

## Gone with the wind? The Norwegian licencing process for wind power: does it support investments and the realisation of political goals?

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### ABSTRACT

The Ministry of Petroleum and Energy (MoPE) manages the licencing system for Norwegian wind power. Balancing relevant concerns in this process could be considered as Environmental Policy Integration (EPI) in practical wind power policy. Wind power investments have been limited in Norway, investors have left the market and those remaining are jittery towards making investments. This article argues that the licencing system is partially responsible for this situation; the system has, over time, introduced an extra risk element for investors, challenged their patience and hampered investments. Especially MoPE's handling of appeals has been time consuming and difficult to predict regarding final outcome. The problem is probably lack of common understanding between MoPE and Ministry of Climate and Environment (MoCE) on how EPI works in practical wind power policy. To speed up investments the pace in the licencing process must be increased and the criteria for balancing relevant interest must be clarified.

### *Keywords:*

Wind power, licencing processes, environmental policy integration, predictability for investors

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### Abbreviations:

Mdir: Miljødirektoratet, MDir [Norwegian Environmental Agency] (before 2013, Direktoratet for Naturforvaltning, DN [Directorate for Nature Management]).  
EPI: Environmental Policy Integration.  
IA: Impact Assessment.  
MoCE: Ministry of Climate and Environment (Before 2013; Ministry of Environment)  
MoPE: Ministry of Petroleum and Energy.  
NVE: Norges Vassdrags- og Energidirektorat [Norwegian water resources and energy directorate].  
TCA: Thematic Conflict Assessments.

### 1. Introduction

#### 1.1. Problems to be addressed

Wind power is an important renewable energy source; however, wind power investments in Norway have so far been limited. To obtain investments, two basic conditions must be in place: 1) investors must consider the profitability and the risk to be acceptable, and 2) they need a project-licence from the government. The argument put forward in this article is that there is a lack of predictability in the Norwegian licencing system for wind power, which introduces an extra risk element for investors, in addition to the ordinary financial risk, and thus dampens investors' engagement in the Norwegian wind power market.

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The licencing process for wind power—in Norway managed MoPE—could be linked to the concept of Environmental Policy Integration, EPI. The basic idea of EPI is that it should lead to sustainable development by putting environmental objectives on par with existing economic and social sector objectives [1, p28]. The Norwegian licencing process for wind power could be regarded as the practical exercise of accomplishing EPI in wind power policy— economic and political benefits from diffusion of wind power should be balanced against negative impact on the environment. However, environmental policy is managed by MoCE, and thus the coordination between two separated policy sectors and ministries could create EPI challenges. Therefore, EPI is used as a reference for the discussion in this article.

Investors entering into wind power in Norway face an endurance test. The time consumed from the first field studies to realised projects, is in most cases more than ten years. The licencing process has been particularly time-consuming, taking five years in averages [2, p53]. Additionally, the outcome of some of the governmental resolutions has by some stakeholders been described as unexpected—for instance, MoPE's decision to reject the Moifjellet project, which will be discussed below.

For investors, unexpected use of time and uncertainty about the final governmental resolutions (yes or no) increase spending and the number of projects investors must develop and put into the licencing process. Hence, experiences with the efficiency and predictability in the licencing process could influence on the investors willingness to go into, remain and invest in the Norwegian wind power market.

In this context two claims are put forward:

*First, the environmental policy integration (EPI) in the Norwegian licencing system for wind power has been inconsistent and leads to an inefficient and unpredictable licencing system.*

*Second, this system has negatively impacted investors' willingness to invest in the Norwegian wind power market. Moreover, if not revised, it will have a negative impact on future investments in wind power in Norway.*

The article builds on data from the public administrations and the governmental documents dealing with the final resolution and interviews with investors, representatives from the central directorates, local authorities and NGOs. News coverage and press statements from the government are also included.

