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## **Winds of Change?**

The use of landscape in a wind park licencing process.

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Landscape Architecture for Global Sustainability

# WINDS OF CHANGE?

*The use of landscape in a wind park licencing  
process.*

*MARTIN LUCAS SORTLAND EICK*

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# PREFACE

## *Change.*

A fitting word for three special years. As I started my journey at NMBU, as part of the first cohort of students enrolled in Landscape Architecture for Global Sustainability, I did not anticipate the amount of change that would happen over the previous three years. This programme has been defined by change, both good and bad. We as class started in the autumn of 2020, with lockdowns changing, often on short notice, how our days would look. Change of academic staff, change of administrative staff, changes in my own family. And change in the world.

It has been both fun and challenging tackling such a fast moving and complicated field as development of renewable energies and landscape consequences. The spring of 2023 has been bustling with new developments, political bargains and other controversies surrounding renewable infrastructures. The context this thesis has been written in has constantly changed, which goes to show how quick the discourse can move.

On a personal note, as I'm writing this preface, I'm in the middle of my third move across these three years, I'm soon-to-be a dad for the second time in these three years, and I'm currently employed in my second "grown-up job" that I've had over these three years. It's been an interesting journey, getting to know the ins and outs of NMBU – both on an academic level, and on an administrative level. I'm happy that I gave the university a chance. I've learned a lot about myself over these years, and experienced things that will stay with me for the rest of my life.

In a way it feels overdue to hand in my thesis. Life goes on, even if you're enrolled in a master programme.

Changes happen, mostly for the good.

*Martin Lucas Sortland Eick*

13.08.2023

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I want to thank my partner Marie and my daughter Laura, for reminding me of what's important, and what's less important in life.

I also want to thank my supervisor, Maria Gabriella Trovato. You have trusted me and my process even when it might not have made any sense. I've thoroughly enjoyed our conversations, and in a perfect world, there would have been the time and place for more of them.

Keep up the good work!

During my writing process, I have been so lucky to have a desk at the Norwegian Institute for Urban and Regional Research. I want to thank my peers there, for long conversations about small and big things. Without your company I am sure this piece of work would have been a lot harder.

I also want to thank my co-students from the first cohort of Landscape Architecture for Global Sustainability. It's fun and rewarding to see where this degree is taking us. We've been through a lot together, and I've appreciated getting to know each and every one of you.

# ABSTRACT

The Norwegian state signed the European Landscape Convention in 2001, 23 years ago, committing itself to integrating a comprehensive view of landscape into its laws, policies, and plans. One would believe the theme of landscape to be revitalized and re-centred in the process of developing large scale renewable infrastructure, but how has the use of landscape changed after the Convention came into force? And how can landscape and renewable energy be understood?

This thesis looks at how *landscape* has been operationalised in the process of developing Tellnes Wind Park in Rogaland, Norway. The thesis also looks at how *landscape and energy* can be understood together.

The thesis is based on a document review of the key documents in the process of getting the license to develop Tellnes Wind Park. Tellnes is unique in that they applied for license both in 2006, and in 2011. Comparing the documents, and reading them with a landscape-centric views, reveals that little has changed in how the applicant, assessors and responsible authority uses the term. Even though there have been written new guidelines, and the responsible authority has become better at clarifying and specifying the requirements for assessing impacts on landscape in wind power development, the assessments produced are still eerily similar to those that came before.

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# INTRODUCTION



FIG. 1

“The direction is clear. There is a need for more energy if we are to meet the transition goals we have set. This requires, as soon as possible, more investment in *energy efficiency*, increased investment in *renewable power* and increased *network capacity*.” (NOU 2023:3, 2023)

These are the words chosen by the Norwegian Energy Commission in their opening chapter of the Official Norwegian Report aptly named “More of everything – quicker”. The goal of the report is to map future energy needs and recommend future energy production in Norway, with the goals that Norway still should produce more than it consumes, and that ease of access to energy should be a competitive advantage for the Norwegian industry (ibid.)

The mandate of the Commission is to look at the long-term perspective of Norwegian Energy Policy. Still – what might have once been a field and subject delegated to the specially interested have for the past years become an everyday subject – where our energy comes from, and what we pay for it (both metaphorically and physically). The Russian aggression war in Ukraine and the politization of energy-supply has

materialized and politicized energy for the everyman.

For Norway, the effects have been both positive and negative – the Norwegian state has replaced the Russian federation as the key supplier of gas to Europe, and in the process reaped record profits on the export of gas; on the other side the Norwegian energy consumers have been rocked with record high prices, from a Norwegian perspective. For many, energy – and in extension electricity, has been taken for granted for as long as they can remember. For the common Norwegian, energy and electricity was something that simply existed in abundance.

At the same time, there are shadows on the horizon. Climate change looms overhead. The Norwegian state has, through both international and national agreements, set lofty goals for cuts in the country’s emissions. While a lot of the current Norwegian energy needs are covered by hydropower, there will be a future need for more energy – hopefully renewable and “green”.

This was the backdrop that made me interested in studying energy landscapes. Energy and energy transitions has been at the forefront of the Norwegian discourse for the past years, be it through the short-term

effects of the price shock caused by the Russian withdrawal from the European energy market, or the long-term discussions about development of new energy sources such as wind turbines, and their consequences for local people and landscapes.

While these taken-for-granted-systems have moved to the forefront of our consciousness, there is still a disconnect between the physical dimension of the infrastructure enables the energy-rich lives we are living. From the deep-sea cables connecting the Norwegian electrical grid to the European electrical grid, to the multiple meanings wind turbines take on in the local discourse – energy is all around us even if we don’t necessarily think about it. It has also been for quite some while.

Exactly how our future energy needs will shape the Norwegian landscape and society is uncertain – what wouldn’t one give to be able to look into the crystal ball and know? On the other hand – even though we must live with the uncertainty of the future there is no lack of energy predictions, political events and technological developments concerning how much energy we will need in the future,

where we will get it from, and how we will harvest it.

While the media and politicians often have a forward-looking perspective, we have also been exploiting renewable energy sources on an industrial scale for many years. In the Norwegian context, hydropower has been the ace up its sleeve since the industrialisation of the Norwegian society. Recently, there has been and is still a rush to develop large scale wind power parks – and for many the opposition has been fierce. Some call it NIMBYism, others point to the razing of their local environments, landscapes that are a big part of the identity of the persons living in the shadow of the turbines.

At the same time a wind power park does not just ‘appear’ overnight. It is the result of a highly technical and political process that can go on over several years. I was therefore curious to understand how the theme of landscape is understood in these processes, compared to how I am taught to understand and relate to it, as a human geographer and landscape architect.

Thus, this thesis aims to investigate the landscape dimension of the development process of a Norwegian wind turbine landscape. By looking at the processes

informing how wind parks come to be, I want to uncover how landscape is interpreted through the process.

## Research Question

I have decided to have to have one main research question, and one sub-question. My first research question is:

*How was landscape operationalised in the Tellenes Wind Park project applications?*

The aim of the question is to look at the underlying practices at the time, and how they shaped the understanding of landscape in that specific process. Even though the project is situated in a specific time and socio-political environment, I believe Tellenes can help us understand how landscape has been used as a term and professional domain in licencing process. This is especially true as the Tellenes wind park went through two rounds of application for license, one in 2006, and one in 2011. During this period of time the Norwegian State ratified the European Landscape Convention and worked on creating guides operationalizing the use of landscape in larger plans and developments. The two applications done on the same area presents an opportunity to study if the introduction of the ELC, or any other national guides, have changed the landscape

understanding in the licensing process of wind power parks.

## Scope and structure of the thesis

After an introduction to the theme, and goals of the thesis, I outline my methodological choices for the thesis. This includes choice of method, how I have worked and a discussion on the reliability of the chosen data.

I follow up the discussion on methodology with a chapter on the theoretical underpinnings of what landscape is, landscape and energy, and landscape and infrastructure. These themes were chosen as I believe they can help us in understanding the multiplicity of landscape in the face of large-scale energy development.

The next chapter outlines the context of the current energy policy, looking at what we talk about when we talk about wind parks. I also look at Norwegian and European energy policies, and how they shape our priorities in the energy space. The chapter also looks at the guide for renewable development in Rogaland, and what considerations are done there. The chapter reviews the Norwegian practices for establishing a wind park.

I then present the case, Tellenes Wind Park, before I go through the available materials connected to the process of it gaining its licence. Finishing off, I answer my research question and conclude my thesis.



# METHODOLOGY



FIG. 2

For any scientific body of work, it is important to review and address the methods that have been applied to produce the work.

This chapter will go through the choices and processes I have done relating to the design of the thesis, collection of data, and structuring of the analysis. I will first explain my working process, with added personal reflections. I will then go through my data sources and account for how I have made sure that they are of high quality. Continuing, I will explain how and why I have selected the case for this thesis.

## How have I worked?

The guiding principle for my work has been to have an open and critical perspective on the chosen theme. I have chosen to start with a broad literature review, combing through available literature on landscape architecture and its relationship to infrastructure and energy landscapes. I've then used the theoretical background to inform my selection of case.

