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# Is political steering gone with the wind? Administrative power and wind energy licensing practices in Norway

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ABSTRACT

The conflicts and potential trade-offs between renewable energy development and nature protection are evident in policies aimed at promoting windpower, particularly in nature areas under high pressure from human activities. However, surprisingly little is known about the influence of political steering on windpower licensing practices. This article examines how political steering has affected the weight accorded to environmental considerations in the licensing practices of the Norwegian Water Resources and Energy Directorate (NVE). We find that the NVE enjoys significant discretion in interpreting and implementing political decisions, and that the Ministry of Petroleum and Energy (OED) has not provided clear steering signals regarding nature protection. Political pressures for expanded renewable energy production are reflected in the significant attention paid to economic and technical considerations in the licensing process. We conclude that ministerial steering signals and the NVE's technocratic culture have pushed in the same direction: greater development of windpower, at the expense of transparent and predictable consideration for nature concerns.

## 1. Introduction

The conflict and potential trade-offs between renewable energy development and nature protection are evident in policies aimed at promoting windpower. While both renewable energy development and nature protection are widely regarded as legitimate and important political objectives, combining the two may prove challenging, particularly in regions under high pressure from human activities [1]. There is strong momentum for more windpower – but there is also increasing opposition from nature conservation organizations, recreational interests and local communities.

Political decisions should provide some guidance as to the prioritization of objectives and interests, depending on the licensing schemes in different jurisdictions. Whereas support schemes, R&D, tax benefits and similar political measures are important instruments for influencing the attractiveness of renewables investments, licensing decisions represent the arena where the trade-offs must be balanced [2]. Licensing practices – how the authorities perceive and weigh the benefits and drawbacks of windpower projects – ultimately decide which projects, locations and values will be realized, and are crucial to the development of the sector [3]. These practices also influence the degree of acceptance, perceived legitimacy and nature impact [4], but have been little studied.

Several international and Nordic studies have shown that the organisation of the licensing process is important for issues like the weighting of difference concerns in the process, stakeholder influence, and the rate of deployment. Söderholm et al. [5] demonstrate how the legal-based Swedish system gives room for interpretation and decisional leeway based on legal interpretation. Darpö [6] shows that the Swedish licensing procedure for wind farms gives regional authorities and local municipalities much greater influence in the process compared to Norway. Blindheim [7] argues that, in an early phase characterized by slow development of Norwegian windpower, political uncertainty caused a lack of political will to provide a predictable framework for windpower investments and the necessary resources for handling permit applications efficiently. Other findings indicate that the degree of hierarchical state steering influences windpower construction rates [8]. While legal provisions have been found to offer insufficient guidance as to the considerations made in the Swedish licensing process [8], Toke and others show how institutional differences influence windpower installation rates, without focusing on steering directly [9,10]. The length of the process also influences deployment rates and procedural predictability [3,7]. Further, the weight accorded to various issues in the licensing process, procedural transparency and institutional coordination have been identified as significant factors influencing licensing

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outcomes [2,11].

Many studies of windpower development have investigated social acceptance, perceptions of fairness and distributional justice, environmental policy integration, deployment of new technologies, and energy democracy. By contrast, there has been less research on how the licensing authorities respond to political and ministerial steering signals, and how such signals affect licensing outcomes over time. Such signals may take many forms: here we focus on ministerial steering through annual allocation letters, direct orders or practice change or considerations to make, and calibration of practice through the windpower licensing appeals process. The lack of studies on the ability of the political system to influence the licensing process through ministerial steering signals represents a significant research gap in the literature. This lacuna is puzzling, as licensing practices are well known to influence siting decisions as well as licensing process legitimacy [12,13]. To address this research gap, we ask: To what extent and how do political steering signals influence the weigh given to environmental considerations in windpower licensing practices?

We employ a qualitative research approach based on the case of windpower licensing in Norway, which is characterized by excellent wind resources and large wilderness areas. After a very slow start around 1999, electricity production from onshore wind turbines has increased sharply in recent years. It has risen steeply – from ca. 1 TWh (less than 1% of annual electricity production) by the end of 2010 to a projected 15 TWh or some 10% of total annual electricity production by the end of 2021 [14] – and has also become increasingly controversial. As of January 2021, Norway has more than 1100 wind turbines at 53 windpower plants, with an installed capacity of 3716 MW and an estimated 12 TWh annual production [15]. The total planning area affected by windpower construction is 493 $km^2$, which is two and half times as large as the area covered by other industrial installations in Norway.

Although Norway already has a fully renewable electricity sector (mainly from hydropower) and an annual electricity surplus, there are pressures for installing greater renewables production to prepare for full electrification of transport, industry and other sectors. Norway's electricity surplus is exported to other European countries, where it may replace fossil-based electricity. Moreover, Norway has large areas available for windpower development. On the other hand, windpower siting has become one of the most contentious issues in Norwegian politics, causing widespread protests at local, regional, and national levels. One manifestation of this conflict was the massive opposition from affected Norwegian municipalities to the government's proposed national framework plan for windpower, which the government decided to scrap soon after presenting it in 2019.

The conflicts between nature protection and climate concerns have taken centre stage in Norwegian windpower discussions, with calls for more transparent and predicable licensing practices related to environmental concerns. These factors make Norway an excellent case for analysing political steering and licensing practices, as it provides an opportunity to study a centralized licensing system that could be expected to be sensitive to political steering signals. Moreover, as licensing authority lies with a national sector agency (NVE) under a ministry (OED), there is ample room for political steering signals to influence licensing practices. Hence, the case of Norway is both a pertinent study object in its own right and one that can generate wider lessons about how political steering influences licensing practices. This study is related to studies of system responsiveness to issues relating to renewables acceptance [16,17], perceptions of justice or fairness of the process [4,18], and environmental impact assessments [19], but such issues are beyond the scope of this article.

We draw on implementation theory to investigate how political steering signals – ministry letters of allocation to its subsidiary agencies, renewables goals and appeals processes – influence licensing practices at the NVE. Such inputs may encounter resistance from established identities and practices, standard operating procedures, and the like. We pay particular attention to political signals regarding nature protection and changes in the weight accorded by the NVE to nature protection concerns in licensing decisions, because such political signals may conflict with established windpower development practices.

## 2. Explaining the implementation of windpower licensing

### 2.1. Defining implementation

Implementation, itself a contested term [20,21], refers to the process, output or outcome of political decisions or signals within a political entity. While goal achievement is often used to evaluate outcomes [22], politically adopted goals are not necessarily clear or easy to measure in operational terms. In real life there are rarely complete failures or successes, because a political goal is usually accompanied by numerous other desirable, sometimes competing, political goals and objectives. For instance, ensuring nature protection *and* expanding windpower production both represent valid political ends – but the two may often not be achieved fully through individual regulatory decisions like windpower licensing. Systematic examination of such decisions can reveal not only the operational content of policies, but also how implementers in practice must prioritize among multiple objectives.

Here we focus on both implementation *process* and *output*, specifically the regulatory decisions adopted by the NVE – or in the case of an appeal, by the Ministry of Petroleum and Energy (OED) – to grant or reject construction of windpower plants in Norway. We are primarily interested in the extent to which and how nature protection concerns are incorporated in regulatory decision-making, and how these licensing practices are shaped.