## **1.2. Wind power's role in Norway**

In 2011, approximately 96% of Norway's electricity production was generated from hydropower [3, p24]. Though, the government still promotes increased production of electricity from renewable sources, among other things motivated by an expressed ambitious climate- and renewable energy policy. Moreover, the hydropower system is vulnerable to shortages in rainfall and the protection of river systems has become an important political issue. Therefore, the government has been looking for alternative renewable sources, and already in 1999 adopted a 3 TWh onshore wind power production target to be reached within 2010 [4, section 4.1].

The Norwegian west coast offers wind speeds above 8 m/s, and NVE has calculated the onshore wind power potential in Norway, all outside factors excluded, to be 250 TWh [5]. In 2001, the Norwegian government established Enova (enova.no), and one of the purposes was to subsidise wind power through investment grants. The Enova scheme was running up to 2010. In spite of extensive wind resources, the support scheme and the government's stated 3 TWh policy target by 2010. Norway's wind power capacity is still limited: 704 MW were running and 1.6 TWh was produced in 2012 [6].

Norway is not a member of the EU, however, because of the Agreement of the European Economic Area (EEA agreement), still committed to the EU's directive on promoting the use of energy from renewable sources (the RES directive) [7] and has agreed to increase its renewable share in the energy consumption from 58% in 2005 to 67.5% by 2020 [8]. The directive and the commitment comprise the heating and cooling sector, the electricity sector and the transportation sector. The Norwegian RES plan, i.e., how to fulfil this 2020 obligation, includes an ambition to increase wind power production to approximately 8.4 TWh [9, table 10.b]; hence, the pace in wind power investments must grow rapidly. To promote renewable electricity, a common green certificate market together with Sweden was set into operation in 2012 [10]. The goal is to increase renewable electricity production in the two countries together by 26.4 TWh by 2020 and thus contribute to the fulfilment of the two countries' national RES obligations. The Swedish RES obligation is a 49 % renewable share in the consumption by 2020. The consumer's certificate obligations are equally shared between the two countries (13.2 TWh), and 50% of the common increase in renewable electricity production could be booked on each country's RES account. The

market for new production is technology-neutral, and in contrast to the consumer obligation, independent of country borders.

## **2. Theoretical approach: Environmental Policy Integration**

### **2.1. Environmental Policy Integration**

Although the principle of EPI (Environmental Policy Integration) was not used explicitly in the Brundtland Report, merging environment and economics in decision making was seen as one of the critical objectives of sustainable development [11, p49 and p62–65]. According to Jordan and Lenschow's interpretation [12, p147], there was a strong emphasis on "systematically connecting the seemingly incompatible goals of economic competitiveness, social development and environmental protection, and hence to ensure sustainable development." The concept of EPI stems from these concerns. The definition presented by Hovden and Lafferty [13, p15]) provides a practical approach to the concept: "Environmental Policy Integration implies the incorporation of environmental objectives into all stages of policymaking in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy".

Norway has been considered a front-runner in EPI and has given EPI constitutional status [14]. However, in 2013, Norway was only ranked tenth in the world on the overall "Environmental Performance Index", tenth on the sub-index on energy and climate and 65th on the sub-index for biodiversity and habitat [15]. The indexes rank how well 178 countries perform on high-priority environmental issues in two broad policy areas: protection of human health from environmental harm and protection of ecosystems.

Norwegian policy implementation is based on the principle of sectorial responsibility: separate ministries have the duty to accomplish decisions made by the Parliament within the ministries policy sector and appurtenant bureaucratic institutions. Thus, the practical exercise is carried out through numerous "sub-regimes" and procedures that involve a multiplicity of actors and levels of responsibility; hence, the trade-offs between separate political bodies and interests could be a challenge. In 1996, the government stated that environmental concerns should be implemented in decision making in all policy sectors [16, section 3]. However, the implications for the energy sector are not described explicitly.

