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**BY**

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**One oil hub, two imaginaries**

*- Do changing values affect the transition within Aarbakke AS, a supplier toward Oil & gas embedded in the oil hub region of Rogaland*

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## I. Abstract

The oil and gas industry has a significant role within the Norwegian state. Within Norway, the region of Rogaland has positioned itself as an important area for operation toward the Oil industry, becoming a main operational hub. The region is not linked just toward firms active in the extraction of petroleum, it also has built up competence and companies that provide technical solutions, harbour facilities and mechanical parts. These industries provide jobs for more than 200,000 people, making the sector a vital part of the region's economic prosperity and importance for the Norwegian state. Industry acting as suppliers toward the oil and gas is a significant part of the oil adventure contributing to the welfare of the Norwegian society.

Nevertheless, the rising focus toward sustainability as a central societal norm has created pressure toward the establishments embedded in the narrative of the regions oil adventure and the future of the supply industry. The positive view the oil and gas industry once had, have faded, and new "imaginaries" have emerged. According to Frank Geels and other authors within the field of transition, these structures of social life determine the pathway the transition takes toward a more sustainable society. Moreover, as Jasanoff and Kim emphasise, these changes set the agenda for how the scientific and technological landscape operate and become constructed, by providing an understanding that societal trends might not leave the supply industry unaffected.

By doing a qualitative case study toward Aarbakke, a company that produces advanced mechanical components toward the oil and gas sector. The study will research if macro-changes within the social value system influence the industry's perception of possible pathways strategies today. By conducting a series of interviews to evaluate to what extent social imaginaries acts as a catalyst that influences the decisions between a strategy toward environmental performance and a reconfiguration toward a sustainable supply industry in a transition toward a zero-emission society.

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As highlighted, it has been a different situation than most of us are used to, due to covid-19. And with 3 kids home schooling and a wife at home office. It has been times one would wonder if this point in history would ever be a reality. Although the kids probably shaved a few years of my back. The calmness, knowledge, kindness and understanding of where I have been in this process my wife has given me, I am forever grateful. Because I can assure you that my mood has gone through all the typologies from hyperturbulence to Avalanche. And still, here you are pushing me to reach my goals, and for that and many other reasons, I love you.

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Thank you all!

## 1. Introduction

In recent years, a changing climate have provided environmental problems on a global scale (Webersik 2010). It is demonstrated for us that the average temperature rises and changes in the planet's ecosystems act as a direct consequence by the progressive rise in emissions of greenhouse gases emitted from fossil fuels (McGlade and Ekins 2015; Meinshausen et al. 2009; Webersik 2010). And it all points toward the large number of non-renewable resources used by humans that are being extracted and used at a rate that is not sustainable, and estimated to contribute to global warming (Blowfield and Murray 2011; IPCC 2018). Meeting pressing issues like a financial retreat, climate change, famine and loss of biodiversity, indicates that not only do we need new technological innovation, but we also need to look at where the innovation needs to be centred.

The data provided from research on climate change has culminated in a broad acceptance that changes in the climate are happening because of the human hunger for energy in the form of fossil fuels like coal, oil and gas. in 2015. This culminated in an agreement at the 21<sup>st</sup> Conference of Parties (COP21) where the Intergovernmental Panel on Climate Change (IPCC) signed the Paris Agreement. This was an attempt to identify and provide assessments based on the scientific consensus of climate change. Providing a tremble in the established landscape of fossil fuels, emphasising a change within the established norm sets embedded in the political and ethical discourse. Showing what Högselius argue that energy systems is not a static solution, and is prone to change as it has done before (Högselius 2019).

Within this change, the pressure from legislative bodies sets the guiding rules and policy for companies to meet and become as environmental as possible. Providing new innovative ideas and great possibilities for some, while other faces destroyed possibilities. However, the complexity of a system locked within a regime may establish a set of repercussions from changes in a framework or a policy if it is implemented too fast. This may result in either depletion of an economic system or large resistance toward change in society, as habits, values, norms and culture become a central part of the transition. A transition away from oil, in an oil-hub region like Rogaland may have a negative consequence as our society revolves around a narrative of oil & gas constructing our belief system.

It is bringing forth a debate of ending oil & gas production in a country that has thrived upon the benefits from it. However, ending oil & gas production in the North Sea could greatly impact a landscape where the dependency rate linked toward oil & gas production is large. Within the region of Rogaland, this could become a form of the resource curse, as dependency is somewhat higher here than elsewhere as industries are constructed upon the supply chain toward oil & gas companies. Although the main activity for oil & gas companies is to extract resources, it uses other actors to manage related and supportive activities, and would be referred to as the supply industries directly or indirectly linked to oil & gas operations.

The region of Rogaland has a unique position within the oil & gas sector in Norway, giving it a challenging future when it comes to a transition away from oil & gas. Rogaland is the main area linked toward establishments within the supply industry toward oil & gas in Norway (Norskpetroleum, 2020). Although there is a change in the energy sector toward renewable energy sources (15%), Oil & Gas still applies for 86% (Erraia, Schjøtt-Pedersen, and Fjose 2020). As a result, the supply industry, linked to oil & gas, either directly or indirectly, provides more than 200.000 jobs (Erraia et al. 2020; Hungnes and Strøm 2020).

It indicates that if there were a fall in demand from the oil & gas sector, it would need the industry to grasp and reconfigure toward a transition away from only relying on oil & gas to keep the employment at this level. This may contribute to challenges for the industry when it is too heavily embedded into oil & gas, with competence that is not usable in other fields or not transferable into a new regime and by so creating a dilemma (Cappelen, Eika, and Prestmo 2013). Suppose the supply industries are overlooked and seen as obsolete in the policy constructed to enforce a transition toward a carbon-free society, it could end up as a catalyst for social challenges like loss of jobs and poverty. This may provide resistance for new technological pathways and politics, providing good solutions toward a new, greener industrial future.

There is a future for the established supply industry in a transition; however, it might not necessarily be a bright and shiny one. Moreover, the result may depend on how a company can meet new regulations and policy alternating the landscape. Whereas social imaginaries like culture, norms, value and habits might provide an obstacle toward change as opposition toward a transition may occur. When new regimes rise, it may create tension and conflict with the established normality of society as new solutions demand changes in what and has been seen



as acceptable. Some might choose a *lassiez-faire* attitude, while some have a proactive and innovative perspective toward adapting sustainable and regenerative solutions to meet climate change issues.

This thesis aims to seek and evaluate whether there is room for old and established industries providing equipment and mechanical solutions toward the oil & gas industry as part of a transition toward sustainable solutions. Change might become challenging for some industries if one is highly specialised and locked within a landscape with a mono model toward oil & gas sectors. However, it is possible to become part of a transition if one seeks to explore new fields of innovation, expertise, technology and markets. If one chooses to look at them with eyes like Blowfield and Murry (2001) as new opportunities to deliver alternative products and to engage with new technology (Blowfield and Murray 2011:67). However, providing creative solutions may result in a paradox in the end, as it might establish a pathway toward destruction when entering a new era of a third industrial revolution of cleaner energy markets.

### 1.1 Reason for this topic

The oil & gas industry is of significant importance for the Norwegian state and has been from 22.12.1968 when we first struck oil in the North Sea, towards today's society. One of the reasons for this study is understanding how the transition can change the landscape for oil supply companies not directly extracting and producing the oil, but are incorporated downstream developing mechanical parts or simply just provide storage for pipes.

Industrial production often focuses on internal firm activities, investing in add-on technology, pollution control or recycling programs to meet new sustainable goals. However, the sustainable transition does not fit a linear explanation but can be seen as a process between multiple actors, influenced by circumstantial structures, multileveled and emergent in its self (Bergek et al. 2015; Geels 2014; Grin et al. 2011; Hart and Milstein 2003). It leaves the established industries with some strategic choices in an oil hub region like Rogaland when two imaginaries like old oil stories of glory collide with new green visions for the future. As history has shown us, energy itself is not static, and regulations already favour greener solutions. Emphasising engaging in lateral thinking and reconfigure the business model to be incorporated into the reconfiguration of a new and rising regime or to stick to the established model and continue just by meeting the implemented policy and governance. Thus, becoming a choice of either be the change or

become changed. However, choosing between a reconfiguration or laissez-faire strategy may be difficult due to different factors such as the ability to change certain production procedures, the impact on revenue, getting the right competence, and the discourse and social infrastructures.

### 1.2 Problem statement

The purpose of this thesis is to explore the case of Aarbakke to see if it is new habits, norms, value and culture that establish the foundation for a transition toward a new and greener vision of the future within an oil hub region like Rogaland. They are creating the need for established business models to meet these imaginaries to establish a future for the industry. The problem statement is: *Do changing values affect the transition within Aarbakke as a supplier toward Oil & gas embedded in the oil hub region of Rogaland.*

The study will research if macro-changes within the social value system influence the industry's perception of possible pathways strategies today and evaluate to what extent social imaginaries acts as a catalyst that influences the decisions between a strategy toward environmental performance and a reconfiguration toward a sustainable supply industry in a transition toward a zero-emission society.

### 1.3 Limitations of the study

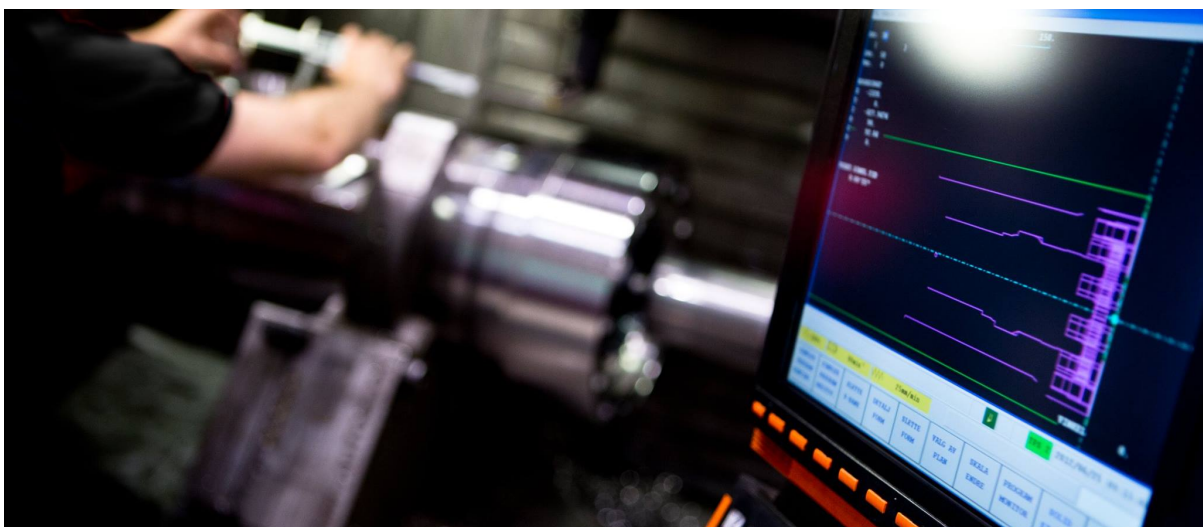
As the research is linked toward a single case, the experiences toward meeting the transition are represented by the view of the company research. They, therefore, may not be representative of the whole supply industry in Rogaland to generalise. Future study could incorporate a wider scope to research more experiences within the field of supply industry toward the oil and gas sector to measure trends in a transition toward a new green vision of the future

## 1.4 Research questions

To answer the problem statement, three research question has been defined. This will provide an insight to the topic.

1. *Why does supply industry linked toward oil & gas in Rogaland need to move against more sustainable models?*
2. *To what extend is environmental norms affecting Aarbakke and the perception of possible pathways toward becoming the greenest company by 2025?*
3. *In what way do changing social normalities influence the decisions toward environmental performance and a complete sustainable transition within the supply industry?*

Question 1 focus on external factors and will help explain challenges and why actors within the technological supply industry move toward a more sustainable business model, meeting a greener vision of the future. Question 2 focus on internal structures within Aarbakke and their perception and understandings of a green transitions. This would give an insight to what has been done at Aarbakke to meet the new policies toward a green transition, and how behaviour alternate the discourse within the field. Question 3 looks into if changing normalities influence choices toward environmental performance affecting the organisation, choice of technology and business at Aarbakke.



Picture 1: Precision (Aarbakke)<sup>1</sup>

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<sup>1</sup> All pictures collected from Aarbakke are used with consent from Aarbakke As

## 1.5 The case of Aarbakke

As a producer of mechanical solutions toward the oil and gas industry, Aarbakke seeks to become the greenest company within its field of expertise; why do Aarbakke need to reposition itself as a company seeing sustainability in every move, and are social imaginaries changing the business models toward industry embedded in the oil and gas sector.

The world has experienced transitions before, and seeing the opportunity for growth and development becomes important. This is a story of a company taking pride in its development and entrepreneurship, and it all started with horses in 1918. Aarbakke is a company based on computer numerals control production (CNC). A method that uses numeral control instead of manual adjustments when operating advanced machines automatically by using symbols and numbers to produce advanced turnkey mechanical solutions. The company is situated at Bryne, located in the municipality of Time. It is a company not unfamiliar with transitions with a history based in a rural part of Norway back in 1918 producing Horseshoes before it was reinvented and moved into the oil and gas era in 1981 by Inge Bright Aarbakke. And have established itself within both national and international landscapes producing high-quality solutions toward oil and gas.



*Picture 2: Welding process (Aarbakke.no)*

## 2. Context

This chapter will provide a view of the mechanical supply industry towards oil and gas in Rogaland and information about the actors within this case. The closure of the chapter would end with an overview of policy tools related to a green transition from the government of Norway, the Paris Agreement and the EU-Green deal.

### 2.1 The oil technology industry in Rogaland

The Oil and gas sector is a maze of different actors and suppliers not directly linked to oil and gas extraction but does provide different solutions toward the industry. Over 50 years, Norway has created a supply industry with a solid foundation both internationally and nationally within the oil and gas sector. The petroleum-related industry emphasises a large spectre of the Norwegian business landscape. Often from different providers of both direct and indirectly petroleum-related activities.

In this analysis, the focus will be on industry not directly active in the upstream activities, e.g., construction, extraction, maintenance and transport of petroleum or gas to onshore facilities. The scope of this research would mainly focus on the supply industry not directly linked to the oil companies' activities. Nevertheless, it focuses on the supply industry specialised in delivering mechanical solutions or parts toward the oil and gas sector. Toward an industry providing material, specialised equipment or services specified toward the oil and gas extraction. However, a delimitation of the sector is needed to provide a picture of the sector analysed in this research. As a producer of mechanical solutions toward the oil and gas sector, Aarbakke is well established in the supply industry and is a provider of jobs and technology often linked to oil and gas. However, as it is a mechanical industry, it might reroute its competence toward other industries and technologies in a transition, building on the past experience to be robust for the future.

The supply industry in Norway is a diverse sector, containing multiple actors and business models all linked up against incumbent oil and gas operating companies. The supply industry has establishments around most of the coastal regions within Norway and can be seen as an important employer and a great contributor to the Norwegian economy. However, Rogaland may be seen as the main area for the industry when it comes to goods and services provided by suppliers (Norskpeterolium 2019).in order to understand them and grasp the complexity of

synergies created by oil and gas operating companies in the regions where it is established Fig1. Illustrates the relationship between different supply sectors and how these are linked toward other services downstream outside oil and gas itself but important actors in the society at large providing jobs and income. Showing the effects, established regimes may have in creating windows of opportunity for related industries through direct or indirect contact (Boschma and Frenken 2011).