There is not a single overarching implementation theory, but rather a diverse set of perspectives that seek to explain different aspects related to implementation [20]. An attempted synthesis model of the various strands of implementation research differentiates between the more material links between policy formulation and policy design [21] on the one hand, and the implementation *process* (organizational behaviour, management, the actions of street-level bureaucrats) on the other. The latter is then seen as leading up to implementation output, and ultimately outcomes. To explain implementation output, we focus on the implementation process (licensing practices) and how it responds to steering signals. After focusing on process, we also consider the outcomes of windpower licensing, as both process and outcome are deemed important in the energy justice literature [23]. We apply two different perspectives in a complementary way, to clarify how windpower licensing is implemented.

### 2.2. Adopted policies explain implementation output: Rational choice institutionalism

Adopted policies might come with a blueprint for implementation, but unclear and inconsistent goals, and complex implementation structures (e.g. fragmented responsibility, multiple levels of action and several actors involved) can make it difficult to implement policies as intended by rule-makers [24]. The underlying logic is the link between formal rules and organizational behaviour. This is in line with a rational choice variant of neo-institutional theory [25], which we apply to examine the connection between adopted legislation and implementation output. *Rational choice institutionalism* sees organizational behaviour as the product of formal structure and formal rules [26]: implementing actors will follow policy as adopted, and will respond to political steering within the public administration.

Here we understand a 'steering signal' as any political signal that affects the licensing decision practices of the energy authorities. In theory, this could include direct instructions on the one extreme of a continuum, and more vague political signals deemed relevant by the NVE, on the other. In-between are a wide set of possible steering signals – such as official letters of allocation and related meetings, official White Papers and reports, governmental political platforms, and windpower

licensing appeal decisions by the ministry.

Political signals may be embedded in legislation adopted in the Storting (the Norwegian Parliament) or via ministerial steering of a subsumed agency tasked with implementation. Clearer goals or steering signals are expected to be prioritized over more ambiguous goals. While this is unlikely to be so in all public administrative situations, we expect that in those cases where the NVE has received clear steering signals, actual licensing practices are more likely to follow the signalled intention than in situations where inputs have been ambiguous. Further, when similar steering signals come through multiple channels and in various forms, they are likely to be prioritized over steering signals communicated through one channel only. Under this perspective, also some other factors may affect implementation: capacity-building instruments can help to build implementation capacity for the public administration; commitment-building instruments can foster commitment to basic policy goals; and procedural instruments can signal the desired course of action to the administration [24]. If such instruments support the prioritization of certain goals over others, this should lead implementing actors to prioritize those goals higher than other ones.

Each year, as a follow-up from the state budget, ministries in Norway send a 'letter of allocation' to their subsumed agencies, outlining the objectives for the coming year. Such documents, referred to as 'performance contracts' in the broader academic literature, are often linked to new public management reforms, and are intended to establish 'clear performance measures [that] will provide government agencies with the incentive to perform better in the areas emphasized in the contract' [27: 58]. Goals that are stated in such letters are expected to be prioritized by the agencies in question, as they have to report on such goals, and their performance is measured by the ministry. Indeed, a study of Danish agencies found high performance on goals that were included in the contracts [28]. Thus, we expect the NVE to prioritize the goals included in such letters.

### 2.3. *Implementing entity explains implementation: Historical institutionalism*

Implementation output may also be explained by established behaviour at the level of the implementing organization, management or bureaucrats themselves [22]. Implementation studies show that policy regularly faces a serious risk of *vertical disintegration:* 'a state of affairs where the aggregate thrust of "micro-decisions" deviates more or less significantly from what policy doctrines or principles would lead us to expect' [29]. Moreover, Norwegian agency staff in general are traditionally more oriented towards sectoral/technical expertise, whereas ministry staff are more attuned to their minister (and ministerial deputies) and prioritize loyalty to them [30,31]. Thus, attention to political signals can generally be expected to be lower in agencies than in ministries.

Applying historical institutionalism, we expect implementation to be shaped by the organizational culture within the implementing organization. An organizational culture is the historical legacy of an organization, developed organically over time. However, the initial structure and demography may put an organization on a path-dependent development course. The initial mandate, along with recruitment patterns, may leave its mark on the organization by creating feedback mechanisms that uphold and reinforce initial choices [32,33]. Agencies usually recruit specialist staff, whereas ministries tend to hire generalists [31,34,35]. Which professions are recruited into each organization over time matters, because formal background is an important carrier of norms and values (DiMaggio & Powell). Moreover, over time, practices may become infused with value, turning means into legitimized ends that are hard to change [36]. Organizations develop an institutional self-interest, including an interest in autonomy in order to carve out space for manoeuvre and discretion. A drifting agency – a bureaucratic agency that create policy that deviates from its original mandate – may pursue other goals by exploiting information asymmetry vis-à-vis its principal [37,38]. With more specialized staff, institutionalized agencies can become capable of, and interested, in pursuing other goals – or they may prioritize differently among multiple objectives – than their political principals in the relevant ministry.

According to this perspective, we expect the NVE's organizational culture to have shaped practices for balancing among various concerns when adopting regulatory decisions on windpower licensing. Moreover, its behaviour is likely to be path-dependent, as its practices are resilient to political signals that deviate from established procedures. Hence, the key expectations from historical institutionalism are that (1) the NVE's organizational culture has profoundly shaped licensing practices, including the use of environmental knowledge; and that (2) such practices have remained relatively unaffected by political steering signals.

## 3. Method

We mapped and coded the annual letters of allocation from the OED to the NVE (the ministerial steering documents) for 1998–2019 (N = 22), using NVivo and Excel. Such letters are sent every year as part of the budgetary process from the ministries to the public agencies in their domain [39]. Overarching goals – also broken down into sub-goals – are intended to form the basis for the agency's work in the coming year. In addition, the documents sometimes include 'prioritized tasks', which are more specific than the goals. We used the main goals in these documents as a basis for inductive development of four broad categories: 'sustainable hydro-governance', 'efficient and sustainable governance', 'energy transition' or 'security and preparedness'. Goals with similar content but slightly differing wording were placed in the same category. The prioritized tasks were coded using the same categories. Detailed instructions regarding windpower licensing were not found at the level of the main goals, so a text search was conducted across all letters to identify any content related to windpower.

We also draw on 22 semi-structured interviews conducted in 2018 and 2019 with 39 representatives from the public administration, including ministry and agency staff, regional and local authorities, power companies and various stakeholders (see Appendix). Whereas interviews with top-level respondents in national ministries and agencies were conducted specifically for the purpose of investigating the extent to which and how political steering influenced NVE licensing practices, the other interviews focused more on the NVE's handling of the licensing process and balancing of multiple and sometimes competing objectives, as well as formal and informal influence in the licensing process at local, regional and central levels.

Finally, a dataset of all windpower licence applications in Norway on which a final decision had been made provided descriptive statistics on several variables and outcomes.[1] This dataset was used to identify key issues in the licensing process that needed further examination, and to triangulate data gathered from the letters of allocation and interviews with data from the licensing process. For example, we used the dataset to identify the number of windpower applications submitted, the position of all host municipalities (yes/no to windpower development), the outcome of the licensing process, and the outcome of the appeals process.