Establishing new wind power plants creates EPI challenges; political goals regarding renewable energy and emissions reductions must be balanced against their impact on biodiversity, landscape and the local communities' interests. The legal framework for realisation of renewable energy projects in Norway has been stable over decades; regarding wind power the challenge is to balance different concerns related to relative new technology, by using existing and well-established laws, planning tools and regulatory procedures. A key element in performing EPI in concrete cases is the execution of Impact Assessments (IAs), and in Norway, there have been provisions for IAs since 1990 [17]. The IAs shall bring about relevant knowledge needed to balance the relevant concerns. The government has also launched a set of supplementary management tools specially designed for wind power, which will be discussed below.

### **2.2. The licencing procedure for wind power**

In Norway, projects could only be realised if a licence (concession) is given in accordance with the Energy Act [18] enforced by MoPE. Still, the authority to govern the process and assign licences is delegated to NVE. However, every party in the process could appeal NVE's resolution to MoPE. Wind power has become controversial in Norway, especially local acceptance has been a challenge, and most cases are appealed [19]. MoPE is governed by the cabinet minister; thus, the final resolution is a political decision. This is in contrast to for instance Sweden, where appeals are handled by a court of law (vindlov.se). Municipalities have no legal power in the process; still, the government would in most cases not approve projects that lack local support. The governmental institutions in charge of environmental matters, managed by MoCE, have a somewhat diffuse role in the decision-making process; they have no legal power but serve in an advisory role. MoCE is consulted when NVE works out the IA programs; additionally, the MDir, one of MoCE's directorates, works out "Thematic Conflict Assessments" (see explanation below). Additionally, before MoPE makes a final resolution, there are consultations with MoCE; yet, documents from these consultations are not publicly accessible [20]. The licencing process is illustrated stepwise in figure 1.

*Planning tools especially designed for the licencing process for wind power:*

In 2005, the government launched the “Thematic Conflict Assessments”, the TCAs [22]. When the investor has announced that a new project is under review (by submitting a notification to NVE), MDir, the defence interests, the reindeer management and the cultural heritage management should give grades in the range A to E, describing the project’s impact on national and sectorial interests [23]. Grade A represents no conflict, while grade E represents severe conflict and is by many considered as a showstopper. The TCAs are based on the directorates’ professional knowledge; however, before the NVE makes a conclusion, the TCAs are reconsidered on the basis of the information identified in the IAs. The TCAs could be considered as a tool to highlight issues of national importance when exercising EPI in the wind power sector. Additionally, in 2007, MoPE and MoCE introduced guidelines for planning and localisation of wind power schemes. The intention was to arrange for the expansion of wind power within a long-term context, to contribute to the efficiency of the licencing process and to improve the predictability for investors and for the communities [24, chapter 1]. The guidelines triggered county plans for wind power in some counties—for instance, in Rogaland [25], where the example cases in this article are located.

### 3. The efficiency and predictability in the licencing system

#### 3.1. Efficiency and predictability in general

Calculations based on information from NVE, on all clarified projects by August 2013 [26], indicate that the average time from the applications being submitted to NVE until the final decisions in MoPE was 3.7 years; NVE used 2.1 years, and MoPE used 1.6 years - though, in extreme cases the total case-handling time has been

more than eight years (e.g. the project Sleneset in Nordland). According to the Office of the Auditor General of Norway [Riksrevisjonen], which has investigated the licensing process in NVE and MoPE for projects handled in the period 2010 to 2013, the time consumed in NVE was three years on average, and the average time consumed in MoPE was two years— a total of five years from application to final resolution [2]. These data, compared with the data above, indicate that the case-handling time has increased somewhat during the last years.

Comparable data from time consumed in the licencing process from other countries is not easily available, but a report from Swedish Energy Agency [Energimyndigheten] concluded that the average case-handling time for renewable energy projects in Sweden was 2.7 years and that appeals increased this time by 39 weeks [27, p14]. Though, not fully comparable, the handling of applications, and especially the handling of appeals, seems to be more time consuming in Norway than in Sweden.