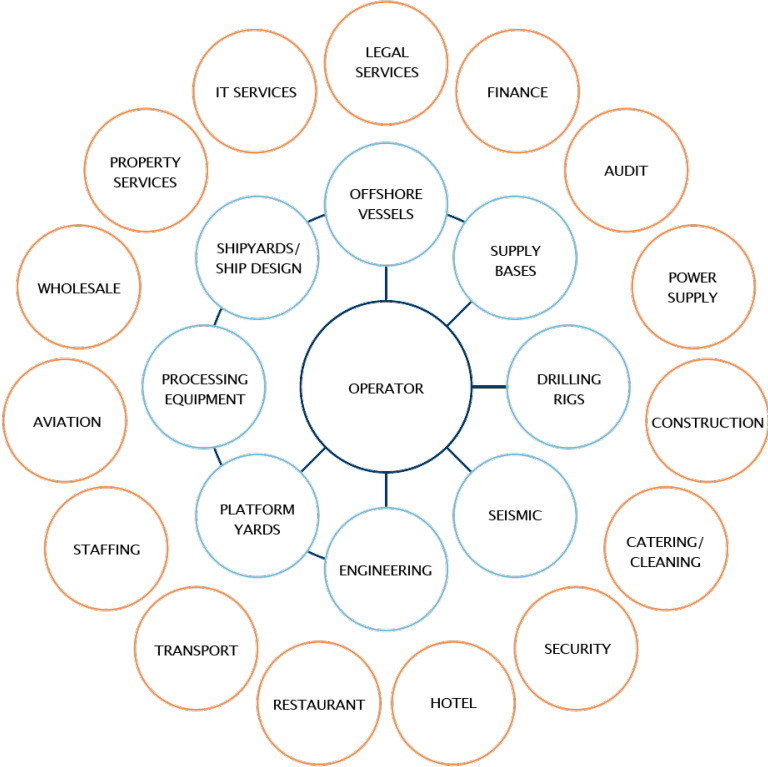


Figure 1: Synergies from petroleum-related industry (Norwegian Petroleum 2019)

However, the success provided by one industry, in this case, the benefits of a strong oil and gas regime in the Rogaland region, does not indicate the rise of a new success story in an emission reduced society where oil and gas are obsolete. Success is often determined by the experience created before one enters a market (Boschma and Frenken 2011). Although, the regional success provided by industry may not automatically be reproduced in the next industrial landscape, as the success in a transition often is partly determined by the pre-entry experience established at the niche level(fig2). Though new industries and systems often rely on newly created knowledge and institutions, they also may be built upon the shoulders of established competence. They provide windows of opportunity open for industry regions to be part of a transition, at least to some extent. However, this differs strongly from industry to industry



(Storper and Walker, 1989; Boschma and Lambooy, 1999). Nevertheless, regions hosting-related industries enjoy an advantage because related industries provide many potential experienced entrepreneurs, among other regional assets. As transition often tends to base itself upon the agency's role when dealing with the development of new industry and the socio-technical alignment concerning markets, policy, user practices, discourse and governance (Geels 2002).

Different policies are created to establish a safety net as the industry is highly dependent on oil and gas prices. However, the reduced activity and falling oil prices, together with an ongoing pandemic, has provided the industry with landscape shock. These circumstances have accelerated an alternation of established routines and put pressure on the industry to adapt to the citation. It has led to the reconstruction and reconfiguration of the industry, creating room for the supplying industry to undertake acquisitions and sales and mergers and ownership changes to provide positive liquidity. These reconstructions may have made the industry more robust, efficient, and optimal within the oil and gas sector, focusing on a business as usual, just more profitable and with less unnecessary costs. However, the question might be, is this enough to transition toward a more renewable energy mix, where oil and gas are counted obsolete. Furthermore, would the window of opportunity be open for change?

## 2.2 Actors

Within the landscape of transition, the root system expands with far-reaching roots, touching a vast level of sectors affected by changes. Thus, sectors may be understood as socio-technical systems that deliver a particular product or service based on different actors, institutions and technologies (Andersen and Gulbrandsen 2020). Socio-technical constructs actively need to be maintained and stabilised, thus the concern of creative destruction leading toward concerns when new technologies challenge the established regimes and pressure actors who lead a particular sector (Bootsma and Ferguson 2007). As well as the established set of social normalities and values established over time in a region based upon the benefits of being a part of the oil and gas regime.

## 2.3 Policy

In order to grasp some of the complexity linked toward the established regimes, the policy may provide the established normalities in a regime; it may also provide an understanding of

international agreements establishing new pathways and a reconfiguration of established habits, value, norms and culture.

## 2.4 Government Norway

A green transition and phase-in of new technologies strains the embedded industrial regime and provides challenges for developed and developing countries (Kemp and Never 2017) when the political and economic trends on an exogen level (e.g., EU) turn toward a new green deal. Leaving one of our biggest oil and gas importers, the European Union turned away from fossil fuel-driven energy sources. Whereas economic growth is decoupled from resource use and there is no net emission of GHG by 2050, decarbonising the energy sector and invest in environmental-friendly technologies (Eu 2020), the Norwegian economy is structured around its specialisation and dependence on non-renewable sources as oil and gas (Fagerberg, Mowery, and Verspagen 2009). Moreover, the need for restructuring of our economy linked to fossil fuels is needed. However, the barriers we need to overcome within the established R&D segment toward environmental innovation and a transformation is a big part of the solutions. In contrast, the established business models can create a transformation from established systems toward a new era of renewable energy and an emission-free society.

The Norwegian government has ratified the Paris agreement, and to meet the ambition of keeping it below 2 degrees is at a high agenda. Therefore, policy is the main tool for the transition toward innovations. In the 1960s, research-driven industrialisation was of great importance to developing our economy, and policy created the foundation for the oil fund and welfare state we now of today (Fagerberg et al. 2009).

How may the Norwegian government meet the climate issue with policy when it affects the most beneficiary industry within innovation, revenue, investments and export, and providing an income to the state in a year with a low oil price and covid-19 at 87 billion NOK (Norskpetrolium, 2020). However, the connection toward the EU brings about changes as it is in Norway's interest to work closely and participate in processes within Europe (Regjeringen 2020). Norway is linked toward the single market and free movement of persons, goods, services and capital through the EEA Agreement signed in 1994. The EU Commission has provided and established a wide range of policy toward Environmental issues and fluctuate toward new legislation and policy constantly being developed. However, the legislation from



the EU is a minimum standard, leaving it to the government body to introduce stronger regulations in their national policy. Norway and the EU connection toward environmental politics are extensive and growing, as the EU agenda to become net-zero within 2050 and to see climate as a global issue that needs to be addressed internationally.

Furthermore, the EEA agreement links us to this legislative policy of the green deal. For Norway, this especially affects the industry and oil and gas (Regjeringen 2020). However, policy set by the government may provide windows of opportunity as much as they may provide difficulties. The government may have a good agenda toward environmental transitions but often fail to grasp the need for specific new technologies and business models to meet the changes (Kemp, Schot, and Hoogma 1998). The pressure and resistance from established societal normalities in mono-industry regions prosperous due to the revenue and high wages created by the fossil fuel regimes. Areas where employment is heavily embedded in the oil and gas industry, may nourish negative attitudes toward green initiatives (Tvinnereim and Ivarsflaten 2016).

#### 2.4.1 Oil & Gas Regime Norway

The focus within Norway's policy toward oil and gas has been to establish a framework based on state governing and control that provides an economically profitable landscape of production possibilities with a long-term focus (Norwegianpetroleum 2020; Ryggvik 2010). This has provided a yielding landscape toward an establishment of a Norwegian oil and gas industry that has become a regime actor both domestic and internationally in the field of oil and gas. Creating within the borders of Norway the largest domestic industry and contributed vastly 15,700 billion NOK to the Norwegian GDP since the 1970s (Norwegianpetroleum 2021).

However, there are more than just the direct oil and gas extraction from the bedrocks underneath us. It has also provided us with the pension fund, the world's biggest state-owned investment fund with investments around the world owning about 1,5% of all stocks globally, creating a safety net of 11 billion NOK over the last 23 years for the Norwegian state (Mork 2020). The next industry on the list regarding turnover with over 1100 companies linked toward the oil and gas sector is the supply industry (Norwegianpetroleum 2019). Companies that provide us with technology, innovation and transportation toward the production of oil and gas.

## 2.5 International policy

the international policy may affect the landscape in which national policy operates. And may act as a regulator toward industry embedded in fossil fuels. setting collective targets toward climate change adaption or prevention

### 2.5.1 The Paris Agreement

The regulations and political landscape create room for where innovation and transition can develop. Therefore, regulations and policies established within the government may influence the speed of a transition and provide a new norm for technological growth or substitution, paving the way for new technology from niche actors to gain social acceptance and move up into the social regime. Furthermore, provide the right framework for established actors to bring resources into technological innovation. These actors often tend to be established in an international cooperation network to create a collected framework and roadmaps. United nation (UN) established The Intergovernmental Panel on Climate Change (IPCC) with 195 members, with a scientific assessment to provide knowledge linked toward climate change and to estimate and research implications to establish resilience, adaption and mitigation alternatives (IPCC 2021). December 12th 2015, at a Conference of Parties (COP), A binding international agreement toward climate change was adopted. The Paris climate agreement aims to hold the average global temperature warming below 2°C above pre-industrial levels (UNFCCC 2015). However, the success of the agreement mainly rests upon implementations of climate policy at national levels. The agreement requires nationally determined contributions (NDC). Which countries are expected to update? This agreement shows a different international attitude toward a rising issue of Climate-induced irregularities. It brings together nations with a common goal to work against climate change and provide solutions to modify to meet its consequences. They are leading to policy adjustments on national levels creating pressure on established regimes.

### 2.5.2 The European Green Deal

December 11<sup>th</sup> 2019, the European Commission announced its agenda to move the world's second-largest economy toward a climate-neutral society by 2050 with a policy initiative called The European green deal as a game plan with the aim of transforming Europe into a fair and prosperous society (Camilleri-Grygolec 2020). The objectives centres around nine areas (fig.1) to achieve its target in rethinking policies to harness green solutions. Biodiversity; from farm to fork; sustainable agriculture; clean energy; sustainable industry; building and renovating;

sustainable mobility; eliminating pollution; and climate action (European Commission, Secretariat-General 2019).

Acting as a regulatory policy framework, The Eu Green deal through the Climate law proposes legally binding net-zero greenhouse emissions targets by 2050. Understanding laws and policy creates windows of opportunity to improve lives, the economy, and society through a Climate pact toward society. A Climate target plan in reducing net greenhouse gases by at least 55% by 2030. Furthermore, a strategy to create a resilient society by 2050. This, together with the Paris Agreement, rattle the ground in an established landscape. They are creating possibilities for repositioning at the regime level.



Figure 2: The Green Deal (European Commission, Secretariat-General 2019)

### 3. Theory

By understanding the landscape of which the analysis of the case is conducted. A theoretical background would help to clarify the definitions used and presented in the discussion. This would help in understanding the background of the paper and make it easier to understand. The definitions, models and terms used in this paper are considered most relevant and important in researching the implications from society and the pressure on the industry within a transition away from fossil fuels in a region built up around the oil and gas industry.

#### 3.1 Multi-level perspective

The multi-level perspective (Fig.2) is a middle-range theory grasping and understand the path of transitions within a heuristic analysis of occurring events, historically to study large transitions in the past. However, in recent years, the model has been used to understand the means to an end within a sustainable transition. It acts as a multidisciplinary framework combining science, technology, structuration, and institutional theory and may act as a useful tool to analyse transitions (Geels 2011, 2020). The multi-level perspective (MLP) provides an understanding of transitions not as a single path toward societal transitions but more as non-linear processes. Whereas enrolment of key stakeholders defines and forecast collective goals (Meadowcroft 2009). Although inventions are established at a niche level, innovation itself needs to become incorporated within a socio-technical by combinations from multiple actors to prevail into the regime (Fuenfschilling and Truffer 2014; Kemp and Never 2017). The MLP understands system transition by interactions between three levels:

1. Socio-technical landscape (the exogenous context, politics and economic, demographic trends)
2. Socio-technical regime (rules, policy, incumbent actors locking in the established routine and reproduce systems)
3. Niche level (where radical innovation and new technology occur)

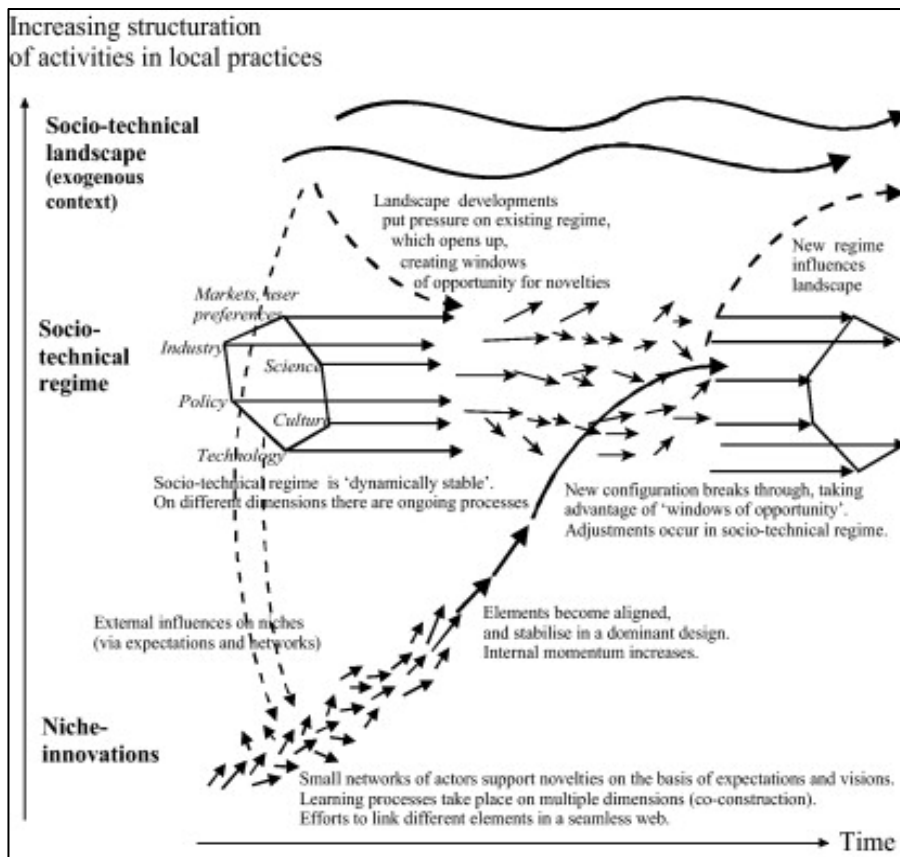


Figure 3: The multi-level perspective on transitions (MLP) (Geels 2011:28)

### 3.2 Reconfiguration Pathway

Transitions tend to favour a reconfiguration of the socio-technical regime, where routines of today might become obsolete and replaced or entangled together with innovations or alternatives (Andersen and Gulbrandsen 2020). As niches develop and move into entanglement within the regime, innovations may provide synergetic combinations with the established processes. It can act as an add-on or replacement of technology in the existing production system (Grin et al. 2011). Often these niches provide a business-as-usual scheme, with an agenda to improve performance (Digitalization, new effective machines) or to provide technology, making it possible to carry on in the regime as it is established. Where performance and decisions are based on routine and effectiveness, adjustments are made only when the regulations or policies provide good harvesting conditions with economic gains (Geels 2020). However, new systems or technology can also provide the circumstances for growth within the niche level leading to alternations within the level creating new practices, new technology, perceptions, and adaption of new inventions (Grin et al. 2011). Thus, creating new pressures at the landscape level for further change (Solar, wind, battery technology), opening for

replacement of technology and habits creating reconfiguration and changes within the regime level.

