

Social acceptance as a prerequisite for the green transition



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Preface

This report has been commissioned by the Nordic Working Group on Environment and Economics (NME). The report has been prepared by a consortium including CONCITO, CICERO and Tyrsky Consulting. The study takes as a starting point the social acceptance as a prerequisite to implement policies needed for the green transition. A special focus is put on social acceptance in relation to wind power development and fuel taxes.

The report concludes that social acceptance issues need to be addressed wisely if the Nordic region wants to remain a green frontrunner. In addition, considerations about social acceptance shape local and national policies and decisions with regard to the policies studied in the report. The study shows that there are significant differences between the Nordic countries. This is the case both in terms of how opposition to wind power and increased fuel taxes manifest itself, and how it is handled politically. Social acceptance for a given policy is e.g. partly determined by an individual's political alignment and one's preferred party's stance on the policy. Furthermore, social acceptance issues also overlap with other, pre-existing, divides in each country – e.g. between rural and urban, or between the state and indigenous peoples.

Members of the Nordic Working Group for Environment and Economy have provided comments and inputs to the report during the work. The authors of the report are responsible for the content as well as the assessments and recommendations, which do not necessarily reflect the views and the positions of the governments in the Nordic countries.

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Chair of the Nordic Working Group for Environment and Economics

Executive summary

All policies depend, to some extent, on social acceptance. However, acceptance is especially critical with regards to climate policy in light of the urgency and need to rapidly accelerate climate action.

The deep decarbonization necessary across Nordic societies demands deep, wide-ranging changes. This can imply relatively large changes in the way that Nordic citizens go about their lives, ranging from how we move to how we heat our homes and what we eat. Such broad societal shifts require a high level of public support to be successful.

This report focuses on social acceptance in relation to two cases: 1) Wind power development, and 2) Fuel taxes. We believe, however, that many of the insights from this report also apply to other green transition initiatives. Similarly, even though our focus has been on Denmark, Finland, and Norway, the insights and recommendations also apply to the other Nordic countries.

The report is the culmination of the project "*Social acceptance as a prerequisite for the green transition*", carried out by the following organizations: CONCITO (Denmark), CICERO (Norway) & Tyrsky Consulting (Finland). The work was commissioned by The Nordic Council of Ministers.

Social acceptance, status and challenges across the Nordic countries – wind power

Renewable energy technologies such as wind energy play an important role in providing sustainable alternatives to fossil fuels and achieving climate neutrality. Across the Nordic region, wind power has been an important component in renewable energy strategies over the past two decades, illustrated by significant expansions of wind energy capacities.

Social acceptance of wind power varies across Nordic countries and depends in part on the national context – e.g. prior experience with wind power development. In Denmark, there is a general positive attitude towards wind energy, but lack of community acceptance has slowed down the expansion. In Finland, public support for wind power has generally remained strong for the past few decades, but again, local acceptance towards specific projects is found to be significantly lower. And in Norway, there seems to be a more negative attitude towards wind than in the other Nordic countries, which resulted in a government moratorium on onshore wind from 2019–2022.

Across the Nordic countries, the challenges with regards to social acceptance for wind energy projects can be divided into three main categories:

1. **Balancing benefits and negative impacts of wind energy projects.** Impacts, how they are perceived, and how they are balanced with benefits play a crucial role in explaining local acceptance of wind power projects. Common concerns include distributional impacts, and environmental consequences, including concerns about landscape and nature preservation.

2. **Sámi culture and reindeer herding.** Northern parts of Finland, Norway and Sweden are attractive to wind power due to its sparse population and favorable wind conditions. However, it is also where Sápmi and reindeer herding areas are located, which creates challenges for balancing indigenous cultures, local livelihood, and wind power investments.
3. **Community involvement and process transparency.** Finally, a key factor that influences the degree of local opposition and community acceptance is how just and transparent the planning process is perceived to be by the local community, and how the procedures and their fairness are perceived.

Social acceptance, status and challenges across the Nordic countries – fuel taxes

Transportation emissions, especially those emitted from road transport, account for a substantial share of the Nordic countries' territorial emissions. One of the most cost-effective tools to reduce emissions is the taxation of CO₂-emissions from fuel. Fuel taxes are, however, also unpopular.

They impose direct and, therefore, very salient costs on consumers, of whom many are skeptical of the environmental benefits of fuel taxation, as well as concerned with their distributional impacts. As such, ensuring public support for initiatives targeting these emissions is an essential part of the path towards climate neutrality in the Nordic region.