Regarding status in the licencing process, table 1 illustrates the situation in August 2013.

Perhaps the most interesting observation from table 1 2 is the comprehensive number of projects waiting for clarification in MoPE; approximately 9 500 GWh. Table 1 also illustrates the predictability as regards the final outcome. 22 of the proposed projects have been turned down, and 50 projects have been approved. However, regarding energy volume, approximately 50% have been approved and 50% have been rejected. In eight of the cases, MoPE has overruled NVE, and turned yes to no.

#### 3.2. An example from the Bjerkreim cluster: The Gravdal and Moifjellet projects

The Bjerkreim region in the county of Rogaland, in the south-western part of Norway, offers wind speeds above 8 m/s, capacity in the national transmission grid, and municipalities, landowners and local inhabitants generally in favour of wind power. Development of projects in Bjerkreim region began in 2003, and in 2007, investors applied for licences for a total of seven projects, Gravdal and Moifjellet included. The seven projects constitute the Bjerkreim cluster. The NVE coordinated the licencing process for the projects and the most controversial issues were the impact on birds of prey and the Eagle Owl. In 2009, six of the projects, among them Gravdal and Moifjellet, were approved by

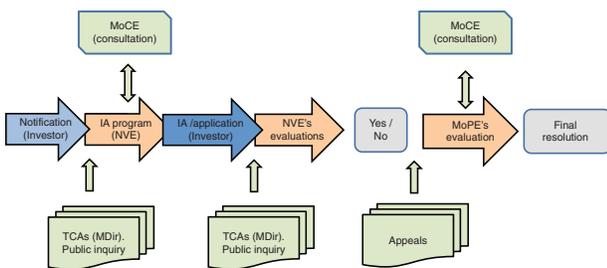


Figure 1: The licencing process and the involved figures (authors own based on [21]).

**Table 1. Status in August 2013. Includes projects with capacity >10 MW (Authors calculations based on [26, 28]).**

	Capacity (MW)	Energy <sup>a</sup> (GWh)	Number of projects
Running	704	2 110	23
Approved by NVE/MoPE (running included)	2 995	8 985	50
Applied but not clarified by NVE	4 015	12 040	43
Approved by NVE, but not clarified by MoPE	3 190	9 570	25
Rejected by NVE/MoPE	2 755	8 265	22
NVE's approval turned down by MoPE	345	1 035	8

<sup>a</sup> = Indicative figures, capacity factor assumed to be 0.34.

NVE. However, the NVE's decisions were appealed to MoPE, and in 2012 MoPE made the final decision and assigned licences for five of the projects. Gravdal was among the approved projects, while the decision for Moifjellet was reversed - the project was rejected by MoPE [29]. A total of 426 MW with an expected annual energy production of approximately 1.3 TWh could now be realised. The basic information for Gravdal and Moifjellet is provided in table 2.

The final resolution for the two projects reads as follows (abbreviated):

*"The Ministry emphasizes that Gravdal could contribute with a substantial amount of renewable energy. Based on an overall evaluation the Ministry concludes that the advantages exceed the negative impact the project could cause. The project is therefore approved.*

*Realization of Moifjellet could cause severe negative impact on biodiversity. Even if the level of conflict is uncertain the Ministry states that the potential negative impact on bird of prey is not*

*in accordance with the precautionary principle in the biodiversity act (...). Despite of the good wind recourse MoPE's evaluation is that the advantages do not exceed the negative impacts the project could cause on biodiversity, especially on birds of prey. The application for Moifjellet is therefore refused" ([29, p35, p36 and p40], authors translation).*

#### 4. The licencing system and EPI in wind power policy—balancing of environmental concerns

##### 4.1. What happened in Bjerkreim?

The intention of the discussion below is not to argue against MoPE's decisions, but with EPI in mind, to discuss the political consistency in the process.