Within the reconfiguration pathway, a new regime is connected with the established regime. Not necessarily meaning that old business models are obsolete but adapt to changes within the established set of regularities. This pathway is relevant for socio-technical systems and emphasises the interplay between multiple levels within the socio-technical regime. Moreover, the pathway is mostly linked toward technology and reconfiguration toward agriculture, hospital and retail actors (Grin et al. 2011). However, it can be connected toward the supply industry within the oil and gas sector, where a reconfiguration of practices may harness developing solutions for the future as society moves toward a vision of an emission-reduced society. A transition away from fossil fuel induced society where culture, norms, value and habits are built around imaginaries toward old oil and gas stories, a niche invention creating a single iPhone moment may not create a transition alone. However, as Grin et al (2011) refers to a sequence of multiple-component-innovations (Grin et al. 2011:73), may reconfigure our lived experiences. Our social imaginaries result from the connection of heterogeneous elements like culture, normality, values and habits, creating patterns that create a foundation within the socio-technical regime, which Geels (2011) understands as a semi-coherent set of rules established within different levels of societal establishments (Geels 2011). In a transition, actors within the established regime may survive and thrive in a reconfiguration pathway, where new policy pressures change together with changing social imaginaries. Creating new Semi-coherent Imaginaries is not without considerably more antagonism and pressure between technical suppliers as well as the tension between social groups as new actors or new visions move into the regime level demanding its place. However, the linkage between established policy or social normalities provides stability or a safe haven to grasp the complex world. Geels (2004) sees the relationship between industry and social normalities as inherently dynamic and may be viewed as a result of historical processes (Geels 2004). Furthermore, within the socio-technical landscape of the MLP, Geels (2004) splits the Socio-technical landscape into different regimes, whereas the Socio-cultural regime reflects the value, culture, norms and habits within the society, which may impact decisions made by industry.

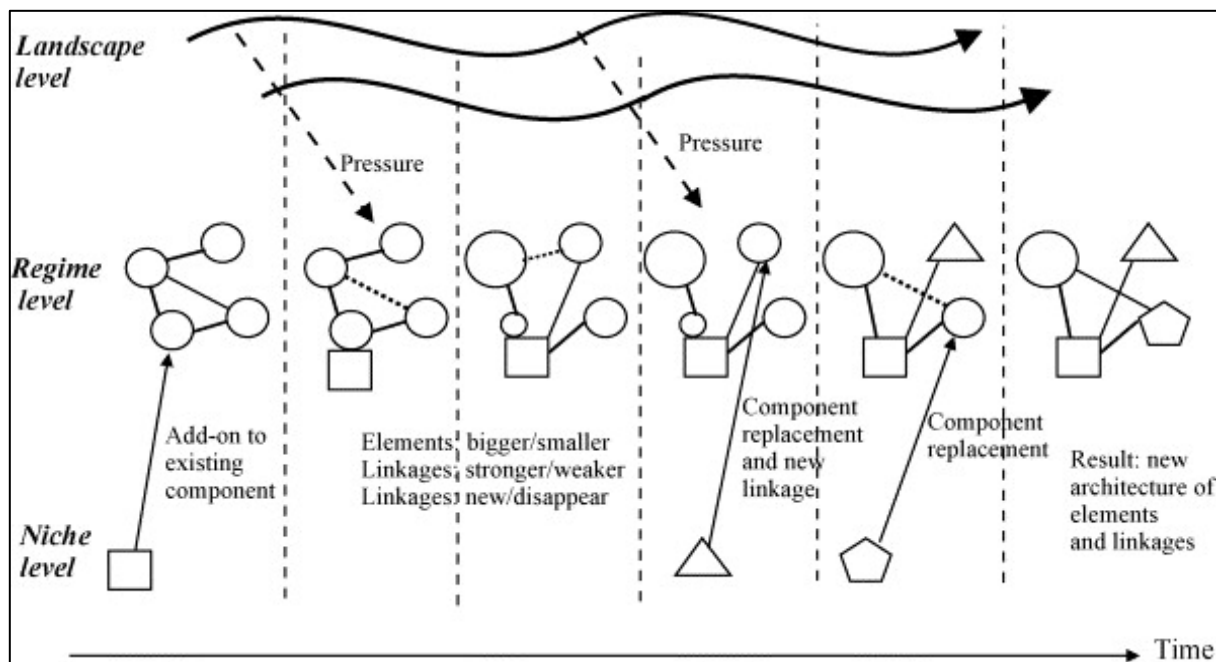


Figure 4: The reconfiguration pathway (Grin et al. 2011:72)

### 3.3 Social Imaginary

In order to possibly reach a transition toward emission reduced vision of the future. the importance of how regulative actors choose to establish the implementation of new habits and values is of significant importance, as socio-technical imaginaries tend to be reflecting the imagined social order of value, habits, norms and culture and how these structures are designed based on nation-specific understandings of how the scientific and technological landscape moves and operates (Jasanoff and Kim 2013; Taylor, Taylor, and Taylor 2012).

Luhmann (2009) indicates that a system by itself cannot have a to-do list in working toward the connection with its surroundings. It is, therefore, a need to reduce the complexity of the world and look at it in a categorised view to grasp its entangled structures (Luhmann 2009). This correlates with Taylor et.al (2012) that no transition is linear, and plans and directives can not alter imaginaries by itself (Taylor et al. 2012). A system is less profitable for future aspirations and needs societal reconstruction and reconfiguration of the established imaginary. A transition or reconfiguration of social normality is often the solution toward future prosperity. Social imaginaries resulting from decisions made in response to a reconfiguration of established imaginaries may respond to the shifting context (Taylor et al. 2012). Thus, a transition can be viewed as a "radical, structural change of a societal subsystem that is the result of a coevolution of economic, cultural, technological, and institutional developments at different scale levels"

(Rotmans and Loorbach 2009:185). Emphasising that behavioural change, new solutions, policy and governance is needed (Sol et al. 2018), to provide the best circumstances toward a transition away from being just relying on oil and gas to create economic prosperity.

As a transition from fossil fuels toward a low-carbon society include a change in social imaginaries, habits, values, norms and culture, it often may be hard to implement for those in the given society prone to profound changes.

Being attractive as an employer or business partner toward the future within the industry supplying fossil fuel industry may be challenging when social imaginary may alter the established behaviour and thus create a decline in personnel wanting to enter the industry. Nevertheless, how does this affect the picture of the supply industry? First, a definition of social norms is needed as they have multiple meanings after being studied by a vast field of disciplines, creating different important concepts and reasonings in describing and explaining our behaviour (Cialdini and Jacobson 2021; Nyborg 2018).

We can distinguish between different types of psychological, social normality by using the focus theory of normative conduct, which distinguish between two types of social normalities, 1) Inductive norms, which refers to what is acceptable and acts as judge and jury either providing social reward or punishment and 2) Descriptive norms that reflect the most common observed behaviour within a given group our society at large (Cialdini, Kallgren, and Reno 1991; Farrow, Grolleau, and Ibanez 2017; Nyborg 2018; Reno, Cialdini, and Kallgren 1993). These social norms provide the prescriptive and descriptive purpose of established social regulations (Terrier and Marfaing 2015), where the norm activities of the social sphere act as an established and self-regulating force protecting our dismantling, what might be seen as the right thing to do for the collective at large.

Deep structures of social imaginaries in an established Socio-technical regime level provide guiding or restraining to our behaviour. Often by established standards created and understood by a group without the force of law, by a set of cognitive coding built upon Social imaginaries as culture, norms, values and habits enforced by society itself in the social infrastructure (Geels 2004, 2011; Graaf and Sovacool 2020; Stephenson et al. 2010). This can be viewed and understood as "the predominant behaviours, attitudes, beliefs, and codes of conduct of a group" (Cialdini and Jacobson 2021:1) what Geels (2011) sees as a semi-coherent set of rules that



coordinate the activities of the social groups that reproduce the various elements of socio-technical systems (Geels 2011:27) often under the influence by interactions of practices, normalities and material cultures (Stephenson et al. 2010)

However, current pressure from environmental policy and governance shows us that transitions often are complex and that socio-technical regimes also might be not only regulated by incumbent firms and lock in factors but also largely by societal factors like value, culture and morals (Fuenfschilling and Truffer 2014), as they are rooted in our understanding of everyday life, lived experiences and material culture. Moreover, when it comes down to environment vs economic prosperity, it is almost unsolvable (Rotmans and Loorbach 2009; Sol et al. 2018). Without some economic growth toward a transition, opposition toward policy would rise and overthrow politics favouring a greener future toward politics against it (Bru 2021, 5:10). Indicating as Taylor et.al (2012) that every complex system has its procedures, and these are what differentiates a successful adapting complex system from chaos (Taylor et al. 2012:17)

Demonstrating that we as social beings often are results from how people surrounding us behave, creating social imaginaries influenced by others members of the group (Nyborg 2018; OECD 2017). Being members of a society indicates a set of rules or regimes resulting from historical actions, of which social actors use, adapt, and apply to construct a common belief system (Geels 2004). Social imaginary, therefore, can be seen as how individuals gain an understanding and react accordingly to social situations, influencing our behaviour and defining our road map within groups sharing rules of conduct partly obtained by either consent or disapproval (Cialdini and Goldstein 2004; Cialdini and Jacobson 2021; Farrow et al. 2017). Human behaviour often reflects the culture, experiences, and social groups associated with society's current understanding. Thus, the complexity of an established society is unprecedented and compromised of human behaviours and the interconnection between all its parts (Taylor et al. 2012). However, for every system, the surroundings can be seen as more complex than the system itself (Luhmann 2009). A transition toward a new vision of the future would need to address other factors. Historically, earlier transitions are linked to technological innovation and marked operation as the main driver for change (Kuzemko et al. 2016). future aspirations indicate that a reconfiguration of culture, habits, norms and values would be a big part of a new transition.

### 3.4 System perspective

Culture, norms, value and habits create a representation of social formations and therefore becomes an indication toward a Social imaginary that provide a socio-technical regime based on norms, values, habits and culture of how people imagine their social whole (Hartley 2016; Jasanoff and Kim 2013; Taylor 2004).

Sovacool and Griffiths (2020) emphasise that a relevant obstacle toward new climate-friendly industries and technologies that may put pressure on established living standards and established social practices ends up as a crucial element in managing a transition within mono-industry regions (Sovacool and Griffiths 2020). This provides an understanding of the tension a transition toward a vision of a low emissions society in the future may produce as regions are put under pressure by directives alone. where policy could benefit growth in one aera whereas others would have a reduction (Ydersbond et al., 2014).

As the Executive Director at International Energy, Fatih Birol believes that new solutions would most likely create new possibilities. At the same time, it would most likely impact workers and communities who are reliant on industries that are set to lose their position and experience a decline (Birol 2021). and a prosperous transition may be hard to incorporate without a reconfiguration of complex adaptive systems of social imaginary (Taylor et al. 2012).

In order to grasp the complexity of a transition toward low emission societies. A systematic approach toward identifying the entanglements from social norms, culture, habits and values may explain how Social imaginaries may put pressure toward change or protect established industry in a relativity mono-industry region like Rogaland. However, as social imaginaries are constructed upon historical events, it shows us that they are open and in constant flux and therefore evolve and unfold over time.

A systematic focus would identify critical components and synergies and connect the multiple objects of a transition (Graaf and Sovacool 2020). And doing so creates an understanding of the socio-technical regime as a system that is not only compromised by incumbent firms, technology, policy and governance, nevertheless, also as a creator of imaginaries of social situations and cognitive rules providing belief systems, influencing principles and agendas toward infrastructure and supply networks (Graaf and Sovacool 2020; Grin et al. 2011).

Although the socio-technical regime system is constructed upon entangled systems producing our imaginaries by individual or collective influences. Graaf & Sovacool (2020) provide a framework (fig.4) with a focus on three levels that might act as foundations toward these imaginaries the supply infrastructure (energy, e.g., oil, gas, rare earth, renewables), demand infrastructure (prime movers, built environment, energy consumers) and social infrastructure (economy, laws, governance, social norms (Graaf and Sovacool 2020)). However, the scope of this paper would seek to show the entanglements of the systems. The main focus would be on the Social infrastructure.

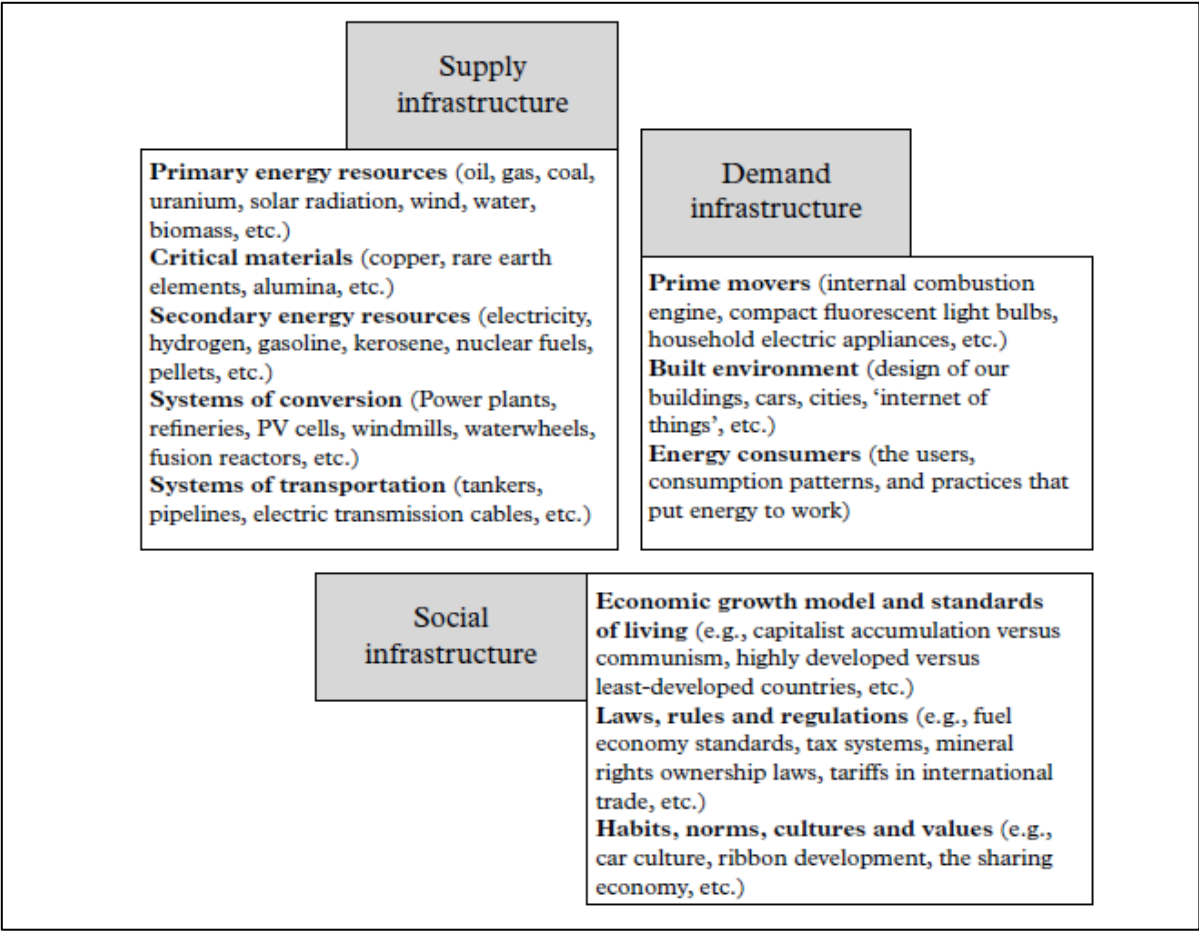


Figure 5: Anatomy of the global energy system (Graaf and Sovacool 2020:15)

The Social infrastructure conducts an understanding of a more flux aspect within the established socio-technical regime. As it emphasises our economic models, the living standard we are accustomed to, laws and regulations and most importantly, for this paper, implement our habits, norms, cultures and values that often becomes overlooked in the bigger pictures (Graaf and

Sovacool 2020). Social imaginaries that might establish the lock-in mechanism and constraints toward new visions for the future.