Public support for fuel taxes is comparatively high across the Nordic countries but with important differences among them. In Denmark, a recent general survey shows a relatively high support for fuel taxes. However, there is a lack of specific knowledge about citizens' attitudes towards fuel taxes. The public perception seems to be that private cars are overtaxed. In Finland, attitudes towards fuel taxation appear to be divided, with attitudes towards fuel and energy taxes varying significantly across different political groups, and the price of fuel has been debated a lot in politics during the recent years. In Norway, the general level of support for fuel (carbon) taxes is relatively high (though somewhat lower than in at least some of the other Nordic countries). Interestingly, Norwegian survey results seem to indicate a slight trend of polarization, with both strong support and strong opposition increasing somewhat over the years.

Fairness and perceived effectiveness are key determinants of public support for fuel taxes. The use of the tax revenues also has a strong impact on the level of support. These two main challenges are also highlighted across the Nordic countries:

1. **Distributive fairness and rural-urban divide.** Concerns for citizens living in car-dependent rural areas is an issue raised particularly frequently across the Nordic countries. In urban areas, alternative transportation options, as well as shorter distances and better access to EV charging make it easier to switch away from fossil fuel vehicles, whereas it is generally more challenging in rural areas.
2. **Perceived effectiveness of taxation.** The effectiveness of a tax should be seen in relation to its stated goal, in this case to lower emissions from road transport through reduced fuel use. There is a perception of fuel taxes being ineffective in driving change across the Nordics.

Lessons learned and ways forward

Social acceptance issues need to be addressed wisely, if the Nordic region wants to remain a green frontrunner. As the findings in this project show, considerations about social acceptance shape local and national policies and decisions with regards to wind power development and fuel taxes.

Based on insights from the literature and the virtual workshops, the main cross-Nordic lessons learned are:

- **The need for holistic perspectives, planning and shared visions.** Green energy initiatives, such as wind and solar power, inevitably require land and compete with other land uses. These competing needs, and the diverse set of stakeholders associated with them, often result in a lack of social acceptance towards green transition initiatives *in general*. The same logic applies to fuel taxation. As such, we see a need for clear communication, shared Nordic visions, and providing decision makers with examples of successful policy mixes.
- **The importance of navigating and addressing existing divides in society.** Green transition initiatives risk tapping into existing grievances and inequalities and are received accordingly by the affected citizens. We suggest more research on, and experimentation with, compensation mechanisms, sharing and scaling with benefit-sharing practices, ensuring local anchorage of green transition initiatives, increasing knowledge about and attractiveness of sustainable alternatives, and identifying successful Nordic and international examples of earmarking.
- **Ensuring involvement and democracy.** Especially relevant for wind power and similar local green transition initiatives, everything points to involvement as a key to ensuring social acceptance (in particular early community engagement). Going forward, the focus needs to be on early engagement and transparent communication, experimenting with different forms of engagement, and improving competencies for citizen involvement.

Across all three, we also refer to the recently published [Nordic Toolbox for a Just Green Transition](#) and the recommendations therein ("Checklist for policymakers").

Finally, we see an excellent opportunity to use the social climate plans introduced in ETS2 as a lever for change.

1. Introduction

The Nordic region aims to become the most sustainable region in the world in 2030, but as shown in the report [Nordic Stocktake – Pathways to Climate Neutrality](#) (Lind et al. 2023) prepared for COP28, the Nordics all need to accelerate their green transitions to reach (territorial) climate neutrality and inspire global action.

This need for rapid decarbonization and deep transformation across all sectors challenges societies and citizens and their ability to change. Acceleration of the transformation necessitates more rapid deployment of renewable energy and new or stricter policy instruments, yet these changes are already being widely challenged in the Nordics. Due to local and national protests against wind power development and fuel taxation in particular, the concept of social acceptance has gained focus lately, both internationally and in the Nordics.

Opposition to the green transition played a large role in the lead-up to elections in many European countries as well as the European elections in 2024. With farmers protesting in the streets in major European cities, many countries and European politicians dampened their support for green transition initiatives.

The Nordic Council of Ministers commissioned the organizations CONCITO (Denmark), CICERO (Norway) & Tyrsky Consulting (Finland) to carry out the project "*Social acceptance as a prerequisite for the green transition*" to gain a deeper understanding of social acceptance issues across the Nordic countries.