According to table 2, the governmental handling of the cases for the entire cluster took five years: 2.5 years in NVE and 2.5 years in MoPE. Time consumed in NVE is understandable; the work to coordinate the IAs, the design of internal transmission grid in the cluster and arrange for meetings with stakeholders was comprehensive. However, it is more difficult to

**Table 2. Basic information for Gravdal and Moifjellet projects. (Based on [26, 29 and 30]).**

	Gravdal	Moifjellet
Owner/applicant	Fred Olsen Renewables	Statkraft Agder Energi Vind DA
Capacity (MW)	90	150
Expected energy production (GWh)	270	450
Area (km <sup>2</sup> )	9	15
Notification	19 Dec. 2003	7 June 2005
TCA, biodiversity	D - E	D
TCA, landscape	B - C	C
Applied	8 Aug. 2007	28 June 2007
Resolution (NVE)		16 Dec. 2009
Outcome (NVE)	Concession	Concession
Final resolution (MoPE)		5 July 2012
Outcome (MoPE)	Concession	Refused
Case handling time	NVE: 2.5 years, MoPE years: 2.5. Total: 5 years	

understand why MoPE needed 2.5 years clarify the appeals—the basic information was in place, and MoPE could concentrate on the most controversial issues. An article in *Teknisk Ukeblad* (TU) [Technology Weekly], refers to a meeting between MoCE and several investors some months before the final decision in Bjerkreim was made [31], and here, the minister, at that time Erik Solheim, representing the Socialist Party [Sosialistisk Venstreparti, SV], admitted that the case-handling time was too long. However, he also noted that the investors could not expect shortcuts and that it was important to find criteria to separate good projects from bad projects. He also expressed that actions to speed up the process would be taken in both MoCE and MoPE. The article illustrates MoCE's somewhat diffuse role in wind power matters; the minister who gives the statement has no legal power, but it is seemingly an important player. Moreover, the statement confirms that the government struggles to find criteria for balancing interests managed by two different ministries; i.e., EPI is a challenge.

MoPE's resolution for Moifjellet was controversial, and by many of the involved parties described as unexpected and difficult to understand. NVE had approved both projects and the resolutions were equally formulated for Moifjellet and for Gravdal [30, p219 and p228]. Additionally, the TCAs did not indicate that Moifjellet was more controversial than Gravdal. Moreover, the hosting municipality Bjerkreim, had been in favour of both projects during the entire development process. The county manager [Fylkesmannen] and some NGO's had been sceptical; however, compared with other projects in Norway, the projects had not been exceptionally controversial.

Regarding MoPE's evaluations, the most interesting observation is what *was not* included in MoPE's argument [29]. First, MoPE did not comment on the TCAs. The TCAs stated that the MDir was more sceptical towards Gravdal (table 2) regarding the impact on biodiversity (D-E) than it was towards Moifjellet (D), and less negative towards Gravdal under the landscape category (B-C versus C). Thus, the TCAs indicate that realisation of Gravdal could really be questioned; grade E is by some regarded as a showstopper. Regardless of the conclusion that can be drawn from the TCAs, it is interesting to observe that they were not examined by MoPE. The observation is particularly interesting because MoCE probably provided considerable influence on MoPE's decision; thus, MoCE seemed to ignore the evaluations performed by its own sectorial

directorate (MDir). Second, NVE instructed the developers to optimise the cluster's internal transmission grid and the connections to the national transmission grid. Moifjellet was the hub in the cluster's internal grid structure and when MoPE refused Moifjellet, the cluster's internal grid had to be redesigned. The extent of the internal grid in the cluster expanded, resulted in appurtenant increased impact on the environment and increased construction costs. And finally, MoPE neither discussed nor opposed to the IAs worked out by the developers. Thus, it could be stated that MoPE did not comment on the information brought about from the most central planning tools regarding EPI; - the TCAs and the IAs.

