, Kjell Ingolf Rotevatn, a representative from the Christian Democrats (KrF), also held a speech at the launch (Ministry of Climate and Environment, 2020c). He starts by repeating some of the same narratives as the two other ministers. Rotevatn opens by adding to the previous arguments that there has been significant political support for CCS for a long time, where several governments have contributed to the work. Rotevatn also states that it will be very tough to achieve the climate targets and continue economic growth without CCS.

As the fourth and last speaker at the launch of the white paper, the former Norwegian prime minister Erna Solberg holds her speech. One of the first things that she mentions is relevant for an element within spatiotemporal fix: “Norway is taking the lead with Longship by demonstrating a whole value chain. This project will also improve the possibilities for developing whole value chains for hydrogen in Norway.”. Through this, she connects Longship to Norway’s prospects of continued work with hydrogen. Solberg continues by paying a lot of attention to how hydrogen is vital for Norway’s industry and gives Norway future possibilities. Moreover, Solberg continues by explaining that the issue of climate change requires “multiple measures to mitigate these problems” before following up with that CCS is an area where “...Norway is well qualified to contribute”. She thus connects Longship to two elements relevant within spatiotemporal fix: she points to how Norway is very qualified here and the fact that she highlights CCS as something Norway can contribute with.

Meld St. 33 (2019-2020) , the white paper on Longship, pointed to the IPCC and IEA several times to argue that CCS is vital. An example of this is the following sentence: “Both the UN Intergovernmental Panel on Climate Change and the IEA indicate that CCS must become a technology that can be quickly and widely deployed in order to reach international climate ambitions” (Meld St. 33 (2019-2020), p. 49). The Solberg government also linked CCS closely to the sustainable development goals and argued that CCS is vital to achieving them. The paper

highlight goal 13 on Climate Action especially and point to how it will be “...particularly challenging to reduce global greenhouse gas emissions in line with the climate targets at the lowest possible cost without using CCS” (p. 15). The white paper also showed the EU how vital CCS is: “The European Commission has defined CCS as one of seven strategic building blocks to achieve its target” (p. 17). Emphasize how hard it will be to achieve climate targets without CCS several times. Also connects this to the EU: “It will be extremely challenging for the EU to achieve its long-term target of climate neutrality by 2050 without CCS being adopted in many areas.” (p. 53)

Moreover, the analysis of the historical archive shows that the climate plan was brought up in connection to Longship two days after the budget was approved: on the 16th of December 2020, when the former prime minister held her semi-annual press conference (Office of the Prime Minister, 2020a)¹. Here, one of the things Solberg wants to emphasize is their climate policy. Solberg explains how she’s very to note that Norway’s emissions have gone down. Still, she also stresses that the government will do more in the following year: “And in the new year, the government will deliver a climate plan that shows how we will achieve our goals. A key part of that plan is that we will cut emissions, without halting development.” (Office of the Prime Minister, 2020a, own translation). Moreover, this sentence is thus followed by connecting this climate plan directly to Longship. Solberg explains that they have already landed one of the measures in the climate plan this autumn: Longship.

Through this subchapter, I assessed how the Solberg government connected Longship to achieving climate targets.

5.4 Norwegian oil and gas

Through this subchapter, I show that Norwegian oil and gas, and the petroleum industry, are highly connected to the Solberg government narrative of Longship. First, I show that a portrayal of Longship as cost-effective was central in the Solberg government narrative about Longship. Again, this focus on cost-effectiveness is also highly connected to petroleum interests. Secondly, I also show that the narrative the Solberg government has portrayed was very similar to the narrative the involved petroleum companies have. Third, I show that Longship has been

¹ This semi-annual speech at the end of 2020 was naturally shaped by the covid-pandemic. However, Solberg also highlights other things that she wants to emphasize that the Government has worked with – such as Longship.

used as an argument for continued oil and gas. Based on this, I argue that the narrative the Solberg government portrays of Longship was highly connected to the petroleum industry and interests in continued oil and gas extraction.

5.4.1 Cost-effective Way to Achieve the Climate Targets

Through this subchapter, I show that a central part of the Solberg government's narrative surrounding Longship was the focus on cost-effectiveness. I also argue that petroleum interests are connected to this focus on cost-effectiveness.

In the part dedicated to Longship in the white paper on the Climate Plan, the Solberg government started by presenting the necessity of CCS: "The reports from the UN Climate Panel show that it will be necessary to capture and store CO₂ to reduce emissions from industrial and power production and contribute to negative emissions to reduce global greenhouse gas emissions in line with climate goals at the lowest possible cost." (Meld. St. 13 (2020-2021), p. 187, own translation). This white paper thus also shows to the IPCC reports, as several of the other speeches and white papers have. In addition, it is also worth pointing to how the Solberg government adds "...at the lowest possible cost". Therefore, the cost-efficiency part of Longship is highlighted in the climate plan as well.

In chapter four of the white paper on Longship, the government presents the societal and impact goals of the projects (Meld St. 33 (2019-2020)). The white paper expresses how these goals govern the prioritization of the Longship project. The societal goals are, according to the white paper, to contribute to the "necessary development" of CCS to ensure that Norway and the EU can reach their climate targets "at the lowest possible cost." (p. 29). The paper does not express exactly how this might affect other attempts at reaching the climate targets, but it's clear that reducing costs is a vital prioritization. This could lead to consequences for reducing Norwegian oil and gas, as it could be argued it "costs more" for Norway.

Moreover, the white paper also expresses how the alternative to not using CCS would demand a lot: "The alternative is achieving even more rapid emission reductions, which entails a more intensive restructuring of industry, energy systems and consumer patterns" (Meld St. 33 (2019-2020), p. 12). Moreover, the white paper also adds that CCS, for some sectors and emissions, "...may be the cheapest and best way to reduce emissions." (p. 7). In addition, the white paper also shows reports from the IPCC and IEA to show how vital CCS will be in reducing global

greenhouse gas emissions in line with the climate targets "...at the lowest possible cost" throughout the whole white paper (Meld. St. 33 (2019-2020)). The argument is that the alternative is much more demanding. Compared to cutting emissions nationally by reducing the petroleum sector, Longship is way more beneficial.

The white paper in the climate plan, Meld. St. 13 (2020-2021) continues by explaining that the government wants to contribute to the development of this CCS technology with Longship before moving on to the purpose of the project:

Longships can significantly contribute to the development of CO₂ management as an effective climate measure and provide technology development from an international perspective. Longships will demonstrate that CO₂ management is safe and possible, facilitate learning and cost reductions for the following project, and establish an infrastructure that others can use. The threshold for establishing new CO₂ capture projects will thus be lower. Longships also aim to facilitate business development. (Meld. St. 13 (2020-2021), p. 187, own translation)

Longship is again referred to concerning cost reduction and businesses in this climate plan. This is also apparent in a speech Bru held at the Northern Lights launch the same day as the approval of the construction plans (Ministry of Petroleum and Energy, 2021c). Here, Bru explained that this was a big moment – and that she wanted to congratulate the new company. Following her congratulation, she continued with the following:

Let us remind ourselves why we do this. Without CO₂ capture and storage, the costs of achieving the climate goals in the Paris Agreement will be more than twice as high. To achieve the climate goals in Europe without massive deindustrialization, we need more CO₂ capture and storage. Longships make it possible – the storage can be used by capture projects in Europe, and the capture technology we will use here can be used elsewhere (...). (Ministry of Petroleum and Energy, 2021c)

Through this, Bru thus pointed to two things related to her reminding of why we do this: the costs will be twice as high without out, as well as avoiding massive deindustrialization (Ministry of Petroleum and Energy, 2021c). It is important to note here that the audience in this

matter is Northern Lights, as it is at their launch in Øygarden. However, this tendency to prioritize benefits is also apparent in other speeches, as I have shown earlier.

Through this subchapter, I have shown that a central part of the Solberg government's narrative surrounding Longship was the focus on cost-effectiveness. This is a point I will come back to in the analysis on harm avoidance in the following analysis chapter. Moreover, as I have mentioned briefly here in this subchapter, this portrayal of Longship as cost-effective was also highly connected to the focus on the petroleum industry. The following subchapter will go more into detail about Longship's narrative surrounding the petroleum industry.

5.4.2 The petroleum's Industry's in the Portrayal

Through this subchapter I argue that the Longship project is presented as a project that is in cooperation with the petroleum industry. This is, of course, apparent in the fact that this is a project that the Ministry of Petroleum and Energy is responsible for, in addition to how several of the companies involved are companies that are also highly involved in the petroleum sector. However, I also found that the portrayal of Longship is deeply connoted to the petroleum sector. The following subchapter deals with how the Solberg government portrayed Longship as a project cooperating with the petroleum sector.

The Norwegian parliament approved the national budget for 2021 on the 14th of December. The day after this, the Ministry of Petroleum and Energy (2020b) announced in a press release that Tina Bru would hold a press conference on the 15th of December together with the Chief Executive Officers (CEO) of Equinor, Shell, and Total. As stated earlier, these are the companies involved in Northern Lights. The Ministry of Petroleum and Energy (2020b) further explained in the press release that the budget for 2021 was approved in line with the Solberg governments proposal and added that this includes state support for Longship and a power of attorney from the parliament to the Solberg government to enter into an agreement with Northern Lights.

The Ministry of Petroleum and Energy (2020d) also published a new press release after the press conference. This states that CCS was essential for Norway's climate policy, industries, and cost-effectiveness: "Longships are a big step for the Norwegian work to limit climate change. It was also a significant boost for the Norwegian industry. Many CCS projects are needed to achieve the climate goals at the lowest possible cost.". The Ministry of Petroleum

and Energy (2020d) also states that Norway was in a distinct situation: "Norway has a comprehensive basis for contributing to the development of technology and solutions for CO₂ management. Our long experience with safe storage at Sleipner and Snøhvit is a good example." (own translation). (Ministry of Petroleum and Energy, 2020d).

The Ministry of Petroleum and Energy (2020d) also referred to the press release from Equinor twice. This press release from Equinor (2020) from the 15th of starts by emphasizing how vital this budget approval is: "Following a historic vote in parliament, the Norwegian Government today announced its funding decision for the Northern Lights CO₂ transport and storage project", before continuing with how this funding decision "...demonstrates the Norwegian government's strong support for the development of a Carbon Capture and Storage (CCS) value chain, which is essential if Europe is to achieve its carbon neutrality targets."



Figure 3: The former Norwegian Minister of Petroleum and Energy, Tina Bru, at the press conference 15th of December 2020 together with the CEOs at Equinor, Shell and Total. Photo: Ella Ege Bye/OED

The press release from Equinor (2020) also included citations from all the CEOs of the respective companies and Tina Bru. Bru starts by emphasizing how vital Longship is to achieve the goals of the Paris agreement. Bru continues by emphasizing something highly relevant to the technological uncertainty element in the theoretical framework. Bru stated that the cooperation with the industry has shown that Longship is feasible: "Working together with the industry, the step-by-step approach has confirmed that the project is feasible". Bru continues

by stating that she shows her gratitude to the respective companies and stresses that she looks forward to the continued cooperation.

The press release from Equinor (2020) continued with citations from the CEOs of the respective companies. The quotation from Anders Opedal, the CEO of Equinor, started by addressing how vital Longship is: "Northern Lights is a true pioneering project and the first of its kind offering a solution to cut emissions from industrial sources in Norway and Europe." before stressing that the broad political support and cooperation will make the project a success: "I want to thank the Norwegian government and for the broad political support in making this a reality. I am certain that we together with our partners and suppliers will make this project a success" (Equinor, 2020).

Ben van Beurden, the CEO of Shell, also emphasizes this gratitude to the Norwegian government: "The Norwegian government's initiative and support for what will be the world's first open source CO₂, transport and storage project show real vision and commitment.", before also stating that Northern Lights will help with actions that can't be avoided: "Northern Lights is designed to provide a service to industrial emitters who can now take action on emissions that can't be avoided." (Equinor, 2020).

The CEO of Total, Patrick Pouyanné, also thanks the Norwegian government: "We are a long-standing partner of Norway, a pioneer country which has more than 20 years of experience in CCS, and today we thank its government for making possible the final investment decision to develop Northern Lights", before stressing how vital CCS is: "CCS is key to achieving carbon neutrality in Europe and is fully part of our Climate Ambition to get to net zero emissions by 2050." (Equinor, 2020). Based on this, it is clear that the CEOs of the companies are pleased with the support from the Norwegian government. What is also evident is that the companies use some of the same arguments as the Solberg government uses.

It is important to note that these speeches from Bru were most likely aimed at the petroleum industry as an audience. The fact that the press conference was held and organized by Equinor is a sign of that, at least. However, this is also a finding: the fact that Bru prioritized time on the petroleum industries and companies on this "historic" day could say something about the priorities and the narrative the Solberg government presents. Related to this, it is also worth

noting here that the analysis of the historical archive showed that the Minister of Environment and Climate did not hold any speeches related to this according to his calendar.

Moreover, this was also a general tendency. In all of the 50 speeches in the historical archive on Longship, 21 of them were from Tina Bru or the Ministry of Petroleum and Energy. Since Longship is under the ministry of petroleum and energy's responsibility, the minister is expected to speak about this in different areas. However, since this is also a vital project within the Solberg government's climate policy, it is also interesting to compare this with the Ministry of Climate and Environment. This Ministry and the Minister of Climate and Environment, in comparison, is only mentioning Longship 7 times in the historical archive.

