



What shapes Norwegian wind power policy? Analysing the constructing forces of policymaking and emerging questions of energy justice

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ABSTRACT

This paper employs an assemblage theoretical approach to analyse how Norwegian land-based wind power policies are constructed over time and what forces dominate and resist wind power policy development. The entanglement of policies, technology deployment and (lack of) social acceptance emphasizes the need to critically question what and who influence the construction of energy transition *policies* and how and what concerns are left out, especially in relation to the tenets of energy justice. We find that wind power policies are primarily influenced by energy authorities, developers and interest organizations, furthering arguments of climate concerns, energy security and economic opportunity. The emerging voices of local governments, environmental organizations and concerned citizens claim new political engagement related to valuations of (local) environmental, distributional and procedural justice and the recognition of alternative future energy imaginaries. The increase in conflicts and public debates has challenged national politicians to play a more active role in wind power policy making, which entails the reconsideration of wind power as an *energy* policy and critically judging what, for whom and how wind power should contribute to local, national and global energy transitions.

1. Introduction

The deployment of wind power policy [1], the (lack of) social acceptance [2,3], and local resistance [4,5] have received much attention in international energy research and policy debates, calling for critical (research and) policy reflections that go beyond “overcoming” nimbyism [6,7] to consider the inequalities and injustices in renewable energy transitions [8,9].

The entanglement of policies, technology deployment, market investments, and social acceptance requires analytical tools to scrutinize the dynamics and changes in the relationship between energy and society [10,11]. Particularly, examining what and who influence the *constructions* of energy transition *policies* and how they do so, as well as what concerns are considered and disregarded [10,11], can advance the explorations of the “black box of sociotechnical matters” in relation to energy justice [12]. Such analysis can contribute to depicting, reframing and constructing the relevant knowledge for future policy making and, as such, allow for more just and sustainable energy futures [10,13–15].

Energy justice has emerged as a critically rooted interdisciplinary research agenda concerned with energy policies and systems [13,14,16,17] based on three main tenets: recognition-based justice

questions what actors and aspects are affected and how issues are respected or ignored in energy systems and transitions; distributional justice concerns social, spatial, and temporal burdens and the costs and benefits of energy production and consumption; and procedural justice analyses the power and fairness of institutional structures and the spaces of participation in decision-making processes [9]. In addition, energy justice is concerned with intergenerational and cosmopolitan justice in terms of how energy systems and transitions affect local and global universal values and human (and nonhuman) wellbeing both in the present and in the future [16,17].

The literature on energy justice has revealed a need to scrutinize the past, present and future energy systems and transitions [16] that can contribute to the critical evaluation of energy policy [18,19]. Although the need for “justice-aware” policy making has become increasingly relevant in energy transition research [17], the analysis of energy policy formation has only to a limited degree considered aspects of energy justice [19]. Specifically, how and why policies are constructed between discourses and materialities and what and who influence policy construction over time and scale have been understudied in the field of wind power policy. This paper analyses how Norwegian land-based wind power policies are constructed over time, what forces dominate and

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resist, and what issues are not addressed. As such, this analytical approach has the potential to contribute to and extend the discussion of energy justice in policy construction.

Norway has a century-long energy history of hydropower. Wind power was introduced as a “newcomer” in terms of energy type in 1998. Norwegian wind power policies have been (re)constructed continuously during the past decades, in conjunction with emerging climate policies, technological development, and the materialization of wind turbines (from 2016 to 2021, the installed production of such turbines increased from 873 MW to 3,977 MW¹). This increasing wind power has spurred an upsurge in local and national protest movements and public debates related to a range of socioenvironmental, procedural and distributional concerns challenging the legitimacy of wind power policy [20]. The emerging changes in technical development and the negative effects of various claims and oppositions make the analysis of the stabilizing and destabilizing forces of Norwegian wind power policy construction particularly relevant to understanding energy transition policy dynamics as well as the emerging questions of energy justice. Recent research on Norwegian wind power has addressed contested discourses, energy justice [20] and perceptions of fairness [21] in wind-power-hosting municipalities. Less attention has been paid to analysing how national policy rationales, frameworks and measures are developed over time considering diverse actors, ideas and materialities and how emerging contestations influence the sociopolitical acceptance of wind power [22].

In this paper, we follow the scholarly work of policy mobility and assemblage theory as a discursive and material process, with both global and local forces at play [11,23]. These factors contribute to recognizing the relationship between energy and society as volatile and disaggregating the processes of stabilizing and destabilizing dynamics in policy construction [10,24]. Such an approach can shed light on the formation of energy policies over time, what forces drive and prevent emerging policy considerations and what issues are left out. This paper questions how Norwegian land-based wind power policies are constructed:

- What are the forces influencing policy construction?
- What issues drive/dominate and resist/contest policy and wind power development?

We analyse Norwegian wind power policies as an assemblage of historical and present situations influenced by local and global occurrences and future aspirations. These policies (and their emerging construction) are thus understood as diverse arrangements of elements coming together and being pulled apart, consisting of formal policy, research and procedural documents, informal practices, and arenas of (media) debate and networking [10,23]. The complexity of policy formation is analysed as being constructed, disrupted and reconstructed in the flows and networks among actors, ideas and materialities. As such, “*The assemblage analytical approach opens potential for understanding dynamics of negotiations and contestation rather than reproducing dichotomous positions and conflicts.*” [24]. Our analysis contributes to depicting questions of energy justice as emerging expressive and material forces in Norwegian wind power policies. How are burdens and benefits considered? What themes are recognized, addressed and ignored in the current policy construction? Who has influenced this development? This paper contributes to critical discussions related to “justice aware” policies [17,17] and the need to address wind power policies as a political matter [15,25]. This approach requires wind power policies that explicitly consider local and global energy demands, socioeconomic and environmental value, and institutional measures for recognition and procedural and distributional justice [26]. Although limited to a Norwegian

sociospatial context embedded in a particular historic and economic setting, this analysis of stabilizing and destabilizing forces can inform critical analyses of energy policy construction in other settings.