## 4. Licensing practices

### 4.1. *Legal framework and actors*

In Norway, the licensing process is not governed by local administrations but by a national sector authority – and, in the case of appeals, a ministry. The authority to grant windpower licences lies with the NVE, which is a government agency subsumed under the Ministry of Petroleum and Energy (OED). The licensing process has always been

[1] This dataset is on file with the authors.

controlled by the energy authorities in accordance with the Energy Act (1990), but windpower developers previously had to apply to the host municipality regarding land-use changes for the windpower planning area. Since 2008, the Planning and Building Act has exempted energy installations from municipal land-use planning procedures (a lengthy process for developers) and granted the energy authorities decision-making competence over land-use changes. The energy authorities and important stakeholders in the energy sector argued that this change was needed to streamline the licensing process, increase efficiency, and meet national energy objectives. They were supported by a broad political majority in the Storting [40]. Thereby the process was placed fully under central state control, with the municipality retaining only the right to be heard, like any other hearing party to the licensing process. The placement of the licensing body within a sector authority (NVE) instead of general planning has resulted in a process where the licensing body enjoys considerable discretion in the process and a very broad mandate to decide licensing outcomes. The new Planning and Building Act also strengthened those groups that have an interest in windpower development, or belong to the energy sector more generally, at the expense of environmental and local authorities.

Although the NVE and, in the case of appeals, the OED are in full control of the licensing process, several national and regional authorities as well as various stakeholders are heard and may object during the process. The Norwegian Environment Agency is consulted and provides advice to the NVE, particularly during the development and approval of an Environmental Impact Assessment (EIA) programme for the proposed project. In the case of appeals, the OED consults the Ministry of Climate and Environment, which usually participates at on-sites inspections of the proposed windpower project, according to our interviewees in both ministries. The main actors at the regional level are the County Council, a political body representing the county in question, with formal authority regarding cultural heritage issues, and the Office of the County Governor, which is the state's regional authority for overseeing environmental issues. The host municipality, landowners, environmental NGOs, and various other stakeholders are heard at the local level.

Project developers include national and regional power companies traditionally active in hydropower (such as Statkraft, Lyse, Trønder Energi and Agder Energi) and smaller companies specializing in windpower development (such as Norsk Vind, Sarepta and Zephyr). Local ownership or citizen co-ownership of windfarms is virtually non-existent. On the contrary, Norwegian windfarms are frequently sold to international investment funds, which own an increasing share of the windpower measured in terms of installed capacity – more than 60% as of October 2020.[2]

### 4.2. Formal and informal licensing practices

All windpower projects larger than 10 MW require a full licensing process. Since 2005, an EIA has been required for all projects over 10 MW [19]. A simplified licensing process and, as of 2017, a simplified EIA is required for small projects between 1 and 10 MW [41], but most projects are much larger. Based on EIAs, a hearing process and other information compiled during the licensing process, the NVE is mandated to consider the environmental impacts of a windpower project and weigh the benefits against the environmental impacts and other costs (Energy Act of 1990). The final licensing decision includes approval of land-use changes within the windpower planning area.

The main stages in the licensing process are shown in Fig. 1. The formal licensing process begins with early notification of the project, when the project developer has identified a feasible area for windpower development and sends notification of the planned project to the NVE [42]. The licensing process proceeds through a public hearing of the notification and a proposed EIA programme, approval of the EIA programme, full licence application, and a public hearing on the application. The NVE arranges a first public meeting in the host municipality at the stage of project notification, and a second public hearing when the project developer has submitted a full application. During the public hearings, host municipalities, environmental NGOs, regional authorities, affected citizens, and other stakeholders typically submit statements about issues such as nature protection and landscape-level concerns, bird life and habitats, noise, visibility, and consequences for recreational activities and tourism. In addition, any public authority that considers the proposed project as conflicting with its field of competence may file a formal objection [41]. These public sector bodies include the Norwegian Environment Agency, the Sami authorities (representing the indigenous Sami people), the County Councils, the Office of the County Governor, and the Directorate for Cultural Heritage. The NVE is obliged to consider any formal objection from such public authorities and organize a mediation meeting to discuss the complaint and possible solutions. If the complainant upholds the objection after that meeting, it will become a formal 'appeal' that must be considered by the OED, should the NVE decide to grant the licence [41].

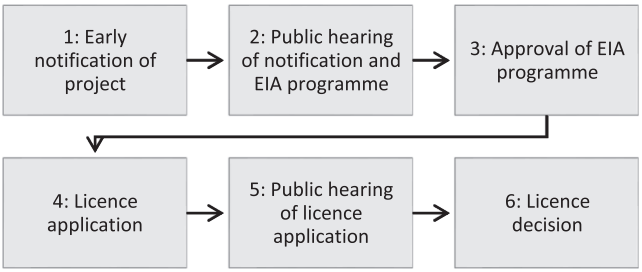


**Fig. 1.** Main stages in the windpower licensing process in Norway [42]

In the sixth stage, the NVE decides to grant or decline a licence to build and operate the windpower plant, including grid connection. This decision is based on all the information submitted and compiled about the project and the NVE's assessment of the advantages of the project against the negative impacts. Our examination of all license applications handled by the NVE until the end of 2019 shows that out of the 195 windpower project applications submitted to the NVE, 82 were dismissed or withdrawn at an early stage in the licensing process (see below). Of the remaining 113 licence applications that reached the stage of a formal decision, 26 applications (23%) were rejected and 87 applications (77%) granted by the NVE.

Host municipalities, affected citizens, and other stakeholders with 'due reason' may appeal the decision to the OED, which takes the final official decision after having organized meetings and on-site inspections with the parties involved and considering all relevant information. As almost 80% of all windpower decisions were appealed [19], it is usually up to the ministry to make the final official decision on whether or not to grant a licence. Whereas the ministry rejected 13 licences granted by NVE, it granted only one licence rejected by the NVE. After the appeals process, 38 out of the 113 applications that reached a formal decision (34%) were rejected and 75 applications (66%) granted (see Section 5.3).

The NVE is not mandated to reject project notifications and applications that meet the formal requirements. However, in order to speed up the licensing process, the agency has developed an *informal* practice of 'advising' developers to withdraw projects that are very unlikely to be granted a licence [2]. Developers that receive such advice usually withdraw the project. In the period under study, 59 project proposals were withdrawn at the notification stage and 12 at the application stage [19]. The NVE usually – but not always – mentions several reasons for recommending withdrawal of a project, including 'holistic' considerations and specific points such as grid connection problems, environmental concerns, or conflicts with indigenous Sami interests or the

[2] https://www.nrk.no/nordland/utenlandsk-eierskap-kontrollerer-over-60-prosent-av-norsk-vindkraft-1.15059109

military [2].