It is also interesting to look at who the audience for the speeches are. Many of the speeches were only general without a very distinct audience, such as the launch of Longship. However, some were also connected, especially to different industries, as the speeches were held at various conferences. An example of this is a speech by the minister of oil and energy, where Tina Bru held a speech at the announcement of a hydrogen project called HyShip in October 2020. Here, Bru emphasized growth: "We will not only reduce emissions. We will also make money and create new green jobs. The Prime Minister is right when she says that the green shift cannot be done with a red bottom line." (Ministry of Petroleum and Energy, 2020a, own translation). By referring to a red bottom line, Bru stresses that Norway has to continue economic growth.

Bru again repeats the mission of Norway having to "cut emissions, not development" before referring directly to Longship. She states that Longship is a "...milestone, and will be the largest public investment in climate technology in Norwegian industry ever." (Ministry of Petroleum and Energy, 2020a). The analysis of the historical archive showed that just a couple of days after this again, the prime minister held a speech at the opening of Equinors test facility at Herøya (Office of the Prime Minister, 2020b).

The white paper on Longship also refers to several evaluations and assessments that has considered the project. My analysis of the Solberg governments portrayal of these showed that the interests of the fossil fuel industry were baked into the evaluation of the project in the white paper on Longship as well. In the report which assesses the socioeconomic profitability of the project, two of the indicators of the socioeconomic benefits are "utilization of Norway's

geological resources” and “increased value of Norwegian gas” (Meld St. 33 (2019-2020), p. 69).

Moreover, the white paper on Longship also focuses a lot on the connection between storing CO₂ and *enhancing* oil recovery. Related to the status of the global development of CCS, Meld St. 33 (2019-2020) (p. 16) highlights how CO₂ has been used to “...enhance oil recovery and as an input factor in industrial processes”. This was central theme in an Impact Assessment from 2020 which is referred to in the white paper. In portrayal of the main features of this Impact assessment the white paper starts with:

“The petroleum resources the area around in the storage location are highly valuable to Norway. It is likely that the CO₂ will migrate over time into the production license for the Troll field. However, it is highly importable that significant volumes will migrate there as long as the Troll field is in production.” (p. 77).

The Norwegian Petroleum Directorate further lands on the same conclusion as the Impact Assessment. There seems to be a high chance that this project will not contribute to enhancing oil recovery while the field is still in production. However, the fact that this possibility gets so much focus could indicate that the petroleum industry’s interests have affected this project.

Through this subchapter I have argued that the Longship project is presented as a project that is in cooperation with the petroleum industry. I showed how the Solberg government has connected Longship to several of their activities in the petroleum sector, but not as many related to climate. The minister has also held press conferences together with the involved parties in Northern Lights. My analysis of this press conference was that the Solberg governments portrayal of the project is very similar to the different petroleum companies portayal. Furthermore, the narrative the Solberg government produces are that it’s a climate project in cooperation with the petroleum sector.

5.4.3 Continued oil and gas extraction

The analysis of the climate plan shows that a vital point for the Solberg government is that technological development is essential to reach the climate goals (Meld. St. 13 (2020-2021)). The white paper explained that reducing climate gas emissions is entirely dependent on

developing new technology and solutions (p. 185). Moreover, the Solberg government also shows the connection this has to the petroleum sector:

For example, with its heavy knowledge and competitive industry, the petroleum industry has the ability to innovate to develop new technologies with the potential to reduce greenhouse gas emissions in both its own and other sectors. This competence is essential in developing and implementing technologies for offshore wind, capture, and storage of CO₂ (CCS), seabed mineral, and hydrogen from natural gas with CCS. Over time, these can become essential industries in addition to the petroleum business. Therefore, the government has invested in technology that will contribute to developing new solutions for both national and global emission cuts. (Meld. St. 13 (2020-2021), p. 185, own translation)

The Solberg government thus not only connected the technological development especially to the petroleum sector, as well as highlighted that this competence is needed amongst others to develop and implement CCS, but they also argued that the technology could "become important industries in *addition* to the petroleum business" (Meld. St. 13 (2020-2021), p. 185)

This focus on Longship concerning the national budget at the end of 2020 also led to a debate. To the Norwegian news magazine "Politisk kvarter", "just a week before the national budget presentation, there was a debate between the Solberg government and the Norwegian Progress Party (FrP). Here, a representative from the Solberg Government was even more explicit about how Longship also has benefits for oil and gas. Steffan Heggelund, the Norwegian Conservative Parties spokesperson on energy and environmental policy, explained that Longship is a project that makes it possible to extend Norway's Norway's oil age (NRK, 2020, 1st of October).

Longship is once again connected to the white paper on Energy by Tina Bru in her speech at a conference on Energy (Ministry of Petroleum and Energy, 2021a). Here, Bru highlighted Longship already at the beginning – stressing how exciting this new industry is. Moreover, Bru presented a brief explanation of Longship: "Last year we launched Longship, the largest climate project in Norwegian industry ever. To help the world achieve its climate goals, and at the same time create jobs and industry in Norway." (Ministry of Petroleum and Energy, 2021a). Bru continued by stating that the project had already had a lot of progress. What's especially

interesting related to the focus in this subchapter is how Bru ends her speech by connecting Longship directly to oil and gas again:

And finally: I also have the responsibility for the oil and gas industry. This is the first white paper to the parliament that has such a holistic approach to the activity on Norwegian soil as well as the power system on land. The overall goal is for us to further develop a future-oriented oil and gas industry within the framework of the climate goals. (Ministry of Petroleum and Energy, 2021a)

Through this, Bru connects the overall goal of the white paper to the development of oil and gas within the framework of the climate goals. This was also clear in the white paper on energy. In the white paper on energy, the Solberg governments expressed that they wanted to continue with oil production within the framework of the Paris agreement: "The Government will facilitate long-term value creation from oil and gas resources within the framework of Norwegian climate policy and our obligations under the Paris Agreement." (Meld. St. 36 (2020-2021), p. 9, own translation). This was further followed up with what the Solberg government viewed as central within this work, where one of the things referred to several times was developing low emissions solutions which will reduce climate gas emissions from the extraction on Norwegian, as well as CO₂ management specifically (Meld. St. 36 (2020-2021), p. 9).

Through this subchapter, I have shown that the Solberg government used CCS to argue for continued oil and gas extraction in its portrayal of Longship.

5.5 The feasibility of Longship

Through the following two parts of this subchapter, I focus on how the Solberg government portrayed the feasibility of Longship.

5.5.1 A project that *will* succeed.

Through this subchapter, I show that the analysis of the Solberg government's portrayal of Longship shows that they were optimistic about the project. First of all, I point out that they have communicated that this is something that *will* work throughout the white paper and in their

speeches. Moreover, I point out an optimism towards the project in general as well. I argue that the Solberg government portrays Longship as something that will succeed.

The use of "will" is a word that's repeated throughout the whole white paper on Longship (Meld St. 33 (2019-2020)). In the introduction of the white paper, the Solberg states the following: "Northern Lights will realise a solution for transport and storage of CO₂", and "Longship will demonstrate that CCS is safe and feasible, and will facilitate learning and cost reductions in subsequent projects" (Meld St. 33 (2019-2020), p. 7). The same accounts in the chapter about benefits and costs in the white paper:

At the same time, successful demonstration of a full value chain for carbon capture, transport and storage will demonstrate a realistic solution for reducing emissions from important industries that have no alternatives to CCS. Longship will therefore make it easier to follow up the political ambitions for emission reductions with concrete measures, and therefore contribute to achieving Europe's climate targets. (Meld St. 33 (2019-2020), p. 52)

In the chapter about the benefits and costs of Longship, the Solberg government also pointed to the climate effect Longship will have: "The direct national emission reductions from the project will initially be around 400,000 tonnes of CO₂ per year when Norcem's capture project becomes operational and will increase to around 800,000 tonnes of CO₂ if Fortum Oslo Varme's project is implemented as well." (Meld St. 33 (2019-2020), p. 52). In the citation from the white paper on Longship above, the Solberg government also referred to what will happen *when* the project becomes operational, which emphasizes the optimism toward Longship as a secure project.

The use of "will" in the communication is also apparent in the speeches in the historical archive. At the launch of Longship, the Solberg government produced the same narratives about Longship as in the white paper regarding what Longship *will* achieve. At the press release at the launch of Longship, the former prime minister Erna Solberg had the following statements: "Longship is a milestone in the Government's industry and climate efforts. The project will lead to emission cuts and facilitate the development of new technology and thus new jobs", and "Northern Lights will transport liquid CO₂ from capture facilities to a terminal at Øygarden in

Vestland County. From there, CO₂ will be pumped through pipelines to a reservoir beneath the sea bottom." (Ministry of Climate and Environment, 2020b).

The press release at the launch of Longship also included citations from Tina Bru, Sveinung Rotevatn, and Kjell Ingolf Ropstad. The former minister of respectively Petroleum and Energy, Climate and Environment, and the Children and Families also applied the word *will* in their speeches (Ministry of Climate and Environment, 2020b). Bru explained that we *will* cut emissions: "Longship is the greatest climate project in Norwegian industry ever. We will cut emissions, not progress", Rotevatn pointed to how Norway *will* contribute to climate solutions: "With Longship, Norway will support development of climate solutions for the future.", while Rotevatn pointed to how Longship *will* strengthen Norwegian industry and create jobs: "Through Longship, the Government will strengthen Norwegian industry by enabling enterprises to meet the climate requirements of the future. The project is an important contribution to green growth and will secure and create new jobs in the industry" (Ministry of Climate and Environment, 2020b).

Moreover, the finance minister also expressed his enthusiasm for what the Solberg government had already contributed in his last speech as the finance minister (Ministry of Finance, 2021). Here, former finance minister Sanner held a speech where he repeated the mantra in past tense this time: "We have cut emissions, not development! We have managed to combine economic growth with lower greenhouse gas emissions" (Ministry of Finance, 2021). This citation is thus followed up with reference to Longship. Through this, Sanner thus maintains that the Solberg government has already achieved the mantra of Longship.

Moreover, the Solberg government reflects on a possible negative result of the project related to the climate effects in the white paper on Longship as well: "A successful project will reduce the risk for subsequent projects, both because they will see that the solutions actually work and because specifications and procedures have already been developed. A failed project with high costs can have a negative effect since it may scare of future projects" (Meld St. 33 (2019-2020), p. 53). Through this, the Solberg government thus brings up an unsuccessful scenario. It is vital to stress that this is one of the few places mentioning this, which the text will come back to in the following chapter. Moreover, it is worth noting that here, as in the rest of the paper, the scenario with Longship being successful is presented as something that "will" happen,

compared to the scenario with the failed project, which "can have" negative effects and "may" scare of future projects.

This subchapter shows that the Solberg government consequently referred to Longship as something that will succeed. However, the Solberg government also mentions some risks with the project. The following chapter deals with how the Solberg government has portrayed risks especially.

5.5.2 Risks with the project.

The previous subchapter showed that the Solberg government consequently portrayed Longship as something that *will* happen. However, none of the projects in Longship has been tried out on this scale which it is planned to work. Through this subchapter, I examine how the Solberg government portrays possible technological risks with the project. I argue that the Solberg government did not focus on potential risks in their portrayal of Longship. They referred to risks occasionally, but this was concerning who would take the economic risks if some parts of the project did not go as planned.

At the launch of the white paper, the former Norwegian prime minister Erna Solberg ended her speech with a citation that brought up risks with the project: "We are about to embark on a long journey. This project entails considerable risk. The launch of Longship will enable us to help reduce emissions without halting development." (Ministry of Climate and Environment, 2020c). Solberg thus highlights the risk in particular in her speech. Here, Solberg did not specify which risks she showed to. However, if one were to look at her speech as a whole, it is apparent that Solberg talked about economic risks for those involved (i.e., the state and the companies) (Ministry of Climate and Environment, 2020c). It is also worth noting that she referred to the mantra in the citation above, which was presented as something that *will* happen.

The white paper on Longship explains that since Longship is the first project of its kind, risks are still associated with a number of factors, despite the fact that the technology in the individual parts of the project has been rigorously tested (Meld St. 33 (2019-2020)). Moreover, this reflection is followed up with a focus on the economic risks this uncertainty in technology leads to. This is also a tendency throughout the white paper: technological risk is almost always connected to the possible *economic* risks or costs. One example is a "Rix matrix" of the state's costs, responsibilities, and threats. In this Rix matrix in the white paper, there is a focus on

technological risks, where several factors that reflect the possibility that there's some technical issues are included: "Delayed completion", "No or limited delivery of CO₂ from the capture actor", "Failure to receive CO₂ on the part of Northern Lights", "CO₂ deliveries that fail to meet specifications" and "Regulatory amendments, delays or amendments to licenses" (Meld St. 33 (2019-2020), pp. 61-63). As I will come back to in the analysis of Longship in light of harm avoidance, these are all factors that could have consequences for mitigating climate change. However, again, all these factors are only discussed related to who takes the economic risks.