However, framing it in this way may provide a socio-technical imaginary on how society looks upon itself. It may provide understanding for demographic differences, or if its environmental or other circumstances that provide or not provide changes toward employment within industry-linked toward the fossil fuel industry.

As new processes often do not align with the established societal normality and cognitive traditions, it becomes a catalyst of distrust and creates an unwillingness to change (Boschma et al. 2017). Providing like Fatih Birol (2021) indicates that the impact provided by a greener future may not necessarily become a positive one for certain communities (Birol 2021). However, culture, norms, value, and habits often represent the understood and lived reality in society and often demonstrate and prolong static notions embedded (Hartley 2016). It also creates an understanding that culture is just that, an imaginary of social life. Often influenced by gender, class, value and education Just as much as societal-material or socio-technical expressions (O'Brien, Selboe, and Hayward 2018; Sovacool and Griffiths 2020).

## 4. Method

Within this chapter, the choices made toward the research design would provide an overview of what is being studied and how it is done.

### 4.1 Problem statement and research questions

In this part of the thesis, the methodology used to answer the research would be presented and how the data is found and connected to the problem statement “*Do changing values affect the transition within Aarbakke as a supplier toward Oil & gas embedded in the oil hub region of Rogaland*”.

In order to answer a research problem or question, primary data needs to be found and connected to provide information suitable to answers the question at large (Blaikie 2010). Within this thesis, the research would provide a picture of how society looks at the supply industry in an era of transition toward a more renewable energy mix. In a region where oil and gas are one of the biggest suppliers of industrial jobs and important for the region's economic prosperity. And how industry within the supply sector might need to meet environmental policy, climate change, and a changing perspective within the discourse around employment in the oil and gas sector.

### 4.2 Research strategy

In this research, I have chosen to use an inductive and abductive strategy to create a logical explanation of the research questions. The main task for the inductive research strategy in this research would be the collection of data. This process enables the possibilities to create a theory based on data collected (Blaikie 2010). In order to deliver a description of the established social imaginaries, as it is understood regarding knowledge, patterns and regularities (Danermark et al. 2002). Therefore, the main objective for an inductive strategy is to observe a certain phenomenon to generalise and draw a conclusion. However, this is not the case for this research project, where the generalisation and conclusion leave the room open for interpretation of the analysis.

Therefore the abductive strategy is used to embrace what an inductive strategy overlooks, the social imaginaries, which Blaike (2010) sees as the meanings, interpretations used in everyday life that establish and direct the social life researched (Blaikie 2010). Thus, the abductive strategy allows us to describe and understand a certain phenomenon where constructs as culture,

normality, values and habits are represented as building blocks of our understood reality that may provide meaning to our interpretation and understanding of the world.

Therefore, the abductive strategy focuses on our interpretation and restructure of a certain phenomenon based on a pattern or context (Danermark et al. 2002). In order to grasp and understand the factors that may result in choices of new strategies toward more sustainable procedures or business models within a Company embedded in the Supply industry toward oil and gas. Danermark et al (2002) also indicate the researcher has to create a connection toward the landscape researched, which is an industry that may be affected within the transition toward an emission reduced society.

Most of the informants used in this research provide a picture of the circumstances that may help provide a conclusion on why change is necessary for a supply company like Aarbakke. The conclusion would provide a new set of data connected to the research topic and questions. However, it is important that due to informants and the researcher's experience, the conclusion given created by the data collected would act as one of possibly many.

A case study method would be preferred to answer these questions, as the main questions give the researcher little or no control over the behavioural events. The focus of the study is a contemporary issue, intending to gather, present, and analyse data (Yin 2014). To provide a road map used by Aarbakke in the quest to become a prime environmental mover within the offshore delivery service in the world. A case study within the regime of the powerful companies and intensive industries connected with the fossil fuel industry a case study may reveal the strength and weaknesses of these lock-in mechanisms (Turnheim and Geels 2013). As changes can destabilise the current status, making it also a cultural and political process affecting economic and technological feasibility linked toward a shift towards a carbon-free future (Turnheim and Geels 2013)

I have used a single case research strategy to understand the effects of changing normalities, norms, habits, values, and culture in a region linked to oil and gas and how a company like Aarbakke meets a transition toward a greener vision of the future. The research will study if there is a correlation between becoming the greenest company in its field and changing societal normality. A case study research provides the researcher with the possibility to grasp a social complex phenomenon by focusing on a specific case to retain a holistic and real-world

perspective of which circumstances establish constructs in social behavior, business models and transitions (Yin 2014). A single case study design, therefore, can be understood as concentrated research containing one object. And may create an understanding of the interaction toward complex symbioses established between supply, demand and social infrastructures. Thus, using a case study when doing research may be beneficial when the researcher has little or no control over the events that construct the behavioral events, and the focus analyzed is a contemporary issue (Yin 2014). A case study may reveal strength and weaknesses within the established normality

Aarbakke will work as a single-case study, as they reached out to get an outside view of how they might become the most sustainable company in their field before 2025. When I started this research, it focused on what they can do to meet this goal. However, the research showed a linkage toward more complex phenomena like social infrastructures toward value, normality, habits and culture. Together with my supervisor, we limited the research to look at new social imaginaries within the region of Rogaland and how this might act as a catapult toward new visions of the future in a region embedded in the supply chain toward the biggest industry in Norway, the oil and gas sector.

A case study research provides the researcher with the possibility to grasp a social complex phenomenon by focusing on a specific case to retain a holistic and real-world perspective of which circumstances construct social behaviour, business models, and transitions (Yin 2014). The researcher has little or no control over the events that construct the behavioural events, and the focus analysed is a contemporary issue. A case study can provide a possibility to understand a certain phenomenon from a holistic point of view. Thus, case research is beneficial when researching contemporary events such as transitions away from a society and business models built around oil and gas within a certain region. In understanding the circumstances a transition affect industry, Aarbakke mechanical solutions would act as a single case.

Aarbakke seeks to become a solid actor within greener solutions and has set on the agenda to become the most environmentally friendly company within their field of production, delivering mechanical solutions toward the oil and gas sector. However. Recruitment of new operators seems to have become harder as they are an oil and gas supplier indicating that the green wave is providing negative effects on the recruitment toward certain qualifications, making it difficult for youth to choose a future within the oil and gas industries. Together with new regulative

enforcements both on a national and international level. As well as societal change that may influence the reconfiguration of established normality.

#### 4.3 Case study

As a research method, a case study has various options to contribute to our understanding of different phenomena and are often used in other fields of study from psychology, social science, economics, and city planning as the case research may be too complex for a survey or an experiment to analyse why the oil and gas supply industry needs to change. And to what extent do social infrastructures create the need to alter established business models and meet changing social normality. Therefore, an exploratory cases study that often investigates casual circumstances is used to grasp the vast and entangled interactions between business and societal factors. A survey or experiment would have difficulty to capture the complexity when researching constructs that may cause certain changes in established social infrastructures.

Single case research may be beneficial when researching contemporary complex events such as transitions away from oil and gas in a region where society and business models built around the extraction of fossil fuels in offshore installations operating in deep waters. As a case study creates and establishes a proportion of information from different cases to develop a hypothesis (Yin 2014), it may be hard to generalise the findings as it is linked to a single subject and may not show cause and effect and may become bias as the researched object is a single actor. However, it may provide insight and expand our understanding of a system or landscape that is often closed or not visible to the public. Although, Blaikie (2010), in his social manifesto, indicates that case studies are neither research design nor methods of data collection (Blaikie 2010:11), and in some circumstances, this might be the case. However, I would argue that researching a phenomenon linked toward the lived experience of a single actor, a single case study would be appropriate to establish a heuristic understanding of a pressing issue related to their line of profession, in a time where the discourse away from fossil fuels is pressing the established regime in a region constructed upon the extraction of fossil fuels offshore.

In trying to catch the complexity of the case, Yin (2014) emphasises the importance of using multiple sources of evidence to connect the levels investigated to conduct an evaluation of the researched case. These various tools may involve qualitative and quantitative data like



Interviews, documents, literature review and field observations to triangulate the evidence found to verify or validate the findings (Yin 2014).



*Picture 3 100% Aarbakke (Aarbakke)*

## 5. Data collection

Primary and secondary data has been collected to answer the problem statement and the research questions from the single case study. The researcher collects this data to provide information to answer the research questions. The purpose of the study is to investigate a single case. It is researching why industry linked to the oil and gas sector need to grasp a transition, and how social formalities may affect the pathway they choose and how it impacts performance and influence decision to become as environmental as possible in the line of industry the company researched is embedded. A qualitative approach is appropriate as only a few actors are examined to bring out different understandings and opinions. Although quantitative methods often tend to count and measure various aspects of social life, qualitative methods may provide more discursive trends and explore the meanings and understandings of social aspects (Blaikie 2010).

Thus, a qualitative approach is favourable when describing how people understand or interpret a given situation. In this study, it is a goal to find detailed information through semi-structured interviews. Although Interviews may take the subject interviewed out of a normal setting, they could give insight into the informants' understandings, interpretations, and opinions (Blaikie 2010). Qualitative interviews can be constructed with different strategies in this research. I have based it upon a semi-structured approach to connect differences between the informants better. A Semi-structured interview may also provide an opportunity to ask questions not thought of while making the interview guide, as well as a guide to keep the informants on the right subject of the topic researched.

### 5.1 Literature

The literature on which this thesis is built can be linked to transition, societal normalities and management and sustainability. The transition theory is based upon established theory together with a system perspective and societal psychology to link it toward social normalities within transitions. Most of the theory is based upon knowledge gained in the energy, environment and society master's course. At the same time, some has come from the supervisor or search for relevant literature in research databases (e.g., Oria, Scopus, Google scholar) and the university library. It isn't easy to validate that the theory chosen to support my findings and results are the most adequate to be used. As presumably, other theory could have illuminated the research problems in different ways.

## 5.2 Document analysis

Several written documents have been reviewed to establish sources and resources to conduct the research. To create a heuristic view of the situation the supply industry is facing in an era, new policy and public opinion may pressure established routines and business models toward new and more sustainable pathways. The documents consist of cases and understandings not produced by the researcher. Still, they are relevant research from acknowledged and peer-reviewed journals or books and information given by the company researched. Mostly, the study is linked to transition theory and pathways and relevant literature toward societal culture, normalities and values, and the established oil and gas industry. These documents help create a picture or understanding of the situation faced by the sector connected to the oil and gas industry. These documents often have a text of similar context and often do not give new insight into the supply industry's issues toward oil and gas. Therefore, the need for more knowledge and information was needed to answer the research questions.

## 5.3 Informants

To provide more information and knowledge toward challenges and opportunities, interviews were conducted to understand the landscape better researched. Some of these informants were chosen together with Aarbakke as they represent different key positions involved in transitioning toward a green development within the company. Most of the informants can be seen as key informants as they have a large contribution in establishing new management strategies or firm policy. Giving them special knowledge about processes more extensively than people outside the researched objective. Also, informants outside of the company have been used to established social normalities and values in the region of Rogaland, more precisely Jaeren (Bryne, Klepp) and North of Jaeren (Sandnes, Stavanger). These have been chosen as they operate in the same supply level as Aarbakke in the oil and gas supply chain to establish a correlation between actors at the same level in the Socio-technical regime.

The problem statement focuses on green transition within the industrial supply industry toward oil and gas, focusing on a single case actor. Therefore, many informants are connected to this company. To establish an understanding of the interface, it has been appropriate to also conduct interviews with informants outside the company from other similar industries within the oil and gas supply industries and informants outside the industry to gather relevant information.

Informants interviewed at Aarbakke, and similar industries in the supply industries have been conducted on digital video platforms due to restrictions linked toward Covid-19. As parts of the thesis focus on social normalities, interviews done with people outside the industry have been done by physical attendance, as random informants have been asked questions in the area of Jaeren and North of Jaeren to capture cultural trends.

Under all of the interviews, there has been used a recorder. A consent declaration was used and signed before the interviews were done to inform of the study and to gather consent to do the sound recording. Interviewing respondents on the street was done anonymous the answers were only done by taking notes to comply with GDPR and personal privacy. The sound recording was done to create the possibilities to use quotes and quality check and to catch everything as one person did the interviews. By doing so, stimulates the dialogue instead of continuously make notes under the interview. It contributed to the reliability and accuracy of the empirical data. However, all of the interviews have been done in Norwegian, and therefore the researcher has translated the quotes into English while still keeping the Norwegian meanings.

Affiliation	Informants	Interview Conducted
Aarbakke	5	4
Supply industry Rogaland	2	2
Street Interview	4	4
<b>Total</b>	<b>11</b>	<b>10</b>

Table 1: Informants and affiliation

#### 5.4 Data reduction

The data analysis has been structured according to the research questions; the same structure has been used when conducting the discussion chapter to find the correlations to be able to generalise. To answer the research questions, I have used notes, sound recordings and an interview guide to detect regularities and irregularities. During the interview's some questions became interlinked while others were moved to establish relevance in another research question then first was anticipated. Also, answers providing no relevance for the researched topic were terminated, and focus was turned toward seeing similar or un-similar answers from the respondents. Further, the interpretation of the data may provide an understanding of how the

industry looks at a transition toward a more sustainable future and focus on the research questions presented in chapter 1.4.

It has been obvious that after going through the empirical data, that some of the terminology used as well as some delimitation toward the topic could have been of usage, as many of the questions from the interview guide were quite interlinked with each other, creating difficulties when structuring the data collected validity referring to the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the data,

## 5.5 Validity and reliability

### 5.5.1 Validity

Validity refers to the integrity and application, whereas the analysis reflects the data retrieved and provide a picture of whether the data truly grasp the intended scope of the research (Golafshani 2015; Noble and Smith 2015). It builds upon the notion of interpretation and explanation. To determine validity within the case researched, the study focuses on interviews and document analysis. This relies on the usage of relevant questions that connects with the research. Interconnected toward the research to create validity, the analysis is combined with theory-based transition, social imaginaries and system perspectives. The informants are mostly chosen by their affiliation toward the case research within this study, making them key informants. Some informants are from other companies operating in the same field, and some informants from the general public. The study is built upon data from 11 informants, which is not adequate enough to ensure a theoretical generalisation. It has provided a deeper understanding of a single case of operation. And as the informants mostly are linked toward the operations of Aarbakke, it may not make it direct transferable toward other industry in the same field. However, as the informants are situated in different domains within the same company, it has provided data based on the views within multiple areas of expertise based under the same roof but with different backgrounds, providing different outcomes toward the lived reality resulting in different approaches toward the same research statement.