The project has explored the role of social acceptance when establishing wind energy projects and increasing fuel prices in the Nordic countries, with specific focus on identifying effective strategies and policy initiatives that address, mitigate and/or increase social acceptance. Across the region, lack of acceptance has been a major reason that renewable energy projects have been stopped or delayed, and why many politicians are reluctant to use fuel taxation as a tool to reduce emissions.

1.1 Reader's guide

This report looks at two green transition cases that are particularly relevant in relation to issues of social acceptance: wind power and fuel taxes. The wind power case illustrates issues with social acceptance primarily at the local level, while the fuel tax case illustrates issues with social acceptance primarily at the national level.

The main parts of the report focus on experiences from Denmark, Norway, and Finland (with references to, and examples from, the other Nordic countries where applicable and relevant). First, we introduce and explain the concept of "social acceptance", giving an overview of main factors behind social acceptance and summarizing the status of social acceptance across the Nordic region with emphasis on wind power and fuel tax ([Chapter 2](#)). We then present the wind power case and the status, challenges, and policy experiences with social acceptance across the Nordic region ([Chapter 3](#)). Similarly, [Chapter 4](#) contains the status, challenges, and policy experiences with social acceptance for fuel taxation across the Nordic region. Finally, we conclude and summarize the main lessons learned in [Chapter 5](#). These should be shared across the Nordic countries to properly address (the lack of) social acceptance of green transition initiatives such as

wind power and fuel price increases.

1.2 Approach

This report is primarily based on existing literature on social acceptance, focusing on studies concerning wind power and (fuel) taxes. The findings from the literature are complemented with insights from expert interviews and two online workshops with topic experts from Finland, Denmark, Norway, Iceland, and Sweden. The main purpose of the workshops was to gain a broader perspective and validate the project findings with insights and perspectives from across the Nordic region.

The wind power workshop included participants from the Reindeer Herders' Association Finland, University of Eastern Finland, the Swedish Wind Energy Association, KTH Royal Institute of Technology Sweden, the Swedish Trade Union Confederation, European Energy, Democracy X, the Danish Energy Agency, the Danish Climate Council, CICERO, and Tyrsky Consulting.

In relation to the wind power workshop, it is worth noting how the process itself validates some of the findings related to stakeholder involvement (see [section 3.2.2.](#)). The invitation was sent to a wide variety of stakeholders, including academia, government, industry and non-governmental organizations representing environmental, local communities and anti-wind organizations. Even though the workshop did attract a diverse group of attendees, an anti-wind organization refused to attend, since they do not believe that the views of those opposing wind power would have been considered and they did not trust their participation would yield any useful results. This might be the case with other organizations also not participating, and thus both limiting the results of the workshop, but also validating the findings as such, and the need for improved stakeholder participation processes.

The fuel tax workshop included participants from Luleå University of Technology, Umeå University, University of Gothenburg, Lund University, the Swedish Trade Union Confederation, Finnish Ministry of Transport and Communications, the Danish Climate Council, Danish Economic Council of the Labor Movement, the Federation of Danish Motorists (FDM), the Icelandic Ministry of Finance and Economic Affairs, CONCITO, CICERO, and Tyrsky Consulting.

We thank the workshop participants for their time and insights. We do note, however, that the participants and their organizations have had no further part in the project, e.g. in writing this report. Opinions expressed herein, findings, etc., are the sole responsibility of the authors.

Furthermore, the project builds on other work on social acceptance and just transition funded by the Nordic Council of Ministers, notably the "Not Just a Green Transition" project (NJUST) that has been focusing on how to best support populations vulnerable to, and impacted by, climate change and climate change mitigation policies. The project launched its Nordic Toolbox for a Just Green Transition on November 5th 2024.^[1] A range of the elements and recommendations in the toolbox apply to, and are relevant for, this project as well. These are mentioned and linked to in [Chapter 5](#).

1. <https://pub.nordregio.org/r-2024-21-nordic-toolbox-for-%20a-just-green-transition/index.html>

2. Social acceptance in the Nordic countries

2.1 Social acceptance as a concept

In this section, we describe the concept of “social acceptance”, how it can be defined and measured, and what factors are known to influence the level of social acceptance.

As social acceptance has been conceptualized differently in the literatures on (local) acceptance for the deployment of renewable energy and for the (national) acceptance for environmental policy instruments, the concept is described separately for our two cases.