Several of the involved actors stated in interviews that the final decision was based on old-fashioned political "horse-trading". The "red-green coalition", a coalition between the Labour Party [Arbeiderpartiet, Ap], the Socialist Party [Sosialistisk Venstreparti, SV] and the Centre Party [Senterpartiet, Sp] was in power—the cabinet minister in MoCE was held by SV, and the cabinet minister in MoPE by the Sp. SV could be claimed to be more focused on biodiversity than on renewable energy, and the opposite as regards Sp. Possibly, to make a political solution feasible, SV had to get a triumph; to highlight that biodiversity concerns was important, one of the projects had to be turned down. In an article in *Teknisk Ukeblad* after the decision was made, the minister in MoCE, at that time Bård Vegar Solhjøl (who had recently replaced Erik Solheim), stated that profitability was a secondary issue when environmental values are threatened [32]. The minister in MoPE, then Ola Borten Moe, who was in charge of the official resolution, did not publicly commented on these trade-offs.

The final resolutions were in place in 2012, and assuming three years planning and construction time, the first turbines could be running in 2015, approximately 10 years after the development process started. Nevertheless, realisation of the projects is still not clarified; the investors have so far (by autumn 2014) not signed contracts with wind turbine suppliers. Thus, starting up power production is at least postponed to 2016 or 2017.

#### **4.2. EPI and predictability in the licencing process**

Dalen *et al.* [33] have examined projects clarified by NVE. They state that out of projects that had required TCA grade D, 10 projects granted a concession by NVE

and only three had been rejected. Of the projects that received E classification, four were granted and three rejected. In a letter to the MoCE in 2013, MDir evaluated the efficiency of the TCA instrument. They claimed that the TCAs do not work as a tool to separate projects with huge negative impacts on the environment from projects with less negative impacts, and additionally, introduction of TCAs has not improved the predictability for investors [34]. The NGO Bellona has drawn the same conclusion, and proposed to rearrange the TCAs [35].

Regarding MoCE's guidelines for regional planning, and the plan for wind power in Rogaland, which also could be regarded as an EPI tool, the Bjerkreim cases illustrate lack of consistency; neither NVE's or MoPE's resolutions are in accordance with the county plan; the majority of the approved project areas are situated in areas not recommended for wind power [29]. As a consequence of this, the county council has decided to roll the county plan [36]. However, this observation could not be generalised; outcomes have been different in other counties; e.g., in Sør-Trøndelag, where approved projects [37] and the county plan [38] are largely in accordance with each other.

Riksrevisjonen [2] has examined the licencing process for renewable energy, and has concluded that there is an evident need to improve the process. It is stated that the case-handling time could be reduced and MoPE should work out an overall strategy for promotion of renewable energy and update the guidelines for wind power to clarify the requirements for the IA works and methodology. However, Riksrevisjonen does not comment on the efficiency of the TCAs or on the coordination between MoPE and MoCE.

Literature on planning (licencing) processes for wind power are comprehensive, especially evaluations linked to the social acceptance of wind power (e.g., Aitken [39] and Devine-Wright [40]). However, concrete discussions on the connection between EPI, licencing processes for renewable energy and investments are not traceable in academic debate. Still, some scholars have contributed more generally to the Norwegian discussion. Buen J. [41] has compared long-term technological change in wind power in Norway and Denmark and has concluded that policies and measures have been weaker and less stable in Norway than in Denmark. Blindheim [42] claims that the long lasting political debate wind power's role in the Norwegian energy system has led to lack of focus and priority in MoPE and thus projects

have accumulated in the licencing process. Ek *et al.* [43] has compared historical, institutional and policy-related differences for wind power development in Denmark, Sweden and Norway. They claim that the Danish and Norwegian planning system provides greater scope for implementing national wind power policy than does the Swedish system. Petterson and Söderholm [44] support Ek *et al.*'s conclusions. However, in contrast to Norway, the Swedish wind power production has grown rapidly during recent years (8.7 TWh by 2012 [45]). The European Environmental Agency (EEA) [46, p17] states that environmental action plans have been introduced in MoPE in connection with the 2000 budget but adds that there appears to be no system for conducting reviews or audits on the plans. Regarding EPI and the Norwegian renewable electricity policy, Knudsen [14, p124] concludes that "Denmark and Sweden—though differing on their choice of governing mechanisms and policy instruments—are clearly more advanced with respect to RES-E/EPI than Norway" ("RES-E" representing *electricity* from renewable sources).