Related to who takes the economic risks, the white paper also addresses that it is "likely" that Northern Lights will have some problems in the start-up phase (Meld St. 33 (2019-2020), p. 65). Moreover, the fact that there is a risk related to where all parts of the project will function as intended is also brought up related to who takes the economic risks in this situation (Meld St. 33 (2019-2020), p. 81)

The white paper on Longship also pointed to how both actors (Fortum Varme and Norcem) in the pre-feasibility assessment "identified their biggest risks in connection with construction and operation of their facilities" (Meld St. 33 (2019-2020), p. 49). According to the white paper, it did not emerge indications that it would not be possible to implement the CCS chain during this process. However, it's not specified in the white paper what risks they did identify, nor what meant by "emerged" during this process. The Gassonova assessment also argued that Northern lights might enter an implementation phase as well: "Overall, Gassonova considers that these activities have reduced the technical risk of the CO₂ transport and storage project to an acceptable level" (Meld St. 33 (2019-2020), p. 49)

Related to other matters that entail risks in the project in the white paper, Health Safety and the Environment also gets evaluated. The white paper explains that the risks related to this have been well studied, and this is the conclusion: "A serious [Health Safety and Environment] incident is unlikely, but if such an incident should occur, it may in addition to the serious direct consequences damage the state's reputation" (Meld St. 33 (2019-2020)). Here a possible environmental risk is not connected to the economic risk, as is apparent in the rest of the paper, but this potential damage is linked to Norway's reputation.

The white paper on Longship also showed to an assessment from the Norwegian Petroleum Directorate regarding risks, which explained that they assessed the possibility of leakage as

very low: “The [Norwegian Petroleum Directorate] considers it highly probable that the CO2 volumes included in phase 1 of the project can be injected. The cap rock above the selected reservoir has excellent sealing properties, and the risk of leakage to the seabed is deemed very low.” (Meld St. 33 (2019-2020), p. 78). It’s not explained exactly how low and which assessment the Norwegian Petroleum Directorate refers to. This point is followed up with the following sentences: “Based on the above discussions, the Ministry of Petroleum and Energy endorses the approval of the Northern light’s development. The project can be implemented within acceptable frameworks with respect to health, the environment, safety and fisheries’ interests.” (Meld St. 33 (2019-2020), p. 79)

Through this chapter, I have analyzed how the Solberg government portrays Longship. I have specifically focused on the white paper because the speeches do not mention risks. Besides this comment about risking scaring other projects, which was mentioned at the end of the previous subchapter, there are no reflections on how a failed project might affect climate change in the speeches in the historical archive. This subchapter provided the last of the subchapters focusing on the first research question. The following two chapters will analyze Longship in light of the second research question applied in this thesis.

6 Climate Justice

The second research question applied in this thesis asks whether Longship can be seen as a climate cake in line with climate justice or as a spatiotemporal fix. An essential element in the second research question in this thesis is thus climate justice, which this chapter focuses on. I have applied Caney (2014) as a theoretical framework to operationalize this element in my research question. I have divided the chapter into two parts after these two kinds of climate justice. As addressed in the theoretical chapter, Caney (2014) argues that one should first address what would effectively prevent the onset of dangerous climate change and then consider the responsibilities following this. The first subchapter thus deals with avoiding harm, while the second subchapters deal with burden sharing.

6.1 Avoiding Harm

The following subchapter deals with an element in the second research question: whether or not Longship can be seen as in line with the first kind of climate justice: avoiding harm. Through this subchapter, I argue that CCS plays a central role in climate targets and could be seen as vital in avoiding harm. Moreover, I connect the narrative the Solberg government portrays of Longship related to cost-effectiveness to harm avoidance and argue that the Solberg government focuses on how Longship can contribute to cost-effectively avoiding harm.

6.1.1 Reducing Norway's Emissions

A central element related to avoiding harm is the potential within the initiative. How much potential does Longship have to contribute to avoiding harm? Through this subchapter, I will look into the potential Longship has and how it may contribute to reducing Norwegian emissions.

The storage capacity of Longship in phase 1 of the project has an estimated total capacity of 1,5 million tonnes of CO₂ per year, and the planned operational period is 25 years (Meld St. 33 (2019-2020)). In the white paper on Longship, the Solberg government explains that the plan is that Northern lights will be able to receive CO₂ from Norcem, and if applicable, Fortum Oslo Varme, at in total about 0,8 million tonnes of CO₂ per year. This means that if everything goes as planned with Northern Lights in phase 1, they will be able to store 1,5 million tonnes of CO₂ yearly in 2024. To give this number some context and assess this from a climate justice perspective, it is beneficial to compare this amount with Norway's climate gas emissions today.

According to the Norwegian Environmental Agency (2021b), Norway emitted 49,3 million tons of CO₂ in Norway in 2020. Comparing this to the 1,5 million tons in phase 1 of Longship, one would need over 30 storage facilities to cover Norway's emissions. Moreover, the 1,5 is only the total amount Northern Lights plans to storage. If one were to calculate the Norwegian emissions from Norcem and possibly Fortum, the aim is to store capture and store 0,8 million tons per year (Meld St. 33 (2019-2020), p. 76). If we were to divide this number similarly, one would need over 60 Longship projects in phase 1 to cover Norway's emissions from 2020. This means that even though the 0,8 tonnes of CO₂ planned to be captured and stored in stage 1 of Longship is a lot, it is not that significant compared to the total emissions Norway has.

Moreover, as also referred to earlier, the aim of Longship is also to start a second phase. Meld St. 33 (2019-2020) , the white paper on Longship, states that this potential second phase of Northern Lights will increase the capacity to 5 million tons of CO₂ per year. This second phase would then affect the comparison to Norway's emissions again: one would need about 10 Northern Lights storage facilities to store as much as Norway emitted in 2020. However, this second phase has not been decided on yet (Meld St. 33 (2019-2020))

Related to these emissions planned on being captured at Fortum Varme, Participant 2 added an interesting point. When asked about which processes the Ministry of Climate and Environment has been involved in, Participant 2 explained that one of the processes the Ministry had been involved in was an issue concerning how the biogenic emissions planned on being captured at Fortum Varme could be counted. Participant 2 explained that since 50% of the CO₂ from Fortum Varme is from biogenic sources, and this is not calculated in the official emissions, there had been dilemmas about giving the companies incentives to capture CO₂ they do not pay any CO₂ tax to release. How to calculate these biogenic emissions was one of the processes that the Ministry of Climate and Environments had contributed with. This issue was solved by Fortum receiving a subsidy equal to the ETS quota price for each ton of biogenic CO₂ they capture (Participant 2). Moreover, the Ministry of Climate and Environment employee also added that this means that the capture of CO₂ at Fortum will lead to negative emissions (Participant 2).

In the discussion on Norway's emissions, It is also worth noting that the Norwegian Environmental Agency (2021b) explains that Norway's emissions in 2020 are reduced by 3,5

percent, or 1,8 million tons of CO₂ less than in 2019. They further add that 2020 was an exceptional year because of the pandemic and that this year should thus be placed less emphasis on when you look at the broader, more long-term trends. Moreover, in the spring of 2020, the Norwegian parliament adopted a support package for the industry, leading to more petroleum investment.

It is also valuable to look more into Norway's petroleum sector emissions. The Norwegian Environmental Agency (2021a) explains that in 2020, 13,2 tons of CO₂ of the Norwegian emissions in 2020 were from oil and gas extraction. This means that climate gas emissions from oil and gas make up 27% of the Norwegian emissions, making oil and gas the second most significant source of climate gas emissions in Norway after transport. The Norwegian Environmental Agency (2021a) further adds that these emissions come from the extraction of oil and gas at the continental shelf, processing gas on onshore facilities, and managing raw oil and other petroleum products.²

However, a vital aspect related to the emissions from the petroleum industry from a climate perspective is *what* is counted in the emissions. As the Norwegian Environmental Agency (2021a) notes, the emissions included in Norwegian emissions are the emission from the extraction, processing, and transport of the Norwegian soil. The emissions from further use and processing of the oil and gas are registered as emissions in the country it is used or processed (Norwegian Environmental Agency, 2021a). This means that the total oil and gas emissions extracted from Norwegian soil are more than what is counted as Norway's own emissions.

In this subchapter, I have analyzed what the potential for Longship can be concerning reducing Norway's emissions and thus contribute to harm avoidance. I argued that even though there is a lot of potential, one would need to have a lot of projects such as Longship to cover the emissions Norway has. However, its vital to stress here that reducing Norwegian emissions is not the only aim of Longship – another essential part is also to contribute to technological development, which other countries and companies can benefit from. As I will show in the

² Regarding these onshore facilities for processing gas, the Norwegian Environmental Agency (2021a) show to four different facilities: Kollsnes, Kårstø, Nyhamna and Melkøya. Kollsnes is also the place where Northern Lights. The observation at Northern Lights showed that the neighboring construction place were processing gas.

following chapter, this was also a point Participant 2, the employee from the Ministry of Climate and Environment, highlighted. To examine the other possibilities Longship has to contribute to harm avoidance, I will analyze how Longship can contribute to technological development in the following chapter.

6.1.2 Contributing to Technical Development

In the previous subchapter I focused on the potential Longship has to reduce Norwegian emission. Through this part I will show that a central part of the aim of the project is also to contribute to technological development, so that other countries and companies can apply the technology and reduce their emissions as well. The following subchapters deals with this aspect, and how this might affect how Norway contributes to avoiding harm.

As shown in the analysis of the Solberg government portrayal earlier in this thesis, a central part of the Solberg governments argument for why they wanted to invest in longship was also that they hoped it would trigger further investments and technological development elsewhere. In the white paper on Longship, they explained that this will be one of the factors that assess whether or not longship has been a success. If Longship is to affect others into also investing in the technology, and these other projects is a success – the positive effect could be way more than the actual emissions being captured and stored here in Norway.

This argument was also highlighted by participant 2. In relation to a point about how vital CCS is in different climate targets, participant 2 highlighted how important contributing to technological development is. Both the IPCC, EU and the IEA stress how vital this is (Participant 2). The employee from the Ministry form Climate and Environments further stressed that related to this, it is important to note that the purpose of Longship is not primarily to reproduce emissions in Norway, even though this is also vital. The purpose is first and foremost to develop the technology on CCS and spread it internationally. (Participant 2, own translation).

This the employee from the Ministry of Climate and environment highlight here, is, as I have showed in my analysis of narratives earlier, corresponding with the Solberg governments aim with the project: a central argument for the Solberg government was the potential Longship has to contribute to technological development. This can also be connected to a point that Participant 1 pointed to in relation to Mongstad. The employee at Northern Lights said that

Mongstad had received too much negative attention in the public, after his opinion, since the aim of contributing to technological development and developing a test facility in fact was successful. Participant 1 emphasized that the purpose of Mongstad was two folded, where one of the objectives was to develop a test center, which were successful and functions today (participant 1).

However, these numbers are all very unsure and rely on many vague and undefined factors. In Brus speech to Northern Lights where she announced that the construction plans for Northern lights were approved at the beginning of March 2021, she points to how the storage project in Longship can make it possible for capture-projects in Europe to store capture here (Ministry of Petroleum and Energy, 2021c). Related to this, she also points to how the Northern Lights has already discussed this with actors, and connects the possibilities here specifically to Norwegian emissions:

I know that you are in dialogue with more than 60 European companies that are looking at the possibilities of using the warehouse. That is impressive. These companies represent the possibility of capturing 50 million tonnes of CO₂ a year. This corresponds to total Norwegian emissions in 2019. (Ministry of Petroleum and Energy, 2021c, own translation).

Bru thus points to this possibility especially.

In the white paper on Longship, there's also a lot of focus contribution Norway will have on developing technology with Longship, and how this will have a positive effect of the costs of CCS (Meld St. 33 (2019-2020)). The start of chapter 6 "Benefits and costs of Longship" points to how the learning and development technological development will contribute to reducing costs and risk for subsequent projects (Meld St. 33 (2019-2020)).

However, in the beginning of March 2021, the Ministry of Petroleum and Energy (2021b) released a press release where they communicated that they had approved the construction plans for Northern lights. Here, Bru states how this approval is a milestone in the project, and that the projects have been successful so far: "The outlook is good. Northern lights has already entered into letters of intent with eight companies, and I believe that more people will want to join the project now that it has been approved" (Ministry of Petroleum and Energy, 2021b, own

translation). Bru also adds that the project has already been successful related to their goal on more projects following Longship: “Also in the capture of CO₂, Longship gives a new boost to industrial players. Heideberg Cement, which owns Norcem, is now considering the possibility of a project at the cement factory in Gotland in Sweden”, before adding that this project in Sweden has the “...potential to capture almost four times as much as the project at Norcem” (Ministry of Petroleum and Energy, 2021b, own translation). According to Bru, Longship had already succeeded in this positive effect.

6.1.3 The Role of CCS in Climate Targets

A central element in the discussion on avoiding harm is the role of the project in preventing climate change. In this subchapter, I argue that since CCS indeed has such a central role in climate targets, and the IPCC already has calculated in their scenarios that it will work, Longship could contribute a lot to harm avoidance. Moreover, I also argue that the fact that it already plays such a vital part makes the success of Longship even more crucial.