Despite the lack of formal authority, the host municipality is a key actor in the licensing process. After the changes to the Planning and Building Act in 2008, the *formal* role of the host municipality is similar to that of the other hearing parties, but the NVE has rarely granted a licence in a negative municipality. Indeed, we find that local municipalities have acted as *informal* 'veto players' in the licensing process. First, interviewees from the NVE and project developers explained that, during the early planning stages of a project, before public notification, a negative attitude from the municipality would often result in the developer withdrawing the project. Second, NVE interviewees said that if the host municipality submitted a negative statement during the public hearing of the licence application, in most cases it would be decided not to grant a license. Our descriptive statistics confirm this statement. In only five cases did the NVE grant a licence when the municipality was clearly opposed to windpower development. All five municipalities appealed to the OED, which backed four of them. Only in one case – the Raudfjell windpower plant in Tromsø municipality – did the ministry grant a licence despite an unequivocal 'no' vote in the municipal council (see also Section 5.3).

However, because of their lack of land-use planning authority for windpower and other energy installations, many host municipalities feel marginalized in the process *after* a license has been granted, when the project is realized. In this phase, project developers have been found to increase the height of the planned wind turbines significantly (from 100 up to over 200 m), increase installed capacity, and change access roads and project plans. The windpower planning system allows NVE to approve such changes without much involvement from the host municipalities. Lack of influence in the planning of on-site implementation has caused massive resistance in many host communities in recent years and substantial opposition to windpower development in other municipalities, according to our interviewees and numerous news articles. Our interviewees and news articles also highlight how the lack of local ownership and the escalating share of foreign ownership have led to increased conflict levels and local opposition to windpower development.

It also seems clear from the evidence examined and an earlier study [2] that there is ongoing informal dialogue involving the NVE, the project developer, the local landowner and the host municipality. The environmental and regional authorities, environmental NGOs, recreational interests and other stakeholders are heard and their views are considered, but they do not enjoy the same level of privileged access and influence in the process as do project developers, landowners and host municipalities. The Environment Agency and other administrative organs mandated with environmental or cultural management, such as the Office of the County Governor and the Directorate for Cultural Heritage, do not have significant formal or informal influence in the process.

We have not found evidence of significant changes in licensing practices over time. The NVE has developed routines and practices that have been incrementally adjusted but not radically changed during the period studied. We find that the NVE has had significant autonomy and discretion in handing windpower applications during the entire period 1998–2019. Interviewees in the NVE and the OED confirm that the agency has always operated at arm's length from the ministry in windpower licensing processes. They stressed that the ministry does not interfere with the agency's handling of any specific application before a possible appeal. Only when an appeals case comes to the OED will the ministry become involved.

### 4.3. Environmental considerations

A notable change to the licensing process was introduced in 2005, when the Storting instructed the OED to establish Thematic Conflict assessments connected to the licensing process [43]. The Thematic Conflict assessments were meant to assess the extent to which windpower development in a specific area would conflict with three issue-areas: reindeer herding by the Sami people (assessed by Regional Reindeer herding authorities), defence interests (assessed by the Norwegian Defence Estates Agency), and cultural heritage and the environment (assessed by the Directorate for Cultural Heritage and the Norwegian Environment Agency). However, the NVE largely disregarded conflict assessments in the windpower licensing process [41]. Interviewees in the NVE found these conflict assessments superfluous, as they felt that the topics addressed were adequately assessed in the mandatory EIAs for the projects. The Environment Agency and the Directorate for Cultural Heritage, however, expressed deep frustration that the NVE ignored the conflict assessment in the licensing process. The government eventually sided with the NVE and abolished the Thematic Conflict assessments in 2016 [44].

In deciding whether to grant a license, the NVE is to weigh the project benefits against all likely negative impacts in an overall assessment. Its evaluation is to be based on the information in the application, public hearings, the EIAs, objections to the application and other information gathered or submitted during the process. Our interviewees confirm that the weighting of different concerns in the process and final decision has always been done at the agency's discretion and that these evaluations have been relatively stable over time.

We find that the NVE has paid particular attention to profitable windpower development, wind resources at the location in question, grid connections and other technical issues. The negative impacts for birds, bats and other species, environmental and landscape-level concerns, and impacts for recreational interests are taken into consideration where relevant in the licensing documents, but it is difficult to pinpoint exactly how the NVE weighs these impacts in its final determination.

NVE interviewees claimed that it is impossible for them to put a general price or value on, say, a threatened eagle owl population or other environmental values. They assess project applications on a case-by-case basis, with significant discretion in making their final decision. The NVE claims that all cases are evaluated according to the same decision criteria, but it is hard to see how the agency weighs the benefits against the impacts of the project in its final decision. Although the NVE maintains that 'holistic' consideration of all benefits and costs is the basis for the final determination, it remains unclear exactly how all the documented impacts of a project are aggregated and then weighted against the benefits. Factors that can be measured, including wind resources and profitability, often appear to trump environmental considerations and other non-material concerns that, according to NVE, are more difficult to measure. That said, windpower development is prohibited in some areas, such as national parks and other protected areas, and the NVE has developed certain 'rules of thumb' and informal practices about locating windpower plants and turbines some distance away from environmentally sensitive sites, such as eagle owl nesting places. The overall picture, however, is that the NVE gives high priority to opportunities to increase renewable energy production at reasonable cost, and there are surprisingly few guidelines about environmental issues in windpower siting considerations. This give rise to questions about the transparency and predictability of the process, as the weight accorded to different factors for and against granting a licence – particularly environmental considerations – is unclear in NVE's final decision. The lack of transparency and clarity on the weighting of different concerns in the final determination also makes it hard to predict the outcome for similar project applications.

## 5. Steering signals and changes over time

### 5.1. Renewable energy targets and green certificate market

Until 1999, project developers showed little interest in realizing windpower projects in Norway due to high costs, low profitability, and lack of effective support schemes. In 1999, the Storting adopted a goal of 3 TWh windpower production by 2010 [45]. At the time, that was an ambitious goal with firm political backing, supported by government

subsidies (investment support) first allocated by the NVE, and then from the state-owned enterprise Enova from 2001 onwards. However, the 3 TWh windpower target was not achieved: by the end of 2010, yearly electricity production from onshore wind turbines measured only 1 TWh, or less than 1% of Norway's total electricity production. That period was characterized by high ambitions but slow development [7].

Since the end of 2010, windpower development in Norway has been supported primarily by the common green electricity certificate market with Sweden, which was agreed by the two governments in December 2010 and came into operation from 2012. The scheme had a common target of 26.4 TWh new renewable electricity supply by 2020, later raised to 28.4TWh [44: 197]. Under the 2009 EU Renewable Energy Directive, Norway has agreed to a target of 67.5% renewable energy in total energy consumption by 2020. Payment for the green electricity certificates and crediting of Sweden and Norway under the Renewable Energy Directive is divided equally between the two countries. Under the green certificate scheme, renewable electricity producers receive certificates for each MW they produce. These certificates, valid for 15 years, can be traded to energy suppliers, who are obliged by law to fulfil a certain quota of renewable energy.

In 2016, the Norwegian government extended the green certificate scheme to the end of 2021, but decided that participation in the scheme would not be further extended [44]. This meant that those who enter the certificate market by the final entry deadline at the end of 2021 may sell green certificates until the end of 2036. More broadly, the period since the turn of the millennium can be characterized by market-oriented political thinking and prioritization of profitable power development – but also growing concerns for climate change and windpower deployment as part of a low-carbon transition.