The data and discussion in this article expands on the conclusions above; the Norwegian licensing system has not, so far, pushed the introduction of wind power in Norway. On the contrary, the pace in the process has been slow and the outcomes to a certain degree unpredictable. The tools introduced to separate "good" projects from "bad" has not worked; it is simply unclear how EPI works in the Norwegian wind power policy.

#### 4.3. Investor risk

Investors do not share internal risk evaluations with the public. Nevertheless, there are many indications on how investors evaluate opportunities in the Norwegian wind power market. Shell Renewables sold its wind power projects in Norway (Moifjellet) to Statkraft already in 2008 [47], and Statoil sold off its onshore wind power projects to Zephyr in 2010 [48] and left the joint venture company Sarepta in 2011 [49]. The remaining actors are mainly the Norwegian publicly owned utilities: Statkraft, which is owned by the government, and the regional companies, which, in general are owned by counties and municipalities. However, Statkraft is at the moment investing heavily in Sweden through the company Statkraft SCA Vind (vindkraftnorr.se) and in United Kingdom through a joint venture with Statoil (scira.co.uk). Statkraft's initiatives in Sweden are interesting owing to the fact that Swedish and Norwegian projects are exposed to almost the same

market terms - a common exchange for electric power and a common electrical certificate market. The regional utilities BKK (bkk.no) and Sognekraft (sognekraft.no), which are cooperating through the company Vestavind, have expressed reduced interest in further development of wind power in Norway [50]. More than two years after MoPE's approval of the projects in Bjerkreim, Agder Energi, Lyse, Norsk Vind Energi, Statskog and Fred Olsen Renewables (e.g. the players behind the projects), still hesitates to realise the projects. A couple of the utilities in Troms and Nordland, which own the joint venture Nord-Norsk Vindkraft, have decided to wind up the companies ambitious wind power activities after MoPE's refusal for the project Sleneset [51]. The project had then been in the governmental pipeline for eight years [19].

However, the developers could obviously have been more critical regarding environmental concerns in their project development. There are lot of examples where severe conflicts with biodiversity have been revealed in the early stages of the project, and consequently never should have been put into the governmental pipeline. This type of opportunistic behaviour, however, can also be seen as an effect of the licencing system; - if others investors get projects approved despite the TCA grade E, why not try? As such, investors face a rather uncertain decision system, where it is unclear how EPI—among other factors through TCAs—actually works in wind power projects. Additionally, the lack of insight in the trade-offs between the two involved ministries prevents an open learning process—a process needed for adjustments in the investors' development practise. Nilsson [52] states that shaping institutions for learning are an important element in EPI, and the EEA [46] calls attention to that “existing weaknesses in the system should be addressed in what is a learning by doing process”. Moreover, a slow, reluctant decision-making process behind closed doors does not contribute to an open debate, which is an important element for social acceptance of wind power.

Still, it could not be claimed that the licencing process is the *only reason* for the investors' reduced focus on the Norwegian wind power market. As an example Buan *et al.* [53] have investigated factors that motivate investments in renewable energy in Norway, Sweden and Scotland and claim that variations in national support schemes appear to have the most significant effect on investment rates. However, based on the findings in this article this conclusion could be

questioned; As mentioned above, Norwegian and Swedish investors have, since 2011, faced the same support system. Moreover, the power prices have been equal in the two countries since the late 1990-ies. Despite this, wind power is still expanding rapidly in Sweden, while investments in Norway continue to be modest. Investors in Sweden have, in the third quarter 2014 only, decided to order 220 MW of new capacity [54], while the prognoses for new installed capacity in Norway in 2015 is only 10 MW [55] (figures for ordered capacity in Norway are not available).