The following sections first introduce our theoretical framework and then unfold the methodological approach used. Then, a description of the historical development of Norwegian wind power policies is presented before we analyse what forces influence policy formation, what values and interests have been furthered, and what has not been addressed in light of the tenets of energy justice.

2. Theory

2.1. Policies and policy mobility

Policies are never constructed as solely national or local narratives but are produced in networks of information, where both people and ideas flow through space and become reconstructed as contextual and territorial narratives or assemblages of policy elements with origins in various spatial locations as well as in the present, past and future [11,27,28]. To understand the process of the construction of Norwegian wind energy policies, we therefore need to sort out how the emergence of the policy narrative has come into being, what kind of material and discursive elements are involved in this emerging narrative, what kind of practices and forces of power bring the policy into motion and change and how the policy can be understood as a complex intermix between global and local forces that sometimes stabilize and, other times, destabilize the policy narrative [27].

According to the growing literature on policy mobility, policies are not only transferred but also translated in the process of reconstruction at the national and/or regional/local levels [29–31]. Policies are an intermixture of global and local ideas and forces; it is impossible to understand how and why a policy narrative is constructed without analysing it as a process of the intermix of policy elements arriving from elsewhere, translated into a spatial context, where it meets with former policy format and becomes reinvented as a new form of spatial policy [23,27]. In line with the policy mobility literature, Norwegian wind power policies need to be addressed as an assemblage [11,23,32] of ideas and not as a separate invention in and of itself. Such an assemblage is then understood as an analytical and methodological approach to policy constructions, not as a real empirical object or an alternative ontology [11,33].

2.2. Assemblage thinking and policy construction

An assemblage attends to the complexity of the construction of national and/or local policy in the tension between relational and territorial aspects and provides us with a topological concept of space that extends more simplistic analytical dichotomies, such as fixation/mobility, global/local and past/present [11,24]. Prince [23] suggested that the policy mobility perspective should combine topological spatial thinking with an assemblage perspective because doing so has the potential to bring us beyond the local–global binary that very often characterizes studies of mobile policies. In addition to considering the dimension of relational space that is implicit in assemblage thinking, this approach combines the discursive aspect with the material and practice aspects in the construction of space and thereby manages to integrate the main elements of how mobile transnational actors form their relationship in certain social and territorial contexts.

The assemblage perspective is a useful analytical approach to studying contextualized policies for three reasons. First, it includes a spatial concept, which allows us to conceptualize the cross-scalar and multidirectional dimensions of policy mobility, i.e., how to theorize proximity and distance, the present and the past, and flow and fixation, in the same process [34,35]. This means that the national wind power policies in Norway are affected and inspired not only by national needs and political goals but also by the global picture of climate change and

¹ <https://www.nve.no/energiforsyning/kraftproduksjon/vindkraft/vindkraftdata/> (accessed 31.03.2021)

energy resources and the local conflicting picture of the consequences for nature and for society.

Second, the assemblage perspective also is appropriate in consideration of a topological concept of time. Through the unique combination of elements in an assemblage, the emergence of new relations can happen. An assemblage not only folds space in the dimensions between proximity and distance and between here and there but also in time since the becoming of a policy assemblage has its origin in the past, present and imagined future [36]. For the formation of a wind energy policy, this means that the policy is affected by the historical evolution of energy policies, the present discussions about the formation of policies, and not least by the imagined future about the need to develop wind energy resources.

Third, we need an understanding of sociospatial processes that carefully attends to the complexity in the assemblage of the discourse, practices and materialities when policies are formed. The assemblage approach makes it possible to understand, on the one hand, the materiality involved, which is very obvious and contested in the wind energy debate and, on the other hand, the different types of linguistic and symbolic forms of expression [37], which are represented in the assemblage of wind energy policy as different discursive positions to the need and consequences of the imagined development of wind power plants in Norwegian nature and society.

A critique of the assemblage approach is that it has a focus on disordered and ephemeral aspects, while the ordered and structured aspects of the social world are somewhat undercommunicated; therefore, the assemblage approach lacks an analytical concept of power [38,39]. To address this critique, we find it useful to combine the Deleuzian assemblage with the Foucauldian *dispositif* and understand the assemblage as a constant power struggle between stabilizing and destabilizing forces [40]. The *dispositif* concerns “concrete, situational ensembles of forces of becoming” [34,40] and helps us include questions of power, knowledge and practice in the analysis of the assemblage. The power dimension is then included in the analysis of the assemblage through the Deleuzian method for mapping roles and processes through the dimensions of the material/expressive and territorialization/deterritorialization [41]. These dimensions help us include questions about the role of the relation between material and discursive aspects in the construction of policies as well as the condition of temporality and changeability, which is inherent as a potential force in national and/or local policies [24].

In the analysis of Norwegian wind power policies as an assemblage, we need to consider how these power relations function in producing policies by categorizing the components as playing either a *material role* (body, other material and physical things and constructions, interpersonal networks, hierarchical organizations and/or face-to-face conversations) or an *expressive role* (language, linguistics and/or corporeal, and nonlinguistic expressions) [37]. Here, it will be interesting to observe how ideational and material aspects are linked together in political strategies that may or may not have the potential to become ‘normalized’, validated and hegemonic through the processes of the institutionalization and materialization of ideas and practices.

Further, we need to analyse how relations vary, from being stable to becoming unstable or between fixation and flow [24,37]. On the one hand, there is a tendency towards *territorialization* or stabilizing the policy as a temporary fixed structure of meaning and, on the other hand, *deterritorialization*, turning the policy into an unstable flow of change, uncertainty, and disruption. This process of territorialization/deterritorialization concerns the physical or material realm, which can be identified as nature and infrastructure for producing wind energy. Moreover, this process also concerns the construction of a stable contextualized structure of discursive meaning of the reasoning of the policy and a question about the political goals and energy need, the balance of interests and values, the distribution of advantages and disadvantages, and questions about democracy and rights or codetermination and the distribution of political power in the system of

governance. A given component, for example, the value of nature, the climate change crisis or energy demand, can act as a catalyst that reinforces the process of either territorialization or deterritorialization [24]. The process and outcome are then dependent on the context in terms of how the material and expressive components are interpreted and internalized in the wind energy assemblage. We therefore need to be aware of how these different interpretations and ways of valuing components are also involved in a constant struggle for hegemony in the political debate and how this struggle actually is the policy and not only the road to a final fixed policy. A final fixed wind energy policy will probably never exist, and it is therefore meaningless to analyse the formation of such a policy as something that will come to an end or final result. Policies are always in a process of development and remain in a state of constant evaluation and reformulation [23,27,29].