The green certificate market resulted in a boost of windpower applications, further encouraged by falling windpower instalment costs. NVE staff describe this as a 'Klondike period' that put the licensing system under severe strain. Almost 200 windpower project applications had been submitted to the NVE: according to law, the agency could not dismiss applications administratively, but it requested many developers to withdraw applications for what were deemed unfeasible projects. The NVE gave high priority to speeding up the licensing process, and received funding over the state budget to increase staff capacity for handling licensing applications. Ten new employees were recruited to the agency. Still, in 2014 the Office of the Auditor General, which monitors the public sector on behalf of the Storting, published a report criticizing the NVE for its slow handling of licence applications: on average, it took the NVE five-and-a-half years to grant a windpower licence [46].

### 5.2. Ministry steering via letters of allocation 1998–2019

The Ministry of Petroleum and Energy (OED) steers the NVE through annual letters of allocation (see also methods section). Each year, the agency receives a letter from the ministry outlining its funding along with a list of goals and prioritized tasks. Each letter includes multiple goals, but the number and content of these vary somewhat from year to year. Moreover, because some goals concern the same substantive topic, we merged them into the same broad category. The most frequently listed goals across the 22 letters of allocation belong to the category *efficient and sustainable governance*. This was also the most frequent category for the prioritized task. Table 1 gives an overview of the absolute number of times a goal of a certain category was included, and its relative share of the total number of goals (and similarly for prioritized tasks).

Fig. 2 presents the various categories of main goals. Grouped into four categories, the absolute number of main goals in each letter (i.e. per year) varied between 4 and 7. A large share of the main goals dealt with (1) *efficient and sustainable governance* of the energy sector. This category included goals such as efficient trade, transmission, and value creation in the energy sector as well as effective handling of licensing applications. However, we see a relative decline in goals within this category towards the end of the period, as the share of goals belonging to the category of (2) *security and preparedness* gained importance from 2013 onwards. Examples of goals within this category are flood, avalanche, and landslide protection. Categorized as (3) *sustainable hydro-governance*, goals relating specifically to hydropower (e.g. sustainable watercourse management) were also common throughout the entire period. As hydropower is the most important source of electricity in Norway, and against the backdrop of historical social protest surrounding dam construction, this is not surprising. Finally, goals related to (4) *energy transition* turned up occasionally – in the late 1990s and 2007/2008 – and must be seen in light of Norway's already decarbonized electricity sector. In sum, the relationship among the categories of main goals has remained rather stable over time.

**Table 1**
Distribution across categories.

| Goals | Frequency | Share |
|---|---|---|
| Sustainable hydro-governance | 22 | 21% |
| Efficient and sustainable governance | 43 | 42% |
| Energy transition | 6 | 6% |
| Security and preparedness | 32 | 31% |
| *Total targets* | 103 | |
| **Prioritized tasks** | **Frequency** | **Share** |
| Sustainable hydro-governance | 6 | 7% |
| Efficient and sustainable governance | 37 | 41% |
| Energy transition | 20 | 22% |
| Security and preparedness | 27 | 30% |
| *Total prioritized tasks* | 90 | |

Prioritized tasks were included in the allocation letters from 2007 onwards – usually in a separate section, although subsumed under the overarching targets during the years 2013–2016. For the prioritized tasks, we find much greater volatility over time, in terms of shifting priorities and in the absolute number of prioritized tasks per year (ranging between 3 and 10). Sustainable hydro-governance has featured occasionally; and there was a burst of prioritized tasks related to the energy transition around 2010 and the following few years. In relative figures, prioritized tasks related to efficient and sustainable governance were clearly prevalent until 2018 (50% average, 2007–2017), followed by a sharp decline due to the relative growth in tasks related to the other three categories (see Fig. 3).

Beyond main goals and prioritized tasks, a text search for windpower-related terms showed that the OED has highlighted issues like capacity-building and knowledge in these allocation letters, repeatedly requesting the NVE to improve the efficiency of its licensing processes. For instance, the letter for 2007 requested the NVE to increase its capacity significantly for processing licensing applications of powerlines, district heating, windpower and new hydropower, and continuously work on measures to make the process more efficient. In 2009, the OED instructed the NVE to strengthen its capacity for processing licensing applications and to work with the ministry on considering measures to ensure that applications for good windpower projects would be swiftly and efficiently processed. The letters for 2010, 2011 and 2012 noted the same issues as did the 2009 letter, adding that the agency should coordinate licensing processing to ensure adequate coordination of and prioritization among new energy installations.

The letters also show that the OED instructed the NVE to build or expand its expertise on environmental issues related to windpower. In 2010, for example, the ministry requested the agency to approve detailed plans for construction, specific turbine placements, transport and environment for new energy installations, and to ensure that environmental and security requirements were followed. The ministry also requested that environmental oversight of windpower installations be strengthened. In 2012, the NVE was instructed to build more expertise on the consequences of windpower and powerlines for birdlife and reindeer.

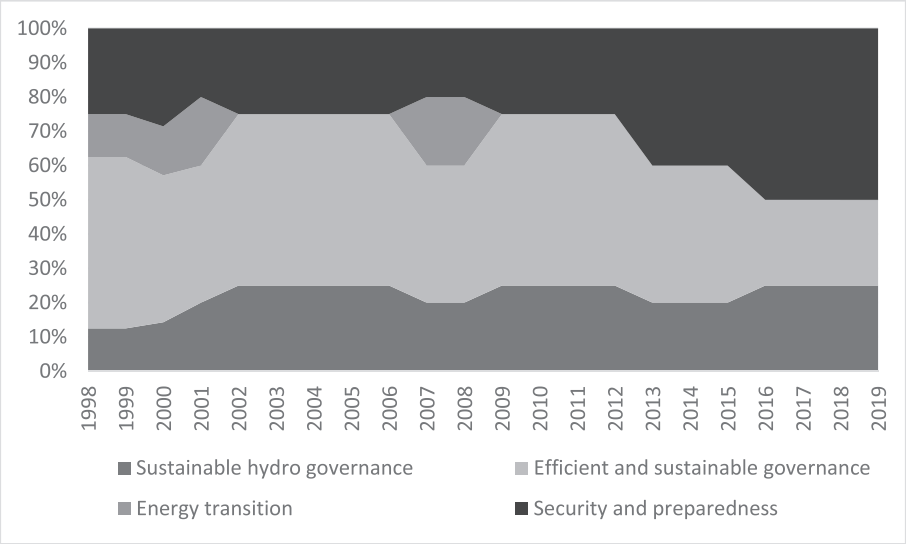


**Fig. 2.** Relative distribution of main goals across four categories over time.

From 2013 to 2017, windpower was not mentioned in the letters. However, in 2018 and 2019, the NVE was requested to develop a proposal for a national framework plan for windpower. This included updating information on the impacts of windpower; suitable areas for windpower were also to be identified. In 2018, the agency was instructed to ensure that conditions set in the licensing decision were complied with via measures for ensuring the efficient and responsible processing of post-licence detailed planning for windpower plants.

In sum, the references to windpower in the letters of allocation show that the OED repeatedly requested the NVE to increase its expertise on environmental issues related to windpower, to speed up the licensing process, and to process certain applications more expeditiously than others – especially projects that would contribute to improved security of supply. However, the ministry did not provide any steering signals regarding how to consider and weigh nature protection concerns in the licensing process.