2.1.1 Defining “social acceptance”

Broadly speaking, social acceptance for green transition technologies may be defined as “*a favourable or positive response (including attitude, intention, behaviour and – where appropriate – use) relating to a proposed or in situ technology or socio-technical system by members of a given social unit (country or region, community or town and household, organization)*” (Upham et al. 2015, p. 103).

In the case of social acceptance of renewable energy innovations, social acceptance is described as multi-dimensional, dynamic, and produced at different scales (socio-political, market and community acceptance) (Wüstenhagen et al. 2007), see Box 1. Community acceptance is often the scale of social acceptance analyzed in relation to (local) renewable energy installations, while the scale of “socio-political acceptance” is more relevant to look at in the context of national climate policy.

Box 1: Different dimensions of social acceptance based on Wüstenhagen et al. (2007)

Socio-political acceptance: acceptance of technologies and policies by the general public, policy makers and key stakeholders. For example, acceptance of wind energy as a viable green energy solution.

Market acceptance: acceptance of an innovation by consumers, investors, and companies, and intra-firm acceptance.

Community acceptance: acceptance of a specific initiative at the local level, by local stakeholders, especially residents and local authorities. Relates to procedural and distributional justice and trust. Sometimes also called “local acceptance”.

While there is a lot of research relating to the social acceptance of wind power, the research on social acceptance for other policy instruments has not converged to the same degree on key concepts; instead, it is characterized by conceptual vagueness (Kyselá et al. 2019), making it e.g. difficult to compare empirical results. Some authors also distinguish between *acceptance* and *acceptability*. For example, in a literature review, Kyselá et al. (2019) suggest that acceptance is a distinct class of passive "*evaluative responses to policies stemming from an underlying psychological tendency*", where acceptability "*concerns an attitude before the implementation of a policy*" and acceptance "*concerns an attitude after*".

It is also important to note that the term *social acceptance* has been the subject of much criticism and debate, including questions about its policy and practical implications (Batel et al. 2013; Aitken 2010), and about the conceptual, definitional and methodological basis of research (e.g. Devine-Wright 2008; Hitzeroth & Megerle 2013; Upham et al. 2015). Batel et al. (2013) argue that social acceptance is only one of many possible reactions toward renewable energy technologies, whereby support, resistance and uncertainty are other such reactions (see also Fast 2013; Ricci et al. 2008).

Batel et al. (2013) cautions that the notion of '*acceptance*', as opposed to '*support*', normatively implies a top-down perspective on renewable energy technology implementation, where acceptance is a rather passive reaction to something which is proposed externally by authorities or companies to individuals and communities. To avoid the risk of wind energy projects being contested in the long term and undermining the sustainability of renewable energy technologies, their promotion should occur through "*a multilateral and participatory approach, through which social actors are actively engaged in that process*" (Batel et al. 2013). An extensive literature review on the social acceptance of wind energy also highlights that deliberative measures to include citizens and stakeholders in the process of developing wind energy projects are critical to community acceptance (Linnerud et al. 2018a). In addition to the environmental, economic and societal impacts of specific wind energy projects, community acceptance is influenced by factors such as distributional justice (costs and benefits), procedural justice (fair and participative decision-making process) and trust (in information and intentions of investors and actors from outside the community) (Linnerud et al. 2018a, b; Aakre et al. 2019; Leiren et al. 2020).

2.1.2 Measuring social acceptance

As noted above, research on social acceptance – beyond community acceptance of wind power – is characterized by conceptual vagueness (Kyselá et al., 2019). As such, in the literature on attitudes towards policy instruments "*the terms (acceptability, acceptance, and support) are used interchangeably and there are no specific, fitting concepts to measure them.*" (Kyselá et al., 2019). Unsurprisingly, this results in a diversity of measures to analyze policy attitudes, as the examples and data presented in the wind power and fuel tax cases later in this report demonstrate.

Kyselá et al. (2019) provide a useful overview of the main categories used in studies of public support/acceptance (See Table 1 below).