### 5.5.2 Reliability

The notion of reliability is connected with the trustworthiness of the collected data and its possibility to confirm the findings. Establishing high transparency helps to strengthen the reliability of the collected data. However, in qualitative research, the interviews are often done by the researcher based on his view, knowledge and understanding, whereas biases may influence the findings. Within single case research, it is hard to create complete anonymity; one can therefore assume that information provided from interviews are to some extent answered in a way that would provide data that is positive and in favour of the company, making it hard to establish findings that are not in some way biased. Thus, the input from informants outside the company creates better reliability of the results, as they are not connected to the establishment.



*Picture 4: Process tools (Aarbakke)*



## 6. Data presentation

### 6.1 Primary data

Within this chapter, the data would be presented as much as possible without the researcher's interpretations, and is a presentation of findings. To create a systematic presentation, the chapter is structured after the research questions.

1. *Why does the oil and gas technology industry need to move toward more sustainable models?*
2. *To what extent is environmental norms affecting Aarbakke and the perception of possible pathways toward becoming the greenest company by 2025?*
3. *In what way do changing social normalities influence the decisions toward more environmental performance and a complete sustainable transition within the supply industry?*

Chapter 6.1.1 is connected to research question 1, and Chapter 6.1.2 is linked to research question 2, and 6.1.3 is then linked toward question number 3. This is also in the same order as the interview guide is constructed to gather data.

#### 6.1.1 Sustainable models

Research question 1 asked why does the oil and gas technology industry need to move toward more sustainable models? Aarbakke has, over many years, created a strong industry toward supplying the oil and gas industry. With high-quality mechanical engineering, using virgin materials and high-value components toward the fossil fuel industry. An industry that stands for 99 per cent of the production, delivering components to the subsea and fossil fuel landscape. Usage of steel in the production and a vast amount of energy from electricity and gas provide windows of opportunity toward new and better ways of doing production and business.

Most of the informants understand and have recognised that there are opportunities to become environmental in the production to meet the Sustainable development goals (SDG) as an industry embedded in virgin materials SDG 12 which emphasises sustainable consumption and production pattern.

"We are still a decade away before we would not see any oil and gas production. However, they have started to do it smarter and gets more out of existing wells and others areas. And this is also more sustainable, instead of running around drilling new places" (Informant S)

"It has always been costly and expensive within the oil and gas industry, so to produce more efficient and environmental as a company may be more attractive when it comes down to new sustainability policy and regulations. Which secure jobs in the future" (Informant K).

Most of the informants see that the winds of change are now, as there is more focus on lean and clean production. Furthermore, it emphasises that not creating possibilities for a transition from doing things as they always have done would move the company backwards into the future. Some of the informants see some changes and have not seen any of this at a large scale when it comes to the business part on a world basis.

"We do business worldwide, not just in the North Sea. We have noticed some focus there, but less outside Norwegian borders. There is an expansion in fields other parts in the world where we deliver products." (Informant S).

"Although I guess most of my career would be within oil and gas, there will come a change. and we cannot risk jumping on the wave when it has established itself, then it is too late" (Informant K)

As there are many new policies and regulations, the need for new ways to meet demands from larger external incumbents within oil and gas, new procedures and policies have been made in choosing the environmental solutions out there to become the greenest producer.

"Our goal is to deliver a product whereas we can certify the environmental footprint." (Informant K)



"It is noticeable that governing systems provide landscape pressure. Companies embedded in state ownership, e.g. Equinor, has a more systematic approach."

(Informant S)

Multiple informants within the industry indicated that there are different customers, some that may enforce standards upon and some that might force their standards upon them. The last kind creates the pressure needed to make changes. of the informants recognise this and therefore sees the possibilities to use transition toward more environmentally friendly solutions in production as a smart move to become a more attractive choice in a tender.

“Without a doubt, international guidelines. Subcontractors or customers must show that action is made and that we can produce more sustainable solutions and products”

(Informant K)

Aarbakke also points out that making solutions based solely on an environmental solution to be a "green producer" without any form for beneficial carrot in the other end would not be a sustainable business plan. This correlates with some other informants from different supply industries. Emphasising that sustainability is a complex word, and points out that it has multiple layers and understandings. Sustainability also involves smart business, economy, and societal solutions, often forgotten in the discourse when we talk about sustainability.

"Sustainability is a word of many definitions, as sustainability for an environmentalist may not be understood in the same way as sustainability for an economist, business owner or a family's economy" (Informant C)

As the mechanical engineer industry within Computer Numerical Control (CNC), steel is of the essence. The industry understands that steel production is not a so-called green industry, but better production practices can be favourable in choosing a supplier.

“We had a period where we bought steel from Asia with a worse environmental footprint than Europe. However, now we are back due to the environmental footprint and freight costs. To be fair, steel produced in Europe is 75% “cleaner” due to the energy mix when we look at energy savings due to greener energy” (Informant K)

The informants see that pressure from some of the big incumbents in the field is important. If they do not change, it is less of a need for them to do the same. Making green solutions to be green would then not be a sustainable business model. However, more and more regulations from the EU and other policymakers are forcing the big actors to alter their way of doing business and focus on green solutions. It again provides the needs to do green solutions, so the industry needs to change to survive.

“A company like Equinor is an important player in this, although it is Norwegian, it is also an international actor, and therefore becomes a driving force in how we act” (Informant K)

“When big companies emphasise the need to buy greener solutions, then we also would buy the greenest solutions and not just cheap just because its cheap" (Informant K).

The industry points at the change in the landscape as a reason for changes as legislation and alternating views toward new, more environmental solutions to become more environmentally friendly, as drivers for change in the fossil fuel supply industry. There is also an understanding that greener options in themselves are not a solution if no one is willing actually to pay for the product. However, in doing an analysis of the status quo and doing more environmentally friendly reconfigurations, there is money saved in the long run.

"Changing to LED, oil spill systems and separators to clean and reduce the usage of it, together with recycling are green solutions that end up saving us money and being better for the environment which is a win-win situation" (Informant S)

#### 6.1.2 Environmental norms affecting organisations

Research question 2 asked to what extend is environmental norms directly affecting Aarbakke and the perception of possible pathways toward 2025? Some of the informants recognise that there is a change and that the discourse favourite sustainable solutions. Nevertheless, in the end, there is also an understanding that becoming the greenest company in the field within 2025 toward the fossil fuel industry is made mainly out of choice and not of force. Other supply industries differ from this, as they see external factors as the main driver for change to secure capital and become a sustainable business in the long run.

"We did not have to do it, and it is something we have come up with by our self. We saw that the rest of the world talks about sustainability. So we asked ourselves what can we do and how could we contribute" (Informant S)

"We choose to change ourselves for the fact that we know it is coming"  
(Informant K)

"Making a transition toward greener solutions is something that we do because we have no choice as an industry within oil and gas, look at the big money funds pulling out of the business if it is too dirty or policies made toward the fossil fuel industry. If the goal is to survive as a company, a change is the only way to go" (Informant Q).

"If no one demanded or expected it, there would not be a need to change."  
(Informant C).

Informants highlight what this choice culminates into when it comes into the daily business to become the best in the field and become as environmental as possible. It is doing more remote supervision on parts, saving air travel focus on clean energy. Usage of the machines incorporated in the production focusing on extending the life of tools by doing service instead of just buying new. Seeing that everything that might make the footprint as small as possible.

"That is our goal, something we are proud of, and it is for the youth it is for our employees and therefore our duty" (Informant S)

"if we do not do something, it is just to put a lock on the door, because we would not be compatibly skilled, so it is better to create a sustainable workplace rather than no workplace at all" (Informant B)

The need to meet the new regulations and adjust toward a model rooted in the societies perception of what is seen as environmental. The Pathways company like Aarbakke choose to incorporate to be the main actor in a high competing market, both as an employer and a provider of solutions. The informants provide an insight into how they meet the new visions and how they see possibilities in new ways of producing inhouse value and corporate responsibilities toward environmental and societal changes.

The informants see possibilities and provide a vast list of what has been done in-house to meet the new normality in the business as more big incumbent firms and regulations has set new agendas in how to operate or how to meet the SDGs, Paris Agreement and the coming regulations from EU in the form of taxonomy and the green deal.

"If everyone does their bit, the end sum would be great, we cannot make a revolution in Aarbakke, but we can be revolutionary in ways to produce smarter, cleaner and more environmentally friendly" (Informant S).

To produce high-quality products that provide profit is the main scope for Aarbakke as of any other business. However, the choice to become a greener producer and become the world leader in the field by 2025 is set as a solid second agenda. As an informant said about why they choose to aim for the world's best, "it is better to be a game-changer, rather than being changed by the game." It is acknowledged within the company that change needs to come from inside the walls of Aarbakke before they could make demands on others. It is a wise move to set the standards in front of regulations as it would give an advantage in tenders. The informants also provided with enthusiasm their thought on how to manage change and what has been done.

"We have taken many measures here of which we have not spoken so much about. Like creating development groups together with our suppliers that work as a development program where environmental solutions are set high on the agenda. We share our ideas and solutions, and they share theirs, and by doing so, we all develop tougher with a common goal" (Informant K)

Within Aarbakke, oil and gas are still the main customers, but changing procedures is an important step in meeting new targets and environmental standards. It was brought up that it has always been in the nature of Aarbakke to have an open mind toward new technology that could make it more efficient and produce, creating as little waste as possible. Changes like making everything paperless and implementing a smart factory, regrinding tools, making them last four times longer, and new and more efficient compressors reducing energy usage, to mention a few. Nevertheless, not all technology is ready to be replaced as there are no solutions that can be used. One example brought up is the high standard needed in welding products estimated to operate at low deeps subsea. There has been done multiple tests in using alternative

in welding. However, the quality of the product would not withstand the pressures underneath the surface and break, which would result in an environmental catastrophe offshore.

“You feel the pressure from outside to change, but some technology is not there yet for us to do everything” (Informant S)

Here at Aarbakke, we know that changing the established culture is not something done overnight, an informant said. Then again, the informants see dialogue and implementation of the employees into the transition as an important part pathway to a greener production method. And by doing so, while not talking down what has been done, but rather lifting it and build on the pathways used to reach the level Aarbakke is today.

“Before the Apprentices, bought houses and cars that consumed a lot of petrol, today they live at home, and many do not even have a driving license. That come to work by train or electrical kick bikes” (Informant K)

So change into what is seen as important for today's workers is important to be attractive as an employer while respecting the employees who have worked here for years and their needs. (Informant S)

However, they indicate that although we look at new pathways and solutions toward an emission reduced society, they indicate that. It is important to recognise the employees who have contributed to our region's economic growth and bring them along in symbiosis to make and create a transition easier. As the landscape talks more and more about green transitions, it often creates a negative picture about an industry-linked toward oil and gas and talks about closing down oil and gas production. Informants see this as a negative way of trying to create a transition toward a greener future. And point out that a discourse like this can be seen as toxic toward a reconfiguration of the industry as it hurt and provokes people who have worked and struggled and still struggle within the field today, contributing to the bread and butter of society. And may create a resistance making it harder to manage a transition toward a greener future.

"Discourses like this hurt people's feelings and is not good for anyone. Some propaganda and scare tactics have resulted in questions from employees about if it is a safe place to make a career, or if they need to start looking for new employers."

(Informant S)

Aarbakke points on the corporate responsibility to act in order to meet innovations and routines toward a greener tomorrow. They should be able to see and grasp the necessity of meeting the needs of youth while at the same time respectfully meet the needs of the employees who have been there for a long time. There is a goal set to become the greenest company in their line of business within 2025, which they see as a hard but also a traceable goal. By reconfigure technology, routines business models and also changing procurement policies to be ahead of the change.

"Working in the industry toward oil and gas was before seen as a cool and solid line of work. But we are in a time where some other industries are "sexier" than our industry, and this is one reason why we need to reach a position where we are seen attractive again out there"

(Informant K)

"We do not have our own product, we just produce. So, therefore, our product is the people working here, and that is why we always need to attract the best people out there"

(Informant K)

Most of the respondents at Aarbakke and within the supply industry prioritise digitalisation as a high priority in becoming more environmental. The focus on reducing waste and recycling as well as new technology acts as a driver for change. However, the most important in the end is that it is not just changing for changing. It needs to be linked toward being profitable as well as environmental.

"It is no use for us if we pay more for a "greener" steel supply if we do not get our money back elsewhere, we have to be honest enough to say that in the end comes done to a price question" (Informant K)

"We would not spend a million extra on choosing electrical trucks or trollies in this industry instead of a diesel one if there were no feed-in tariff or benefit in the other end"

(Informant Q)

There is also a high presence of the word Greenwashing in the industry. Of what, they have strong opinions. Moreover, often it is seen that no matter what they do to meet new demands or solutions, the discourse in some area tends to branded everything as mere greenwashing.

"the oil and gas industry and all the talk about sustainability is greenwashing. It is still oil and gas in the end" (Male 26, Stavanger)

"intentions are to make money, not saving the planet any fool can see that. Changes done are merely done in order to survive. (Female 20, Sandnes)

Although there is a clear view that some of the actions made in other industries and companies are exactly that, some of the respondents bring up examples like climate quota. And sees this as a way to buy themselves out and continue the same practices as before and not rising to the responsibility and duty of the industry to make changes toward a more sustainable future and meet the SDGs. And therefore take a stand against it and rather focus on reconfigurations within established routines and technology.

"Other industries near buy, waves their climate quota and say, "look, we have contributed". I see this as not a good way to make and be part of a transition"

(Informant S)

All informants see the possibilities that a transition toward new and more emission reduced activities might bring. And choosing a pathway that is sustainable over time is necessary to meet expectations across all branches of society from macro to micro levels, seeing that new normality also creates new ways of doing business as social needs change over time. While not forgetting the history and the industry pioneers in the process toward a future with maybe less fossil fuel consumption.

"if you do not go out tough, you cannot get a goal it would merely just be a little assist, but when we go out, we know we can contribute to a shift and its fun" (Informant S)

### 6.1.3 Does changing social imaginaries influence decisions?

Research question 3 focused in in what way do changing social normalities influence the decisions toward more environmental performance and a complete sustainable transition within the supply industry? This chapter's findings linked to changing social normality influence decisions toward a transition within the supply industry. First and foremost, how the actors see a shift in social normality if there are any. The chapter would also provide some data from outside the field an

Within the industry, there is an understanding that to meet the needs of tomorrow, the needs of today need to be addressed in a manner that reacts to how things have been and how things might become. In order to grasp social trends and changes in value systems, Aarbakke sees the use of apprentices as a vital key to understand how youth sees and reacts to the field of expertise. Changing normality both in the region as well as national and international provide circumstances, whereas decisions made are made to comply not only with the company's values but also the values of society. Multiple informants indicate that to be attractive to new competence. It is needed to meet the values of youth that today choose environmental solutions, e.g. electrical kick bikes, public transportation and bikes instead of huge combustion engines in cars. Aarbakke uses apprentices as a window into the trends and values of the new generation to make the right choices when it comes to new technology, how to organise and establish a sustainable business model.