### *5.3. The appeals process: Signalling priority areas through decision patterns*

We find that 88 out of the 113 licensing decisions by NVE were appealed to the OED – by developers, in the case of a rejection; by opponents, in the case of a licence granted. Whereas 18 out of 26 rejected applications were appealed by developers, 70 out of 87 granted licenses were appealed by opponents.

By upholding licensing decisions, the OED confirms the assessments and decisions made by the NVE. Conversely, by overturning licensing decisions, OED sends signals that the NVE may have to adjust its licensing practices, particularly if the ministry systematically accords a different weight to specific factors than does the agency. Interviewees in the NVE maintained that appeal decisions from the OED provide important guidance about the weighting of various concerns in the licensing process.

Table 2 shows the grand total of 88 appeals with a final decision made by the OED 2005–2020 (onshore windpower projects over 10 MW installed effect). We see that the OED rejected a decision by the NVE to grant a licence in 13 out of 88 cases, or almost 15% of the total number of appeals. By contrast, the ministry overturned the agency decision to reject a licence in only one out of the 88 cases. Although the OED has upheld the NVE's decisions in most cases, it rejects more licences than the NVE does, indicating a stricter practice.

The grounds for rejecting licences granted by the NVE vary, but the OED tends to be more sensitive to political signals. Here we can note the rejection of licences granted by the NVE in which the municipality in question voted against windpower development. Since 2013, through government platforms and other political statements, previous and current governments headed by the Conservative Party have clearly signalled that the local municipalities should have a strong voice in the licensing process. Thus far, the municipalities have in practice been veto players that can block almost any windpower application. As examined in Section 4, the NVE granted a licence in only five cases when the municipality was clearly opposed, and the OED decided to uphold only one of them after the appeals process. These cases indicate that although the NVE has given strong weight to signals from the government about local influence in the licensing process, the OED attaches even greater weight to political signals from the government. This impression was confirmed by interviewees, as this quote illustrates:

The municipality's position is even more important for the ministry than it is for the NVE. For a quite long time we've had ministers who don't want to challenge the will of the municipalities in this issue-area (…) There you see the difference between a public agency and a politically governed ministry.

Moreover, interviewees highlight that the OED puts greater weight on cost–benefit assessments than does the NVE. Projects with low profit margins are less likely to be approved by the ministry, although several other factors influence the decision as well. One example is Maurneset in Troms county (Northern Norway), where the NVE granted a licence but the OED overturned the decision because of very low profitability [47]. According to the ministry, the low profit margins compared to other projects meant that the advantages of the project would not outweigh its environmental and societal costs. Hence, it was not the need to protect particular species or nature types that convinced the OED to overturn the NVE's decision, but the low profit margins involved.

Other reasons for overturning an NVE decision to grant a licence have included concerns for the Sami people's reindeer herding rights and other customary rights, wild reindeer, threated species (e.g. the Eurasian eagle owl), nature protection, and landscape-level impacts. In two cases, the OED overturned the NVE decision because parts of the windpower planning areas lay within nationally designated wild-reindeer areas. In a few other cases, concern for the customary rights of the Sami people have been the key reason for overturning an NVE decision to grant a licence. In only one case (Kvitvola), did the OED overturn NVE's granting of a licence primarily because of landscape-level concerns and other environmental considerations. As the OED and the NVE tend to agree on most licensing decisions, we cannot conclude that the ministry generally accords greater weight to

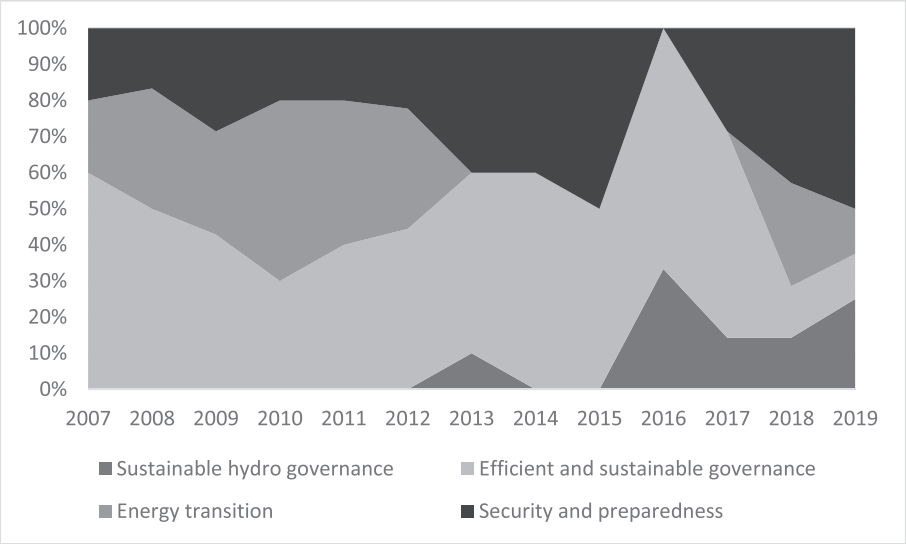


**Fig. 3.** Relative distribution of prioritized tasks across four categories over time.

environmental considerations than does the NVE.

## 6. The NVE: Internal culture and legacy

Before assessing the extent to which and how steering signals influence licensing practices, we briefly review the NVE's historical legacy and internal culture as mediating factors. Established as a separate agency in 1921, the NVE gradually expanded in step with growing hydropower production in Norway, especially in the decades following the Second World War. After a 1960 reform, the agency consisted of four directorates, of which one focused on waterways management and another on electricity licensing. The former included a nature protection office from 1966, which became part of the Nature and Landscape Department in 1977. Ownership of power production and transmission – by and large completely public – was initially located within the agency. This was transferred into publicly owned companies or public enterprises in connection with the liberalization of the electricity sector in the late 1980s and early 1990s [48].

An external report from 2016 maps describes the NVE's internal culture as being anchored in a narrative of 'building the country' [49]. This is linked with the earlier organization of the agency, where it was an integral part of state utility Statkraft. Back then, most of the central grid was owned by Statkraft, generating around one third of the nation's electricity [49]. Statkraft was split up before the deregulation of the sector that came into effect in 1991, but there are some indications of a remaining culture of engineering and a certain pride in having contributed to the 'building of the country' prior to deregulation. For example, the NVE is still the official organizer of the annual Windpower Energy Conference, which mainly targets windpower developers and wider business concerns. At the 2019 conference, one NVE presenter, speaking on trends of increasing wind turbine size, stated with great enthusiasm: 'we were really excited to see that now the 6 MW turbines are coming!' This and similar statements appeared to exceed the role of a neutral licensing authority, indicating organizational cultural inclinations in the agency. Our respondents from other agencies confirmed the 'building the country' narrative in the NVE, adding that it has a clear mandate of contributing to energy development in Norway.