We will structure the empirical analysis given the suggested intersection between Foucault's *dispositif* and Deleuze's method for power relations in the assemblage [41], formulated as three questions. *What* kind of policies are argued in the debate? *How* are they produced? *Who* are the producers?. First, there is the process that involves the identification of from where the ideas and *knowledge* about energy needs and consequences come, i.e., how Norwegian wind energy policy is influenced and affected by knowledge regimes and ideologies and how these knowledge regimes and ideologies are translated and transformed into a national context. Second, there is the process concerning how policies are argued as being ‘naturalized’, ‘objectified’ or institutionalized through a discussion about the material and expressive components of interests and needs, perceived consequences, balancing of values, distribution of advantages and disadvantages and structuring of codetermination through the democratic system. Third, there are processes concerning how these policies are produced considering how different actors *perform and practice* the production of policy through reflection, invention, intervention, implementation, and reflexive evaluation [41,42]. These three structuring questions then need to be analysed from the perspective of the topology of time and space and how power mechanisms constantly function as a process of the stabilization/destabilization (territorialization/deterritorialization) [11] of wind power policy. Inquiring into the nexus of politics, institutions and perceptions of technology and nature can shed light on how historic and present policy perspectives are influenced by different forces and framings and can bring about reflections on policy challenges in terms of energy justice.

3. Methods

Energy research is a politicized field in the dynamic conjunctions among the “multilogue” understandings, organization and practices of nature and society in time and space, which requires continuous methodological awareness and development [43]. The design of methods thus requires a deep theoretical embedding [44] and situational depth [45]. Baker and McGuirk [46] claimed that the use of an assemblage as a methodology needs to be based on certain epistemological commitments that express its advantages for use in critical policy research. First, the commitment to *multiplicity* means that the assemblage of policy will always be nonlinear and contingent. Second, the commitment to *processuality* means that one must be constantly open to change and new beginnings. Third, the commitment to *labour* states that assemblage thinking requires “the continued effort of human actors and the enrolment and often unforeseen effects of various materials and techniques through activities that range from everyday toil to executive decree” [46]. Fourth, the commitment to *uncertainty* means that research should constantly be open for a less determinative and experimental analytical stance based on provisionality, revisability and modesty. This entails a methodology that explores the endeavours for (re)producing, maintaining and disturbing the processes of assemblage and considers how different types of agency are advantaged or disadvantaged in particular settings [46]. “As such, it offers a way of revealing, interpreting, and representing the spatially,

socially and materially diverse worlds of policy and policy making” [46] through the study of human-material arrangements, such as texts, practices, agencies, institutions and networks [27].

To strengthen the validity of our work, we strived to ensure diversity and reciprocation between different empirical sources in this emerging research and policy field [43,44]. We explored official policy documents, white papers, green papers, public reports, and research papers related to energy, wind power, local development, climate and the environment. Furthermore, we interviewed 12 actors and policy makers at the senior managerial level from the following national energy and environmental authorities: the Ministry of Petroleum and Energy (MoPE), Norwegian Water Resources and Energy Directorate (NVE), Norwegian Environment Agency (NEA), national NGOs (DNT² and NVF³), wind power developers, regional energy companies, wind power interest organizations (NORWEA⁴), and local politicians and authorities in municipalities utilizing wind power (the municipalities of Smøla and Birkenes and LNVK⁵). The interviews addressed the historical development of wind power policies, their rationales and purpose, the actors involved, reflections of the current challenges in wind power development and potential strategies for future wind power policies and management. Participant observations were employed at nine national/regional events: three national wind power debates (Arendalsuka 2018, 2019, and Litteraturhuset 2018,) arranged by research institutions (one of which was co-arranged by the authors), a national seminar for local governments arranged by the Local Government Association (2019), and two yearly national two-day seminars (2018, 2019) arranged by the NVE with the aim of presenting and discussing wind power development. Approximately 300 participants from different levels of the above energy and environmental government authorities, wind power developers, energy companies, and a range of national NGOs participated. We also participated in four regional hearings and debates related to wind power development.

Through these diverse methodological practices, we extend what Baker and McGuirk [46] described as adopting ethnographic sensibility, tracing sites and situations, and revealing the labours of assembling and disassembling as the empirical basis for the analysis of the formation of wind power policy assemblage in Norway. This means that based on document readings and transcribed interviews, we extract the main discursive focal points of the policy construction and the main expressive and material forces at play, which is also in line with Glück's [45] notion of developing a “situational analysis” of the policy field and its various actors and issues and how they relate, speculate and exclude. Although we seek to identify the relevant empirical sources, there is always a danger of simplification and uncertainty [43]. As such, we are aware that there may be elements and forces in wind power policy construction that are not thoroughly integrated in our analysis.

The following section describes the context and movements of Norwegian wind power policies, followed by an analysis of expressive and material elements acting as emerging force that (de)stabilize policies.

4. Norwegian wind power policy: Context and evolution

Hydropower is considered the “backbone” of the Norwegian energy supply [47]. From its early development in the late 1800 s to additional vast developments in the 1960–70 s, hydropower has provided renewable electricity and municipal tax revenues and powered industrial development across Norway [48]. Hydropower still constitutes 93.4% of the electric production capacity in Norway, with a yearly average production of 133 TWh, accounting for more than 70% of consumption

[49]. In the 1970 s, Norwegian oil discoveries opened a new industrial energy adventure. Oil exploitation led to the creation of a major new energy economy through exports [50] and paved the way for the development of a new industrial path connected to the oil supply industry [51], in addition to large state revenues from ownership profits and taxes.