“It has been instructive to have young people here because then you constantly keep an eye on what matters to people, allowing us to change ourselves as well. Sitting here like old guys and hold on to our values I do not think is a great solution if we wish to keep up" (Informant K).

So to be attractive as an employer, the industry sees that new social normalities like more electric solutions in how we move around and how our lived experiences shape our perception of the good life. As an informant said, "The Machines we have at Aarbakke do not care that the parts we produce in them go to the oil and gas industry, we can code in whatever as the machine does not know where the parts produced ends up". This shows that a transition toward new fields is there when it is needed. However, there is more and more understanding in this region that the supply industry is also a part of the solution. Informants emphasise the need to see



wider and that if all contribute and focus on transparency in this development, much can be learned from each other. For some informants, it has been seen as a dirty and not futuristic field of expertise to work in the oil and gas sector due to many things. However, there are lived experiences in this region that some of these factors are turning a bit again. As an informant had felt that for a period when he had been to venues where the topic has been green transition or pathways away from oil and gas, he had been reluctant to say he worked in the oil and gas sector and felt a bit out of place. Nevertheless, he indicates that this has taken a positive twist.

“I have been to seminars in green transitions at UIS where before I felt people looked at me with disgrace for working in the oil and gas sector” (Informant K)

After conducting interviews in the processes of hiring people lately, informants talk about the view that there is a positive attitude toward them as a field of expertise both as a supply industry and as an actor in the oil and gas sector. Many of the candidates come from some more green educations and see a future in the sector to contribute to changing the industry from the inside.

“I see newly educated students with many "green" courses applying here. And it gives a perception that they do not see the oil and gas industry as a bad seed, but rather that they now have a possibility to influence the industry in a positive matter" (Informant K)

"I think in order to become less pollutant, we need to work together with the industry, not just against it" (Female 20, Sandnes)

The understanding from newly educated that there is a need for coexistence between new and greener solutions and established knowledge sets. It emphasised that having a mindset set for sustainability and coexistence is important for the company and, therefore, an important measurement in constructing interviews with new employees.

"It is important to us to be part of the transition and therefore asks questions about their view on sustainability. We never did that before, but we do it now, and I believe that this is important for us" (Informant S).

When looking at regional differences and understandings of the oil and gas sector, there are some feelings that other parts of Norway do not recognise the value and the effort provided by the coast of Norway, and that some of the extreme views, as some say mostly comes from parts of the country not focused of the offshore industry.

"People from the east of Norway seem not always to understand or respect what has been done around the coast. When they say, let us put an end to the oil and gas production. what about all the communities built around that industry as well as society itself" (Male 42, Sola)

"I have a feeling that people studying green transitions here in this region have a deeper understanding of the oil adventure we have been a part of, not that I have been in too many forums and discussions with people from east of Norway" (Informant K).

"I do not see that many regional differences; I feel that most people in Norway see that Norway is Oil" (Informant Q)

The informants see changes in the youth when it comes to values and norms in how they think. Furthermore, this influences the choices made at Aarbakke in investments and new solutions both in production and in strategy. When it comes to the region at large, it is not that visible. They say that there has been an alternation toward the industry itself. Changes may relate to the negative discourse more than the moral. And in order to meet the needs of youth and become attractive, the changing normalities must be monetised and seen as opportunities.

"We can change, 20 years ago who would foresee that we would 3D print parts to aeroplanes" (Informant S)

To become a company for the future, taking part in the transition to recognising the changing trends of what is acceptable and not attracting new competence is an important part of developing Aarbakke as a company for the future. This is emphasised by one of the informants as he puts forward that at Aarbakke, the people are the most important asset and they are reliant on linking the best minds toward them, as they do not have a specific part or model that is unique in its own way. Thus, in order to create room for new normalities. Aarbakke uses as

pointed out before, the youth to understand the values, norms and culture in society outside the already established mindsets. Keeping the business model in constant flux

## 6.2 Secondary data

It is important to split the understanding of the education toward the Industry Aarbakke operates. There is talk of reduction toward oil and gas-related industry, often linked to higher education toward petroleum. Research conducted by Stavanger Aftenblad in march 2021 shows that 2 out of 3 over 18 years in the region of Rogaland is positive toward the oil and gas sector (Stavanger Aftenblad 2021). This indicates that choosing a field industry-linked toward oil and gas is not necessarily declining due to the link toward oil and gas.

Although numbers provided by Stavanger Aftenblad (2020) showed a significant drop in applicants (73,5%) toward higher education within the oil and gas-related programs between 2015 and 2019, the University of Stavanger (UiS) and The University of Bergen (UiB) had a 78 and 81 per cent reduction in students having petroleum education as their primary choice over those same five years (Stavanger Aftenblad 2020). However, this is not representative of the industry researched and may provide a wrongful picture of the situation toward a company like Aarbakke. In contrast, the higher education provided at the university level is not needed in the production but rather in the administration level like the economy and business development. However, these are not linked specifically toward oil and gas educations. Aarbakke has over 200 skilled workers from different fields of expertise, not in need of a university degree. Thus, education toward industrial technology in the region shows a completely different picture. Preparation study programs related to vocational subjects have had an increase in applicants.

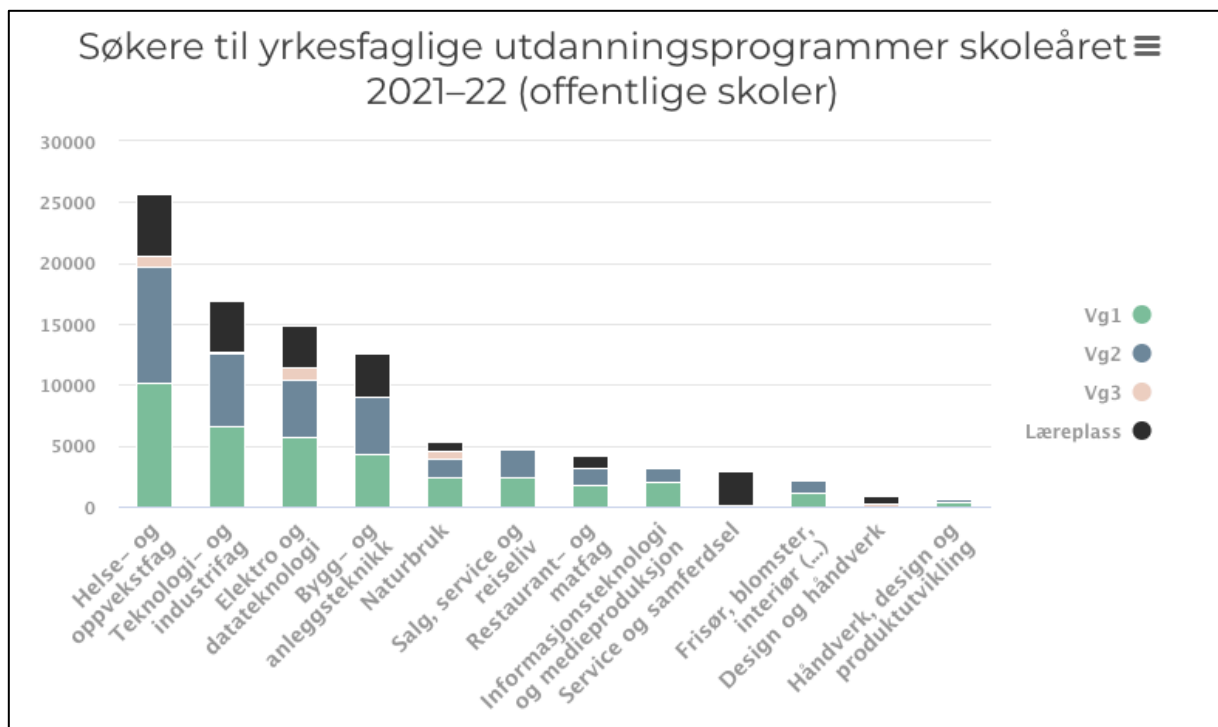


Figure 6: Applicants for vocational education in Rogaland 2021.22 (Utdanningsdirektoratet 2021).

In total, data shows 21 600 applicants toward apprenticeship (Vg3) in 2021, which is 900 more than 2020, whereas 4200 are linked directly toward the field of technology and industry (Utdanningsdirektoratet 2021). Education choice for first-year students (vg1) also shows an increase in popularity for technology and industry, with 270 more applicants compared to 2020.

## 7. Discussion

### 7.1 Sustainable models

The oil and gas industry need to change because of multiple reasons. The way they have done business is changing, and new regulations are put forward not just through a non-legal binding agreement like the Paris agreement. But by stronger and more legislative regulations from a macro level, e.g., EU and national politics. These factors provide a circumstance where one either make the change or become a part of it. Therefore, change is necessary to establish a business model for the future. By seeing the cooperate responsibility with great solutions, making the supply industry an important participant in a more sustainable pathway into the future.

Embedded in the supply chain toward oil and gas indicates that one has been accustomed to marked changes over time, both highs and lows. However, the specific shock in the landscape created by the Sars-cov-2 pandemic (Covid19) may have opened a window of opportunity and created a giant leap for the industry. Enforcing changes in the way we work, produce, live and do business. Changes more likely to be unfolded over many years, E.g., digitalisation of work by like video conferences and meetings, to remote inspections of new equipment suddenly happen over months and not years. Meeting these changes and transition into the future could be tough. However, it creates the possibility for companies to make changes into the aligned third industrial revolution, a green revolution.

One of the research questions is to enlighten the reasons for change within industry-linked toward the oil and gas industry, focusing on industry in the supply chain. Furthermore, why technological supply industry like Aarbakke takes action against a more sustainable business model generating profits while at the same time acknowledging societal and environmental circumstances. Indicating that one looks at what is done today in producing products or services provided by the company and how one conducts it, e.g., how one operates, this section would mainly focus on the findings connected with this research question (see.1.4 question 1), by using the theory on transition where the Multi-level perspective may act as a tool to grasp the possible transition pathway, toward a more sustainable model of doing production. And may act as a tool in understanding and analysing the complexity in a transition away from industry embedded in the fossil fuel landscape.

A transition is often a reconfiguration of established processes and is often done to secure economic growth and secure jobs for the future. Often with the understanding that the development is meeting the needs of the present while not compromising the needs of future generations (WCED 1987).

Putting strain on the issue that growth is within the limits of the planet's ability to restore itself. Meaning that the ways things are done today may not be how it is done tomorrow as they might be obsolete or replaced either by new technology or intervened with innovations or alternatives. New international agreements like the IPCC Paris agreement focus on human-induced climate change provided by extensive use of non-renewable energy sources like fossil fuels (oil, gas and coal). As the main driver for changes in the atmosphere resulting in the rise of global temperature and land degradation in the search for evermore energy sources.

A vast number of nations ratified the Paris agreement to meet designated targets set by the IPCC. However, although the IPCC's Paris Agreement is a promoted agreement between nations, the concerning issue is that it is not legally binding and hard to incorporate or enforce. It is a nice thing to work against, but it is just a mere slap on the hand if one does not meet targets. This has also shown itself in the European new green deal proposal and a taxonomy set by the EU. It is providing a regulative program in order to reduce carbon emissions within the European Union. The President of the European Union has put on the agenda that the need for change is vital for the prosperity of the EU into the future of low carbon societies.

“I am convinced that the old growth model that is based on fossil fuels and pollution is out of date, and it is out of touch with our planet”. (President von der Leyen 2019)

However, this deal is yet to be agreed upon as regime actors resist the winds of change. although it is not agreed upon, it still is of great importance for industry to grasp as one of the respondents indicate that,

The taxonomy proposed and the green deal by the EU is already showing itself and is on everyone's lips. And will be hard-hitting on the industry if the portfolio focuses on the "brown industry" like oil and gas. Moreover, if one is not open to change, it will be a costly business to be in and very hard to get investors as no one would dare to touch it (Informant C).

Norway's cooperation within the EU through the EFTA agreement may act as a springboard in the Norwegian pathway within a transition toward a more carbon reduced society as the linkage toward EU would bring a stronger regulative, jurisdictional and political obligation than the Paris agreement, due to the connection toward the European Union. This indicates that new models are needed to move into the future to be reconned with.

The MLP provides an analytical overview of how this might happen. However, the MLP is more a heuristic model and do not grasp the complexity of a transition within the established socio-technical regime of supply, demand and social infrastructures. Nevertheless, it can explain why the oil and gas technology supply industry needs to change. As the landscape level, e.g., international and national governance, puts pressure on established procedures and business models not sustainable when pressure from the landscape level creates windows of opportunities for new technology and niches.

"Although there is talk about, reduction in oil and gas production. I would assume it would be a big part of my career, but on the question, if there would be a transition? I would say no doubt about it! But not for many years.

However, to be a sustainable business, we see it as an opportunity to look for new ways and new areas in business. Cause it is not wise to jump on the train when it is moving at full speed. And with signals saying that oil and gas would demand less space, it would be smart to look at new possibilities now. Just look at how long we worked to learn and be great in this trade"! (Informant K).

However, making a sustainable industry within Norway and the Eu to meet new regulations toward greener solutions within the EU borders. Do not affect the circumstances that the world is not the European Union alone, as other parts of the world are not binding toward a Green Deal.

"the Norwegian shelf might have some reduced activity and some aspects of certificates and stuff. but in Asia and some other parts of the world, the industry is going in another direction by the looks of it". (Informant S)

Although some parts of the world are chugging along, the regulations set in the EU, which again sets precedence within the Norwegian political landscape as well as regulating how large cooperation can operate, would make it hard to keep a blind eye toward the transition as the operating landscape is changing the rules of the game. Opening up the socio-technical regime for new actors provide new ways to operate. Keeping up with this transition indicates a reconfiguration of how one is operating and setting strategies today. Furthermore, by acknowledging the corporate responsibility, e.g., how Aarbakke defines its relationship between business and society and how they define, manage and act according to the green transition toward moving in the direction of a Greener production model.

A reconfiguration pathway (Fig3) toward a new regime while being connected to the established regime could be a solution in a time where new models of doing business are turning up. Although there is talk about ending oil, most political parties have acknowledged that setting an end date would be hard and mere unsolvable due to the importance of social factors within Norway, together with an already installed capacity that still requires maintenance. However, using the established knowledge and competence gained after several years in an industry that operates within small margins where an error could lead to severe environmental catastrophe, using this competence to work smarter both with established procedures and new innovative solutions toward a green transition in the future would be of high value.

Multi-component innovations, as Grin et al. propose, is of high value. Within Aarbakke, they refer to this as « kinder-egg-solutions ». Stating that yes, we can change to a new way of doing one thing, but that would be a cheap solution with a shorter scope in the long run. It needs to be profitable for success by changing systems or ways of doing things that give considerable gains, maybe higher in price at first but more sustainable and economical in the longer scope. The incorporation of regulations from the landscape level often provides an opportunity for growth that provides new procedures and a possibility for new technology to replace or retrofit the production.