The 2016 external report further points out that the organizational culture has been reasonably similar throughout the agency, with some variations among departments. For example, the licensing department tends to focus on bureaucratic case-management [49], indicating also a professional culture with role-awareness. For a long time, the power producers were part of the organization; the organizational demography reflected this with an engineer-dominated approach to organizational practices that has remained to this day. After the liberalization of the sector with the major electricity reform of 1991 there have also been significant cultural changes. In particular, the swift transition and layering of the NVE organizational culture have added complexity by developing an economics-oriented focus [50]. This cultural change has had implications for weighing investment decisions relating to climate-change adaptation, where the economic rationale (narrowly understood) has taken precedence over other considerations and is likely to have influence also on the licensing department's practices. This can be seen in the changes in the professional demography from 1991 onwards. Before the deregulation reform, the main profession represented in the sector was the engineer, but today the dominant professional background is the economist; non-economists often supplement their competence with economics courses [50]. However, our respondents in both NVE and other agencies highlighted that professionals in NVE's licensing department to a large extent had similar educational backgrounds to those working with similar issues in the Norwegian Environment Agency. The dominant educational background in the licensing department is nature management studies – not economics or engineering. According to our respondents, employees in the licensing department become socialized into the broader NVE culture of economist and technocrats, so that their educational background is trumped by the agency's organization culture.

## 7. Explaining licensing practices

### 7.1. Impact of political steering

The key expectation from rational choice institutionalism was that the NVE will respond to political steering and adjust licensing practices according to steering signals. Our findings show that while political steering has not addressed licensing practices as such, the NVE has been

**Table 2**
Outcomes after the appeals process, 2005–2020.

| Appeal outcomes | N | Percentage |
|---|---|---|
| OED upholds NVE's *yes* decision (licence granted) | 57 | 64.8 |
| OED overturns NVE's *no* decision (licence granted) | 1 | 1.1 |
| OED upholds NVE's *no* decision (licence rejected) | 16 | 18.2 |
| OED overturns NVE's *yes* decision (licence rejected) | 13 | 14.8 |
| OED rejects appeal due to formalities | 1 | 1.1 |
| SUM | 88 | 100.0 |

under political pressure to increase the pace of windpower development by granting more licences. It is hard to pinpoint specific cases in which political pressure has tipped the scale and resulted in a licence granted that otherwise would not have been approved, but we find indications that political pressures have affected the NVE's overall cost–benefit considerations in licensing decisions. Although the weighting of different factors for and against granting specific licences is unclear, political pressure on the agency to grant more licenses seems to have increased the weight accorded to the *benefits* of windpower development in the final determinations.

Unsurprisingly, the letters of allocation issued by the OED have focused more on policy-changes related to energy, and less on policy-changes from other areas. This is seen in the inclusion of political targets for expanding renewables production, whereas environmental legislation like the 2009 Nature Diversity Act has not been mentioned. Moreover, the ministry has stressed that the NVE should take into account security of supply and renewable targets in making licensing decisions. NVE interviewees confirmed these signals, adding that when the political goal is to increase the share of renewables, they must prioritize that goal. Further, they highlighted the strong signals from the ministry to prioritize increased energy provision in mid-Norway 2007–2008, the target of 3TWh windpower production by 2010, and Norway's commitment to a target of 67.5% renewable energy in total consumption under the 2009 EU Renewable Energy Directive. Interviewees in both the OED and the NVE confirmed that specific targets for expanding renewable energy production had influenced licensing practices. Although the letters stressed that the NVE should take a range of issues into consideration, it was not specified how these issues should be balanced when processing licence applications. Our respondents confirmed this, noting that the political goals for renewable energy were added to only one end of the scale – increasing the pressure for expansion of renewable power.

Concerning the balancing of more specific concerns in licensing decisions, NVE interviewees referred to appeal decisions from the ministry as their major source for calibrating licensing practices. Although such decisions cannot be applied on a case-to-case basis to determine licensing outcomes, they serve as an important reference point regarding the balancing of different concerns in licensing decisions.

The ministry is generally stricter that the agency in its appeal decisions. Of a total of 88 appeals in the period studied, the ministry overturned 14 NVE decisions. In only one case did it change a 'no' decision to a 'yes', whereas in 13 cases the ministry overturned a 'yes' to a 'no' decision. Its reasons for rejecting a licence granted by the agency vary, but we find that the ministry has accorded greater weight to the stance taken by local authorities. Our interviewees saw this as a strong ministerial signal that the NVE should accord more weight to the stance of the local municipalities.

The interviews and the licensing documents also indicate that the OED may put more weight on environmental considerations in some cases, particularly when the profit margins are low. One statement by from interviewee 22 (OED) is illustrative: 'Low profit margins in a project will influence our overall assessment, because there will always be non-measurable impacts for the environment, landscapes and particular species that we have to consider [against the benefits of a project]'. One specific example of this is seen in the ministry's overturning a 'yes' to a 'no' decision in the case of Maurneset, in North Norway. In its final determination, the ministry stated: 'Maurneset windpower plant will not be able to generate sufficient income to compensate for negative impacts for property owners, recreational homes, landscapes, reindeer herding, and other public interests related to the environment' [47].

Interviewees mentioned a few other cases where, due to environmental considerations, the OED had overturned an NVE decision to grant a licence. Windpower projects that were planned to lie partly or fully within nationally designated areas for wild reindeer were noted as a reason for overturning an NVE 'yes' decision. We cannot conclude decisively regarding the impact on licensing practices, but interviews and written sources indicate that the ministry's determinations seem to have influenced the agency's weighing of project benefits against negative impacts, particularly as the latter now attaches more weight to environmental impact in projects with very low profit margins. Such considerations may tip the scale, resulting in a 'no' decision for a project that earlier would probably have been granted a licence.

To summarize, we find that whereas the ministry has highlighted the need to increase renewable energy production in Norway, it has not provided specific guidance on the handling of different concerns in the licensing process. The Office of the Auditor General has also pointed out that steering signals from the national political level have been rather unclear in the case of windpower development [46]. Vague or no steering helps to explain the considerable discretion enjoyed by the NVE in the licensing process, and the development of *informal* practices. The growth in licensing applications since around 2005 also seems to have spurred the development of informal practices aimed at coping with the workload.

### 7.2. Impact of the NVE's culture and legacy

The key expectations from historical institutionalism were, first, that the NVE's organizational culture has profoundly shaped licensing practices; second, that such practices have remained relatively unaffected by political steering signals. Empirical support for these expectations comes from our finding that licensing practices appear to have remained quite stable. Importantly, they do not vary sharply or significantly between the political steering input identified. Basically, these practices put significant weight on material and 'measurable' factors such as local wind resources, grid connections and economic aspects of the project, considerations of whether the granting of licences is in line with the national goals of increasing windpower production, and weighing such factors against the negative impacts of the project. We also noted the discrepancy between the formal licensing requirements and the more *informal* practices established by the NVE, which accords a special role to the host municipalities, project developers and landowners in the licensing process.

Interviewees from the NVE and the OED generally confirmed the distinct separation of powers in connection with individual licence applications: the NVE, which handles these applications in the first instance, never experiences inputs from the OED at this stage. This separation of powers contributes to the high degree of discretion available to the NVE, including how environmental impacts are weighted, and also regarding the interpretation of steering signals. All this gives considerable room for the NVE's internal culture to influence licensing decisions.

This internal culture has been described as anchored in the narrative of 'building the country' [49]. As the NVE, with all its departments, is located in the same building (and at some distance from OED offices in downtown Oslo), and its staff share a strong sense of belonging to the same organizational identity [49], it is unlikely that the licensing department is isolated from the general culture of the NVE. This department has, as noted, been characterized as having a culture with a strong focus on bureaucratic case-management and professionalism [49]. Indeed, our respondents from NVE and other agencies explain that employees in the licensing department become socialized into the broader NVE culture and have a strong sense of professional role-awareness.