Table 1: Methods of measuring social acceptance from Kyselá et al. (2019)

Category	Question	Response categories
Support (>opposition)	A number of policy options have been proposed to deal with the problem of Global Warming and Climate Change. I am going to read a number of policy options to you. For each policy option, please indicate whether you: ...	... strongly support, support, oppose, or strongly oppose that policy
Support (>lack of support)	No study provided question-wording	binary: yes/no
Probability or likelihood to support	No study provided question-wording	very unlikely to very likely
Acceptability	How acceptable do you find the fuel economy standards?	completely unacceptable to completely acceptable
Agreement with policy	To what extent do you agree with the policy of putting a price on carbon?	1 (strongly disagree) to 5 (strongly agree)
Agreement with statement	How much do you agree with each of the following statements about how to address global climate change? I would be willing to pay higher taxes to reduce global warming	1 (strongly disagree) to 7 (strongly agree)
In favor (>oppose, against)	Next, I am going to read some specific proposals. For each one, please say whether you generally favor or oppose it. Question-wording not provided	binary: in favor / oppose -3 (completely against) through 0 (neither against nor for) to 3 (completely for)
Attitude toward policy proposal	If you consider the proposal as a whole, what is your attitude towards this proposal?	1 (very negative) to 7 (very positive)
Referendum*	Here are some other steps we might take to decrease the amount of CO ₂ released to the atmosphere. For each one, indicate how you would vote in a national referendum on these steps.	definitely no/probably no/probably yes/definitely yes

Notes: The categories are based on wordings of the questions and response categories as reported in the reviewed studies. They are auxiliary and may not necessarily overlap with the underlying concepts they measure. Items in several categories may be indicators of the same construct, and items within one category may tap different constructs at the same time.

*The category of referendum measures is distinguished by the framing of taking a vote, although wording similar to other categories may be used in the response (voting in favor or against).

Furthermore, respondents are faced with different types of policies in the studies: A single well-defined policy (e.g. a proposal to increase an existing fuel tax by a specified amount), more general policy descriptions (increased taxation of fossil fuels), or composite indices for multiple policies. This again makes comparisons between studies difficult.

Since the factors explaining the level of social acceptance of wind power are well known (see section below), methods and measurements are more consolidated. For example, conducting choice experiments is one of the established quantitative methods of measuring social acceptance for renewable energy projects (Vuichard et al. 2022). In a choice experiment, the surveyed population is presented with a range of alternative wind energy projects exhibiting different characteristics that are identified as important factors in the literature. This allows the researcher to identify the importance of specific factors for the level of social acceptance.

2.1.3 Factors explaining the level of social acceptance of wind power

There is extensive literature on barriers and drivers of social acceptance of wind power, focusing on the possibilities and difficulties of implementing wind power plants (for a review, see Leiren et al. 2020). The wind power literature highlights, in particular, three factors: process, economic effects and impacts on nature and landscape. These are covered in more detail below.

First, the **involvement of stakeholders, and how they are involved in the process** of wind energy development, is important for social acceptance of wind energy (Linnerud et al. 2018b). Questions include: To what extent and how institutions, regulations, organization of development processes and communication contribute to including relevant stakeholders in the process? Relevant policy and corporate measures can increase transparency and inclusiveness, as well as local benefit sharing schemes, which also explains why there is an increasing interest in community energy (Standal et al. 2023). Moreover, while the social acceptance literature tends to focus on drivers and barriers of support, there is also evidence that drivers of acceptance might have unintended consequences for community cohesion and democratic engagement (Figari et al. 2024). If resistance turns to silence and lack of engagement, it might be worrisome for democracy. It highlights the importance of viewing outcomes of wind power projects in relation to inclusion in processes.

Second, researchers show that support is associated with **the belief that development of wind energy will have positive economic consequences** for the host community (Bidwell 2013). Such benefits are a key factor for promoting positive attitudes towards wind power (Toke et al. 2008). They include, for example, income from taxation, ownership, new infrastructure like roads or communication infrastructure, income from hosting workers during the building phase and other ripple effects. Similar conclusions have been found in research addressing the Nordic countries (Figari et al. 2024; Rygg 2012). For social acceptance, it is also important that the distribution of profits and burdens related to the wind power project are perceived as fair – if not, the result might as well be opposition (Rand and Hoen 2017).

A third important factor in determining social acceptance for wind power is its **impact on climate, nature and landscape**. While the potential of wind energy to reduce greenhouse gas emissions is an important argument for proponents of this technology (Anshelm 2016; Petrova 2013), it does not sufficiently explain support for deployment (Rand and Hoen 2017). Impacts on wildlife and nature conservation contribute to explaining community acceptance of wind energy (Rygg 2012; Slattery et al. 2012), primarily opposition to wind power. However, researchers also find that there is an 'environmentification of arguments' (Larsen et al. 2015), as people sometimes mask their actual motives for opposing a wind power project by nature/species protection rationales (Krug and Ohlhorst 2020).