Although most informants indicate that choosing to become the greenest actor in their field of expertise is a choice merely by them alone. As indicated by some informants, "we now it is coming, so we chose by ourselves to work against a greener production" and "we did not need to do it, it is something we have come up with by our self" I would argue that choosing to change often is done with an external pressure like a landscape shock (climate change,



regulative policies like the green deal from the EU, Government regulations.) providing pressure on most businesses both upstream and downstream in this case within the oil and gas industry. The paradox I would argue is that it is a change and adapt or be replaced scenario.

“Change is linked to business, as banks are pressured to make it expensive for industry to operate financially, we need to alter the way we do business in order to have jobs to offer in the future” (informant O)

Thus, the development of new and more green solutions in material use reduction, the importance of Co<sup>2</sup> footprints and circular economy altering establish cultures, structures and practices. Furthermore, understanding and grasping that this is not a linear process are important. This leads to the statement from Taylor et al. saying that transition cannot be run by plans and regulations alone (Taylor et al. 2012). It requires an entangled interaction and contract between governments, niche development and society and is in constant flux. Navigating these levels is not an easy task. However, having management open to transition connecting these and seeing different views and points as high value creates friction in the establishment. Kemp, Loorbach and Rotmans indicate that transition management seeing these processes would be beneficial in entering a transition, making new business models more robust. This is one of the things Aarbakke uses to their advantage in order to manage a transition. Although the main customer today is within Oil and Gas and will be for years to come, installations require maintenance, and new fields are still being set up. The possibilities to alter production toward other services are possible as the machine producing parts are open to producing part toward multiple services like 3D printing parts for aviation or producing components for hydro dams or wind turbines. It makes them suitable for a transition when the winds shift enough to make the sails blowing toward other product on fields. and on that path, the company strategically reconfigure its business model toward a new green vision

## 7.2 Environmental norms

The normalities of society often represent the lived and imaged experience. With the roots of history in Rogaland back to the '60s largely cultivated into an oil and gas landscape, it not only provides circumstances for individuals to choose a life in the fossil fuel industry but it also contributes to shape and reflect social imaginary of normalities, value and cultures within the region. The Fossil fuel industry creates a common interconnection of identity between different

levels in the region. This often becomes stronger due to location, landscape and network resulting in resistance toward change both on an individual and industrial level, as well as it can put pressure physiologically as individuals with ties to oil and gas have to look for new pathways in life (Carley, Evans, and Konisky 2018).

In a Society constructed upon the imaginaries produced by fossil fuels, it is not only the oil extracting companies that become profitable areas that produce welfare to the Norwegian welfare state but a vast majority of the industry located around oil-hubs harvest benefits that contribute to synergies creating prosperity and positive effects across sectors both regional as well as national. However, fossil fuels are as any commodity, and it is only valuable as long as it is extracted, actually needed, or any oil or gas to harvest. A sudden drop or a moving landscape pressing to move away from fossil fuels and transition into a future of emission reduced societies would create a vacuum in areas where the societal imaginary is based on an alleged obsolete industry. Having an industry embedded in an oil-hub area may infuse pressure to alter the way one has worked for years, making some routines, as Andersen and Guldbrandsen (2020) emphasise, obsolete and in need to either replaced or wowed together with new alternatives ant to change into a new socio-technical regime. Aarbakke is a producer of mechanical components toward the oil and gas industry set itself a target to become the greenest producer of these components in the world. Although there is much negativity produced by various platforms toward oil and gas, a company that produce parts toward this may be a part of the transition itself. By looking toward new and better ways in producing crucial parts that need high quality to become safe to operate. Therefore, to meet new legislation, policies and changing societal infrastructures, a reconfiguration pathway (fig.3) may provide an understanding of how this is happening in an industry linked to oil and gas. As indicated in an interview, before pressure arrived from outside, there were not much talk about sustainability. However, now it is in everything how we think, act and respond.

This indicates that the industry has moved through the different levels in the model. and now has evolved into where components are replaced with new technology or policy to meet new standards, e.g., moving toward procurement standards leaning toward more environmental producers of metal, digitalisation, and trying to harvest heat from production as well as a strong focus on renewable sources as the main provider of energy. These changes show a mindset established within the strategic way to meet a possible transition away from oil and gas. Aarbakke chooses to meet a sustainable production as long as it is possible both economically

and technologically. Reconfiguring the production toward more sustainable models help to connect toward new regimes while still contributing to the established regime. I would argue that this is the most sustainable way to look at the multiple meanings of sustainability as a sustainable society and economy is also important when we talk about sustainability as benefits today also is important to create benefits and prosperity for future generations.

This provides the understanding that old business models not necessarily are obsolete but open to adapt and change. Tension in a transition often occurs when old ways of doing things are being attacked. Operators who have devoted a lifetime to our prosperity become the villain, not seeing the value and competence such experience can bring into a change. A reconfiguration of the supply industry toward oil and gas is relevant as it needs interplay between multiple actors. Aarbakke, in this case, shows transparency in cooperation with both ways of the supply chain both up and downstream in the business landscape as well as innovation in other sectors. E.g., innovations from deep-sea drilling to drill horizontally onshore to collect cooling for computer storage facilities or parts to plug old oil wells. Building upon the established knowledge provided by competence build by experience from the technological revelation the oil and gas industry has provided through years of trying and failing, innovations today found in multiple professions and industries. As a CNC machine has no meaning of what kind of part it produces when the time is right to incorporate new niches not connected to one single system like oil and gas and more toward what Grin et al. (2011) calls multi-component-innovations opening up new possibilities to become actors in multiple sectors from subsea to aviation. To transcend into a new regime, a reconfiguration pathway, I would argue that this could be the best solution as it will continue to employ in the present and possibly into the future. However, a future scenario like this does not have room for everyone. It would lead to pressure between technical suppliers making collaboration and different actors in different sectors vital for future success.

Aarbakke has created a strategy that focuses on replacing obsolete technologies reducing emissions, and are more energy-efficient, e.g., new compressors over 44 per cent more energy-efficient and LED lighting reducing energy usage and costs. Changed suppliers of steel to more environmentally friendly production methods. Also reduction in material use, and focus on recycling today 96 per cent is recycled which also results in a reduced transport of containers, and digitalisation becoming paper-free estimated to save minimum 1 million sheets of paper each year, also a part of digitalisation is to have a remote inspection of new parts taking into

consideration that a roundtrip 682km<sup>2</sup> Oslo – Stavanger- Oslo generate 123,44 Kg/CO<sup>2</sup><sup>3</sup> and a week of production in a CNC at machine generate 17,5 kg/CO<sup>2</sup> according to Aarbakke.

These are considerable actions toward becoming a more sustainable industry and provide kinder egg effects by giving multiple rewards like economic, environmental and efficacy benefits. I argue that many decisions in the past have been made without anticipating the future in many cases, thus to be able to transition and develop into a more sustainable future demand as Rotmans and Loorbach (2011), a change in established structures, cultures and practices and therefore cannot like Taylor et al. (2012) indicate only be run by policy and plans by itself, it demands a presence between all levels of production from the board to the mechanics to be able to make a positive change. Management of the transition that sees the value of different levels and can interconnect these would have succeeded in making a transition and value as many informants say the value of youth while also valuing the experienced and interconnect these two worlds of normalities, values and culture as a transition is not a linear process. However, I would argue that creating a change in an industry where specific skills, not necessarily linked specifically toward extraction of oil and gas, would be

As social imaginaries act as a representation of our lived experiences, they may provide a resistance toward change in some fields of the industry. However, some industry may also see the possibility and use this as an advantage in order to established new business models to meet the expectations of younger generations and at the same time create possibilities for them to be part of the technological change. Bringing in new and smarter ways to produce by digitalisation, policy, measurements and reduction toward CO<sup>2</sup> emissions, life cycle assessments and circular economy and creating foundations for smart and environmental choices. The transition and survival toward a new green vision for companies mostly invested in fossil fuels are dependent on the ability for industry to make changes and provide circumstances for economic growth together with environmental policies and implementation of values and habits from the younger generation as the transition cannot be based simply on mere regulation and old oil stories alone.

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<sup>2</sup> <https://www.flytiden.com/OSL-SVG>

<sup>3</sup> Emissions passenger pr/km <https://www.ssb.no/transport-og-reiseliv/artikler-og-publikasjoner/mindre-utslipp-fra-veitrafikk-fly-og-tog> ,

### 7.3 Does changing social imaginaries influence decisions?

Within a transition toward emission reduced society, I would argue that industry is produced and managed by the landscape level of the MLP and not by social imaginaries embedded in the established regime. As new processes like the green deal and the Paris Agreement rest upon climate change science to inform and educate and enforce change toward industry to meet the needs of the future. In order to change social imaginaries toward a future where oil and gas do not have the leading role in the economy of the region, the industry may thus act as a facilitator for a reconfiguration of established imaginaries (fig.7).

"This is the new oil" or "no future for oil in sustainable future" are words often headlined in newspapers or pushed into the discourse. But how are the mono-industry regions, in this case, Rogaland, actually meeting these discourses? As the social infrastructure that is significant to this area gets under pressure. Do pressure from society and new imaginaries influence the decisions made by industry toward a more sustainable supply industry in a region where oil and gas have been the contributor to economic growth.

Although historical events have provided a development that has established habits, values and norms reflected in our oil-dependent culture, in this case, Aarbakke has consistently over time used apprentices to evaluate what is important for the younger generation, indicating that what was important in the beginning is not that important for youth today. With the understanding that social infrastructure and imaginaries is not static but in constant flux. However, some infrastructures are harder to breach as they tend to establish lock-in mechanisms when society is chained toward a supply infrastructure heavily invested in primary energy resources, in this case, oil and gas.

The area that Aarbakke operates within is an area like this where history has constructed what Geels (2004) promotes as a common belief system. Although these imaginaries constructed are built upon a notion of imaged social order linked to understanding science and technology. The conversion of policy in politics and a youth movement may put pressure on exiting regimes providing the needs for change. Habits are open for change, resulting in new values creating new norms that might reshape a certain culture. However, in some cases, pressure toward the established settlement may create tension and create an unwillingness to change, as Boschman et al. (2017) also emphasise, especially when the outcome of a transition provides a picture not

necessarily a positive outcome for all business. However, history is full of transitions before and is a natural consequence of constant developments in society.

The industry embedded in delivering services toward the oil and gas sphere can meet new normality if they are open and willing to see possibilities in a new vision and understand that Oil and Gas stories of how this region has been prosperous might belong to the past. And thus, uses the window of opportunity to excel into the future. Being obvious to these trends would create a beneficial outcome to meet a greener future vision. However, transitions are normal trends in the industry. History shows us that, to survive as an incumbent actor, the willingness to adapt and assimilate to trends and new regulations creates future economic growth possibilities. Although the region of Rogaland may seem like a Mono-industry area, the possibilities are open for some of the industry to develop new pathways as they are not directly linked to the extraction of natural resources. Within the case of Aarbakke, they have seen a change in habits and values over time, and see if they are supposed to be attractive as an employer to get the right people to work their connection to new habits, values, and norms are an important factor. However, informants are clear, change is not in this case linked to social imaginaries, but the exogen factors based on new environmental regulation like taxonomy and other drivers for change. Although changing values and norms forming new social imaginaries are creating changes and influence the decisions made toward a sustainable choice. I would argue that the industry changes imaginaries as they implement, educate, and involve employees in changing their predominant behaviours to meet the changes at the landscape level.

It can be argued that looking at society and the discourse about climate change. Society is looked upon as the main driver for change. Education toward transition and climate-related fields is important for younger generations choosing fields of expertise at the university. The need for rising aspirations toward the future is important as new solutions to tackling climate change are important. However, tackling climate change is also important within vocational education as climate-friendly solutions and jobs in the industry are important to manage a transition as producers of virgin materials and become a big part of the agenda when hiring new employees. As Aarbakke has taken the stand to become the Greenest company within its field of operation by 2025 as a direct response to changing regulations and pressure is provided by the landscape level and not merely changing social imaginaries to establish a foundation toward a greener future for the company. However, by taking an active choice in this, they have started reconfiguring their business model to meet demands from governing sectors and be obvious

about the importance climate change has for a younger generation, toward Reduction in CO<sup>2</sup>, green procurement strategies, digitalisation and recycling. However, informants indicate that this is done all by choice to become a future company. Some would argue that change is coming because of green regulations and pressure. Although, I would emphasise that changes and reconfiguration are a normal process within the business as society's constant movement and needs are constantly changing. The best companies capture this and use it to their advantage in order to re-positioning themselves. Though, I would argue that a choice of reconfiguration had not been taken if exogen factors had not emphasised a change toward more environmentally solutions to meet the targets set by international institutions had not occurred. As a choice to not comply with the Paris Agreement, national climate strategies and the up-and-coming Green deal and taxonomy from the EU would have made it harder for industry not open to change its policy.

There is much talk about young people not seeking the oil and gas industry in higher education in the discourse. This is not representative for Technical and mechanical industries like Aarbakke, as most employers have vocational education. And numbers of youth choosing an education toward the industry is rising (fig 6), and a CNC is not constructed to produce only oil and gas equipment. Employees in need of higher education in an industry like CNC are often linked to supportive functions like the economy, IT, management, and engineers. Thus, they are not linked to education within oil and gas education, so falling numbers toward oil and gas courses are not representative of the future of Aarbakke. A show that 2 out of 3 over 18 years in the region of Rogaland is positive toward the oil and gas sector (Stavanger Aftenblad 2021). This indicates that industry-linked toward oil and gas is not necessarily declining due to the link toward oil and gas.