On a conceptual level, I compare myself to the image below. What started as a messy process has over time ended up as a focused process. Prosess-squiggle.jpg:

My research question started with an open discussion with my supervisor: How are landscapes, both mental and physical, changing because of our rising need for

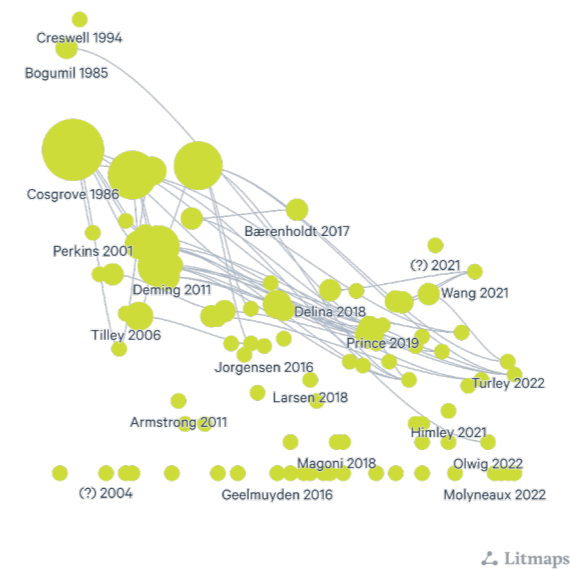
renewable energy? The question was a simple, but also complex. My background in human geography has also been central in the formation of a research-question, as well as my years at Landscape Architecture for Global Sustainability. I have always been interested in the spatial consequences of policy and processes, and during my research phase it became clear that studying how landscape was operationalised in the licence-process was something I was very interested in.

I have used the university library and Google Scholar for finding my literature. By identifying core themes to research, I could dive into general literature on the themes in relation to landscape. Building upon the knowledge I was gaining; I went back to the original themes and adjusted them accordingly.

This back and forth, is part of a process that ensures my research was kept up to date and flexible when discovering new aspects.

I used LitMaps to visualize the connections between my chosen literature. The visualization also helped me uncover potential literature I had missed or overlooked when first reviewing the literature of my chosen themes and was used throughout the process to visualize and reflect upon my selection of literature. It also

helped me identify core literature within my selection.



My data comes from publicly available datasets – the NVE, mainly. This data is regarded as being of high quality and helped me see new connections and possibilities.

To compile my data and visualise it I have used QGIS and Affinity Designer where needed. To set my thesis, I have used Affinity Designer. No photos have been edited for this thesis. The reason for this is simple: I wanted to keep the material in the thesis as close to the source material as possible. I believe that there is real value in representing the object of study in the way it was presented during the process. After careful consideration, I landed on having a minimal

graphic profile, and instead use the material that was used in the material I am studying. The thesis is therefore set with images and illustrations from the relevant applications.

The study is a document analysis. On the background of my personal commitments and time available, I decided to do against fieldwork. There is a certain “richness” to the material that can be lost when not in-situ. At the same time, my thesis looks at landscape values that come into play throughout the processes of applications for wind power. While a site visit would be personally gratifying, I do not believe the lack of one has weakened this thesis.

The case was chosen for its size in the landscape, but also to have a basis for comparing how landscape is operationalized in wind licensing processes. Tellenes presented just that – an opportunity to examine how the landscape assessments change over time, at the same site. You can read more about my reasoning in the sub-chapter “Why Rogland and Why Tellenes?”

## Translations

The source material for this thesis is in Norwegian. This thesis is written in English. To bridge this language gap, I have decided to translate relevant Norwegian paragraphs from the applications word-by-word. This can present some issues. For one, I am applying my own “view” of the source

material into the translations, and I am indirectly shaping them through that action. On the other hand, it is I who have done all the translations, and any bias in my translation will be the same wherever I translate. In the end, no translation is perfect, but I have tried to the best of my ability to keep a neutral language and to translate the meaning of the content to the best of my ability.

### Positionality

Faced with being able to freely choose a research theme, it is natural that the theme chosen will reflect the interests of the writer. It is therefore important to disclose my own positionality and interest in the selected research object. My interest in renewable energy sources and landscape consequences stems from a background as a hiker, environmental activist, and curious soul. I have a long running background in an organisation working with sustainable urbanisation on a local and global level, and sustainable land use. I have over several years been critical to the rush to develop “non-developed” land across Norway. I have been aware of my personal bias in writing this thesis, and I believe I have taken as neutral of a stance one can take when one is

studying landscape views in licencing processes.

My academic background has also shaped my scope and focus. As the Landscape Architecture of Global Sustainability is an interdisciplinary programme, it has attracted students of different backgrounds – the programme hosts students with a wide array of backgrounds: from landscape architecture, to architects, through agroecology, all the way to human geographers. I belong to the latter group of students. My background is in urban geography and social anthropology. I know very little of biology or botany – and my thesis reflects that. I am trained in focusing on why places become what they are, and how that affects those living their lives there. Where some of my co-student see hydrology, I see policy, for example. For my chosen theme, I believe my background to be a strength.

### Scale of analysis

This thesis studies the use of the term landscape in licence-process and keeps itself on the scale of policy and process. There are multiple reasons for this decision. Writing on the same conceptual level as that I study makes the cleaner to read, and keeps it focused. At the time, there is limited value for going into depth in hyper-local matters, or

global trends outside of setting the context of the theme.

### Why Rogaland and why Tellenes?

In many ways, Rogaland is the current energy centre of Norway. 10% of the total production of hydro power in Norway is generated in the county, and 27% of the Norwegian wind power production is situated in the county (Thorsnæs, 2023). Adding onto the role the area has played in operating as a base of operations the extraction of non-renewable sources of energy, like oil and gas, and it is clear that the south-western part of Norway is a rich source for studying energy landscapes, past and present.

My area of study was chosen after an analysis of the geographical spread of energy sources in Norway. By using available data from NVE, I mapped out the density of all water-, wind- and oil-related infrastructure. When possible, I weighted the data points after how much electricity they had a licence to generate, as this would give a fairer representation of the physical size of the infrastructures. By doing this it was clear that the weight of energy production in Norway was situated in the south-western part of Norway.

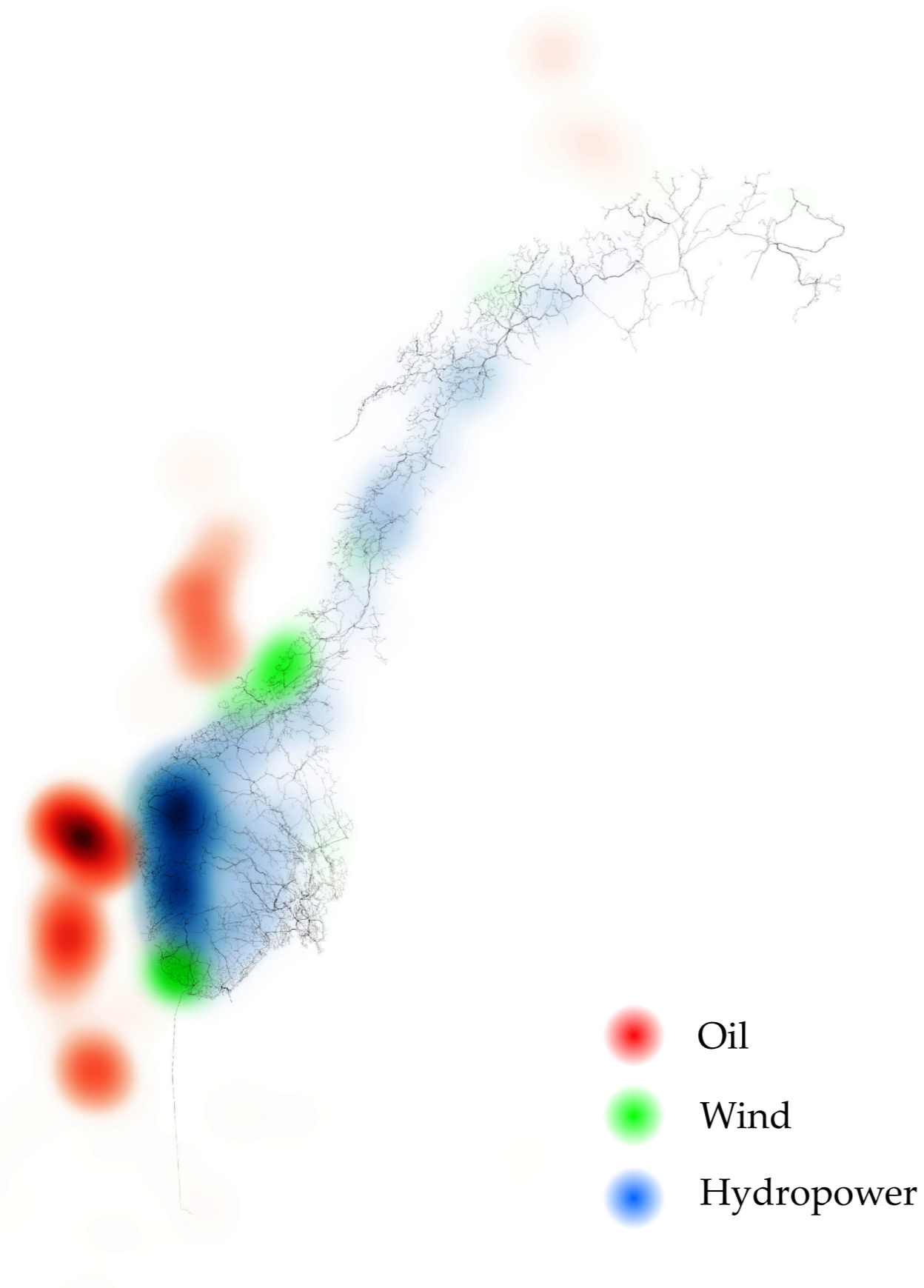
The map on the next page presents my findings on the energy density of Norway. The background layer is the Norwegian

electrical grid, weighted for energy they transport.