As shown earlier in this thesis, my analysis of the historical archive showed that a central part of the Solberg government's portrayal of Longship was the vital part CCS plays in climate targets. A central document here was the white paper on Longship, where the Solberg government pointed to scenarios from both the IPCC and IEA several times to argue that CCS is vital. An example of this is the following sentence: "Both the UN Intergovernmental Panel on Climate Change and the IEA indicate that CCS must become a technology that can be quickly and widely deployed in order to reach international climate ambitions" (Meld St. 33 (2019-2020), p. 49). The Solberg government also linked CCS closely to the sustainable development goals and the EU's climate targets and stressed that CCS is vital to achieving them (Meld St. 33 (2019-2020), pp. 15-17).

The importance of CCS and thus also Longship concerning the climate targets was also pointed to by Participant 2 several times. One of the examples of this is the reference already referred to in the previous chapter, where Participant 2 pointed to how both IPCC, EU, and the IEA stress how vital CCS is. The participant further explained that the Ministry of Climate and Environment's view on CCS is that it is essential. Hence, their primary approach is that they support everything that can contribute to promoting CCS, long as it is done in an environmentally sound and safe manner. Participant 2 thus, in the same manner as I have earlier

shown that the Solberg government has in the historical archive and white paper, stressed how vital CCS is in achieving the climate targets and reducing emissions.

CCS accordingly plays a vital role in the Climate targets. All IPCCs (2018, p. 3) analyzed pathways to limit warming to 1.5°C. For example, they have applied technology to *neutralize* emissions from sources. Since the scenarios are already based on CCS being able to conduct on a larger scale than it is done today, one could argue that Longship could play a vital part in avoiding harm. Suppose Norway Longship were to succeed and demonstrate that Longship can reduce emissions and contribute to technological development. In that case, this could contribute so that the negative emissions already calculated in the scenarios for achieving the climate goals become successful.

Concerning avoiding harm, one of the reports from the IEA is especially interesting in this relation. In the white paper on Longship, the Solberg government show to a report from the IEA, which is termed "New zero by 2050 – A roadmap for the global energy system" (Meld. St. 36 (2020-2021), p. 13). The Solberg government explained that this report presents scenarios to limit global warming to 1,5 degrees. The IEA anticipated that about half of the emission reduction would come from technologies that today are not commercially ready. This includes advanced batteries, CO₂ management, and direct air capture of CO₂ from the atmosphere. Moreover, what is especially interesting related to elements within avoiding harm, is the reference to the IEAs conclusion on oil and gas. The IEA, according to the Solberg government, concludes with the following:

The consumption of oil is estimated to be reduced by 75 pst. and the consumption of gas by 55 pst. compared with today. With these assumptions made by the IEA in the modeling of the scenario, it will therefore not be necessary to develop new oil and gas fields to meet the demand. (Meld. St. 36 (2020-2021), p. 13, own translation)

The fact that this report thus does not anticipate a need to develop new oil and gas fields is not reflected further by the Solberg government in this white paper; they still conclude that there will be a need for more Norwegian oil and gas in the future and will open up new oil fields.

However, there are also more aspects of this IEA report that are not reflected in the white paper, which is also relevant to both avoiding harm and spatiotemporal fix. The IEA (2021) report

does not only conclude that there will not be a need to develop new oil and gas fields because of changes in consumption, as the Solberg government highlight in the citation from the white paper above: but the IEA (2021) also concludes with that to limit the global warming to 1,5 degrees one will have to reduce the consumption of oil, coal, and gas so rapid that the world already has found more than enough.³ It is thus not only the anticipated consumption that the IEA thinks will limit the need for new oil and gas fields but also necessary to limit global warming. Considering how the Solberg government chose to emphasize this report in particular, but not pointing to this finding of the recommendation to reducing oil and gas, is highly interesting related to avoiding harm.

6.1.4 An Unsuccessful Project?

Through the previous subchapters, I have argued that Longship has several aspects with it that can contribute to avoiding harm. However, what if the project were to not succeed in the way it was planned for? This would undoubtedly have a consequence for harm avoidance as well. The following chapters deal with the implications an unsuccessful project could have for harm avoidance.

In the interview with Participant 2, I also brought up this scenario of an unsuccessful project. I asked: “If this project does not become as successful as Norway wants, how could this affect Norwegian emission cuts?”. In answer to this, Participant 2 pointed to how one of the main consequences a failed project could lead to is the signal it will have globally. This could signal that CCS is expensive and difficult and thus be a deterrent to others. A failed project will therefore be able to prevent other countries from investing in this technology and thus contribute to making it an effective climate measure (Participant 2).

Moreover, the Ministry of Climate and Environments employee further brought up Mongstad. They explained that Mongstad was not so successful and could have contributed to actors believing CCS to be too expensive and risky. If Longship were not to succeed, this could send a very negative signal to the outside world, and this is perhaps the worst thing (Participant 2).

³ The results from this report from the IEA got a lot of focus in the Norwegian political discussion. The IEA has historically been advocating for the need for energy and thus continued production of fossil fuels. The fact that the conclusion from this report were so drastically in the conclusion on the future for these resources led to a discussion on whether or not Norway should continue with opening up new oil fields.

Moreover, Participant 2 also highlighted that the 400 000 tons of CO₂ and the 400 000 tons of CO₂ from Fortum are significant in the Norwegian context. It is important to stress that Participant 2 answered my question about this scenario by pointing to how Longship looks very promising. The Participant further noted that the construction had already started, and this has already gone much further than what it did at Mongstad, before concluding that Longship looks very promising (Participant 2). The employee from the Ministry of Climate of Environment did thus not indicate Longship could fail, but instead responded to the scenario.

Moreover, this point about a potential negative signal, which Participant 2 brings up, is also pointed to in the white paper on Longship. In the white paper, the Solberg government stressed both what a successful and a failed project might contribute: “A successful project will reduce the risk for subsequent projects, both because they will see that the solutions actually work and because specifications and procedures have already been developed. A failed project with high costs can have a negative effect since it may scare off future projects” (Meld St. 33 (2019-2020), p. 53). As I have shown in the analysis of the Solberg government narrative, a central portrayal of Longship is that it will work. So, this nuance and reflection about what a failed project might lead to is one of the very few parts the Solberg government does this.

Through this part in the subchapter on avoiding harm, I have argued that since a very vital part of the aim of Longship is to demonstrate that CCS is a feasible technology that can reduce climate gas emissions cost-effectively, an unsuccessful project could have adverse effects on new investment in this technology. As I have shown in earlier chapters, CCS is already incorporated in scenarios in the climate targets, and this case could have very negative consequences for harm avoidance. One could even argue that Longship could indeed lead to more harm if it shows unsuccessful. The following sub-chapter will focus on the second kind of climate justice: sharing burdens.

6.2 Sharing Burdens

The following part will deal with a different element of my second research questions: sharing burdens. As described earlier, I have operationalized the research question by focusing on different elements in the theory. In this chapter I will therefore present the findings on these different elements in sharing burdens.

Caney (2016) explains that policies to mitigate and adapt to climate change can impose what he terms unjustified burdens on third parties I argue that

6.2.1 Benefits, Not Burdens

As I have also shown to in the analysis of the narratives, a central part of the Solberg governments portrayal of Longship how it does not lead to burdens, but instead proposes possibilities for economic growth and creating jobs. Through this subchapter I first start by showing to assessing this narrative, before focusing on how the Longship projects does not have any direct burdens for the global south.

A central element in the theoretical framework is on which burdens the climate initiative leads to. However, through this analysis I have showed that a central part in the Solberg governments communication surrounding Longship was the lack of burdens. This can all be connected Caney's theory of sharing burdens; the Solberg government does not focus on burdens, but on the benefits Longship will lead to. As I showed in the narrative analysis, an important part of the portrayal the Solberg government had in their communication of Longship was the focus on the absence of burdens. Their mantra "cut emission, not development", is a vital example here in how they emphasized this. Moreover, as also shown in the analysis of the narratives, the Solberg government also argued that Longship will be cost-effective, in addition to not have to deindustrialize and lose jobs. The Solberg government portrayal of longship is thus a stress big focus on possible benefits for Norway and Norwegian companies, in addition to how Longship can contribute to Norway and Norwegian companies not having to deindustrialize and thus get more burdens.

The analysis of the speeches showed that creating jobs, or not harming jobs, was a central element in the different Ministers communications about Longship. One could therefore argue that ensuring that the workers in the fossil industry does not have to go through the burden of

losing their jobs has been an essential part of the Government priority. As highlighted in the theoretical framework, this was one of the elements in the Caney's sharing burdens framework.

Moreover, as I have shown in the analysis of the portrayal of Longship, the Solberg government did not focus or discuss this possibility of climate measures having a burden for the global south. Even though this is the narrative produced in the speeches by the Solberg government, this does not mean that there has not been any focus on this. Here, the employee from the Ministry of Climate and Environment, contributed with some interesting aspects. Participant 2 explained that some have been skeptical to storage of Biogenic CO₂ since it could create incentives to have negative effects on biodiversity. Ensuring that the CO₂ capturing of biogenic emission does not lead to negative consequences for biodiversity is a factor that the Ministry of Climate and Environment have focused on. Related to Longship, the employee raised the dilemma of biogenic CCS might be stored in Norway in the future.

However, the participant further emphasized again that ensuring that bio-CCS does not come at the expense of biodiversity has been important for the Ministry of Climate and Environment. The ministry has also worked with promoting sustainability criteria to ensure this (Participant 2). It could thus seem like even though the Solberg government does not focus on ensuring that this CCS is not a burden for the global South in their portrayal of CCS, the Ministry of Climate and Environment has worked with ensuring this.

Moreover, Participant 2 also emphasized that this issue of biodiversity is not particularly relevant for the Longship project as the CO₂ is only captured from Norcem and Fortum, and there is no risk to biodiversity here. Securing the sustainability criteria is thus important for CCS in general, but there has not been an issue in connection with the Longship project. The participant further also added that this might be why this has not been addressed as an issue in speeches (Participant 2). Compared to other Norwegian climate mitigating initiatives, such as BECCS, the projects in Longship now does not seem to lead to any direct burdens for the global South. Moreover, as just referred to above, participant 2 explained that the ministry of Climate and Environment are aware of the dilemma of Biogenic CCS, or BECCS, possibly being stored at Northern Lights and works with ensuring biodiversity.

Another mitigation initiative one could compare to is the Norwegian rainforest initiative NICFI. As referred to in the theoretical chapter, some of the cases related to Norway's rainforest

initiative has certain aspects with it that can be viewed as an unfair share of burden for the locals in the respective areas. The rainforest initiative could thus have more direct consequences for neighboring communities to the forests in the global South than Longship.

Moreover, as the analysis of the Solberg governments portrayal showed, the focus on CCS as a cost-effective climate measure was also connected to being able to avoid the possible burden of having to phase out the oil and gas industry. As the different ministers states several times, this would have dramatic consequences for the Norwegian welfare state and the economic growth. In the interview with Participant 2, I asked if the employee had any thoughts on how Longship could affect Norwegian oil and gas production. Here, the employee from the Ministry of Climate and Environment explain that the government is concerned about how CCS will decarbonize the industry. The participant further pointed to how some sectors are more difficult to decarbonize, such as the cement industry and the waste industry and more in the process industry (Participant 2).

Meld. St. 13 (2020-2021) the white paper presenting the Climate Plan, also stated that a priority for the Solberg government was to secure that “most people does not have negative economic effects: “The government will pursue a climate policy that has the least possible negative economic consequences for most people” .⁴ At the same time as it pays to cut greenhouse gas emissions, the policy should not lead to unreasonable costs" (p. 60). The Solberg government thus emphasizes the importance of Norwegian citizens not having burdens. Moreover, Meld. St. 13 (2020-2021) is also clear on how Norway needs new technology to not having to reduce the welfare: “We depend on technology development and innovation in all sectors to reduce our emissions and manage the transition to the low-emission society without a reduction in welfare.” (p. 63, own translation).

In this subchapter I have argued that the aim of Longship is to contribute to benefits, not burdens. I have argued that the project does not impose burdens for workers in Norway, as is one of the burdens Caney highlights. Moreover, I have also argued that even though the Solberg

⁴ Formulations, such as "ordinary people" or "most people", are often used by political parties in Norway – but in most cases it is not clearly defined who these so called “most people” are. However, in the context of this thesis, the most important that the term refers to Norwegian citizens.

government does not focus on the global South in its portrayal of Longship, the Longship project does not have direct consequences for the global South.

6.2.2 Economic Burden

Through this subchapter, I argue that one of the biggest burdens of Longship could be seen as the economic burden it is. Since the Norwegian state takes this burden, I argue that this could be seen as quite fair since Norway has a historic responsibility for the climate crisis.

As shown to in the analysis of the portrayal, the Solberg government stress how Longship is the “biggest climate project in Norwegian history ever”. One of the times Bru mentioned this sentence was when the Solberg government presented its proposal or Norway’s National Budget for 2021 (Ministry of Climate and Environment, 2020d). Here it was also apparent how expensive the Longship project is. This was revealed already in the title of the press release: “A record-breaking budget for climate and environment” (Ministry of Climate and Environment, 2020d, pp., own translation). The Solberg Government further connects this “record” specifically to Longship, pointing to how the Solberg Government proposes to use NOK 2,7 billion on Longship in 2021, as well as NOK 16,8 billion on Longship in total.