However, the importance of seeing the value in both experienced employees and young employees is a leadership quality providing the best opportunities for growth into the future and reduce friction between generations. Heavy employment in an industry facing reduction may negatively affect new solutions and initiatives (Tvinnereim and Ivarsflaten 2016). I would argue that a reconfiguration pathway toward a new green vision building upon the shoulders of the past to leap into the future and interconnect different social imaginaries

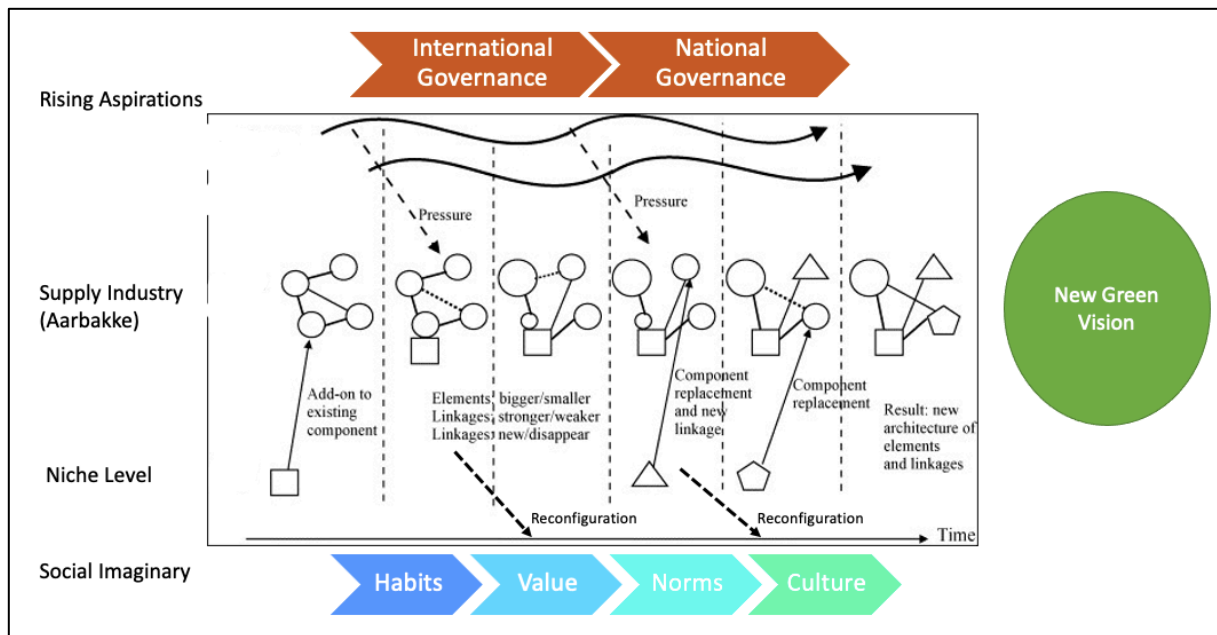


Figure 7: Reconfiguration of the industry as a catalyst for a reconfiguration of the social imaginary based on the reconfiguration model (Grin et al. 2011:72)

As a pathway within the MLP, the reconfiguration pathway (Fig3) toward industry provides, as Grin et al. (2011) emphasise, the circumstances for new practices, technology, perception, and adaption. It also may provide a reconfiguration of both inductive and descriptive norms changing the established semi-coherent rules that have established our social imaginary. I would argue that as governance incorporate new standards according to environmental regulations, climate-friendly solutions toward industry. Thus, the industry can establish a reconfiguration of deeper societal needs toward habits and values at an endogen level. Cultivating the grounds for reconfiguring norms and culture providing a new green vision embedded in society as the industry adapts toward new policy and governance (Fig.7). visions of the future in the past have been linked toward technology and innovation (Kuzemko et al. 2016). The new vision of emission reduced society and economic growth needs to be linked to the reconfiguration of established regimes to create a possibility for change in a social imaginary created by the benefits from a booming oil and gas industry as society is interconnected within complex infrastructures between human behaviour and together with our shared belief system established by supply, demand and social infrastructures. A transition would occur when societies acknowledge the change toward emission reduced societies. *“When power resides with people and communities, life and innovation flourish”* (Taylor et al. 2012:19).



Furthermore, to make a suitable transition, the industry may show itself as a crucial part to change habits and value. I would argue that industry like Aarbakke, who choose to see possibilities and incorporate the employees in their plans to create a new green vision for the company, would educate and inform to the extent that would alter habits and values that in the end would be a big part of changing norms and values. As stated by informants from Aarbakke, before no one talked about it, now it is on everyone's lips, and we see the change in what is valuable for younger generations that in the end also alter the perception of older generations toward a goal of becoming the greenest producer in the world. Using establish knowledge to reconfigure toward future aspirations.



*Picture 5: Production process at Aarbakke (Aarbakke.no)*

## 8. Conclusion

The purpose of this thesis is to understand how Aarbakke, a company within the supply industry toward oil & gas, meet new imaginaries in a transition in order to become the world greenest supplier by 2025, connecting old oil narratives with a green vision for the future. The problem statement asked if “*changing values affect the transition within Aarbakke as a supplier toward Oil & gas embedded in the oil hub region of Rogaland*”.

Recent global challenges have provided an understanding and acceptance that the human hunger for energy from fossil fuels is part of climatic and environmental challenges. These have resulted in international collaboration toward an adaptive policy agenda that may reduce the need for fossil fuels to fill our energy need favouring new technology and new business models. And by pressuring the landscape of operation, it puts a string on the established industry within the fields linked toward oil and gas. It is creating a tremble in the established regime to alter its understanding of reality. This master thesis asked whether new social imaginaries also provide pressure against industry linked toward oil & gas. In a region with a blooming history connected to industrial operations, toward supplying equipment and solutions toward fossil fuel operating companies creating the need for change based on the habits and values that produce our normality and culture created by our oil hub landscape.

A transition toward greener solutions at Aarbakke are needed due to multiple reasons. And in order to change something, policy needs to be revised and changed by legislative bodies like international collaborations, like the IPPC Paris agreement or the EU-green deal. This will provide pressure upon established regimes. These changes provide windows of opportunities for Aarbakke revise its business models and use its corporate responsibility to innovate and create solutions that become a part of the solution toward a sustainable future, securing economic growth and securing jobs that again would provide a sustainable society.

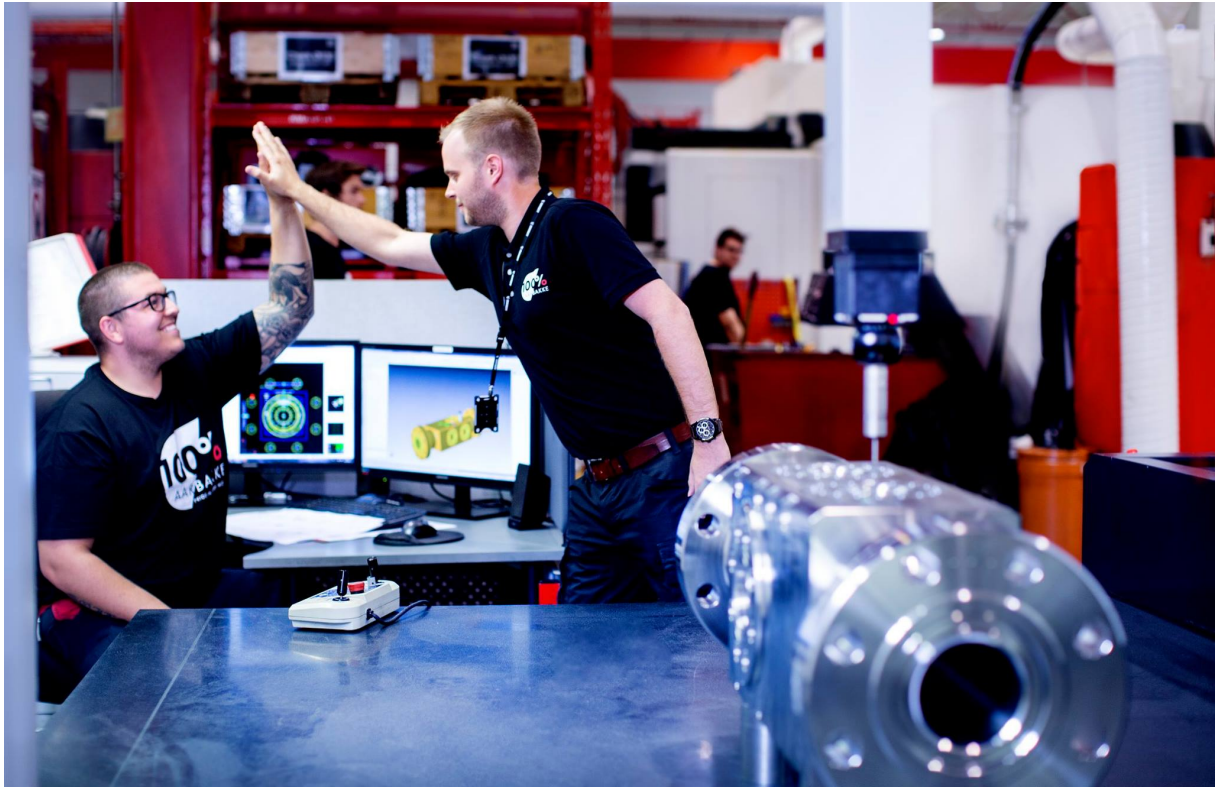
As there are many pathways into the future, a reconfiguration of establishing imaginaries may be a favourable solution as it represents the lived experiences of society. A transition may only be sustainable without large protests or constraints if it is economically or technologically feasible. Thus, building upon established competence and the experience developed over years of innovation at Aarbakke toward development of high-quality equipment toward the offshore industry. This would be a crucial element in managing the transition toward a new green vision

that is sustainable across multiple fields. The policy may be the nutrients while social imaginaries are the seed, leaving actors like Aarbakke to act as the soil of which change and new social imaginaries would occur.

*Do changing values affect the transition within Aarbakke as a supplier toward Oil & gas embedded in the oil hub region of Rogaland?* As events in the past acts as budding blocks where our social imaginaries are constructed, making a transition based upon the notion that social imaginaries are putting pressure toward Aarbakke to change its business model in an oil hub region like Rogaland, one can argue that this is highly unlikely.

However, changing the established imaginaries *against* a transition toward an emission reduced society, may be based upon habits and values created when changing operation procedures and the reconfiguration of established processes at Aarbakke where jobs are being secured and not threatening the lively hoods and welfare of families. As pressure is enforced on Aarbakke from exogen factors, the way a company implements, educates and involves employees in changes, and reconfigure the predominant behaviours to meet the changes at the landscape level. It could act as a catalyst leading to a reconfiguration of society as habits alter the value, which would lead to new normality changing a culture. Society is not a static notion but a living entity in constant flux, and moving together in a common goal using the energy established from involved employees and management would create positive synergies toward a more sustainable future where Aarbakke is the greenest company in the world in its field of expertise.

These findings are based on a single case study of Aarbakke, a company embedded in the supply chain toward oil and gas that are working to become the greenest company in the world within their field of operation. Nevertheless, it may be comparable to many industries incorporated in an oil hub region where imaginaries collide when moving into the future as new policy reshapes the field of operations for all. A reconfiguration of a society in a mono industry region relies on industry helping to manage and make innovative solutions toward a transition. When people are involved through a reconfiguration of processes in the same way as Aarbakke uses the competence from highly qualified operators and management to find solutions and not just implement change top down. A reconfiguration through cooperation would move the human energy toward a transition. Where the society do not fight against, providing important changes in our societal imaginaries toward a new green vision.



*Picture 6: pride in every move (Aarbakke)*

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## 10. Appendix

### 10.1 Interview guide

In this thesis, I would seek to evaluate whether there is room for old and established industries providing drilling equipment and pipes as part of a solutions toward sustainable solutions. And to understand different angels and complexities a transition may have on established normalities. And the effect caused my changing discourses where social normality might play a role in the transition. And try to see how new habits and values might influence the choices toward environmental solutions.

All informants will be made anonymous, unless the informant wishes statements to be linked to the respondent saying it.

#### **1. *Why does supply industry linked toward oil & gas in Rogaland need to move against more sustainable models?***

- How is the landscape within the industry today, when there such focus on a green transition away from Oil and gas?
- What does a green transition mean for an established business Model?
- And what does changes in the oil and gas politic affect this line of supply industry?
- What has been done to meet new policy
- And how does the discourse alter the behavior within the field

#### **2. *To what extend is environmental norms affecting Aarbakke and the perception of possible pathways toward becoming the greenest company by 2025?***

- How do you look at the possibilities for a green transition?
- Ending oil and gas in Norway, your thoughts on that statement?
- How do the environmental pathways affect the decisions made in the company?
- Do you look at the industry as a solution to the climate problem, or is it just business as usual.
- How do you see the supply industry in the future where renewables might alter the position oil and gas has had?

- Is the agenda in becoming the greenest company within the field of expertise made by a choice or by force? E.g., pressure from outside companies or governing policies in order to meet client and international demands?
- How does choices made by youth affect your field of expertise? And are the best engineers leaving the field of oil and gas in favour of renewables or other energy sectors

**3. *In what way do changing social normalities influence the decisions toward environmental performance and a complete sustainable transition within the supply industry***

- In what way does the society pressure decisions toward greener solutions?
- Aarbakke has a unique history here at Jæren, and is seen as a solid actor for years, does changing normalities alter this? And how do you experience it?
- How does this influence the decisions toward environmental performance? E.g, choices of technology.
- Why is it not possible to just change technology to a cleaner solution, like choices of gas in welding, who one might get the material from and so on?
- How do you look at the future for the supply industry in Rogaland?

## 10.2 Cover letter

### ***Vil du delta i forskningsprosjektet?***

*Green transition, and the future for Technological supply industry in Rogaland, toward oil and gas in a zero-emission society*

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge utfordringer og fordeler med grønt skifte I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

### **Formål**

Formålet med dette prosjektet er å kartlegge og skape forståelse for leverandør industriens som en pådriver innen innovasjon for å skape grønt skifte innen for olje & gas sektoren. Som en viktig brikke for å imøtekomme Paris-Avtalen og bærekrafts mål. Og som en aktør for fremtiden innen ett energi marked i omstilling

### **Hvem er ansvarlig for forskningsprosjektet?**

Cato Lassen, Masteroppgave i Energi, Miljø og Samfunn ved Universitetet i Stavanger.

### **Hvorfor får du spørsmål om å delta?**

Utvalget er valgt på bakgrunn av kunnskap og erfaring knyttet til arbeidet som prosjektet jobber for, samt deres rolle i prosesser knyttet til omstilling og innovasjon

### **Hva innebærer det for deg å delta?**

Ved å delta i denne undersøkelsen, vil opplysninger fra intervju registreres via lyd opptak, er ikke dette ønskelig vil intervju gjennomført med vanlige notater, alle lydopptak gjøres med diktafon og beholdes på diktafon frakoblet computer for å ivareta personsikkerheten. Transkripsjon vil være anonymisert med kode. Velger du å delta i prosjektet vil det gjennomføres et intervju på ca.1 time.

Som deltagende kan det også bli aktuelt med gjennomgang av dagens rutiner knyttet til prosjektet. Dette vil eventuelt bli gjennomført etter bedriftens sikkerhets instruksjer for behandling av interne prosederer og policy

### **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:

- *Tilgang til informasjon vil kun være prosjekt leder og veileder ved universitet*
- *Personopplysning og senestiv informasjon vil ikke bli lagret på datamaskin. I all an tekst vil referanser bli merket med kode. Informanter vil få sin kode ved eventuell gjennomlesning*
- *Databehandler med eneste tilgang i dette forskningsprosjektet er prosjektansvarlig Cato Lassen*
- *Deltagere som ønsker å være nevnt med navn kan bli det ved eget ønske*
- *anonymisert vil å få tilgang til hvilken kode de har ved anonymisering. Slik at vedkommende kan finne seg selv ved eventuell gjennomlesning. Det vil kun bli publisert informasjon som er relevant for oppgaven.*

### **Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?**

Opplysningene anonymiseres når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er ca. 17.08.2021 etter dette blir alle personidentifiserbar data fjernet og grov-kategorisert

### **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 Cato Lassen ved Universitetet i Stavanger 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:

- Prosjektansvarlig ved Universitetet i Stavanger: Cato Lassen, Tlf: 45221895 E-post: [c.lassen@stud.uis.no](mailto:c.lassen@stud.uis.no)
- Veileder for prosjektet ved Universitetet i Stavanger: Dr. rer. pol., Associate Professor Thomas Michael Sattich, Tlf: 51832797, E-post: [thomas.sattich@uis.no](mailto:thomas.sattich@uis.no)
- Vårt personvernombud: Som student er min første kontakt ved personvern veileder for oppgaven Dr. rer. pol., Associate Professor Thomas Michael Sattich, Tlf: 51832797, E-post: [thomas.sattich@uis.no](mailto:thomas.sattich@uis.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](mailto:personverntjenester@nsd.no)) eller på telefon: 55 58 21 17.

Med vennlig hilsen

Prosjektansvarlig/Student  
Cato Lassen



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## Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet, og har fått anledning til å stille spørsmål. Jeg samtykker til:

- å delta i Intervju
- å delta i Digitalt intervju

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

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(Signert av prosjektdeltaker, dato)