I have previously discussed why Tellenes is interesting for this thesis. As I wanted to explore how landscape is operationalized, and how it has been operationalized, Tellenes provided a great opportunity. The reason is simple: The area has experienced the same process twice, making it a suitable case for studying the operationalization of the term landscape.

Another interesting landscape to study would be Finnmark. There have been several larger developments relating to wind power, and there are talks to build larger infrastructures to support the transport of energy from the North to the South of the country. I ultimately decided against working with Finnmark as there are competing interests in the wind power debate that, namely the Sami population and their right to doing their culture. Though also an interesting topic, I decided against approaching the issue of land use, renewable energy, and Sami use of land.

# Energy production heatmap



# LITTERATURE REVIEW



To better understand large scale renewable energy-infrastructures and landscape, I have identified several core themes that I will explore in the following chapter. The core themes are *landscape*, *landscape and energy*, and *landscape and infrastructures*. The aim of the chapter is to give a review of available literature on the subject of the thesis and to create a theoretical framework for discussing the landscape dimension of contemporary wind power development in Norway.

### What is landscape?

What would landscape architecture be without landscape? Without getting too poetic, it is important to state that even though non-practitioners might take their local landscapes for given, we as landscape architects cannot. The term is a loaded one, with multiple meanings over multiple times. One common and often cited definition is that of the European Landscape Convention (ELC):

«"Landscape" means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors;» (Council of Europe, 2003, p. 2)

The convention aims to create a common framework for promoting landscape protection, management and planning, and to organize co-operation between the signatories of the Convention (Council of Europe, 2003, p. 3; Déjeant-Pons, 2006).

I want to focus for a moment on the scope and content of the ELC. Norway is a signatory of the convention and as such they have adopted the contents of the convention. What makes this convention unique is its substantive scope, both in its geographical, territorial, and temporal scope.

The landscape convention applies to ordinary landscape just as much as extraordinary landscapes. The reasoning behind this is a view that landscape frames everyday experiences, shapes people's quality of life and that the boundary between ordinary and extraordinary landscape can be blurry, and subjective. Even though *all* landscapes are part of the convention, all landscapes need not be treated the same way. Some landscapes require strict protection, while some require less. The important part is that all landscapes, natural and man-made; and how they interact, should be seen as having value in peoples' everyday lives.

Key points of the ELC are outlined in article 5 and 6 of the Convention.

In short, Article 5 states that the signatories of the Convention will:

- recognize, through law, the importance of landscape as an expression of identity, culture, and national heritage.
- create policies, management and plans that work toward awareness-raising,

training and education, identification and assessment, as specified in article 6.

- create robust processes for participation for the general public, local and regional authorities, as well as others with an interest in the landscape policies mentioned in the point above.
- and to integrate landscape into every policy that can have a direct or indirect impact on landscape.

The specifications article 5 refers to can be found in article 6. It says that the signatories shall:

- work on increasing the awareness of the value of landscapes, the role of landscapes, and the changes to landscape.
- promote training for specialists in landscape appraisal and operations; create multidisciplinary training programmes in landscape policy, protection, planning and management for professionals.
- promote courses that address the values attaching to landscapes and the issues raised by their protection, management, and planning.

The Convention does not aim to "freeze" landscapes, but rather embrace change as a natural part of what a landscape is, and value the diversity and quality of the landscapes

we surround ourselves with (Déjeant-Pons, 2006, p. 369).

While the European Landscape Convention has been successful in creating a common baseline for understanding what a landscape can be, it has also created new challenges when it comes to implementation and operationalisation of the term.

The Convention has resulted in some changes in the Norwegian system of planning: The Norwegian Environment Agency (Miljødirektoratet), the Directorate for Cultural Heritage (Riksantikvaren), the Norwegian Public Roads Administration (Vegvesenet) have all produced guides (Clemetsen *et al.*, 2010) showing how one can identify, analyse, and assess landscapes in a way that they mean fulfils our commitments to the Convention. The landscape perspective in the convention has also been applied to the processes the Norwegian Water Resources and Energy Directorate (NVE) oversee (NVE, 2022b). They have produced guides on how to assess consequences of large-scale energy infrastructures (NVE, 2015).

There have been criticisms of the operationalization of the Convention. Geeylmuynden and Fiskevold (2016) shows through a comprehensive textual analysis of the public guides that have been produced after the ELC came into effect, that the way we identify, analyse, and assess the landscapes, reproduce earlier ways of

assessing landscapes in Norway. As they write: "... the established way of understanding landscape lives on even if the frames of reference have changed." (2016, p. 73).

From identifying gaps in the Norwegian operationalisation of the ELC, the authors suggests that instead of looking at landscape as an area ("område"), we as professionals have a lot to gain from looking at landscapes as "aesthetic-symbolic motifs", that can only be understood in relation to the processes and practices to the landscape it should complement or compensate.

They propose that professionals assess their own knowledge tradition to better account for what type of landscapes they produce through their mapping. One key part of doing this is to create a common frame of reference for how we experience landscape. The authors propose the *pastoral* as one such frame – finding the dialectic relationship within it, ie. the push and pull between nature / the city; time off from everyday life and the return to it; between party and commitment, influential in how western societies view and relate to landscape (Geelmuyden and Fiskevold, 2016, p. 71)

The authors find that the Norwegian methodological guides on landscape assessment and identification lacks the perspectives to create a dialogue on differing landscape values, or uncover potential views

of the landscape, per the goal of the ELC (Geelmuyden and Fiskevold, 2016, p. 51).

As has been shown, one should not take landscape for granted. It is not a neutral term that can be reduced to a single sentence everyone can agree on. As Wylie (2007) shows in his seminal work *Landscape*, landscape can take many forms, over time. Understanding the different ways landscape(s) can be understood is important if we are to uncover what view of landscape is dominant in the production of contemporary renewable landscapes.

Wylie takes a historical perspective, guiding us through the genealogy of the landscape term. He identifies several core perspectives on landscape, and describes them as a series of tensions, and argues that it is these tensions (that are creative and productive, not signs of faults or a concept that is lacking) that keeps landscape relevant (Wylie, 2007, p. 16).

There are several ways to view landscape. Is it something external, or internal; material, or phenomenological? Do we observe the landscape, looking at it from the outside, or do we live in it? Whatever way we choose to look at it will have great implications for how we read the processes shaping the landscapes of energies around us.

## How is landscape and energy connected?

We need to consider how energy and landscape is connected to each other. Regarding the theme of energy and landscape, there has been a wealth of writing touching on the link between energy and landscape, and infrastructure and landscape.

How can we understand landscapes where energy is produced? As Nadaï and van der Horst (2010) writes, the renaissance that renewable energy is experiencing today can be viewed as the "re-composition of socio-technical links between landscape and energy" (p.144). They point out *landscape* has become a key arena for discussions on energy policy. They also state that a new focus on renewables will present new dimensions for landscapes policies and processes, as landscapes across the world are experiencing a transition from non-renewable to renewable energy production. They argue that the transition we are experiencing, opens avenues for exploring new patterns, new powers, and new relations in the landscape.

Studying landscapes through an energy lens, Nadaï and van der Horst writes, opens new possibilities. Energies can take many forms in the landscape, some material, others immaterial. Take the energy journey of wind

power: From an immaterial force that has shaped landscapes and settlement structures, we now harness its power through highly technical processes and standards, before we distribute the power generated through a system of above ground and under-ground infrastructures, before it enters our day to day lives through sockets in our walls, lights on our streets, or powering other, unseen elements.

Key to looking at landscape through an energy lens is that it requires us to study the how policies and practices shape the making of landscapes. They argue the field of landscape studies has matured over the years, in understanding the complex relations between the "formal/symbolic/pictorial representations of space ... and the materiality/practices/processes on the other hand" (2010, p. 146). This line of thinking brings us back to the root of the issue – what landscapes are.