There is also an increasing amount of literature addressing how residents' acceptance of wind power changes over time. Studies suggest that people tend to be more positive towards wind power once a project has been built and they have gathered experiences with it (Wilson and Dyke 2016). Other studies are inconclusive as to whether living with wind power reduces or bolsters positive attitudes over time (Zerrahn 2017), as it depends on several factors, such as the number of turbines encountered daily (Jones et al. 2011; Ladenburg et al. 2013), and studies increasingly challenge the common assumption that experience with wind power means more positive attitudes in public perception (le Maitre 2024; Mills et al. 2019; Windemer 2023).

2.1.4 Factors explaining the level of social acceptance of fuel taxes

The literature on social acceptance of fuel prices or fuel taxes is less extensive than that of wind power, but it is growing rapidly. Literature reviews and meta-analyses, such as Bergquist et al. (2023) and Valencia et al. (2024), have identified a number of factors that consistently influence the level of public support for *environmental* taxes in general. These studies emphasize that fairness and perceived effectiveness are key determinants of public support for fuel taxes, as well as the use of the tax revenues. Below we explore in greater depth how each of these factors influence the level of social acceptance of (fuel) taxes.

Fairness frequently emerges as the most crucial concern for the introduction (or increase) of fuel tax policies (Bergquist et al. 2023). Kallbekken and Sælen (2011) highlight the following two issues relating to fairness: the perceived distributional fairness and the coerciveness of the instrument. However, among these, distributional fairness is most often the key concern. Distributional fairness relates to how the distribution of the costs and benefits of the tax (from avoided environmental damage and reduced congestion and noise to tax incidence and adaptation costs) are distributed across the population across dimensions such as income and geography. One aspect of this is that fuel taxes impact people living in rural areas where public transportation is not available, resulting in people being more dependent on car ownership (disproportionately more than urban residents). This issue was emphasized as a primary driver of lack of social acceptance in the online workshop on fuel taxes (held as part of the project). Furthermore, a fuel tax affects different income groups differently, as the share of fuel costs in their budgets differ, and the concern for the impact on low-income households can drive opposition to new or increased taxes.

The concern over coercion can contribute to opposition to fuel taxes if citizens feel the increased price reduces their mobility options, in particular if there are no good environmentally friendly alternatives, such as accessible public transportation.

The second key factor is the **perceived effectiveness** of tax. The public is less likely to support a tax if they do not perceive it as effective, for example, in terms of reducing fuel use and thereby reducing emissions. While the perceived effectiveness of a tax is often a very strong predictor of the level of support, it may differ from the actual effectiveness. Different initiatives have been proposed to handle skepticism towards the effectiveness of a tax. One way is to give information about how a specific tax is effective in reducing emissions. Another is to highlight the use of tax revenues.

Earmarking tax revenue for environmental initiatives has consistently been shown to increase the level of support, as it can both improve the perception of the environmental benefits of the tax and improve trust in the government's use of the revenues (Valencia et al. 2024). Dugstad et al. (2024) found clear evidence that earmarking revenues for climate (mitigation) projects would increase support, and that it would increase further "when parts of the revenues are used to reduce general income inequalities" (i.e. when it also addresses the distributional concerns).

Besides the abovementioned factors, individual specific factors also play a role in terms of the individual citizen's perception and support of a tax. Higher trust in government increases tax acceptance, particularly if there is confidence that the revenue will be used effectively and fairly; those with left-leaning ideologies tend to be more supportive of environmental taxes compared to their right-leaning counterparts. Populist attitudes and nativist attitudes (xenophobic nationalist) have been found to predict lower support. For example, the latter has been found to be among the strongest predictors of attitudes to CO₂ taxation in Norway (Sælen & Aasen 2023) as in Western European countries generally (Kulin, Johansson Sevä, & Dunlap 2021). Furthermore, support for taxes often varies by region, with urban residents generally showing more support for taxation than those in rural areas. Finally, individuals concerned about climate change are more inclined to support taxes aimed at reducing emissions.

3. Social acceptance and wind power

Renewable energy technologies such as wind energy play an important role in providing sustainable alternatives to fossil fuels and achieving climate neutrality. Across the Nordic region, wind power has been an important component in renewable energy strategies over the past two decades, illustrated by significant expansions of wind energy capacities.