Concerning the mindset of NVE staff in the licensing department, our interviews indicate an unwillingness to specify how different concerns should be weighed *across* cases, with a strong emphasis on assessing each application on a case-by-case basis. This thinking was criticized by interviewees in the Norwegian Environment Agency as creating what they saw as a practice whereby nature protection concerns were devalued in several cases. The interviews and our examination of licensing decisions confirm that energy provision and energy security

rank high on the NVE priority list. One example is the licensing decision in mid-Norway (the Svarthammeren/Pållifjellet project) where the NVE acknowledged that granting the licence would result in loss of significant wilderness areas, but maintained that 'large-scale windpower development in mid-Norway will be a good measure to secure Norway's commitment to increase renewable energy production'[51].

NVE interviewees confirm that concerns for energy provision and profitable energy development have been decisive factors in licensing decisions, reflecting not only the mandate of the agency but also its organizational culture and identity. As one interviewee explained, 'We are an energy agency, not an environmental agency' (Interview 25.06.2019). The NVE also acknowledges that lack of information on bird migration patterns and bats and other environmental issues is a problem, although it does not seem to apply the precautionary principle in its assessments. The only issue where it has stated clearly that the precautionary principle applies concerns the impacts of proposed projects on reindeer herding by the indigenous Sami people [52].

Another finding is that staff in the OED seem to pay greater attention to political signals than do NVE staff – hardly surprising, given that latter operate at some distance from the central government. We also find that whereas staff in the NVE have varied educational and professional backgrounds, ministerial staff who deal with licensing come almost exclusively from the legal profession – which could help to explain their focus on rules, regulations, and other steering signals from the government.

Among non-NVE interviewees, opinion differs as to whether the licensing authority should calculate the economic aspects of each project in such detail as today, or whether such calculations should be left to the windpower development companies themselves. Regardless, NVE licensing decisions are based on substantial calculations of the economic factors of each project – where the decision as to which factors to include in these calculations is determined by convention and practices developed over time.

Thus, we find that ministerial steering signals and the NVE's internal culture push in the same direction, reinforcing each other. Signals from the OED indicate a clear focus on increasing renewable energy production, without specifying how the NVE should weigh the benefits of windpower projects against the negative impacts. The NVE's de facto autonomy in processing windpower licensing applications leaves room for organizational culture to influence practice. Although the professional backgrounds of staff in the NVE's windpower licensing section are quite similar to those of the staff in the Environment Agency, their thinking and practices are influenced by the NVE's historical identity as an energy agency and its strong culture of professional role-awareness and bureaucratic case-management.

Combined, these factors – the OED's focus on the expansion of renewable energy, without specifying how the NVE should weigh different concerns, and the NVE's techno-economic culture of 'building the country' – can explain the strong weight accorded to economic and other material considerations in windpower licensing practices. This focus on 'measurable' factors does not imply that NVE ignores nature protection concerns or other environmental impacts, but the agency has resisted 'putting a price' on nature or developing multi-criteria tools and methodologies for nature valuation. Licensing practices are clearly influenced by the formal role *and* the institutional culture of the NVE as an *energy* agency.

## 8. Conclusions

The licensing process and land-use change decisions are fully under the control of the energy authorities in Norway. The energy agency NVE enjoys significant autonomy in the licensing process, with considerable room for administrative discretion in licensing decisions. We also find that lack of political steering as to how the NVE should handle the licensing process helps to explain the development of informal NVE practices, which accord a special role to host municipalities, project developers, and landowners in the process [2]. Through annual letters of allocation, the OED has clearly signalled the need to increase renewable energy production, but without specifying how the NVE should weigh the benefits of windpower projects against negative environmental impacts. In these letters, the ministry has not given any signals about nature protection or other environmental concerns in licensing processes: assessment of the negative impacts of windpower project has been up to the NVE. Although we cannot conclude that the NVE systematically prioritizes windpower development at the expense of nature protection, we do find it difficult to determine the weight accorded to nature conservation concerns when the NVE decides to grant or reject a licensing application. Our examination of all windpower licence appeals handled by the OED shows that it tends to be stricter than the NVE in several assessments, although most NVE decisions are upheld. Evidence indicates that the ministry tends to give more weight to a 'no' to a licence in the municipalities and in a few cases to Sami reindeer herding or environmental concerns.

Recent years have seen massive windpower conflicts in Norway, particularly between nature protection and recreational interests on the one hand, and project developers and renewable energy interests on the other hand. In place of the scrapped 2019 national framework plan for windpower development, the government in June 2020 presented a White Paper proposing reform of the licensing process [53]. By November 2020, it became clear that the political opposition at the Storting wanted more far-reaching changes – specifically, that the Planning and Building Act should no longer exempt windpower installations from municipal land-use planning procedures. Eventually, the government agreed with the political opposition in connection with the discussion of the windpower White Paper in the Storting. This agreement about changing the legal framework for siting decisions essentially means that affected host municipalities can veto future windpower development in their planning areas.

It is too early to assess the possible changes to future windpower siting decisions, but the NVE is likely to remain in charge of the licensing process, while windpower developers will have to apply to the host municipality for land-use changes. The conflicts between the energy agency and nature protection interests may be expected to persist, but these conflicts could be dampened by municipal land-use planning procedures and a reduced windpower development rate in the years ahead. Our study indicates that a formal division of powers between the central and local levels and between the energy authorities and environmental authorities could be more effective in balancing conflicting interests – and as a conflict dampening tool – than a limited reform of the licensing process. Although the centralised Norwegian licensing model may have been well suited for meeting national energy objectives efficiently, this model has resulted in serious conflicts between the central and local levels as well as between energy and nature protection interests. The planned changes to the legal framework for windpower siting decisions seem overdue indeed.

More generally, this study shows that more research is needed on how political steering influences potential conflicts and trade-offs between renewable energy development and nature protection in licensing practices. Given the serious conflicts over windpower development and nature protection concerns in recent years, it is surprising that the OED has refrained from providing steering signals about how the NVE should weigh nature protection concerns or requested the agency to work more closely with national and regional environmental authorities. Clearer guidance on these issues might have resulted in better collaboration between the energy agency and environmental authorities, better outcomes for the environment, and greater public acceptance of windpower projects where they are realized. Research on licensing processes in other countries could usefully examine to what extent and how political steering has influenced environmental considerations in permit procedures, and with what consequences for acceptance of windpower.

While licensing practices should be transparent and predictable, the ability of a licensing authority, as part of a governmental structure, to be

responsive to political steering is important, because the system must be able to adapt to new ecological knowledge and environmental considerations [19] and adjust practices in response to procedural concerns and conflicts. Recent controversies regarding windpower in Norway and elsewhere reflect issues about procedural and outcome fairness and justice concerns [4,23,54,55], in turn reflected in acceptance problems and local opposition [16,56]. More research on renewables permitting is needed to shed light on the links between political steering, licensing practices and outcomes, and public acceptance of renewables deployment, and to enhance our understanding of the connections between the many aspects of energy justice.

## Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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