The white paper on Longship also describes why the government has to invest in CCS and why it is not profitable today. Here, the Solberg government describes that this current lack of economic profitability is a market failure. The paper adds that it is two sets of market failure that “...work together to prevent actors in the market from developing and using necessary climate technology of their own initiative” (Meld St. 33 (2019-2020), p. 22). The first being that the price of emitting greenhouse gasses is lower than the socioeconomic costs associated with them. The other is what is referred to as a “positive externality”. Since the new technology may have the characteristics of a public good, the actors that develop it might bear the costs while the benefits are shared by many (Meld St. 33 (2019-2020)). The Solberg government further argued that the fact that they wanted to contribute to lowering these costs are a central reason for why Norway invests in this project. Since there is great uncertainty about the CO₂ pricing – and therefore the benefits of the project – the white paper argues that its necessary with funding (Meld St. 33 (2019-2020), p. 50).

This economic risk the Norwegian state takes could thus be seen as a burden with CCS. This is also something the employee from the Ministry of Climate and Justice insinuated to. In the

interview with Participant 2, I explained that a focus in my thesis is possible burdens climate measures can lead to and asked if the participant had any thoughts on if whether there could be any burdens with Longship. Here, Participant 2 also stressed that the economic responsibility Norway takes could be seen as the main burden of the project. The explained that the burden in many ways is on Norway. We bear the great financial cost of developing this technology, and we are leading the way (Participant 2). Moreover, the employee from the Ministry of Climate and Environment also added Longship, in the same manner as other budget expenses, can be at the expense of something here. If Norway had not spent money on Longship, then the money could be spent on other things in the budget that could have benefited society in other ways. In that sense, you can say that this is a burden we take (Participant 2). The employee from the Ministry of Climate and Environment thus also stressed that the overall effect of Longship are benefits. However, the participant also mentioned one more possible burden which the next chapter deals with.

Through this subchapter I have argued that one of the main burdens of Longship could be seen as the economic burden Norway takes in investing in this project.

6.2.3 Storage of CO₂: A Burden?

Building on Caney's two kinds of climate justice, Tønnesen discusses CCS in light of intergenerational justice and focuses primarily on the practical sides with the long-term storage of CO₂. Tønnesen (2021) argues that the storage of CO₂ is a burden on future generations. Lindeberg (2003, cited in Tønnesen p. 94) notes that there has been estimated that CO₂ storage in geological formations has to operate in a time perceptive of a minimum of 10.000 years. Tønnesen further shows that researchers, industry, and politicians claim this storage is safe:

Studies from research and industry teams argue that there are plenty of usable storage sites where you can be reasonably sure that CO₂ does not leak out of the CO₂ reservoirs (see Ringrose & Meckel, 2019, for example). From a technical and political point of view, it is reported that monitoring technology that will be able to report if leaks from the CO₂ reservoirs should occur is under development. Therefore, measures can be implemented quickly if necessary. (Tønnesen, 2021, p. 94)

Tønnesen (2021) points to the practical parts of the storage as the costs it puts on future generations: “Dedicated geological storage of CO₂ will, as Wilson points out (2004, p. 38), involve costs not only today, but also in the future.” (p. 97). Tønnesen argues further that since CCS has a time perspective of minimum 10.000 years, and that nor a company, country or insurance company has existed for that long - it will be very difficult for the polluter to actually pay for these costs in the future. In the case of Longship, this implies that there will be practical parts of the storage that future generations will have to deal with the geological storage.

Tønnesen (2021) also point to that politicians often bring up the focus on surveillance technology when discussing this storage. This is also the case of Longship: the parts dealing with leakages in the white paper stress how it will be monitored. As the analysis of the portrayal of Longship has showed to earlier, the Solberg government refer to technological risks almost exclusively concerning the economic risks it might have. The same accounts for the accounts for the possibility of carbon leakage. One example of this is in the discussion of possible leakages during transport in the white paper on Longship: “The capture operator may not subtract allowances for CO₂ that leaks during transport and must thus surrender allowances for these emissions. The financial loss that results from such leakages during transport can be regulated in private legal contracts between operators” (Meld St. 33 (2019-2020), p. 44). This is also discussed related to the closing of the storage site, where the white paper state that the costs in case of leakage must be assessed (Meld St. 33 (2019-2020), p. 46).

Moreover, (Tønnesen, 2021) also argues that politicians consequently refer to the monitoring in storage when they discuss this. My analysis of the white paper on Longship shows that this is the case here as well. The Solberg government explain that a system will be implemented to identify any leakages, and how an overarching monitoring plan has been drawn for the project (Meld St. 33 (2019-2020), p. 75). Morvoer, regarding to this focus on monitoring the same accounts as with the other cases the Solberg government discussed any risk – the focus is on who takes the economic risk and responsibility for the monitoring. The white paper specifies that following any closure of a storage site, all the obligations for monitoring and correcting measures are transferred to the state (Meld St. 33 (2019-2020), p. 44).

However, Tønnesen poses a what he terms as a practical question: “is it realistic to operate with monitoring technology for CO₂-storage with a time perspective of at least 10,000 years?”

(Tønnesen, 2021, p. 98, own translation). He concludes with that to answer “yes” to this would be extremely naive considering cultural changes.

However, Norwegian Petroleum Directorate explains they do assess possibility of leakage as very low, and that the project thus can be started: “The [Norwegian Petroleum Directorate] considers it highly probable that the CO₂ volumes included in phase 1 of the project can be injected. The cap rock above the selected reservoir has excellent sealing properties and the risk of leakage to the seabed is deemed very low.” (Meld St. 33 (2019-2020), p. 78). It’s not explained exactly how low and which assessment the Norwegian Petroleum Directorate refers to. Moreover, the white paper also point to how the storing in pressure tanks also has a risk: “Storing CO₂ in pressure tanks entails a risk, but according to Multiconsult, the risk is very low” (Meld St. 33 (2019-2020), p. 31). The point about the low risk of a leakage is thus repeating point.

This is also a point which Participant 2 highlights. When asked how involved the Ministry of Climate and Environment had been involved in the evaluation of the safety and risks of the storage of CO₂, the participant 2 stated that the storage-operator Equinor had conducted impact assessments that thoroughly analyzed the storage. Moreover, Participant 2 continued by referring to how long Norway have worked with CCS since 1996 on the Sleipner field, and how we have analyses that how safe CCS is. There is a per mil change that something will happen. Moreover, the storage is also constantly monitored (Participant 2). The employee from the Ministry of Climate and Environments thus emphasizes how safe the project is in the same manner as the white paper on Longship does, and points to how Norway has experience with this technology. Participant 2 also added that there has been some sceptics in Europe: “There has been some skepticism in Europe about CO₂ storage, especially Germany has been skeptical about storing CO₂ on the shelf, but we see that there has been a trend where more and more people at least see that it is necessary, and I believe they also becomes convinced that this is safe.”. As referred to in the background chapter, the trend in Norway is that people are positive towards CCS.

Moreover, Tønnesen (2021, p. 92) also argues that that if CCS allows countries that produce petroleum products, such as Norway, to enhance oil and gas production because of the CCS, then this burden the storage might lay on future generations is even more unjust. Tønnesen (2021) argues that a large-scale investment in carbon capture and storage involves a moral

hazard since it enables continued use of fossil energy, as well as diverting resources from investment in renewable energy. If this happens, and CCS in addition is not successful in preventing climate change, then this will be highly problematic. He also points to the fact that we actually have other climate initiative that could have as fast and possibly more lasting effect, and do not include the same risk or injustice, speaks against having a large-scale investment in CCS. Moreover, as I have showed to several times through this thesis – a central part of the narrative the Solberg's portrayal Longship is how they apply CCS in their argument for continued oil and gas extraction.

6.2.4 An Unsuccessful Project?

Through the following subchapter I discuss the scenario of an unsuccessful project. I argue that this could lead to burdens for other actors.

First and foremost, the analysis of the white paper shows that the Norwegian government in the white paper does not reflect on the possible burdens a failed project might have for the global South – or for the already marginalized and vulnerable groups that might experience more of the consequences by the damages of climate change. As I have also shown to in the theoretical framework, the possibility of CCS not working as planned is a central part in the criticism of CCS. The lack of reflection on this by the Solberg government is thus a finding in itself. This could intend that the burdens for the global south have not been as big of a priority in the Solberg government related to Longship.

What the Solberg government does focus on, however, is whether or not a failed project would have some consequences for other than the companies involved. In the case of Northern Lights, this means that the Solberg government stresses the need for Equinor for example to not to have unjust financial burdens. Related to the analysis of if the possible risks of the projects, the finding was that the Norwegian government uses much space and time to reflect on how this could lead to an economic risk for the companies involved. The analysis of the white paper also shows that the possible economic burden for the involved companies is highly prioritized by the Norwegian government (Ministry of Climate and Environment, 2020a) (Meld St. 33 (2019-2020), p. 8).

But what kinds of burdens could a failed project lead to? As mentioned in the discussion of this in avoiding harm, I asked participant 2 about the situation of an unsuccessful project. Here,

Participant 2 highlighted that if this project were not to succeed then it would have the severest consequences' globally. Moreover, Participant 2 also pointed to how vital CCS is in reducing emissions and achieving net zero again, and explained that if Longship does not succeed, we would have to implement other climate measures, which can be demanding to achieve (Participant 2).

This could thus mean that if Longship were not to succeed, it could mean that the government would have to apply other climate measures that has a more direct burden for others. This could be loss of jobs in Norway or applying another climate measure that could put the burden more directly on the global south. Besides this comment about risking scaring of other projects, there's no reflections on how a failed project might affect climate change. A very dramatic consequence of a failed project could be that other climate measures, such as reducing oil and gas, could not be implemented in the hopes of CCS working. We have very few years to cut emissions, and too much optimism and related to CCS can have serious consequences if it is at the expense of other climate measures and not end up working as planned.

Moreover, As argued in the chapter about narratives, the Solberg governments portrayal of Longship is highly connected to the petroleum industry and petroleum interests. This is, in fact in the oil industry's own interests. Ensuring that both the Norwegian state and Norwegian oil companies does not have to cut down on the oil and gas industry - it can even work as an argument for continued oil and gas. Based on this, it is worth to take up the discussion on sharing burdens as one of Caney's kinds of climate justice again. As I showed to earlier, one could argue that Longship has a fairer share of burdens compared to other climate mitigation projects. Since the project is in Norway, it does not impose more burdens on third parties in the global South.

However, could Longship rather be an argument for the Norwegian government to not have to impose the "burden" it would be to phase out Norwegian oil and gas? As I have shown in the analysis, the Solberg government has a focus on cost-efficiency as a leading principle in their argument for Longship both in the white paper, as well as having a continued economic growth as a central focus in their speeches. If you also take the fact that there's actually still an uncertainty if the project will succeed as planned into consideration as well, one can question *who* its actually ensures a fair share of burden for. This thesis will come back to this point in the following chapter.

Through this subchapter I have looked at which burdens an unsuccessful project could lead to. The following chapter deals with another central elements in my second research question applied in this thesis: spatiotemporal fix.

7 Spatiotemporal Fix

My second research question in my thesis addresses another theory as well: spatiotemporal fix. In my research question, I ask whether Longship can be considered as a climate measure in line with climate justice, or as a spatiotemporal fix. Here, in this chapter, I focus on the element of spatiotemporal fix from my research questions. To operationalize this again, I have used elements in my theoretical framework. As I have shown in my theoretical framework, several of the academics that focus on how spatiotemporal fix considers both narrative and reality in the project. Here, I thus try to take up even more of the threads from the first analysis chapter on narrative again.

Through this chapter, I argue that Longship has indeed some of the tendencies that the academics I referred to in the theoretical framework has termed as spatiotemporal fix. I start by focusing on the connection to economic growth, before focusing on the petroleum industry and then the technology. I argue that these three elements within spatiotemporal fix are all apparent in the Solberg governments portrayal of Longship is well. Moreover, as I also refer to in theoretical framework, spatiotemporal fix consists of both spatial and temporal fixes. In the following two subchapters I deal with elements with Longship that can relate to each of these separately. I argue that there are some tendencies with Longship that can be seen as spatial deferment. However, the main consequence the fix has is temporal. Through the focus on future technological development, as well as a climate measure that relies on future generations dealing with the storage, Longship can be argued as a spatiotemporal fix.

7.1 Economic Growth

In the analysis of the Solberg governments portrayal, I showed that ensuring economic growth was a vital part of the portrayal of the project. Through this subchapter the I argue that the wish to continue Norway's economic growth, and securing "green growth", is also a tendency within spatiotemporal fix. I argue that the Solberg governments repeating argument for why they want to invest and focus on Longship is because of possibility of more economic growth for Norway, is in the same manner as Harvey describing the aim to have more accumulation. Longship could thus be seen as a fix aiming at achieving more economic growth for Norway.

In the theoretical framework I explained at the core of the arguments within spatiotemporal fix is that it's an initiative aiming at "fixing" the second contradiction of capitalism: the fact that the endless drive for more accumulation, i.e., economic growth, is leading to the crises.