By looking at the contemporary genealogy of landscape, Nadaï and van der Horst traces the use of landscape from Sauer, Hoskins, and Jacksons views on landscape as a physical product, through the cultural turn of Cosgrove and landscapes as symbolic and ideological representations, to a post-structuralist view of landscape where landscape becomes part of "multifaceted cultural processes as both a representation and a materiality through which the social, political, cultural, and environmental

relations enacted through and within landscape could be introduced in the analysis” (2010, p. 147).

The authors also bring up other ways of looking at landscapes through an energy lens: By employing Olwigs (2008) concept of polity, one can better comprehend the tug and pull between constructing a European understanding of landscape through the European Landscape Convention, and the top-down perspective of nation states (see also (Geelmuyden and Fiskevold, 2016)). A *topo-logical* approach to understanding landscape and energy makes it possible to study the landscape as a series of processes constructing space and landscape. The focus shifts from landscape as topo-graphy, and bio-physical elements, to one where the social relations in “making landscape” are at the centre. Topological approaches have been criticised for overlooking the experience of landscape (shadows, depth, relief etc), and simply reducing them to being exclusively representational.

On the other hand, there is much to learn from looking at energy policy and development through the lens of landscape. It has normal to study energy policies through an economic lens, but as Nadaï and van der Horst writes: There is much to learn about energy policy development from other sectors of society. Landscape is material, and the energy policies embed themselves into the local realm – it can therefore be helpful to

use landscape as a tool to situate energy policies in “real life”.

Embedded energies belong to a perspective that centres *landscape* in the energy debate. By looking at what energies and emissions are present in a landscape, we can expand our understanding of what that landscape *is*. This strands in contrast to existing views on energy, that treat energy as a non-material and homogenous commodity that can be exploited and transferred. The notion of embeddedness forces us to study energy policies not as abstract goals, but as a real force with real consequences. Today, most of the models informing energy policy development rely on thinking of landscape as a homogeneous space, except for maps visualising energy yield (wind speed, tidal current, solar power) (Nadaï and van der Horst, 2010, p. 149). But landscape is not homogeneous, if anything its heterogeneous.

How energies embed themselves in the landscape is a key focus of Dirk Sijmons work (2014, 2017). Employing a research-through-design and scenario-based methodology, his work centres on visualising the spatial effect and imprints of an energy transition in the Netherlands. Working his way from the personal to the national, and by superimposing the spatial requirements of different energy sources, he makes a convincing argument that energy transitions are a lot more than abstract needs and political goals on official documents.

Though Sijmons works are exemplary at giving a comprehensive overview of current energy needs and uses and embedding future energy need into the Dutch landscape, they are national in scope. Roadmap 2050 (2010) by the architectural firm OMA, tries to envision how an energy transition on the European scale *could* look. Working in the same vein as Sijmons, the team aims to create a “practical, independent and objective analysis of pathways to achieve a low-carbon economy in Europe, in line with the ... goals of the European Union.” (2010, p. 29). While both Sijmons and OMA works are good at spurring discussions about the material consequences of renewable energy transitions, they (and especially OMAs work) fall short when it comes to envision a grounded pathway for the transition to happen. For that to happen we need research looking into how landscapes in-situ, can and are transformed.

De Boer and Zuidema (2015) does just this. By looking at research reports on energy initiatives and practices for projects, they uncover an empirical link between initiatives that are well integrated into already existing physical and socio-economic structures are more prone to acceptance by the local society an less vulnerable to failure (de Boer and Zuidema, 2015, p. 237). They recommend taking an area-based approach towards renewable energy systems, where one grounds the over-arching policy goals with

local potentials, needs and stakeholder interests (ibid.).

By looking at energy through landscape, and landscape through energy, it is clear that the lack of existing studies on landscape and energy in relation to each other creates a sort of vacuum, theoretically speaking. It is therefore difficult to envision how a sub-field of landscape studies specializing in energy, or energy studies specializing in landscape can look. Nadaï and van der Horst argue that in a developing field like energy landscapes, it is natural and necessary to explore with an interdisciplinary lens.

Together, these core themes can help us comprehend the multiple ways one can understand renewable energy development and landscape.

### How can we understand infrastructure and landscape?

Energy needs infrastructure, and infrastructure needs landscapes. It is therefore imperative to have an understanding of perspectives relating to infrastructure and landscape if we are to discuss the role of contemporary renewable energy developments. In the following sub-chapter, I will present major views on infrastructure and landscape.

Simply said, infrastructures can be seen as the network of physical and bio-physical



systems that facilitate the necessary operations of daily life (Herrington, 2017, p. 232). The role of infrastructures is often to move something, be that digital data from one place to another, water from a reservoir to your tap at home, or electrical power generated from wind through cables above and under-ground. Some infrastructures are integrated into our everyday environments, either by design, or by habit. An example of the former can be stormwater management infrastructures, often integrated into new developed parks. An example of the latter are power lines integrated into our urban environments.

Even though some infrastructures can go unnoticed, a lot more are noticed, especially if they are established in areas with a low density of man-made elements in. Examples of this are dams for water reservoirs, which have a long history in Norway and abroad for mobilising environmentalists on the background of their large ecological and often societal expenses.

Infrastructures and landscapes present some interesting perspectives to explore. Infrastructures more than not designed by civil engineers, not landscape architects. This makes them interesting to study, as the canvas their painted onto is the same as the landscape architect works with, but the understanding of it is completely different. Take wind turbines: Where one sees wind, performance, and efficiency, the other might

see local biomes, rare landscapes, and plant life.

In a perfect world, no one would be negatively affected by any small or large developments. We do not live in a perfect world.

### Summing up:

One thing is certain – to understand landscape, energy, and infrastructure one need to understand both the processes shaping the professional, and the processes shaping the result. This chapter has aimed to give an overview of literature explaining different ways of understanding landscape from a theoretical perspective, as well as introducing the workings of the European Landscape Convention. The chapter has also looked at how energy and landscape is related. Finally, the chapter has given us an introduction to how one can understand the relationship between landscape and infrastructure.

Together, these themes form the basis for understanding the context and case presented in the next chapters.

# CONTEXT



FIG. 5

This chapter aims to give an overview of the Norwegian context that renewable energy development operates in. The chapter will outline major differences in policy and composition of the energy mix of Norway vs Europe, what the goals of the Norwegian energy policy is, the process of getting a license to develop a wind park, and common complaints about wind parks. The aim of the chapter is to inform the next chapter, where I will look at Tellenes Wind Park and analyse how landscape was operationalized in the process of gaining a license, both explicit and implicit.

Discussing energy landscapes also requires discussing the specific political and processual frameworks that shape them. Energy systems and the landscapes they produce are unique in they can be considered a direct by-product of the act of building infrastructures and securing the everyday energy needs of our society.

The Norwegian energy policies are greatly shaped by its neighbouring countries and the EU. The Norwegian government has decided that the Norwegian climate emission goals are to follow the European Union's goals. The Norwegian state will, until 2030, cooperate with its European neighbours on cutting its emissions. Following the goals of the European Union means we the Norwegian State needs to cut emissions by 55 % compared to the 1990-levels, even though a large part of our energy already comes from

renewable sources. This means we must find other places to cut out emissions that in the energy sector. The energy produced by contemporary wind power will mostly go towards electrification of industry and automobiles.

A key difference between the European energy mix and the Norwegian energy mix is the source of energy. Whereas European countries traditionally have used non-renewable energy sources such as coal and gas, the Norwegian energy production is dominated by hydropower.

The Norwegian energy system is also connected with the Scandinavian- and European energy markets through transfer cables and energy markets. The inter-national trade of power has by some groups been seen as controversial, and with rising prices on electricity the opposition towards them has grown.

### National Energy policy and wind power policy:

The Norwegian energy situation is, in a global context, quite unique. First: The geography of the county has made it possible for Norway to comprehensively develop its energy grid on the back of hydro energy. To this day, the Norwegian domestic energy grid is one of the "cleanest" in the world,

measured by its use of renewable energy (Hofstad and Halleraker, 2023).

On the other hand, you cannot speak of contemporary Norway without speaking of the reserves of petroleum on the Norwegian continental shelf. Since the discovery of petroleum in the Ekofisk-field in 1969 (Ministry of Petroleum and Energy, 2021b), the energy centre of Norway shifted from the mountains to the seabed. Through heavy taxation, the Norwegian state has been able to take part in and use the gains to invest in the Norwegian society.

Combined, these two factors paint a dualistic image of Norway: The national grid is in large parts powered by renewable energy, while a fourth of the national GDP stems from the petroleum sector (Norsk Petroleum, 2023). Most of the domestic emissions does not come from our energy grid, as is normal in other countries. It comes from transport and the oil sector. It is therefore in these sectors the Norwegian state can cut emissions to meet the climate goals it has set. To do this, it needs more renewable energy.

Today, the current Norwegian energy policy can be summarised into four main themes (Ministry of Petroleum and Energy, 2021a):

- Improving the security of supply.
- Profitable development of renewable energy.

- More efficient and climate-friendly energy.
- Value creation based on Norway's renewable energy resources.