The development of wind energy, as illustrated in Figure 1, varies across the region (Skjærseth et al. 2023). Denmark has been a frontrunner in wind energy development in the early 2000s, but lately, this development has leveled out, and Sweden, Norway, and Finland have seen bigger increases in their capacity in the past 10 years. Sweden, especially, has had a substantial increase in wind energy production from 2010 to 2022. Iceland has only a small amount of wind energy production, with the majority of their energy produced by hydropower and geothermal energy.

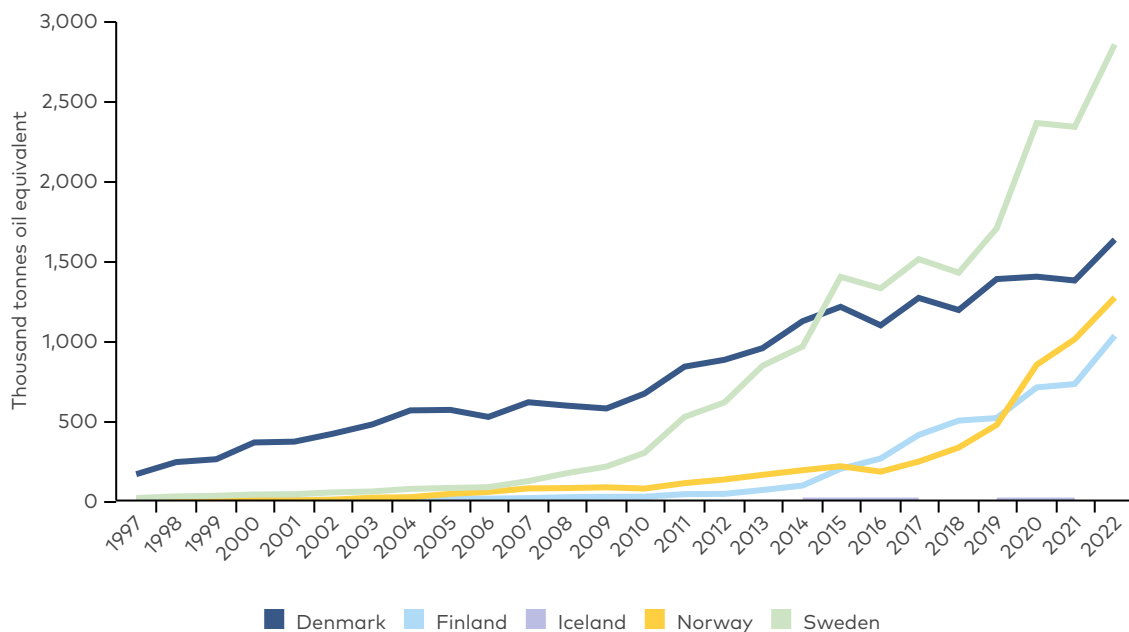


Figure 1: Primary production of wind energy across the Nordic countries (Nordic Statistics)

The difference in development of wind energy across the Nordic region is an important context to keep in mind when looking at its social acceptance in the different countries (and across different regions within countries). As described in the previous chapter ([section 2.1.3](#)), prior experience with wind power installations can influence residents' perceptions and willingness to accept further developments in their local area.

Renewable energy projects, such as wind power, evidently change the landscape and impact their surroundings. This can be one driver of resistance within local communities, particularly when local values and priorities are overlooked in the planning process. Across the Nordic countries, it is evident that social acceptance at the local level (community acceptance) can have an especially big impact on the success of wind energy projects. Multiple examples have shown how local opposition can halt the process of expanding wind energy and have national consequences for reaching green energy goals (Arler et al. 2023), with the most notable example being the 2019 Norwegian moratorium for all onshore wind permitting (2019–2022).

This chapter assesses the status and challenges of social acceptance of wind energy across the Nordic countries, with special focus on Finland, Denmark and Norway. Finally, we highlight examples of policies and initiatives addressing social acceptance that can inspire policymakers across Nordic countries.

3.1 Status of social acceptance of wind energy in the Nordics

Social acceptance of wind power varies across Nordic countries. According to a 2023-survey by Norstat that investigated the public attitude towards the green energy transition in 26 European countries, there seems to be a bigger negative attitude towards wind farms in Norway compared to Denmark, Finland and Sweden (see Figure 2).

The survey asked participants about their general attitude towards wind farms, as well as their attitude towards living near one. In all four countries, participants were more negative towards living near a wind farm compared to the overall attitude towards wind farms. It is worth noting that "living near" is interpreted differently across the Nordic countries. For example, the Norwegian respondents perceive wind farms to be close to home within a larger distance compared to the other Nordic respondents (Norstat 2023).