First and foremost, this focus is clear in the mantra the Solberg government stress throughout their speeches and white papers. As this thesis has shown in the chapter about narratives, the mantra of the Solberg government concerning their climate policy is "cut emissions, not development". This quote is repeated several times related to Longship, and often referred to by the Solberg government as their "mantra" of Longship. An example of this is at the Launch of Longship, where the Norwegian minister of Climate and Environment Sveinung Rotevatn highlighted how Longship is "an example of how emissions can be cut, without halting development" (Ministry of Climate and Environment, 2020c). Moreover, at the press conference at the presentation of the white paper on the Climate Plan, the former prime minister Erna Solberg also held a speech (Office of the Prime Minister, 2021b). In this speech, Solberg starts with referring to green growth, as well as repeating the same mantra: «The government will cut emissions in a way that transforms Norway into a low-emission society and facilitates green, sustainable growth. We must cut emissions, not development.» (Office of the Prime Minister, 2021b, own translation). Their focus on economic growth is thus a central part of the portrayal of Longship.

The same accounts for the view on the businesses and the conditions for them. A citation from Solberg which I would like to highlight relates to this is the following citation:

Economic growth and value creation are not an obstacle to achieving the Norwegian climate goals. That is a prerequisite. Without a business with capital, competitiveness, and creative ideas, we will not succeed. Therefore, the government uses various instruments, such as financial support, fees and requirements in a way that will build up restructuring in the business community. And the [Solberg government] emphasize that the businesses must have predictable conditions through this restructuring. (Office of the Prime Minister, 2021b)

Solberg thus states that economic growth is a *prerequisite* to achieve the Norwegian climate goals, which is relevant to the discussion on Spatiotemporal fix. This is also apparent in the white paper on longship. In the introduction of the white paper, the Solberg governments states

that the climate crisis is also an opportunity for growth in Norway: “The work to stop climate change is a great challenge, but also a great opportunity to create a better Norway. Value creation is a precondition, not an obstacle, to stop climate change.” (Meld. St. 13 (2020-2021), p. 11, own translation). The Solberg government does thus not only claim that Longship could fix the problem of not being able to get more economic growth because of climate change, but also stress that the economic growth is a prerequisite.

Moreover, the last sentence in the citation is also relevant to sharing burdens: the fact that Solberg chose to highlight they emphasize the predictable condition for the businesses especially, can say something about the priorities the Solberg government have, and which possible burdens they emphasize. The former prime minister ends her speech by stating that the government focuses on the technology of the future, where she also highlights Longship to begin with: “The government is investing in the technology of the future. With Longship, we are at the forefront of developing carbon capture and storage in Norway.”. Solberg ends her speech by the following concluding sentence: “This report lays the foundation for a greener, smarter and more innovative Norway.” (Office of the Prime Minister, 2021b, own translation)

Related to the vitality of the project, there’s also a lot of focus on the cost-effectiveness. One example of this in the introduction of the white paper on longship: “Based on the knowledge currently available, CCS will be necessary to reduce global green-house gas emission in line with climate targets at the lowest possible cost” (Meld St. 33 (2019-2020), p. 7). Another example in the chapter with the ministry of petroleum and energy’s assessment of the project: “The government therefore believes that implementing Longship is an effective way for Norway to contribute to reducing global greenhouse gas emissions in the long term at the lowest possible cost” (p. 81). Moreover, the chapter about benefits and costs of Longship starts with the following sentence: “Longship’s goal is to contribute to Norway and Europe achieving their long-term climate targets at the lowest possible cost.” (Meld St. 33 (2019-2020), p. 52).

Longship is also highlighted by the Finance Minister Jan Tore Sanner related to the proposal for the national budget for 2021. In the “Finance Speech”, which is where the finance minister accounts for how the government wants to solve important challenges through priorities and measures in the state budget, Sanner puts a lot of emphasis on green growth – as well as mentioning how important Longship is (Ministry of Finance, 2020). This is also repeated in the fourth and last of the documents mentioning longship related to the Solberg governments

proposal for the national budget for 2021 in the historical archive: in the Minister of finances speech at the press conference on the national budget, he again mentions economic growth, and stresses how the Solberg government will prioritize Longship.

Through this subchapter I have shown that the Solberg government has applied Longship as an argument for securing Norway's own economic growth further. This is a very central element in the theoretical framework on spatiotemporal fix. Based on this, one could argue that Longship indeed has elements of spatiotemporal fix. The following part deals with another aspect of spatiotemporal fix: how it relates to the status quo.

7.2 The Petroleum Industry

Another central element within spatiotemporal fix is how it relates to status quo. As referred to in the theoretical framework, Markusson et al. (2017, p. 4) argue that spatiotemporal fixes legitimize and enable specific political regimes. If Norway's CCS project Longship is a spatiotemporal fix, it could then be argued that it would be applied to legitimize and then also enable Norway's continued oil and gas extraction. Through this subchapter I argue that the Solberg government has used CCS and Longship to legitimize continued oil and gas extraction.

A vital part in legitimizing continued oil and gas extraction, is the portrayal of how effective CCS can be. As showed in the analysis of the portrayal of Longship, the Solberg government focused a lot on how Longship is way more cost-effective than other climate measures. The Solberg government showed to reports from the IPCC and IEA throughout their white papers and speeches to show how vital CCS will be in reducing global greenhouse gas emissions in line with the climate targets "at the lowest possible cost". The alternative to Longship, is emphasized as much more demanding. Compared to cutting emissions nationally by reducing the petroleum sector, for example, Longship is thus way more cost effective. This focus on cost-effectiveness can certainly contribute to the legitimizing of continued oil extraction in itself

Moreover, in my analysis of the portrayal I also showed that the Solberg government connected Longship directly to their argument for continued oil and gas extraction. An example of this is a statement from Tina Bru. In a speech related to the launch of the white paper on energy, Bru explained that this is the first white paper that shows how an oil and gas industry can be developed within the climate goals: "This is the first white paper to the parliament that has such an holistic approach to the activity on Norwegian soil as well as the power system on land. The

overall goal is for us to further develop a future-oriented oil and gas industry within the framework of the climate goals” (Ministry of Petroleum and Energy, 2021a). Through this, Bru connects the overall goal of the white paper to the development of oil and gas within the *framework* of the climate goals. This is highly relevant for the discussion on spatiotemporal fix. As Carton argue, the fact that companies can argue for continued oil and gas production within the Paris agreement poses a question if the focus on net-zero, and then the technology that aims to secure the negative emissions, is feasible. Longship has been applied as an argument for how oil and gas is necessary to achieve the climate goals. Based on this, one could argue with that Longship does indeed help legitimizing continued oil and gas extraction.

Consequently, Longship aims at having positive effects of the development of the supply and service industry of Norwegian oil and gas. This implies that the petroleum sectors interests are highly taken into consideration in this project. Moreover, the connection to other industries is also clearly communicated. One example of this is in a part about the economic growth and developing of technology in the white paper on Longship (Meld St. 33 (2019-2020)). Here, the Solberg government connects Longship to sectors that are more challenging to reduce emissions today – such as steel and cement industries. The white paper argue that it will be extremely challenging to maintain current industries and achieve our climate targets without CCS (Meld St. 33 (2019-2020), p. 14).

Moreover, the white paper on energy also has a sub-chapter in the introduction dedicated to the Paris agreement. Here, the Solberg government explain that the Paris agreement is a global framework to limit climate change. What is especially relevant to avoiding harm, is the Solberg governments explanation of how the Paris agreement aims to limit the global temperature:

To achieve the long-term goal, the parties agreed to aim for global greenhouse gas emissions to peak as soon as possible and then reduce emissions rapidly in line with the best available science, in order to achieve a balance between man-made emissions and greenhouse gas emissions in others half of this century (climate neutrality). (Meld. St. 36 (2020-2021), p. 12)

The Solberg government thus shows a clear focus on the balance of emissions, and thus technologies such as CCS, in their explanation of the Paris agreement. What’s especially interesting, is that this citation is followed up with an element within climate justice. The

Solberg government adds in their white paper that “This will demand sharp reduction in global emissions, and a rapid and comprehensive restructuring in all countries and sectors”, before also adding an element related to the unfairness of the burdens of global climate change: “Should the current global emissions trend continue, it could trigger irreversible processes that could destroy the livelihoods of the people in parts of the world” (Meld. St. 36 (2020-2021), p. 12, own translation). However, does the Solberg governments climate and energy policy contribute to a so called “rapid and comprehensive restructuring in all countries and sectors” when it continues to build on the petroleum industry?

The focus in this thesis is on the Solberg government. However, it is also interesting to have a brief look at how the newly elected government portrays the project. Looking at this, it is clear that the newly elected government also seems to be following in the same footsteps. Even though the newly elected Norwegian government hasn't been in power for that long, they have also communicated several statements that reproduce this reality. One example of this is COP26 in November 2021. The climate conference started with one official statement from each of the leaders from around the world. This included the newly elected Norwegian prime minister, Jonas Gahr Støre. In his official speech, he clarified the urgency and seriousness of climate change (Office of the Prime Minister, 2021a). He was also positive and expressed how it is *possible* if everyone steps up on their commitments. One could also spot the same optimism to the technology as the Solberg government has with the use of with the use of the word “will”, which the following subchapter will deal with again, stating that “Norway will reduce its emissions – and we will help others to cut theirs and adapt.” (Office of the Prime Minister, 2021a)

The Norwegian prime minister also comments on the role of developing technology directly in his speech at the climate conference: “We aim to develop and export technology that can be used beyond our borders” (Office of the Prime Minister, 2021a). The analysis of the white paper showed that this is one of the main arguments for why the Norwegian government wanted to invest in Longship. Moreover, Støre also points out that Norway is in a position to take the lead in the development of solutions such as carbon capture, utilization, and storage – thereby referring directly to CCS in his speech at COP26. In relation to this speech and Støre being in Glasgow for the climate conference in general, Støre also commented on Norway's climate policies to different newspapers – which must be addressed in order for Støres's speech to have some more context. In an article published the same day as his speech in one of the country's

leading daily newspapers, *Aftenposten*, Støre expressed several things that could be argued as lobbying on behalf of Norway's petroleum sector. Støre said that "Norwegian gas is not the problem, but a part of the solution for a successful transition from fossil to renewable energy carriers", and added that "if we are successful with storage and capture of CO₂, Norwegian gas can be an important energy source, both for energy production and hydrogen." (*Aftenposten*, 2021, p. own translation). The Støre government which took over governing after Solberg, thus follows in the same footsteps when it comes to connecting CCS to petroleum interests as well.

Through this subchapter I have focused on how Longship might legitimize and enable continued oil extraction. In the previous chapters I have explained that Longship could prove to play a vital part in avoiding harm. However, this chapter focused on how Longship is connected to petroleum interests. I argued that the fact that the Solberg government has indeed connected Longship so directly to their interests in sustaining Norwegian oil and gas, one could see Longship as a spatiotemporal vital in maintaining status quo with oil production.

7.3 Technological Optimism

This subchapter will focus on the feasibility of the project. As I have shown in the theoretical framework, a central part in the criticism of CCS has been whether it is feasible. IPCC has emphasized the uncertainty with the technology regarding the fact that the technical initiatives to capture carbon have so far not been successful on the scale needed to reach the 1.5- and 2-degree target. As stated earlier, the IPCC also show to that the technology it bases its scenarios on is still not been successful in the scale necessary. It is uncertain if it is possible to apply this technology in the scale or time needed to secure.

A central part in the theory of spatiotemporal fix is the narrative surrounding this technological development. As referred to in the theoretical framework, Harvey (2001) argues that capitalism is addicted to endless expansion through economic growth, as well as technological change. In order to continue with economic growth, capitalism needs to achieve technological change – making things more effective of reduce the human resources needed. Continued technological change is therefore a vital part in the argument for continued economic growth within the capitalist system.

Through this thesis I have argued that the Solberg government focused a lot on technological development in their narrative. An example of this is in the Solberg governments white paper

on the Climate plan, Meld. St. 13 (2020-2021) (p. 44), they mentioned technology development as an element of uncertainty for emissions: “On the other hand, technology development can also proceed more slowly than is assumed in the projections”. In connection with the electrification of transport, the government is particularly technology optimistic: “We also see that the rapid technological development we have had in recent years, especially in the transport sector, means that the tools we have a greater effect and make it increasingly easier to choose zero-emission solutions. The technology development will provide traction assistance to the emission cutter in the future, and the instruments can provide technology development.” (Meld. St. 13 (2020-2021), pp. 45-46). The white paper does on the Climate plan mention briefly that there is an uncertainty surrounding the calculation because of uncertainty in technological development (Meld. St. 13 (2020-2021)). However, this uncertainty does not have any consequences for the calculations in itself – the Solberg government still bases its scenarios on a projected technological development (Meld. St. 13 (2020-2021)).

Moreover, I have also showed that the Solberg governments consequently portray Longship as something that *will* happen. In the few instances where technological risk is mentioned, this is connected to the possible *economic* risks or costs. One example of this a “Rix matrix” of the state’s costs, responsibility, and risks. Here, there is suddenly a focus on technological risks, were several factors that reflect on the possibility that there’s some technical issues are included: “Delayed completion”, “No or limited delivery of CO₂ from the capture actor”, “Failure to receive CO₂ on the part of Northern Lights”, “CO₂ deliveries that fail to meet specifications” and “Regulatory amendments, delays or amendments to licenses” (Meld St. 33 (2019-2020), pp. 61-63). However, all these factors are, again, only discussed related to who takes the economic risks. Based on this, one could argue that Longship does indeed has the tendencies of optimism towards technological development which is often is apparent in spatiotemporal fixes.