#### Improving the security of supply

The main challenge of the Norwegian energy supply is to continuously deliver the needed amount of electricity to the end user, be it a business or you own home. To do this, the system must be able to deal with varying levels of consumption throughout longer periods: This is possible through building and extending a grid that can meet not only current, but future energy needs.

#### Profitable development of renewable energy

A tenet of the Norwegian energy policy is that the production of new renewables should be based on economic profitability, so they can generate maximum value for the lowest cost possible. Hydropower is viewed as the backbone of this system; is it can be regulated when we produce the power. This is not possible with wind power.

#### More efficient and climate-friendly energy use

The Norwegian power system is virtually emission-free, thanks to hydropower. The parts of the Norwegian energy budget that are related to emissions are: energy in transport; industry; oil and gas extraction,

and heating. The Norwegian energy policy aims to develop and facilitate for more effective and climate friendly use of energy.

#### Value creation based on Norway's renewable energy resources.

Around 20 000 are working with energy in Norway. Delivering renewable energy is key for the development of other industries. Norwegian energy policy aims to create a framework to enable further development of its renewable energy resources and use its competitive advantages, cheap energy.

The Norwegian Energy policy aims to use its abundant supplies of renewable electricity to power its large energy-intensive sector.

Looking at the high-level Norwegian energy policy, a landscape dimension is lacking, even though the ELC is in effect in Norway. This might not come as a surprise – as we are talking about *energy* policies and not *landscape* policies. I still want to bring it up as it highlights how we are looking and landscape and at what point in policy landscape makes itself relevant.

The Norwegian State has authored several guides on how to develop wind parks in Norway. These guides present processual and technical requirements for how to assess consequences of wind parks. Some of them look at visual consequences for wind power (Berg, 2017), how to assess landscape in wind

park projects (Clemetsen *et al.*, 2010), there are general guidelines for placing the wind parks (Miljøverndepartementet and Olje- og energidepartementet, 2007), and thematic resources on landscape, outdoor activities, untouched nature et cetera (NVE, 2022b, 2022a, 2022c, 2023a; Luftfartstilsynet, 2023). It is outside the scope of this thesis to go into detail on the landscape views in the guide and thematic landing pages of the civilian administration.

### Regional Energy policy

As part of the national strategy for wind development, the counties were incentivised to develop regional plans for wind development. Rogaland has developed one such plan, and even though it is starting to show its age, being written in 2007, is still used as background material for the developers and the NVE.

The plan is an answer to the recommendations in the guide “Guidelines for planning and locating wind power plants” (Miljøverndepartementet and Olje- og energidepartementet, 2007), that encourages the counties to make regional plans for wind power development. The plans are meant to be revised every fourth year. This has not happened in the 16 years since it was adopted by the county.

The goals of the Rogaland wind power development guide are to give concrete

recommendations on what areas are more suitable than others for wind park development. The aim of the plan was to assess the whole area of the plan, and not just areas where there had been shown interest in developing wind parks. Rogaland county identified areas by first identifying non-suitable areas for wind production. These areas include churches, buildings with national value (SEFRÅK, Jærhus), cultural heritage areas, recreational areas, landscape protection areas, the shoreline, houses and cabins, urban areas, car roads, and power lines. The county also removed every patch under 1km<sup>2</sup>, as it is not desirable with lots of small wind parks, per the “Guidelines for planning and locating wind power plants” (Miljøverndepartementet and Olje- og energidepartementet, 2007)

This leaves the county with 218 areas that “might” be suitable for wind park development. By performing an environmental assessment impact of the areas, the county thematically judges the qualities of the identified areas and the consequences of allowing wind park development.

Of special interest for this thesis is the chapter on landscape assessments. The guidelines were written in 2007, at a period where the Norwegian state was a signatory of the ELC, but national guides on how to implement the convention were not in place. It was therefore up to the authors of the

Rogaland Wind Power-plan to assess and implement the convention in a satisfactory way.

The chapter opens by dwelling on the ELCs definition of landscape, without problematising it any further. The authors describe how ELC describes landscape, before presenting how the County has chosen to understand landscape in this plan: as simply “natural and cultural landscape” (Rogaland fylkeskommune, 2007, p. 30). Their assessments are based on already existing mapping, done by the county in 1996.

By synthesizing the different themes assessed, the county identifies “Yes”-areas, “Maybe”-areas, and “No”-areas. In the case of Rogaland, 26 out of 218 areas were designated as “Yes”-areas. One of these areas is the Tellenes-area, which we will look closer at in the next chapter.

### Processual path for developing a wind park:

It is the Norwegian Water Resources and Energy Directorate (NVE) that has the responsibility for approving new licenses for wind power park developments. The requirements and laws related to licencing processes have changed over time, and it is therefore important to note *when* Norwegian wind turbine developments were being

developed to understand *how* they were developed. The final wind park that's presented in this thesis was developed between 2011 and 2017.

The Norwegian system separates the processes between small scale and large-scale wind development. If the development in question has a capacity over 10 MW, the licensing process start when a project developer notifies the NVE that they intend to develop an energy project. If the development is under 10MW in size, the developer does not need to do an early notification of the project, or an EIA. The process of developing a large-scale wind park can be organised into four, or potentially six, steps, depending on whether there are any formal complaints on the Directorates final decision (NVE, 2023b):

#### 1. Notification of project:

The developer notifies the NVE that it intends to build a wind park. The early notification must include where they will develop, and a proposed mapping program for the EIA. The NVE will hold a public information meeting about the project and published the notification and content of the proposed EIA for a public hearing. The deadline to comment the notification and proposed EIA-program is six weeks.

#### 2. Environmental Assessment program

After the public hearing, the NVE will determine the contents of the environmental

impact assessment and determine what contents are to be assessed in the environmental impact assessment program. It is the responsibility of the developer to ensure that the technical and professional requirements of the EIA gets done. The developer chooses who does the assessments, but they need to have necessary requirements and professional integrity.

#### 3. Application and public hearing of EIA

After the EIA is done, the developer will prepare an application to NVE for getting the license of the wind park. The application shall include a closer description of the project and the results from the EIA. NVE will then send the documents on a new hearing. During this period, a new public meeting is held. After the hearing, the NVE will go through all the input they have received and do a site visit.

#### 4. License decision

On the basis of the application for license, the EIA, the inputs gathered from the public hearings and the specialist knowledge on wind power development in NVE, the directorate will decide on whether a license is granted or not. The reasoning for the decision of the NVE is outlined in a document following the decision.

#### 5. Complaint

Per the Norwegian law on public administration, any parties to the case or actors with legal interest to complaint can do

so no less that three weeks after the decision is made. The NVE will consider if the complaint offers any information that could change the professional considerations of the NVE. If the NVE decides to not change its decision on the licensing outcome, the application will be sent to the Ministry of Petroleum and Energy for final processing.

#### 6. Follow-up on the license

Before the developer can begin developing, the NVE must approve the environmental, transport- and rig-plan (miljø-, transport- og anleggsplan (MTA)), and the detailed plan of the project.

From this thesis' perspective, the most interesting part of this process are the is to look at the valuations regarding landscape that have been done in the process of establishing a wind park.

#### Environmental Impact Assessments:

The goal of an EIA is to uncover the effects an initiative, be it a plan or a larger development, has for environmental and societal factors. The use of EIAs are not exclusive to energy projects. The contents of an EIA are decided on a case-by-case basis, and depending on the type of case, different authorities decide the contents of them. In the case of wind power development, it is the responsibility of the NVE to decide on the contents.

Wind power licensing practices have been studied in Norway (Inderberg *et al.*, 2019). They show that even if the formal requirements are clear, there are informal practices also shaping the outcome of wind power licensing processes.

By applying an instrumental-organizational perspective on the analysis of influential actors in the licensing process, Inderberg *et al.* uncovers not only the power structures in licensing processes, but also "the informal practices [that are] based on perceptions of 'appropriate' behavior that underlie administrative behavior" (Inderberg *et al.*, 2019, p. 189).

Their findings show that there are a few very influential actors in the licensing process, namely "the project developer, who prepares the proposal; the local landowner, who usually enters into a compensatory agreement with eth project developer for use of the land; the municipality, which is ... a de facto veto player throughout the process; and the NVE and OED as the licensing authority" (2019, p. 189).

Comparing the Norwegian license process with the Danish and Swedish, we uncover differences in processes. While the mandate to approve or deny licences is placed at the municipal level in Sweden, it is placed on the national sectoral level in Norway and Denmark. This difference of authority can have great impact of the effectiveness of

policy in stimulating wind power development.

As Pettersson et al (2010) shows, the lack of vertical integration in the Swedish planning system has caused the process to drag on much longer than it has in Norway and Denmark. In the case of Norway, the planning system allows for a high level of centralisation of the process, wherein the municipalities have had little to say, especially after the changes made to the planning and building act in 2008.

The changes in the planning and building act removed the requirement that the development had to be approved by the local municipality through a local regulation plan. As of 2023, the requirement of a local regulation has been put back in place.