4.1. Maturing technology and regulations

Wind power was introduced into Norwegian energy policies in 1998, with an ambitious target of producing 3 TWh before 2010 [52]. It was described as a potential, but still immature, renewable energy source to support Norway's future energy production and value creation. An investment support scheme for wind power went into effect from 2000 to 2011 upon a suggestion in a green paper (Official Norwegian Report) [53] to support technological development. In continuation, the number of applications for wind power licences increased in a “Klondike”-like atmosphere, with many unqualified and “hopeless” applications generating unnecessary local conflicts [54]. The rise in the number of conflicts became a national concern, and a conflict assessment committee was established across national authorities [55]. Furthermore, the Ministry of the Environment⁶ (MoE) and the MoPE developed guidelines to ensure comprehensive and long-term planning in relation to other social and environmental interests [56].

This increase in the number of regulative measures, along with a perceived inefficiency of a two-track licencing process (related to the Energy Act and the Planning and Building Act) and unpredictable licencing decisions, was, however, criticized by developers and interest organizations [57,58]. In continuation, energy procedures became rationalized and centralized to a single-track licencing procedure handled by NVE [54,56]. Despite support schemes and increased procedural efficiency measures, the development pace between 1998 and 2010 was slow compared to those in other European countries with similar goals [57]. From 1998 to 2010, only 442 MW were installed, producing 1.1 TWh.

4.2. Climate and market commitments

During the 2010 s, wind power became increasingly linked to climate policy goals, international commitments to renewable energy production, and the electrification of industry and society [59]. The EU's renewable directive in 2009 obliged Norway to increase its renewable share to 67.5% in 2020 [60]. These commitments positioned wind power as a major potential contributor to renewable energy production [59,60]. To secure increased investments in Norway, the Green Certificate Scheme was introduced [61]. This obliged Norway to subsidize 13.2 TWh of renewable energy and, as such, ensure financial predictability for market investments [61]. The scheme was regarded as the most important single instrument for achieving this goal but will be phased out beginning in 2021 [47]. In parallel, one green paper pointed to the increasing profitability of wind power and recommended that it should be subject to value distribution principles to ensure that local communities receive an equitable share of the value creation [62]. Technological development during the 2010 s resulted in a significant increase in the size, height and production capacity of wind turbines. Foreign capital investments in Norwegian wind power increased manifold during the 2010 s, with approximately 58% foreign ownership [47].

An energy white paper in 2016 focused on increasing renewable energy demands and energy security requirements, as well as fulfilling climate policies, by facilitating technological development and market-based solutions [61]. Market potential was related to both the production and sale of energy and to the development of the supplier, power-intensive and other energy- and production-related industries [61]. It

² Den Norske Turistforening - The Norwegian Trekking Association

³ Norges Naturvernforbund – Norwegian Friends of the Earth

⁴ Norwegian wind power interest organization

⁵ Landsammenslutningen av vindkraft kommuner – National association of wind power municipalities

⁶ Now referred to as the Ministry of Climate and Environment

was, however, recognized that increasing conflicts in terms of environmental and social interests had to be addressed to ensure predictability and efficiency [62]. In 2017, the NVE was commissioned by the MoPE to develop a national framework (NF)⁷ with a twofold purpose: I) to develop an updated knowledge base for onshore wind power and II) to develop a map with area suggestions for locating wind power on land [63]. The NF was in line with advice from the Bellona and ZERO climate organizations. Several NGOs (including DNT and NVE) have also argued for a better knowledge foundation and a more comprehensive national policy for wind power.

4.3. State control and emerging national opposition

The NF was led by the NVE in collaboration with other government agencies and with input from various interest organizations [63]. It produced 21 thematic reports and a map identifying the most suitable areas for siting wind power in Norway (29,000 km² were selected). The public hearing produced more than 5,000 responses.

From 2019 to 2021, the number of local and national protests increased. Several episodes of civil disobedience have been reported on construction sites, and NVE employees have even received death threats. Several national NGOs have formed a common forum to allow themselves to have a voice in the public debate on wind power policy and mobilized members in protest actions in several parts of the country. The public wind power debate at both the national and local levels has thus become increasingly polarized [64].

The NF process coincided with the largest development of wind power in Norway to date. Between 2016 and 2021, the development rate increased by 3,104 MW. In 2021, there were a total of 53 Norwegian wind power sites producing 13 TWh of wind power. Several wind power interest organizations argued that the map appointing the most suitable areas should not be further developed. In October 2019, the Norwegian government decided to withdraw the NF [47].

4.4. Possible new policy paths

All wind power licencing procedures were halted in 2019 to await a revised wind power white paper addressing the licencing process and procedures [47] and has (as of April 2021) still not been resumed. A green paper on energy taxation recommended that with the increased profitability of wind power, a taxation regime should be considered [65]. The NVE further suggested five main measures to strengthen confidence in licencing processes and increase efficiency and predictability [66]. In 2020, a white paper was introduced, with a particular focus on improving the procedural aspects of onshore wind power licencing [47]. Issues of taxation and local compensation were not changed due to current levels of profitability and the aim of securing market predictability [47].

This description of policy changes, wind power development and rising public opposition indicates several challenges in terms of social acceptability and emerging concerns of energy justice related to the policy foundation that frames Norwegian wind power deployment. Understandings and contestations of wind power energy justice in time and scale reciprocate with the given political and economic conditions [20]. To understand the challenges of current energy policies in Norway, there is a need to critically explore how these policy conditions are understood, constructed, and advanced [22,24].

5. Forces of the wind energy policy assemblage

In the following, we present the focal points extracted from the

⁷ The national framework (national ramme) was not a legal plan but a framework for building a common national knowledge base and locating the premises of future wind energy in Norway.

empirical material that we have identified as influencing overall policy construction. These focal points address questions about what policy ideals are argued (political goals), how politics are set in motion (systems of governance), and what interests and values (technology, economy and nature) are advanced and contested. For each of these categories, we identify the expressive and material forces that affect how wind power policies become territorialized and/or deterritorialized.