However, central part in Carton’s criticism of CCS is also that he argues the narratives surrounding it does not focus on actual experience with the field. As shown in the first subchapter in the analysis of the Solberg governments portrayal of Longship, they focus on a lot on the Norwegian history Norway has with CCS. At the launch of Longship, for example Bru explained that Longship has built on the work from several different governments (Ministry of Climate and Environment, 2020c). Based on this, it would seem like the tendency Carton describes with CCS, that involved parties do not focus as much on actual experience – but on

future scenarios instead – is not the case here. The Solberg government does indeed focus a lot on earlier experience, and it is even a quite vital part of the narrative they produce. The Solberg government does put a lot of attention to the history Norway have with the technology.

However, Carton (2019) further specifies that there's a tendency to not focus on the negative experience with the field,. This could indeed be true the case of Longship as well. In the analysis of the narrative the Solberg government has of Longship, the thesis pointed to how the Solberg government does mention Mongstad several times – and refer to the history with Mongstad and Sleipner, for example, to point to how much experience and expertise Norway has with the technology. However, the analysis of the narrative also showed that the Solberg government showed that the fact that Mongstad did not succeed as planned, however, is not brought up by the Solberg government. The focus is only on the aspects that were successful. Considering this, one could argue that the Solberg government does not focus on the negative experience with the field in their communication at least.

The white paper does show to some of the international experience with CCS as well throughout the white paper on Longship. Meld St. 33 (2019-2020) (p. 16) highlights that there, at a global level, CO₂ has been stored under land and under the seabed – but connects all these as being used at enhancing oil recovery and input in industrial processes. The white paper on Longship also referred to pre-feasibility studies examples of Norway's experience with CCS. Here, they tried out several different smaller projects. Several of them did not proceed because of this trial – for example the project at Yara's ammonia factory in Porsgrunn. The paper highlights the low learning potential and uncertainties with the projects as reasons for not going further with the Yara project. This pre-feasibility study also led to Northern Lights, according to this white paper, concluding with that the selected storage location at Smeaheia was too uncertain (Meld St. 33 (2019-2020)). Here, again the Solberg government does indeed focus on some not as successful projects as well. One could therefore conclude with that the Solberg government does indeed show to some negative experience with CCS as well.

Carton et al. (2020)) further argues that instead of focusing on earlier experiences with carbon removal, the focus is on possible outcomes and future scenarios. I argue that this is a tendency apparent with Longship. In the white paper, the Solberg government shows to several models developed both by IPCC and IEA that show that in the development of CCS-technology is required. One example of this is related to the review of the status of CCS of global development

of CCS. Here, the white paper highlight that there are currently 58 large-scale CCS projects worldwide. The paper highlights how these are all in different phases of development but show to the *estimated* capacity of the projects combined to show the potential outcome with them. The estimated capacity of these 58 projects combined is around 127 million tonnes of CO₂ per year, according to the white paper (Meld St. 33 (2019-2020)).

This is also apparent related to how the Solberg government communicates about potential in Norway as well. Related to Northern lights there is also a lot of focus on the potential capacity of different phases. The first phase plans to have an estimated capacity of 1,6 million tonnes of CO₂ per year, and a potential second phase is planned to have an estimated capacity of 5 million tonnes of CO₂ per year. The white paper also shows to potential outcomes related to the possible storing in Northern Lights. The paper explain that eleven projects are planning to store CO₂ in the Norwegian storage facility, and that there in addition has been identified further 22 potential projects that might be future possible projects. Carbon Limits and Thema Consulting has therefore considered Northern Lights' overall market potential between 20 and 60 million tonnes of CO₂ per year. This evaluation of the market potential is also presented in figure 4.9 and 4.10. However, the paper also highlights that there remains uncertainty regarding how many of these identified projects will be implemented. The socio-economic analysis also puts great emphasis on *potential* development. The scenario assumes different development in the technology (Meld St. 33 (2019-2020))

7.4 The Environmental Interventions:

In the chapter about narratives, I showed that the Solberg government did not emphasize the environmental interventions connected to Longship. Through this subchapter I examine what the reports referred to in the white paper say about the environmental intervention and compare this to the narrative the Solberg government has produced. Based on this comparison, I argue that the Solberg government has downplayed the negative effects of the environmental intervention in Longship.

Moreover, another central element within temporal fix is that the “fix” is through a temporal deferment. This implies that that the dilemma or consequence if postponed to a later time. Thought a previous subchapter I have discussed the storage of CO₂ in light of whether or not it imposes an unjust burden on future generations. I argue that this unjust burden can also be seen as a form of temporal postponement. Through relying on storing CO₂ in the grounds for

thousands of years further, Longship might impose an unjust implication for future generations: transferring the responsibility and problem of this crisis today onto future generations. Moreover, this argument is reinforced by the fact that the Solberg government argues that a central part of the aim of Longship is to ensure continued economic growth, as well as applying Longship as an argument for continued oil and gas extraction. The Longship project thus places a great deal of responsibility on future generations, at the same time as it is applied as an argument for even more release of emissions today.

In the white paper on Longship, the Solberg government shows its assessments on the effect of Longship (Meld St. 33 (2019-2020)). Here, the Solberg government explains that with industrial projects such as CCS, one often risks damaging the environment locally. Which environmental risks or damages does the white paper refer to?

In the white paper on Longship, the Solberg government refers to several assessments of Longship. In 2020, Atkins and Oslo Economics made an updated quality assessment on Northern Light. In the white paper on Longship, the Solberg government states that there are some non-quantifiable effects that have been assessed on a scale from large-scale *positive* effects of major importance to society, to large-scale *negative* effects of major importance to society. One of the “non-quantified” effects is “environmental impact”. What’s especially interesting here, is that all in this category is the only one that has negative effects. All the other categories show a positive effect (Meld St. 33 (2019-2020), p. 69). The white paper on Longship therefore points to that an impact assessment of the socioecological effect on Longship shows that it has a negative impact on the environment. However, as shown to in the chapter about narratives as well, this point is not commented on further in the white paper – it is only briefly mentioned. It is therefore not clear what negative impacts Longship might lead to.

If one looks at the quality assessments directly - and not only the white paper’s portrayal of the findings - the negative environmental impact of Longship is described more. In the first version of the quality assessment from Oslo Economics and Atkins (2016), this shows several environmental effects: “Other environmental effects of a catch, transport and storage chain will be noise, waste production, physical encroachment on nature, visual changes, increased traffic on the road and sea, dangers of accidental emissions of CO₂ and chemicals”. The second quality assessment from Oslo Economics and Atkins (2020), also shows

to the report show to the same assessment of the negative and positive effects. However, it is not commented that much in addition.

The white paper on Longship also shows an impact assessment by Multiconsult about Norcem's CCS project. According to the white paper, this impact assessment "...has not revealed any factors indicating that the measure should nor or cannot be implemented. Multiconsult considers the negative impact of the measure to be minimal" (Meld St. 33 (2019-2020), p. 31). Moreover, the impact assessment from Multiconsult (2019) also shows to several impacts the facility at Norcem will have specifically. One of the main findings here is that the discharge of the wastewater from the CO₂ capture plant at Norcem will be discarded to the water at Eidangerfjorden. The Eidangerfjord is part of the Svenner basin, which is a national salmon fjord, and has therefore been considered particularly important in connection with the environment. During carbon capture, some substances that are currently released into the air will go to sea after a purification process. This will, according to the assessment from Multiconsult (2019), have a small negative effect.

Even though the white paper shows to these impacts assessment that has found several negative possible environmental aspects with longship, such as polluting the water in a national salmon river, this is either not mentioned entirely or clearly downplayed in the white paper on Longship. Moreover, in the analysis of the speeches the Solberg government held about longship, I found that zero of the speeches mentioned this negative environmental effect. Based on this, I argue that the Solberg government downplays this – making the negative environmental effect of Longship appear less imperative than it is.

Downplaying negative aspects of a climate project is, as I have shown in the theoretical framework, a central part of the theory of spatiotemporal fix. Scholars argues that politician and advocates for these "fixes" exaggerate the positive sides of the climate projects and downplays the negative aspects. Based on this, one could argue that Longship has another aspect in it that can be seen as spatiotemporal fix. More precisely, it could be argued a spatial fix: a fix that depends on spatial expansion, as Longship depends on having a negative effect on the local environment.

7.5 Progress of Longship

The following subchapter provides the last chapter in my thesis before the concluding remarks. In this subchapter, I will examine the progress of Longship so far. As explained in the theoretical framework, Carton (2019) proposes to distinguish between the implementation of a specific NET, and the discursive construction of the technology. This is also something I have done through this thesis. I have looked at the narratives surrounding longship on the one hand and compared this with the implementation of Longship on the other. Moreover, Carton also states that he prioritizes to look at narratives since he views this as more pertinent: “Since none of the proposed NETs currently exist at any meaningful scale, and are perhaps unlikely to ever materialise, the latter focus is for now the more pertinent one.” (Carton, 2019, p. 752). However, Longship seems to start to materialize now. Through the following subchapter I will look at the progress longship has done so far and discuss what this progress could imply in light of spatiotemporal fix.

As noted through this thesis several times, Longship was launched the 21st of September in 2020 (Ministry of Climate and Environment, 2020b, 2020c). This press conference which has been analysed in this thesis marks the launch of the project (Ministry of Climate and Environment, 2020b). Moreover, the budget of Longship were then approved by Norwegian parliament the 14th of December (Ministry of Petroleum and Energy, 2020b), before Longship were discussed and unanimously adopted by the Norwegian parliament the 21st of January 2021 (Stortinget.no, 2021). The project was thus decided on and agreed on a budget already at the beginning of the year of 2021.

The progress of Longship were also focused on in the white paper on energy Meld. St. 36 (2020-2021) . Here, the Solberg government explains that the Ministry of Petroleum and Energy has signed grant agreements with the companies involved, and that the plan for development, construction and operation was approved on 9th of March 2021 (Meld. St. 36 (2020-2021)). Moreover, the white paper also explains that Northern Lights has decided to drill a second well already now to secure an capacity to store 1,5 million tons of CO₂ in this first phase of the project (Meld. St. 36 (2020-2021), p. 118). This was also confirmed by participant 1 in the observation at Northern lights. In the white paper on longship, it is emphasized that this drill might be relevant do drill depending on how well the first well performs, and on how well the CO₂ is distributed in the reservoir (Meld St. 33 (2019-2020), p. 76)

In the beginning of march of 2021, the Ministry of Petroleum and Energy (2021b) released a press release where they communicated that they had approved the construction plans for Northern lights. Here, states that the construction is now in progress both at Øygarden at Northern Lights, and at Norcem's factory in Brevik. Moreover, just two weeks later, the former prime minister Erna Solberg, participated in an event at Northern Lights which marked the start of the construction at Øygarden. As described in the methods, a visit to this construction site was one of the methods applied in this thesis. It could therefore be argued that Northern Lights seem to materialize more than just plans. Its already in the construction phase.

However, this start of construction did not include all the projects in Longship. At the same time the Fortum Oslo and Varme project were still waiting on announcement from the EU about whether or not it would receive support (Ministry of Petroleum and Energy, 2021b). As described earlier, the proposal from the Solberg government as described in the white paper on Longship was to grant Forum Oslo funding if it were to also gather grants externally (Meld St. 33 (2019-2020)). At the end of the year, at the 16th of November 2021, Fortum (2021) announced that they did not funding support from the EUs innovation fund. It could thus seem like the Fortum project would not be able to receive funding.

Moreover, in the middle of February 2022, the Ministry of Petroleum and Energy (2022b) released a press release regarding a change in the estimated cost of Norcem. The Ministry of Petroleum and Energy and the Ministry of Finance had hired external companies to do a quality assurance on the Norcem project. This showed that the expected cost of the project had increased by 850 million NOK compared to the basis of investment in the white paper on Longship. The analysis also showed that the planed start in September 2024 will be delayed by four months. Norcem is thus experiencing an increase in cost in addition to the delay (Ministry of Petroleum and Energy, 2022b).

However, Ministry of Petroleum and Energy (2022b) adds that they are very pleased with the progress on Northern Lights. Northern Lights is, according to the quality assessment, estimated to have a decrease in the costs of 500 million NOK. This reduction, according to Ministry of Petroleum and Energy (2022b), is due to lower costs with the drilling of well number two. Combining this, as well as the estimated costs for with a possible delayed start up with the Norcem project, the costs of establishment will increase from 13,3 billion NOK to 13,8 billion (Ministry of Petroleum and Energy, 2022b).

Moreover, The 22nd of march, the municipality of Oslo announced that they want to contribute to secure funding for Fortum Oslo Varme as well (City of Oslo, 2022) ⁵. However, a month after this announcement, a new report about the project at Klemetsrud was released. The Ministry of Petroleum and Energy (2022a) came with a new press release which deals with a quality assurance report of the CO₂-capture at Fortum Oslo Varme. This report went through the economic aspects of Fortum Varme and found that the project will cost between 4650 to 5550 million NOK. Compared to the quality assurance report from 2020, the costs have increased with between 170 to 350 million NOK. According to Ministry of Petroleum and Energy (2022a), this change can mainly be explained by a change electricity prices and changes in the market. Longship has thus had an increase in costs since the publishment of the Longship white paper. However, the project is still intact. The project of Longship is thus still in the construction phase, but as noted earlier as well – the involved parties stress that the projects has already developed more than the case of Mongstad. They empathies that it will happen and will thus have a very positive impact on the climate targets. Both for Norway and globally.