An interesting subject for further research is to question if changes in the Norwegian regional utilities' financial situation, because of high demand for share dividend from the public owners during the last years, has impacted on the utilities engagement in wind power. Another question to ask is if a potential conservatism, a path dependency, in the Norwegian energy market, dominated by traditional hydro power producers, could be an explanatory factor behind lack of investments in wind power in Norway.

## *5. Conclusions, and what about the future?*

Data from NVE and MoPE demonstrates that the case-handling time for applications in general is long and somewhat unpredictable. The example from Bjerkreim supports this conclusion. The duration of the licensing process for most projects, the cue of appeals in the MoPE, and the somewhat unexpected outcomes in the final decisions indicates that there are wide-ranging discussions between MoCE and MoPE and not a common understanding of how EPI should work in wind power policy. Statements to the press from the Minister in charge of MoCE in 2012 illustrate that the government realises the problem regarding case-handling time and lack of clear criteria how to balance different issues [31]. Political controversy, i.e., departments fighting for separate interests, seems also to be a challenge, and the coordination is probably even more challenging when a coalition between different political parties is in position.

The Bjerkreim case demonstrates that evaluations performed by the sectorial directorates are not central when the final resolution is made. Additionally, the Bjerkreim case demonstrates MoCE's somewhat diffuse role in the licencing process for wind power: the minister in charge has no legal power but makes clear statements to the press regarding the process and final resolution.

From the investors' point of view, the emphasizing of environmental concerns, EPI in practise, in the Norwegian licencing process is not easy to understand - TCAs, IAs, county plans and so on—what are seen as EPI tools – are not discussed or opposed in the final governmental resolutions. Thus, it is likely that the Norwegian government's somehow indistinct effecting of EPI in the licencing processes, has challenged the investors patience, introduced an extra risk element in the market and contributed to reduced interest for investments in Norwegian wind power. These findings from Norway might be interesting for policymakers in other countries that want to push wind power investments. Hopefully it could also widen the scientific understanding of important factors for investments in renewable energy. So far – support systems have got the attention, while the significance of streamlined administrative procedures has been a partly underrated subject. However, a number of scientists have contributed, for instance Lüthi and Prässler which report interesting results from a survey among 102 international investors in Europe and the US. The survey verifies that the quality and duration of administrative processes are important factors when investors are evaluating the attractiveness of different markets for investments in renewable energy. Among other things they express that 7 years in the administrative pipeline could be a knock-out criterion [56, p4883]. The learning from Norway seems to support the results from this survey.

Bringing the wind power investors back to business could be a challenge. An important issue is to clarify how environmental concerns are emphasised in the decision-making. Investors require a predictable licensing system regarding time consumed and final conclusion; the governmental balancing between the conflicting interests in wind power, or EPI in practice, should be more traceable. Additionally, there is a need for better guidelines and better routines to separate “good” projects from “bad” projects in an early stage of the process. A proposal could be to strengthen and clarify the TCAs' role in the process. The NGO Bellona [35], among others, promotes this idea. A more controversial proposal could be to limit MoPE's role to a control of the legality in the process; and hand over the responsibility for the professional judgment and balancing of interests to sectorial departments. Handling of appeals could also be performed by court of law, like in the Swedish system (vindlov.no). Such a change would possibly increase

predictability for the investors; a professional or legal process is, by its character, easier to foresee than a political process. Political preferences could be altered after elections, negotiations between the political parties or by rearrangements in the government, while legal processes are more transparent and establish precedent for future cases. Another improvement could be to limit the access to appeal NVE's resolutions; - the existing arrangement, under which anybody could appeal NVE's resolutions to MoPE, creates a bottleneck in the process.

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