5.1. Political goals and engagement

Our analysis identifies three main expressive forces that have led to the emergence of the formulated political goals of wind power policy in Norway. The first of these forces is the evolving idea of a crisis in the national energy supply. The long-standing political goals of energy security, low energy prices and economic growth (such as energy export, industrial development, and value creation) [61,62] came into flux in the early 2000 s when the government formulated “the end of the hydropower era” [61]. This provided an opportunity to position Norwegian wind energy resources, promoted by developers, energy interest organizations and national energy authorities, as a unique energy development capacity. Particularly, the potential complementarity with the flexible hydropower system, the existing grid infrastructure, and the cable connection to Europe contributed to the increase the inclusions of wind power in energy policy arguments.

“Large new sources of energy are not found in hydropower. So, what are, then, the alternatives in Norway? Offshore wind power is more expensive. That is, when onshore wind power arises, it is the most probable alternative. It’s not politics, it’s facts.” (Informant, MoPE)

This naturalization of wind energy as a political goal was stabilized by international and national climate agreements, low-emission targets [59,60] and green economic growth [61,62]. The linkage to the climate agenda within a market framework acted as a catalyst [24], territorializing wind power as a necessary energy development path. As such, wind energy became positioned as what our informants coined as a “global energy responsibility” (developer), “naturally environmentally friendly” (NVE), and a “natural choice” (MoPE).

The second expressive force that we identify as having influenced the formation of political goals is *resistance due to environmental deterioration*. Wind power has been contested and opposed by several local government actors (municipalities, politicians and national local government organizations) and by a multitude of NGOs, which have communicated their perspectives through hearings and invited participation in energy policy committees and public (media) debates. These actors have questioned the shortage of environmental, cultural and social considerations in wind power policies and licencing procedures, particularly those related to the consequences for the local community and landscape, not least in the Sami territories [55].

“We are worried that the licencing procedures will not improve...They are really poor when it comes to participation, when it comes to biological knowledge, when it comes to the assessment of nature pressure, when it comes to consequences for, well, the local citizens, reindeer herding, recreational areas, lots of worries...It is almost scandalous.” (Informant, NVE)

These emerging critiques and oppositions echo the claim of the justice of recognition for a broader set of human and nonhuman issues [13] across several levels of actors with diverse place attachments [4] than what is currently considered in Norwegian wind power policy goals.

This leads us to a third expressive force, referred to by different informants as a *striking lack of national political engagement*. Although national politicians have engaged in specific local projects, there has been limited political engagement at the national level in terms of discussing the political goals and consequences of wind power.

“It is understandable that no politicians have this on top of their agenda since wind power has had a relatively modest share of energy production. It has been a curiosity. Now, the conflict level is high, and the development pace is extreme, and so now someone has to show political will.” (Informant LNPK)

This lack of “political courage” (NVF) and the “political gap” (NORWEA) of discussing wind power as an energy policy generated policy instability because it has opened the way for contestations, delegitimized political goals and spurred protest movements and resistance.

The first material force stabilizing political goals of energy supply were the *state-funded support schemes* for wind power projects and market-based schemes (green certificates) to secure profitability and investment predictability [61]. A second material force was the *national framework*, intended to secure and institutionalize the state steering and predictability of future wind power development. Particularly, the map defining and demarking the most suitable localizations for wind energy in Norway became a powerful material force in the related debate [61,63], both stabilizing and destabilizing wind power goals.

“That is what makes it very difficult. We are supposed to facilitate wind power and limit or steer the development away from the areas that we don’t prioritize. So, we have to see; we don’t have any guarantee of how this will work, but it is the kind of policy measure that we have made, so to speak, to steer the licencing.” (Informant, MoPE)

The NF and map have become a symbol of local disempowerment and fuelled protests across the country. This expressive force of resistance materialized as institutionalized *protest movements* and *radical opposition* actions to hamper wind energy construction sites. The intense protests have led to a total withdrawal of the NF and map from the government and signalling a slowdown of land-based wind energy construction in the wind power white paper [47]. While the formation of the NF for wind power development may be seen as a classical example of an attempt to territorialize an assemblage [24], the resulting resistance led to a destabilization of political goals, putting the policy in motion yet again. The emerging protest movements and the mobilization of a range of established NGOs claimed their political voice [5] and recognition across local and national identities [4] to repoliticize Norwegian energy goals. This “repoliticization” [5,25], as a form of destabilization, is inherently part of the emerging formation of new wind power policy assemblages in Norway.

5.2. Systems of governance, regulation and management

The perceptions of the system of governance of wind power development are influenced by three main expressive forces. First, developers, interest organizations and climate NGOs have argued for *more efficient and predictable guidelines and procedures*. These arguments have become strengthened by several reports and studies [57,58] and international climate and renewable energy obligations [60], which have introduced a *sense of urgency* for increased and more efficient wind power licencing as a second expressive force.

“The EU also has a policy that states that “we need to increase renewable energy; we don’t have time to wait”, and if Norway were to answer to all these directives, then it would have consequences for Norwegian licencing policies; they had to become more efficient.” (Informant, MoPE)

A third expressive force was put into motion by regional and local governments questioning the assessment and influence of regional and local concerns and the fairness of the wind power development regime [21,56]. Matters of *transparency, validity and legitimacy* and, as such, claims of procedural justice [9,14], became activated in hearings and public (media) debates. This force was strengthened by accusations of tight ties between developers and energy authorities in the licencing procedures. Furthermore, environmental authorities, NGOs and citizens questioned the quality of knowledge in licencing assessments and raised arguments of the involvement of other national authorities in the licencing process. These emerging questions of procedural quality raised by a multitude of actors point to a need for more justice-aware [17] wind power policy.

An important material force related to the perceptions of urgency and efficiency became *licencing practices and political instructions* [54,61], promoting the granting of more project licences than was considered

feasible to ensure the reach of national and international production goals.

“Well, they had a policy, if you can call it that, that they should grant many licences so that there would be as many as the parliament wanted. That is, they granted licences, many licences, because they assumed that many would never be developed.” (Informant, DNT)

The quest and arguments for system governance efficiency and predictability created a catalyst material force through a *decoupling of the energy licencing* process from the Planning and Building Act to avoid “two parallel” processes [see also 55, 57]. This force structured and stabilized wind power licencing and practical policy making as an exclusive national authority domain, governed by the NVE and MoPE, with discretionary decision making, including assessments of environmental and societal concerns [61]. This limited the formal role of regional and local governments to that of “hearing actors” [21,56].