CASE



FIG. 6

One thing is to discuss the interplay between landscape, energy, and infrastructure, as well as looking at how wind power parks in Norway come to be. But we also need to look at how “landscape” is operationalised to better understand what view on landscape is used in a process. The following chapter will present a project from Rogaland County to see how landscape was operationalised in the process of getting a license from the NVE.

The case is unique, as the wind park has had three applications in total before license was given. Two were done in 2006, while the ELC was in its infancy – policy-wise. This was also before the revision on the Planning and Building Act (of 2008), and before the regional plan for wind development in Rogaland, and before the national guidelines for wind park development. The final application was sent for approval in 2011, after a lot of the guidelines used today were in place.

Tellenes presents us with a good basis to study how landscape has been operationalised in wind park applications, and if it has changed over the years, as the applications give us special insights into the possibly changing role of landscape across the applications.

## Tellenes Wind Park

Tellenes Wind Park is a wind park in the south-eastern part of Rogaland, on the border

to Agder. The wind park is situated in both Lund and Sokndal municipality. The wind park consists of 50 Siemens 3,2 MW turbines, with a mast-heights of 92 metres, and rotor blades with a diameter of 113 metres (Ludescher-Huber, 2018). The total height of the turbines are 149 metres. The planning area has an extent of 15 square kilometre and is subdivided into three smaller areas. In the centre of the area is the Titania ilmenite quarry. The wind park was developed by Zephyr and Norsk Vind Energi, before it was sold to BlackRock, one of the largest investment funds in the world. (“Tellenes”, no date). The project generates 550GWh of electricity and can supply enough energy to power 27,500 households (Carmen, 2021). The energy produced is sold to Google through a 12-year contract.

[KART OVER PLASSERING]

A short history of Helleheia and Tellenes:

The development of the final Tellenes wind park is characterized by a pull and tug-process, where there have been periods of action and prolonged periods of silence before development has resumed. Originally two different wind power park projects partially overlapping – Helleheia and Tellenes, they were eventually combined into a single project. The NVE was first notified of the projects in 2005. The Tellenes part of the project was at that point owned by Hydro, while Helleheia was owned by Norsk Vind

Energi AS. The NVE was notified of Tellenes on the 07.04.2005, and Helleheia on the 14.04.2005. The projects were exploring the same area, and it is clear from the early descriptions that they are not aware of each other’s work at that point (Norsk Hydro ASA, 2005; Norsk Vind Energi as, 2005).

Both Hydro and Norsk Vind Energi were sent requirements for what their respective EIAs should assess (NVE, 2005b, 2005a). They received the requirements with a day’s difference, on the 6th and 7th of October in 2005, respectively.

Both Norsk Vind Energi AS and Hydro did environmental impact assessments per NVE requirements, and delivered the EIAs with a distance of two days between them (Hydro, 2006; Norsk Vind Energi as, 2006). Per the transparency-portal of NVE there was no further development in the parallel cases until 2011.

The projects had apparently come to a standstill. Behind the scenes Hydro, the owner of the Tellenes-project, got acquired by Statoil. Zephyr, another wind developer, then bought the Tellenes project from Statoil (today called Equinor) in 2010, as Statoil was pivoting away from land-based wind power developments.

As part of the development process, the NVE asked for a new EIA (Zephyr, 2011). This was done on as the reference frames for EIAs had

changed so much over the years that the NVE presented the developer with additional points to assess.

Zephyr (Owner of the Tellenes-project) and Norsk Vind Energi AS (owner of the Helleheia-project), informed NVE that they had agreed to a cooperation agreement and were now operating under the name “Tellenes Vindpark DA”, and from now on the Helleheia and Tellenes-project would be developed as a single project (NVE, 2012).

The final EIA (Sweco, 2011) was presented to NVE in March 2012.

On the basis of the environmental impact assessment, the NVE granted Tellenes Vindpark DA license to develop the wind park in late 2012 (NVE, 2012). The decision was met with complaints from actors with the right to complain (NVE, 2013). NVE concluded that no substantial new facts had been brought forward in the complaints and asked the Ministry for Oil and Energy to process the final decision for granting the license (ibid.).

The Ministry for Oil and Energy confirmed Tellenes Vindpark DA licenses to develop Tellenes Wind Park in 2014 (OED, 2014). As part of the processing of the complaint, the OED did a site visit with the complaining parties, and held an open meeting in Lund Municipality, one of the two municipalities where Tellenes Wind Park is situated.



After the issue of obtaining a license to run the wind park was settled, Tellenes Vindpark DA applied for and got the environmental-, transport- and rig-plan (miljø-, transport- og anleggsplan (MTA)) approved (Zephyr and Norsk Vind Energi as, 2015).

The construction of Tellenes Wind Park began at 2016, and the wind park opened in September 2017 ('Tellenes', no date).

# FINDINGS AND ANALYSIS



By looking at documents related to the licensing process, environmental impact assessments and correspondence, I have mapped the prevailing landscape views in the processes of developing Tellenes Wind Park. How have they changed over time? The following chapter will present my findings from analysing documents relating to gaining the license and the MTA-plan.

For ease, all quotes from the NVE or the developers are my own translations. See chapter on Methodology for a discussion on the potential pitfall of working with translations in research.

### 2005 Notification of intent and determining contents of EIA:

Both the Helleheia and Tellenes-projects first signs of referencing landscape, comes from their initial notices for development.

#### Helleheia

Helleheia raises the issue of landscape consequences and writes:

*Experiences with wind power so far show that it is the visual effects of a wind farm that have the greatest significance for most people. Windmills are large constructions that are often placed at the*

*highest points in a plan area and can thus be visible from a long distance.*

*The construction of power lines and roads will also have effects on the landscape. Norsk Vind Energi emphasizes that thorough work must be done to provide realistic visualizations of the planned wind farm with associated infrastructure from nearby buildings. Visualizations will also be made from other representative locations, such as from the Opplev Dalane hiking trail which borders the planning area in the north. (Norsk Vind Energi as, 2005, p. 10)*

They propose that the environmental impact assessment should include:

- *A description of the landscape in the planning area and in adjacent areas must be given*
- *An assessment must be made of how the measure will affect the perception of nature and the cultural landscape.*
- *The visual effects of the measure must be described and assessed.*
- *The measure must be visualized from representative locations.*
- *A visibility map must be prepared that clarifies the visual influence area.*

*Method:*

*With the help of photorealistic techniques, the near and distant effects of the intervention must be made visible from representative locations. Particular emphasis must be placed on areas with built-up areas and from the Opplev Dalane hiking trail. The visibility map must be created using computer tools that take the topography of the area into account (Norsk Vind Energi as, 2005, p. 12).*

#### Tellenes

Hydro discusses the landscape theme in a more straight-forward manner:

*The five areas that together make up Tellenes wind power project and which are now reported, appear to be nothing more than rocky outcroppings and partly deep valley depressions. Between the rock knolls there are some loose masses of vegetation, but in general there is sparse vegetation within the reported areas. (Norsk Hydro ASA, 2005, p. 11)*

And

*Outside of the construction period, hunting and outdoor recreation can continue as before, but a wind power development will affect the terrain and thus the experience. (ibid.)*

For their proposed EIA, they stress the need to assess the themes of landscape, cultural

heritage, and outdoor activities together. On landscape, they specifically say:

*Conducted investigations have shown that there is a need to see these subjects [landscape, cultural heritage, and outdoor activities] in context, in order to get the best possible approach to the visual impact and impact on the experience values. By coordinating the methods for describing the current situation, emphasis will be placed on describing the effects the development will have on the values in the landscape in a holistic way.*

*Initiative owners consider that the visual impact of wind power plants is often one of the most important consequences. Using photorealistic techniques, a photographic visualization of the wind power plant will be prepared from various points in the area. Both the near and distant effects of the wind farm will be shown.*

*Visualisation points will be determined in collaboration with local authorities. (Norsk Hydro ASA, 2005, p. 13)*

These passages are, as previously stated, from the developers proposed mapping program. The dominating view on landscape here is that where the landscape is something material to be mapped and studied. There is little attention to the role of landscape as a

piece of personal or national identity, but it is good that they see landscape in relation to other themes, and not as a singular theme to be mapped alone.

In the sub-chapter on *Visual Impact* Norsk Hydro ASA stress that a wind park will not only look dominant in landscape, the total impression of the landscape will change from an “open, little affected landscape, to an area dominated by technical installations for power generation.” (Norsk Hydro ASA, 2005, p. 10).

This is maybe the closest we get to a deeper assessment of the changes the landscape will go through.

The NVE replied to both applications at the same time, with identical requirements for the EIA.