In relation to this, a point made by Surprise (2018) about spatiotemporal fixes related to SAI is also relevant. As described in the theoretical framework, Surprise (2018) argues that the problem of SAI is not the technology in itself – it is rather that it is being put forward as a plan B. Since there is no guarantee that SAI actually will work, it should rather be implemented as a preemptive intervention and forestalling the climate crisis (Surprise, 2018).

This could also be the case of Longship. The problematic of Longship might not be Longship in itself. As I have shown through this thesis, the technology and project can prove vital in reducing climate change. The problem might be, however, the fact that Norway combines the CCS project with continued oil and gas extraction. As I have showed in the analysis of narratives, the Solberg government has even applied Longship as an argument for why they argue continued oil and gas extraction is necessary. If Longship proves to not be as feasible as the Solberg government portrays it as, this could indeed have severe consequences.

⁵ An element that has affected the political debate on Norwegian oil and gas, and the possible phase out of this, is the war in Ukraine. Several of the political parties applies the energy situation as a result of this war as an argument for why Norwegian oil and gas is necessary. However, due to the need to delimit this thesis, this is not a discussion I will go into in this thesis.

8 Conclusion

I have analyzed Norway's Carbon Capture and Storage project "Longship" through this thesis. The objective of this thesis was to identify how the Solberg government has portrayed Longship and discuss how Longship can affect Norway's responsibility from a climate justice perspective. To fill this objective, I applied two research questions. Through these two research questions, I aimed to identify the Solberg government narratives surrounding Longship and connect this portrayal to two theoretical frameworks to consider Norway's responsibility: climate justice and spatiotemporal fix.

The first research question applied in this thesis was "What narratives does the Solberg government communicate about Longship?". Chapter 5 provided the analysis which answered this first research question. Here, I presented central parts of how the Solberg government communicated about Longship.

The first main finding of this first research question is that I showed that the Solberg government connected Longship to Norwegian identity and history. As the project's name also indicates, the Solberg government linked the Longship to both the technological development and history of the Viking era to what the Solberg government aims to do this the Longship project. I also showed that the Solberg government presented a narrative that CCS in itself was something distinct about Norway. By showing the history Norway has with CCS through several governments and pointing to how Norway is in a particular position to develop this technology, the Solberg government notes that Longship is distinct about Norway.

In the second subchapter dealing with the first research question, I presented the second main finding related to the Solberg government's narrative of Longship. Here, I showed that the focus on achieving economic growth is central in the narrative of Longship. A fundamental part of this was their mantra "cut emissions, not development", which centers on how climate initiatives should not have a negative impact on development and economic growth in Norway. The Solberg government argued that Longship was vital to achieving this. Moreover, this mantra was also closely connected to how the Solberg government stated that they wanted to create more profitable jobs and sustain the existing jobs. Furthermore, I also showed how the Solberg government argued that it would be challenging to achieve the climate targets and

continue economic growth CCS. Thus, the Solberg government's narrative is that Longship can ensure continued economic growth.

In the third subchapter, I showed that the Solberg government's portrayal of Longship was also highly connected to Norwegian oil and gas. I showed that the Solberg government emphasizes how cost-effective Longship can be. The Longship project was also, to a large extent, presented as a project that is in cooperation with the petroleum industry. Moreover, I also showed that the Solberg government used CCS to argue for continued oil and gas extraction in their portrayal of Longship. Based on this, I argued that the narrative the Solberg government portrays of Longship was highly connected to the petroleum industry and interests in continued oil and gas extraction.

The fourth subchapter dealt with the fourth main finding related to the first research question: how the Solberg government portrayed the feasibility of Longship. First of all, I showed that the Solberg government presented Longship as something that will succeed. It is apparent in the Solberg government's portrayal that they presented Longship as something that would be successful. However, none of the projects in Longship has been tried out in this scale which it is planned to work. I, therefore, also assessed how risks with Longship are portrayed. I argue that the Solberg government occasionally referred to risks, but this was concerning who would take the economic risks if some parts of the project did not go as planned. The risks of it not working as a whole and the consequences this could have to meet the climate targets were not mentioned. The overall narrative related to the project's feasibility was thus that this was a project that would be successful. A very dramatic consequence of a failed project could be that other climate measures, such as reducing oil and gas, could not be implemented in the hopes of CCS working. We have very few years to cut emissions, and too much optimism related to CCS can have severe consequences if it is at the expense of other climate measures and does not work as planned. However, this is not reflected by the Solberg government.

The second research question applied in this thesis was "Can the Norwegian Solberg government's Carbon Capture and Storage (CCS) project "Longship" be understood as a climate change initiative in line with climate justice or as spatiotemporal fix?". The following text concludes and summarizes the main findings related to this second research question.

The second research question applied in this thesis asked whether Longship can be seen as a

climate change initiative in line with climate justice or spatiotemporal fix. An essential element in the second research question in this thesis is thus climate justice. To operationalize this element in my research question, I applied Caney's two different kinds of climate justice, avoiding harm and sharing burdens, as a theoretical framework.

I argued that CCS plays a central role in climate targets and could thus be seen as vital in avoiding harm. To assess how critical Longship can be, I analyze Longship's potential in reducing Norway's emissions. I argue that even though there is a lot of potential, one would need to have a lot of projects such as Longship to cover the emissions Norway has. However, it's vital to stress here that reducing Norwegian emissions was not the only aim of Longship – another essential part is also to contribute to technological development, which other countries and companies can benefit from. Moreover, I also showed that since development in CCS technology is already added to the calculations in the different scenarios for how to avoid severe consequences of climate change, Longship could be seen as even more vital. Suppose Longship proves not to work, and thus also risks sending a negative signal to other actors who want to invest in the technology. In that case, we risk that climate change will exacerbate even faster than we had anticipated. I also showed that the Solberg government's narrative of Longship related to cost-effectiveness to harm avoidance and argued that the Solberg government focuses on how Longship can contribute to cost-effectively avoiding harm.

The analysis of Longship concerning sharing burdens showed that the Solberg government's overall narrative is that it should not be a burden for anyone; Longship is instead an opportunity for investment and growth. I have shown that a central point for the Solberg government is for Norway to avoid the possible burden of having to phase out the oil and gas industry; this would have dramatic consequences for the Norwegian welfare state and the economic growth. However, I have also argued that a positive aspect of Longship is that it does not impose any direct burdens on the global south. However, this is not a factor the Solberg government has stressed themselves. The Solberg government focused on avoiding burdens for the petroleum workers, the companies involved, and Norway's economic growth.

The analysis further focused on the other main element in the second research question: spatiotemporal fix. Through this thesis, I have shown that Longship has tendencies with it that can be viewed as a spatiotemporal fix. I started by showing how continued economic growth is central in the Solberg government's communication on the aim and importance of Longship.

Moreover, I also showed that the Solberg government had connected Longship specifically to the continued extraction of oil and gas. A significant finding here is that Norway has used CCS to legitimize further extraction of Norwegian oil and gas. At the same time, the technology around CCS is uncertain. This means that one risks that Norway has a project that does not lead to actual cuts in greenhouse gas emissions, and at the same time as it helps legitimize further emissions. If Longship leads to not working as the Norwegian government hopes it will, we risk putting all our hope in technology at the same time as we do not cut emissions enough in other areas – and thus not being in line with climate justice. Based on this, I have argued that the two research questions applied in this thesis are closely interlinked. I have argued that findings in the chapter on narratives also affect the assessment of Longship as a climate initiative in line with climate justice or as a spatiotemporal fix.

An example of this is the finding of how the Norwegian government has downplayed the technological uncertainties with Longship. Seen together with the conclusion that the Norwegian government has also used Longship as an argument for continued oil and gas extraction, which can affect Longship's possibility of avoiding harm. If Longship is not to succeed, but it has instead been used as an argument for continued oil and gas extraction, Longship can do more harm.

I argue that Longship can prove to be a vital contribution to reducing greenhouse gas emissions. However, it is also imperative to acknowledge that the technology on CCS is still in the start-up phase. As we have very few years to cut emissions, too much optimism and dependence on this technology could thus lead to severe consequences – especially if it's at the expense of other climate measures. In assessing whether Longship is in line with climate justice or not, it is also vital to look at how it is used. I argue that Longship as a project is a critical contribution. Longship's problematic parts are how the Solberg government has applied the project in their narrative to continue oil and gas extraction, ensuring continued economic growth and downplaying the technological uncertainties.

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Appendices

Appendix 1: Information Consent Document

Vil du delta i forskningsprosjektet “Norways Carbon Capture and Storage (CCS) project Longships”?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å undersøke Langskip i et klimarettferdighetsperspektiv I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

I 2020 presenterte Solberg-regjeringen “Langskip”, et nytt CCS-prosjekt i Norge. Tatt i betraktning den viktige delen CCS spiller i IPCCs scenarier for å begrense klimaendringene, kan Langskip sees på som et essensielt prosjekt. Samtidig har også forskere uttrykket en bekymring rundt CCS.

I denne masteroppgaven anvender jeg følgende forskningsspørsmål: “Can Longship be understood as a climate change mitigation initiative in line with Climate Justice, or as Temporal Fix?”. Gjennom dette forskningsspørsmålet etterstreber jeg å undersøke påstandene i ulike narrativ om CCS.

Hvem er ansvarlig for forskningsprosjektet?

OsloMet er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

I prosjektet mitt anvender jeg i hovedsak dokumentanalyse som metode, der jeg har analysert offisielle dokument og uttalelser om Langskip fra Solberg-regjeringen. Som et avsluttende supplement til denne analysen ønsker jeg også å anvende intervju med noen velinformerte fra statsadministrasjonen. Jeg tok derfor direkte kontakt med departementet på e-post, og etterspurte muligheten for å intervju noen ansatte til prosjektet mitt.

Hva innebærer det for deg å delta?

Under dette intervjuet ønsker jeg å ta opptak av samtaler.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Intensjonen med intervjuet er å samle inn informasjon om prosjektet, ikke om ansatte, og vi vil derfor ikke samle inn noen andre personopplysninger annet enn stemme på lydopptak. De eneste som vil ha tilgang til opptakene er student og veileder. For å sikre at ingen kan knytte intervjuet direkte opp mot deg som ansatt vil vi anonymisere, og navnet ditt vil bli erstattet med en kode som lages på egen navneliste adskilt fra øvrige data.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Opplysningene anonymiseres når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er 15. august 2022. Etter prosjektslutt slettes også opptak.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg, og
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra OsloMet har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med OsloMet ved Hanne Svarstad på hannes@oslomet.no eller OsloMets personvernombud på personvernombud@oslomet.no.

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS på epost (personverntjenester@nsd.no) eller på telefon: 55 58 21 17.

Med vennlig hilsen

Hanne Svarstad
(Forsker/veileder)

Elise Åsnes
(Student)

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet “Norways Carbon Capture and Storage (CCS) project Longships”?, og har fått anledning til å stille spørsmål. Jeg samtykker til å delta i intervju.

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker, dato)

Appendix 2: Interview Guide Participant 2

1. Vil du starte med å si litt om hva du jobber med i Klima- og miljødepartementet?
2. Hvordan er Langskip relevant for ditt arbeid i departementet?
3. Langskip ligger jo under Olje- og energidepartementet. Hvordan har dere i KLD jobbet med Langskip tidligere?
4. Hvordan har samarbeidet mellom KLD og OED vært tilknyttet Langskip? Hvor involvert har KLD vært i tidligere prosesser?
5. Hvordan er samarbeidet mellom KLD og OED om Langskip nå?
6. I stortingsmeldingen om Langskip er det jo vist til flere analyser og konsekvensutredninger som har vurdert den lokale miljømessige påvirkning de ulike prosjektene i Langskip kan ha. Har dere i miljødepartementet vært noe involvert i disse prosessene?
7. Til tross for at Langskip ligger under, Olje- og energidepartementet, så er det jo Klima- og miljødepartementet som har hovedansvaret for helheten i regjeringens klima- og miljøpolitikk. Hvordan tenker du Langskip påvirker norske utslippskutt?
8. Noen kritikere av CCS har stilt spørsmål rundt dette med sikkerhet i lagringen. Har KLD vært noe involvert i prosessen rundt dette med sikkerhet og risiko rundt lagringen?
9. Kan du si litt om hvordan Langskip påvirker budsjettposter som er relevante for KLD? Har Langskip hatt noen påvirkning på postene deres? F.eks. fornybar energi?
10. Noen klimatiltak kan føre til byrder for noen aktører (f.eks. enkeltpersoner, yrkesgrupper eller land). Er det noen byrder med Langskip?
11. Har du noen tanker om hvordan Langskip kan påvirke norsk olje og gass produksjon?
12. Noe du vil legge til? F.eks. om samarbeidet mellom KLD og OED, eller om prosjektet generelt?