A third material force was the *national framework* for wind power development [61,63]. The idea of the NF was set in motion by divergent rationalities: environmental NGOs and authorities considered it a means for improving assessments and protecting important nature and landscape areas, climate NGOs and developers considered it an instrument to ensure access and predictability to the best areas of development, and national energy authorities argued for an instrument to manage both increases and decreases in wind power deployment [61] and avoid unnecessary conflict. The NF and the map structured and territorialized wind power development as a national authority management regime.

“The idea of the national framework was exactly to suggest that it should not be built everywhere, but that we want wind power... We want wind power because it enables industrial growth. We want wind power because it reduces emissions nationally and in the EU and because wind power therefore has many valuable qualities for society. We believe that if local communities see things in a more national context, then this will contribute to calming down some processes.” (Informant, NORWEA)

Until the recent massive wind power constructions and the launch of the NF, countering arguments, only to a limited degree, destabilized the national authority regime. The NF became a catalyst that spurred an increase in expressive and materialized forces of resistance. The map was “frontally attacked” (NVE) by a range of heterogeneous policy actors from the local to the national level. National authorities, developers and NGOs describe how the map, which attempted to stabilize national wind power policies and deescalate local conflicts, became an expressive force, a *symbol of state control and local disempowerment*.

“Citizens don’t like maps that are drawn without any attempt by the authorities to talk to them. They read it in the worst sense ‘there will be wind power here, whether you like it or not’. Then, the MoPE and NORWEA argue that citizens don’t understand what this is all about, but the citizens do understand; they are upset.” (Informant, LNVK)

As a result of the contestation of the NF, materialized resistance arose in the shape of *public protest actions* tampering and vandalizing construction sites and as the organization of new local/national protest movements. This resistance became fuelled and supported by research reports [56] and the public media debate [20,21]. A second material force of resistance arose as several municipalities made symbolic yet principal *political “no-to-wind-power” decisions*. Informants from national authorities and wind power interest organizations point to the materializing professionalization of local protests as a major force for future wind energy development and an influencing factor of national politicians’ positions towards wind energy.

“It was actually very quiet until some of these other projects started to explode in the media. Frustration is fuelled, people start talking, and then, the resistance movement starts mobilizing very swiftly and whips up a mood. The protesters have become professionalized, so to speak, in enacting resistance.” (Informant, Developer)

These forces contributed to delegitimizing, destabilizing and politicizing [5] systems of governance and, as such, emphasizing the lack of procedural justice [9,16] in current policy formation.

5.3. Economy, value creation and distribution

The liberalization of the energy market in 1991 directed energy policies towards a market oriented approach [62] and turned *faith in the wind energy market* into an important expressive force in the evolution of wind power policy. Several energy policy documents have emphasized energy production as a form of value creation and a business opportunity [61,62] that can fulfil international climate obligations [47,59,60]. Another expressive force furthered by developers points to wind power energy as an *immature technology*. This idea was strengthened by the actions of national and regional energy developers that pulled out of wind power.

These expressive forces reciprocated with two main economic materialized forces. First, a *state subsidy scheme* (green certificates) was set up in 2011 to secure investments in Norway [61]. Second, the materialization of *new business models* was put into motion by wind power developers, together with foreign hedge funds. Driven by the low returns in international capital markets, state subsidies, the potential of investing in green energy as a commodity and binding long-term agreements among developers, investors and buyers structured strong alliances for wind power development. Foreign economic capital, together with new business models, formed catalysts that fuelled wind power development rates in Norway and stabilized the idea of state subsidies.

“Technological development is definitely important, but it is also related to the fact that there are other actors that finance the development. So, now, all wind power projects that are built are partly financed by foreign capital with low required rates of return.” (Informant, Developer)

The increased construction and industrialization of wind power has contributed to strengthening the related market-based understanding. As such, wind energy has become an economic sector and a force of development in its own right. Developers and interest organizations have argued (e.g., at national seminars) that the sector requires more licences to survive and cannot be exposed to taxation, which will reduce the motivation for (foreign) investment in Norway.

“Now, we need to keep the industry alive, right, like it was discussed at the wind power seminar. To be short on licences has become a problem in and of itself. They must have more [licences] so that the industry can survive. Suddenly, the wind power industry – also in Norway – has become so extensive that it has got its own leverage in that discussion.” (Informant, NEA)

A different set of expressive forces has been related to *faith in the potential for local and regional development*. Local and regional actors have argued that wind energy development has certain potential ripple effects that benefit the local economy [56,61]. However, this argument has increasingly been contested by the demands of the local government and citizens for the *improved distribution of economic returns* to compensate the local community for the loss of nature and the use of natural resources [56,62]. These emerging claims of distributional justice [9,17] have gained strength and materialized as new agreements between local government associations and wind energy interest organizations to develop better tax regimes.

Until now, little has been done to structurally support the local and regional economic aspects of wind energy [21]. Although several green papers have recommended an improved distribution of economic benefits to those burdened by wind power construction [62,65], the government argues that the industry is too immature to introduce a stricter tax regime and that long-term market predictability is still essential [47].

“So, it is the market actors that build and operate. The policy is to have such a market. The policy is that we want a profitable development of the renewable energy sector.” (Informant, MoPE)

Different socioeconomic conditions can alter the current contestations [20] but have so far not been taken into account in wind power policies. Aspects of distributional justice have thus been excluded in these policies over time. The market-based wind power regime has

maintained a stable and dominant position in the policy assemblage and has only been challenged to a limited degree.

5.4. Technology and resources

Norwegian wind resources, connections to the energy grid infrastructure (including cables to Europe) and potential synergies with flexible hydropower production have played a major role as expressive forces in Norwegian wind energy policy and have generated a major and compelling argument for a *unique technology-resource opportunity* to explore wind power in Norway. This argument has also furthered the political decision to support immature technology, as described above [61]. The low potential for developing new hydropower energy and the immature offshore wind energy sector has naturalized onshore wind power as the most important new renewable energy resource.