For the theme of landscape, they state that:

- *A brief description of the landscape in the planning area and adjacent areas (including the wind farm with associated grid connection, relevant internal roads, access road and other infrastructure) must be given, in which the type of landscape and its tolerance to physical interventions are mentioned, as well as how the measure will affect the perception of the landscape, nature - and the cultural environment.*

- *The aesthetic/visual effects of the measure, including associated power lines and roads, must be described and assessed. The measure must be visualized from representative locations. The visualization must also include necessary buildings and constructions associated with the wind farm.*
- *A visibility map must be prepared that clarifies the measure’s visibility area and visual impact.*

*Methodology: Using photorealistic techniques, the near and far effects of the intervention must be made visible from representative locations. Particular emphasis must be placed on areas with built-up areas and from the “Experience Dalane” hiking trail. The visibility map must be created using computer tools that take the topography of the area into account.* (NVE, 2005b, pp. 2–3, 2005a, pp. 2–3)

The NVE stress in the program for the EIA the importance of seeing landscape, cultural heritage, and outdoor activities together, as they impact each other. For these sub-themes, the main requirements were that: cultural heritage must be mapped and valued, and the effects of associated infrastructure must be accounted for, and visualisations must be done, and how can the plan be adapted to mitigate negative effects. For outdoor

activities, the NVE stated that the EIA needed to look at how the areas were used at present time, how the wind turbines and related infrastructure would affect the experiential value of the area, use of the area as a recreational space and hunting area, when seen in relation to the use of the area today, ie. hunting, fishing, and hiking.

The methodology to be used for the cultural heritage were to use already existing documentation, site visits with visual assessments, and contact with local informants. For outdoor activities and recreational experiences, they were to supplement existing information with interviews with local and regional public administrations, and local interest groups.

## 2006 – Application for licence and Assessment of consequences

On the background of the EIA-program the NVE had mandated, both Norsk Hydro and Norsk Vind Energi had environmental impact assessments done. The NVE received the formal applications for licences from Norsk Vind Energi 03.04.2006, and from Norsk Hydro 07.04.2006.

### Helleheia

For the summary of the consequences of Helleheia wind park, Norsk Vind Energi writes:

*In relation to the landscape, the wind farm will become very dominant within the planning area and parts of adjacent areas. For the wider area of influence, the windmills will be clearly visible in the areas to the west and the higher-lying areas to the north. The wind farm, on the other hand, will only be partially visible to the south and east. Helleheia wind farm has a secluded location compared to the more vulnerable areas out on the coast. The topography shields from view from the most valuable areas in the south and southwest. In addition, the proximity to the Titania industrial area means that the level of conflict is somewhat reduced locally. The wind farm is located at a reasonably good distance from the buildings, but the visualizations show that the wind turbines will be able to mark the horizon as seen from higher-lying parts of Hauge. Beyond this, the wind farm will not come any further into conflict with permanent buildings or cottages* (Norsk Vind Energi as, 2006, p. 2).

Again, the developer uses landscape as a way of describing the area.

The methods used to map landscape qualities were; site visits, written sources, visualisations, analytics of topographical

maps, and visibility maps (Norsk Vind Energi as, 2006, p. 31).

When discussing landscape, the rapport is focused on describing the area.

*The landscape in Dalane has a varied topography that absorbs the wind farm to a greater extent than the more open and flat areas further north on Jæren. The terrain in Dalane is divided into two levels; the moorland areas lie on a relatively flat level at around 350 m above sea level, with the lower-lying valleys cutting through the area criss-cross. (ibid., p. 33)*

But at the same time, not all is doom and gloom. The application does reflect on the changing nature of the landscape at one point:

*In the planning area, the landscape will change from untouched nature to a landscape with a large degree of technical intervention. The plan area has a flat extent and the wind farm will therefore dominate the landscape within the entire plan area and in adjacent areas to the south and west (Norsk Vind Energi as, 2006, p. 37).*

Even though the changing nature of the landscape is brought up, it is limited to the plan area, and does not put the development in relation to its surrounding landscapes.

When closing the sub-chapter on landscape, the professionals conclude that:

*When building the Helleheia wind farm, the overall consequences are assessed as medium negative to slightly negative for the landscape. The relatively low level of conflict with the landscape is due to the fact that the park primarily affects landscapes of low value (Norsk Vind Energi as, 2006, p. 39)*

Though this valuation of the landscape must be seen a reflection of the methodology used, it is also fitting in showing the lack of reflection on how landscape can be a framing feature of our everyday lives.

When assessing the consequences for outdoor activities, they state that the development will have a small negative consequence. They argue that where people walk, they will not see the turbines (Norsk Vind Energi as, 2006, p. 43).

When discussing possible mitigating measures for the landscape theme, Norsk Vind Energi lists a range of measures:

- *Interventions beyond the areas where interventions are unavoidable must be avoided*
- *The roads must be placed as gently as possible in the terrain*

- *In the areas where new roads cross vegetation, the roads will be revegetated so that they blend into the terrain as naturally as possible*

- *When designing a transformer station and service building, emphasis must be placed on aesthetic considerations*

- *In case of possible replacement of visible parts on the wind turbines, there will be a requirement that the new parts have the same color and appearance as the rest of the wind turbines in the wind park. (Norsk Vind Energi as, 2006, p. 67)*

Implicit in this list, we can read what is valued as good and less good landscapes. The view is that less visible interventions equals better landscape management.

#### Tellenes

The application for license for the Tellenes-area var handed in 07.04.2006. Hydro mentions the issue of landscape consequences already on page 6, where they put the new development in relation to the already existing industry there – Titana Mines. They argue that the total effect of the development is less negative because of the nearby mine.

Summing up the environmental impact assessment, they write:

*Landscape and visual influence:*

*Leisure development at Solbjørg-Øvre Drivdal in Lund municipality will see 4-6 wind turbines in a westerly direction at a relatively short distance, down to approx. 1 km, and approx. 300 m higher in the terrain. Although vegetation and local terrain conditions will reduce the visual impression, this building as a whole will be visually affected by the wind power plant (Tellenes II). Furthermore, it is primarily for hikers at the antenna mast on Voreknuden and for those who use the "Opplev Dalane" hiking trail at Guddalsvatnet, that the wind power plant will have a clear visual influence.*

Even though the translation is done by hand, the Norwegian version does not make a lot of sense either. I read this passage on landscape as fitting into a XXX view of the landscape.

An interesting explicit disagreement on the nature of landscape can be found in the subchapter 7.4 "Landskap og visualiseringer".

*The initiative owner has learned that the professional environment within the area of landscape assessments apparently takes as its starting point that developments of such a nature and size as a wind power plant will, in practice, always be assessed as clearly negative. We will not polemicize against such a general, professional*

impact assessment of landscape interventions, but would point out that one can thus be harmed by missing out on the relative assessment of a wind power plant's landscape and visual impact. One purpose of an impact assessment must be that, in addition to concretely describing and assessing the most often local consequences, it must also provide decision-making authorities with a basis for assessing the measure's consequences relative to other projects of the same size (Hydro, 2006, p. 30)

Through the environmental impact assessment, Hydro continues to downplay the professional opinion, again and again. Whereas the professional opinion states that a landscape of high value is a landscape "is [its] diversity and variety. The mountain and hilly landscape in Dalane generally consists of great landscape variation." (Hydro, 2006, p. 32). It does seem like this does not apply to man-made features in the same way, as they describe the landscapes around the quarry in this manner: "The open pit is enormous, and with the adjoining "moon landscape" this landscape is in itself rich in experience. As this is a strongly influenced and constantly changing landscape, we cannot place a high value on the local landscape here." (ibid.)

It is interesting how they do assess the area as being rich on experience, but still of low

landscape value, due to its influenced and changing nature. This contrasts with the prevailing view of the European Landscape Convention, where change is embraced as part of the landscape process.

For the professional opinion, the wind turbines should follow the landscape, and be placed as near as possible to the existing landscape interventions (the quarry).

Summing up, the professional opinion states that the proposed wind park will have a "Large Negative Consequence" for the landscapes between 0 and 3 kms away, and a Middle Negative Consequences" for the landscapes between 3 and 6 kms away.

### 2011 – 2012 New application and environmental impact assessment

On the background of new requirements for wind park development, and large developments in general, the NVE informed Zephyr, the current owner of the wind park development, to produce an updated environmental impact assessment (Zephyr, 2011, p. 95).

This can be thought of a "reset" of the process. Even though the developer was allowed to build upon the data gathered in

the previous EIAs, the NVE also required themes to be updated, or done anew.

- NVE Refers to point 3 in the study program of 06 October 2005, and requests an update.
- The landscape values in the planning area and adjacent areas must be described, and the measure's effects on the landscape values must be assessed.
- A theoretical visibility map must be drawn up showing the wind power plant's visibility up to 20 kilometres from the wind power plant's outer boundaries.
- The visualization of the measure must include access and internal roads, staging areas, buildings, and network connection (with associated clearing street) where this is considered appropriate. The photo positions and direction must be shown on an overview map.

#### Methodology:

The landscape must be described in accordance with the "National reference system for landscapes" ([www.skoglandskap.no](http://www.skoglandskap.no)). The description must have a level of detail corresponding to sub-regional level or more detailed.

With the help of photorealistic visualizations, the measure's visual effects must be made visible from a close distance (up to approx. 2-3 km) and medium distance (from approx. 3-10 km). The photo stands must be selected by a specialist in consultation with the municipality concerned. NVE also requests that the initiative holder consider proposals for a photo position in the consultation notices in consultation with the expert advisor and the municipality concerned.