A second important expressive force is the long cultural understanding of *energy production as a form of industrial development* [21,24]. Hydropower, oil and gas are strongly connotated with large-scale industrial production as a part of the Norwegian narrative of national industrial development. Wind energy is largely related to this narrative and is often argued for in the context of the large-scale industrial development of national importance [47,61,62]. Such development naturally requires space, which leads us to the third expressive force: *the extensive land area of Norway* has been employed as an argument for the development of land-based wind energy since it will only affect a relatively small percentage of the land area. The will to sacrifice some areas of “untouched” nature has therefore been a major force in this discussion.

“We need one and a half per mille of the country to do this. That is nothing”. (Informant, NORWEA)

The development of wind power at large industrial sites in Norway has played an important material role in the policy formation of the building of *large-scale, land-based wind power plants*, inspired by previous energy-industry models of hydropower.

“Norwegian energy development has always been aligned with industry. In the case of hydropower, there were large projects, powerful developers, and massive investments. That is how we are used to developing energy.” (Informant, NEA)

These lines of understanding are supported by the material forces of existing and planned large-scale energy-demanding industries that according to wind power interest organizations and developers, are emerging as the “best allies” (NORWEA) of wind power development. The expressive and material forces related to *emerging green-tech industries* producing batteries, hydrogen or server parks, as well as the traditional process industry, are creating connections with wind power developers. Through long-term agreements, they secure stable energy sources and prices and obtain “green certificates” for their energy consumption in line with Norwegian policy goals [59,61,62]. These assemblages of wind power as fuelling Norwegian industries are also strengthened by the material force of *the technological leap in wind power turbine size*. New turbines provide increased steadiness and production capacity and have furthered the establishment of wind power as the most cost-beneficial type of energy in which to invest [47]. These tech-economic assemblages, fabricated through broad expressive arguments of future industry and workplaces and efficient energy production [57,58,62], contribute to the stabilization of policy lines to further wind power development.

Technology development, the understanding of land area use, and industry also spur expressive forces that destabilize the policy assemblage. The increasing turbine height and blade range have *massive visual and landscape effects*. Many wind power sites are located in mountainous areas, requiring large explosions and the restructuring of mountain landscapes to build roads and bases that can handle the size of the turbines [47]. Pictures of construction sites are being increasingly used by national protest movements and are distributed to local protest movements. Wind turbine technology is symbolized as an alien infrastructure

intrusion, producing noise and flickering that affects the public. As such, wind power protests have become an expressive force, suggesting that wind power hinders alternative economic and recreational uses of land [20]. These forces raise concerns about environmental justice from a dominant sociotechnical policy approach [11].

5.5. Climate, nature and cultural identity

One of the main expressive forces for the evolution of the Norwegian wind energy policy has been the argument for *climate mitigation and the (global) need for renewable energy* [59–62]. Developers have positioned wind power as an answer to urgent climate measures and global responsibility and have portrayed it as a green line of (local) energy development [57]. This argument has been symbolically materialized. For example, a wind energy developer installed the world's largest digital timer in southern Norway, counting down to 2030⁸ and the Norwegian Paris agreement goal of a 40% reduction in climate gas emissions. Arguments of climate urgency have strengthened and stabilized the position of wind power in Norwegian policies.

Expressive contesting forces have emerged as wind energy expansion clashes with existing natural policies and management regimes, rural policies and the distinctively Norwegian public right to roam and access the wilderness and outlying fields of nature “Allemannsretten” [20,21]. These forces have historic material connotations given the strong Norwegian environmental authority regime concerned with nature protection, species management, biodiversity and, lately, ecosystem services [67]. Furthermore, strong traditional rural policies have targeted and supported dispersed population structure and business development [68].

“I think that the most typical Norwegian characteristic is the outdoor life aspect. The population is so spread out that nearly every nook and cranny lie close to someone's heart.” (Informant, NEA)

Arguments and practices of wind power thus intrude into a complex field of diverging interests, values and identities at both the local and national levels related to an alternative use and appreciation of the landscape and nature. As such, nature relations serve to develop bonds between different levels of place attachment and identity [4]. As part of the Norwegian national identity and embedded in Norwegian cultural citizenship, there is a complex intertwining of expressive forces concerning *the perception of individual rights and imagined landscape values*, with the material forces of the same *landscape and nature*.

This complex relationship is further materialized through *the use of research publications* on land use change as a driver of climate change. Environmental NGOs question the actual climate effect of wind power production related to construction emissions, land use changes (especially peatlands), and ecosystem functions based on research data found in international reports. These aspects of the relations among nature, landscape and cultural identity have grown and leveraged increasingly strong opposition to the climate arguments of wind power. These issues point to the need for “humanizing sociotechnical transition” policies [11,19] and for addressing broader issues of environmental justice in Norwegian wind power policies.

6. Discussing what, who and how: The constructing forces of Norwegian wind power policies

Norwegian wind power policies came to a temporary rest with the release of a recent white paper [47] after an intense political debate, where conflict lines were drawn in surprisingly new ways, influencing policy construction. Our analysis illustrates what, who and how wind power policies come into being as dynamic and changeable assemblages [11,24]. These complex constructions of elements are formed cross-

scalarly and multidirectionally [23] and across past, present and futures imaginations [36]. Goals and ideals are thus interlinked by a variety of actors through different institutions and practices [37]. We identified these as expressive and material forces [40], which contribute to the territorialization and/or deterritorialization [41] of wind power policies.

We find that the main stabilizing forces have been driven by industrial developers and climate change lobbyists, as well as energy authorities. They have argued in terms of global renewable energy needs from a climate perspective, leading to wind energy becoming the most feasible form of energy production in Norway. This is positioned as an urgent global responsibility given the good wind resources and grid connections.

In addition, increased wind power development has been framed as a form of new industrial growth and linked to an image and identity as a (renewable) energy nation by both developers and national energy authorities. This connects with historic lines of understanding of hydropower and petroleum development [22,48] and the historical and present interconnections between energy production and industrial development (and the modern welfare state). This position advocates for a new “energy adventure” related to export, business development and broader value creation (and connects to national discussions of “what should we live on beyond the oil age”) [61,62]. These expressive forces are connected to the ideals of Norway as a green and environmental nation. In this green-tech assemblage, wind power complements hydropower, developing a “green battery”, producing carbon-neutral energy for industries and consumers, and contributing to (global) low emission transitions [59,60]. These expressive forces materialized through green subsidy schemes, increased licencing efficiency and (attempts at) stronger national steering through the NF. This illustrates that technology and economic interconnections with climate urgency produce strong stabilizing forces in energy policy formation but do not remain unchangeable [24].

The main destabilizing forces we found were set in motion by a mixture of environmentalist organizations and protest movements, coupled with the interests of the recreation and tourism industry, as well as local and regional municipal government actors. Their main expressive forces have concerned nature and landscape, with nature as a common good. These are interwoven with the framings of the great nature of Norway, identities of historic nature stewardship, hunting/angling traditions [67], and more modern perceptions of nature as a source of public health, contemplation, and recreation. Furthermore, the notions of Norway's growing nature-based tourism market have positioned wind power as an intruder hampering local economic potential [20]. This shows how emerging relations across horizontal and vertical levels of place attachment and identities [4] produce a strong force of resistance, both destabilizing and (re)politicizing [5,25] wind energy.

A different line of arguments destabilizing wind power naturalization is related to the national identity of Norway as a “hydropower nation”. Hydropower is portrayed as “natural” given the Norwegian landscape of deep valleys, and the regulative system has created large benefits at the local and national levels [48]. Public ownership structures—and hydropower as a common resource—have been put into play by protest movements to contest and deterritorialize the dominating foreign ownership models of wind energy. This illustrates that matters of distributional justice [9] across past experience, present situations and future imaginaries can destabilize policy formation.

Finally, arguments of national identity related to local independence and resource sovereignty have contributed to destabilizing policy goals of market and industry development. Wind power and an undersea cable across the North Sea to the European continent have been portrayed by local and national business actors, citizens, landowners and local governments as contributing to a type of new colonialism. Foreign hedge funds have been accused of damaging and harvesting Norwegian resources to fuel Europe with green energy and capital without any local or national benefits, resulting in higher energy prices and undermining

⁸ <https://www.vindenergi.no/news/norsk-vind-setter-opp-norges-storste-klimaklokke>

the green competitive advantage for industrial development in Norway.

Although the positive imaginaries of wind energy have dominated public policy, they are becoming increasingly contested [20,21]. The expressive and material forces of deterritorialization raise questions of energy justice yet unattended to in Norwegian wind power assemblages. These factors are not only linked to the local level but also pertinent to the broader sociopolitical conditions of energy policies [20].

7. Conclusions: Emerging issues of energy justice and future concerns of wind power policies

Norwegian wind power policies are at a crossroads. Arguments on energy security, climate mitigation, market conditions and efficiency are challenged by broad public contestations concerning environmental and nature values, local participation and transparency, and the distribution of burdens and goods. Attempts to stabilize wind power goals and systems of governance through the NF and maps have fuelled contestations and radically destabilized the policy path.

Our analysis shows that wind power policies have primarily been influenced by energy authorities, developers and interest organizations, furthering arguments on climate concerns, energy security and economic opportunity. The wind power regime has been surprisingly unchallenged from the perspectives of hydropower and oil energy policy regimes, where both public ownership and local and national taxation are required [48,50]. In a profitable energy market with no political targets or boundaries for wind energy development, the only limitations are set by the licencing regime. Emerging voices of local governments, environmental organizations and concerned citizens have claimed new political engagement related to valuations of (local) environmental, distributional and procedural justice and the recognition of alternative future energy imaginaries. These concerns indicate a need to reconsider the green-tech and market-centred line of policy that has, until now, dominated national wind power policy rationales. Further, claims of procedural justice depict that aspects of energy democracy have been under addressed in existing Norwegian wind power policies. The upsurge in conflict and public debate challenges national politicians to take a more active role in wind power policy making and repoliticize [5,25] energy policies to also consider the key tenets of energy justice [9,16,19]. This entails the reconsideration of wind power as an *energy* policy and critically judging what, for whom and how wind power should contribute to local, national, and global energy transitions.

Wind power policies are thus moving beyond discussions of pure technical maturity and regulative measures, climate mitigation and market predictability towards what we consider discussions of energy justice [9,17,19]. As such, the emergence of the assemblage of wind power policy will be a question of how the involved actors have and are exercising their power to territorialize a stable and hegemonic knowledge regime in the debate [11,23] concerning four main topics of justice. 1. Aspects of the justice of the recognition [9] of purposes, goals, needs and alternatives for wind power at the local, national and international scales. This requires more transparent and explicit recognition of how policies affect actors, themes and scale [20] and what issues are ignored or disrespected in the political goals and system of governance [9,19,26]. 2. Aspects of cosmopolitan justice concerning how local and global values and the rights of humans and the environment are balanced against climate change mitigation and economic growth [16]. This entails the broadening of the wind power policy agenda to consider aspects beyond the sociotechnical energy system [13] and consider effects on sociocultural identities [4] and nature consequences. 3. Questions about distributional justice scrutinizing who gains and who loses and reconsidering the institutional and structural premises of wind power production [14,17]. These issues pertain to questions of ownership, taxation and compensation, which are emerging as counterforces in Norwegian public debate. 4. Considerations of how wind power development can be planned in line with principles for procedural and processual justice and democratic participation [9,14]. This entails

claims of transparency, legitimate knowledge and spaces for participation [17]. Aspects of distributional and procedural justice in Norway have been discussed as municipal experiences of fairness [21] and formal and informal practices in the licencing process [54], as well as related to scale and socioeconomic conditions [20]. We argue that there is a need for the further exploration of the interrelations among the key tenets of energy justice [9,14,19] in Norwegian wind power policies, not least from a historic perspective of Norwegian energy policies.

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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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