NVE recommends that, for use in presentations of the measure, two-dimensional video animations are made that show the rotor blades in motion. The visualizations are prepared based on NVE's guide 5/2007 (Visualisation of planned wind power plants) The guide is available on NVE's website ([www.nve.no](http://www.nve.no)). (Zephyr, 2011, p. 101)

While this quote is a long one, I want to dwell for a while on the difference between the requirements of the first environmental impact assessments and this one. For starters, the requirements are much more specific, and there are references to specific methods, something the first round on requirements did not have. This represents a development in using standard methodologies for understanding landscape and being more explicit about it than earlier.

### Application for license and EIA:

The revised application and EIA from Zephyr are dated from the 12th of September 2011.

The application and summary of findings are a lot more comprehensive than both previous EIAs that I have discussed. What's interesting now is that we can compare the different EIAs and applications and see the changes in landscape valuations across time.

For this assessment, the professional assessors also value the landscape consequences to be of medium to very negative:

*The wind power plant will break with the even height mountain plateau and change the experience of the landscape. As with all wind power plants, the local effects will be extensive. However, the area is known for its exploitation of natural resources. The wind power plant can thus also be experienced as a continuation of this and join a cultural history, where many eras are represented. Overall, the effects are assessed as moderate and the development is overall assessed to have medium (to large) negative consequences for the landscape. (Zephyr, 2011, p. 7).*

It is interesting how the neighbouring quarry has gone from being a key source for low valuations of the landscape, to becoming an

element that can contextualise and enrichen the new development. The change shows a contextualisation of landscapes, where man-made environments have low value to a context where contemporary infrastructure can be contextualising to a greater landscape experience.

When describing the landscape in more detail, the assessors use the framework of landscape regions to describe the characteristics. To sum up, the assessors write:

*The wind power plant will break with the even height mountain plateau and change the experience of the landscape. As with all wind power plants, the local effects will be extensive. However, the area is known for its exploitation of natural resources. The wind power plant can thus also be experienced as a continuation of this and join a cultural history, where many eras are represented.*

And

*The development will not have effects on particularly rare landscapes, landscapes with high symbolic value, or landscapes with high national or international value, cf. "Guidelines for planning and locating wind power plants".*

Both the excerpts show that landscape is still viewed as areas with higher and lower value, and the documents do not dwell on the everyday landscape of the European Landscape Convention. This again can also be seen as a consequence of using the methodology that's expected from a professional assessor.

I also want to dwell on what the assessor mean can be mitigating measures. They put forward a wealth of measures, namely limiting the damage done to the terrain in the construction period; hiding roads in the landscape, because revegetation would look weird in the barren moors; reducing the area and looking at the placement of the turbines; and putting the power lines underground.

These are mostly the same as when the assessments were done in 2005.

In the complete environmental impact assessment Sweco (2011) thoroughly walks us through the methodology used and the landscape effects of the wind park:

Even though the EIA was done in 2011, the assessors use older guides, namely the Statens Vegvesen Manual 140 from 2005, and the guide for placing wind mills (Miljøverndepartementet and Olje- og

energidepartementet, 2007). Comparing the assessments done in 2005 and 2011 show that they are mostly similar.

### Granting licence to develop:

NVE granted Zephyr license to develop Tellenes on the 05th of November 2012. As part of the process of gaining the license, the NVE sets requirements for the project. In this case, the NVE summarized the consequences on landscape in these words:

*Establishment of Tellene's wind power plant will, in NVE's assessment, lead to changes in the nature of the landscape. The wind power plant will be clearly visible from the buildings at Hauge and from certain other areas with buildings and cultural monuments. This can affect the landscape experience. In NVE's assessment, however, the visual effects are relatively small compared to other wind power projects of a similar size in Norway. NVE would like to emphasize that there are many plans for wind power plants in the region. Overall landscape effects are therefore emphasized in the case management of all wind power plants in Sør-Rogaland and in the prioritization of cases to be processed. (NVE, 2012, pp. 10–11)*

When highlighting the landscape effects of the development, a lot of the themes are repeated:

*NVE emphasizes the scope of wind power plans in Rogaland and Vest-Agder. These plans can have major overall effects on the landscape in the region. However, NVE considers the landscape effects of Tellene's wind power plant alone to be small compared to other wind power plants of a similar size. (NVE, 2012, p. 29)*

The NVE sees the plan in a regional perspective as well as a local one, but offers no greater reflection on how this massive change of landscape might affect the landscape.

### 2015 Approval of MTA-plan

The final leg of the journey is to approve the MTA-plan.

In the case of Tellenes, the decision to approve the application for a licence was met with complaints from actors who had the right to complain on the decision. The NVE processed the complaints and recommended the Ministry of Oil and Energy to uphold their decision to approve the license. The ministry upheld the decision. I have not addressed the contents of the complaint or the processing, as they do not relate to the

theme of landscape. They are therefore not relevant to the theme of the thesis.

After the issue of complaints were settled, Zephyr sent over the MTA-plan for approval (Zephyr and Norsk Vind Energi as, 2015).

The aim of the MTA-plan is to clarify the placement of the plant and all auxiliary facilities such as construction roads, mass extraction, placement of excess mass, rigging sites and the design of other technical interventions. The MTA-plan is 100 pages long and mentions using landscape architects for the detailing of roads and ditches, but there is no overarching writing on the theme of landscape. I can therefore see no use of referencing to any specific parts of it, but it is interesting that the role of landscape is not mentioned in any larger degree than it is. The use of a landscape architect limits itself to detailing of ditches and cuts in the roads, after the placement and scope of terrain changes have been decided on.



# DISCUSSION & CONCLUSION



### Discussion

As my findings show, there is not a lot of difference in how landscape is operationalised between the three applications. The requirements for assessing landscapes have become more standardised over the years, and the NVE has become better at referencing concrete guides when it comes to determine the contents of assessments the developer has to do.

I cannot in good faith say that the introduction of the European Landscape Convention and the views in it have been operationalised well – at least not in the process this thesis has explored. The Convention is mentioned a total of zero times across the three applications. One could argue that the applications are wide in scope and that reflections on what “landscape” entails is more fitting for a handbook in methods, and to a certain extent I can agree. But on the other hand, we need to discuss and talk about landscape in its full form if it is to become something more than a nice way of saying “area”. The values that the European Landscape Convention asks us to integrate into assessing landscapes, to create robust processes for participation, and to integrate landscape into every policy that it can be affected to, cannot be said to be very present in these processes.

It is clear that the prevailing view of landscape in wind park applications is one where it describes

an area, or references the national framework for classifying landscapes, which again; is a way of classifying as separating between landscapes. But it does not consider the “softer” parts of what constitutes a landscape, and what we as a country has signed on to implement in our public administrations and practices. Are we witnessing a methodological blind spot? Are the methods that are employed to assess landscapes good enough to capture the richness of landscape, as it’s outlined in the Convention (Council of Europe, 2003)?

I believe the process is works at multiple levels. As was shown, when the professional assessors write that the transformation of a relatively untouched area of land will result in negative consequences, and the client openly disputes and doubts the quality of the assessing, it creates a less than perfect working environment. Are we sure that the EIAs are well-equipped to actually give room for professional assessments?

### Conclusion

This final chapter aims to answer my original research question, summarize the thesis, and end with some concluding remarks.

#### Answering the research question:

My original research question was as follows:

*How was landscape operationalised in the Tellenes Wind Park project applications?*

After looking at the documents relating to the development of Tellenes Wind Park, I feel confident in saying that landscape has been operationalised as in much of the same way during both processes.

There can be several reasons for this. The NVE was happy with the developer using parts of their 2005 material in the 2011 application, causing valuations that were done in 2005 to shape the work being done in 2011.

Another reason why, could be the use of older methodologies in assessing landscapes. They might not have integrated an ELC-like view on landscape. It is admittedly hard to say, as my study has focused on the applications themselves, and not the methodological framework underpinning them. This can be seen as a weakness of the thesis, but I argue that it is not.

How landscape is operationalized in the day-to-day processes of establishing wind parks must also be taken seriously if we are to identify potential weaknesses in the operationalisation of the landscape-term.

In the case of Tellenes, the use of landscape was almost exclusively for describe an area. This undersells the potential for an active and considered use of the term in planning large scale wind parks. Instead of reducing the landscape dimension into a question of silhouettes and foundations, we should strive to use the term to its full extent, as an all-encompassing tool to create better environments for all.

### Summary

This thesis has looked at the Tellenes Wind Park project and what the theme of landscape entailed in its process for getting a licence to run the wind park. The thesis has uncovered that even though new standards and new ways of assessing landscape was introduced between the first round and second round of applications, the operationalisation of landscape was still the same.

### Concluding remarks

Its been fun and challenging to write a thesis. I hope there is some value in my work, and that it can help the profession critically consider how landscape is assessed in licence processes for wind power planning.

# REFERENCES & FIGURES



FIG. 8

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FIGURE 8. STATKRAFT, MEENWAUN WIND FARM, IRELAND, 2018, PHOTO.

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