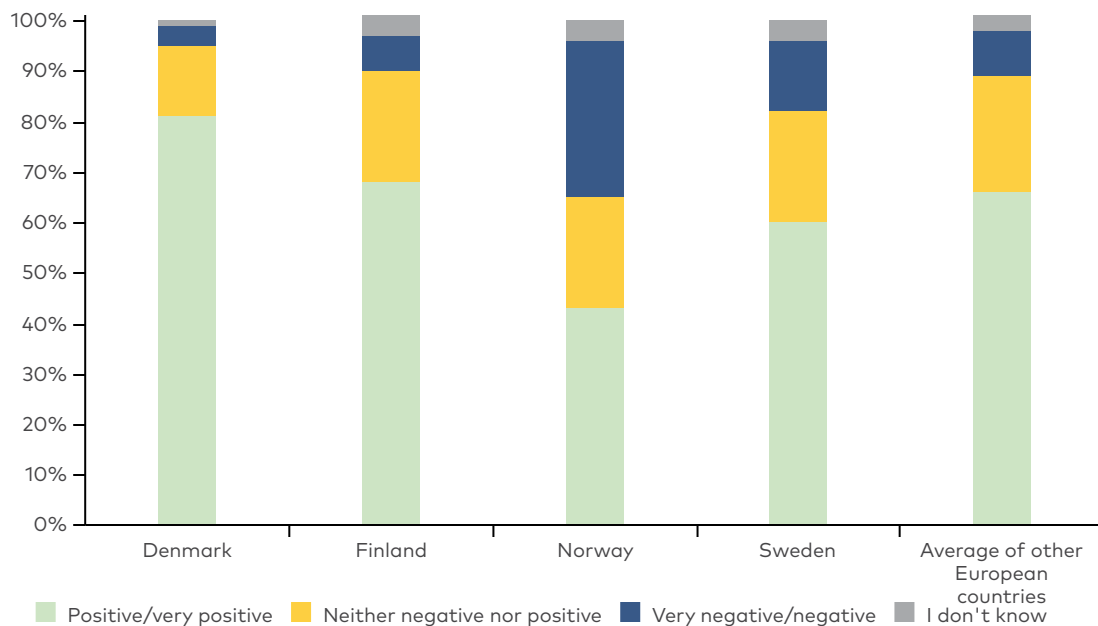


Figure 2: General attitude towards wind farms in 2023 (Norstat 2023)

Below, we describe the situation in Denmark, Finland and Norway in more detail.

In **Denmark**, there is (generally) a positive attitude towards wind energy as a viable green energy source, which has been further strengthened due to an unstable geopolitical situation, increasing the focus on energy self-sufficiency (Andersen et al. 2023). A 2023 survey by the Danish Chamber of Commerce asking Danes about their attitude towards wind power installations found that 68% wanted more windmills, 18% wanted the same amount, 8% wanted fewer wind turbines, and 6% were unsure (Dansk Erhverv 2023). These results show a relatively high level of socio-political acceptance.

The picture, however, changes when looking at community acceptance. Here, resistance towards wind energy projects is more prevalent. Local resistance and long bureaucratic processes have already slowed down the establishment of new wind energy projects in Denmark. A lack of social acceptance therefore also risks the achievement of the national goal of quadrupling onshore wind capacity between 2021 and 2030 (Kirkegaard 2023). For example, a study by the Technical University of Denmark found that one out of five wind turbine projects have been dropped since 2009 due to local resistance (Møller 2023), while other studies indicate that local resistance is the reason why 14 out of 17 projects have been abandoned (Kirkegaard 2023). However, it is also worth noting that there are differences in how well the different Danish municipalities have handled the situation, with some municipalities having greater success in gaining social acceptance than others (CONCITO 2018).

A 2022 report, by Ramboll for the Danish Energy Agency, found that some of the chairmen from Danish municipalities perceived that the local acceptance in their municipality was increasing. One of the reasons for this change could be an increased awareness of the need for an expansion of green energy to be independent from Russian gas (Ramboll 2022). The Danish government acknowledges that local acceptance is an important part of moving forward with the expansion of renewable energy, e.g. of wind turbines and solar panels. Different compensation schemes have been set up to compensate local homeowners who lose property value, and the schemes are continually evaluated and improved (Energistyrelsen n.d.). These are administered by the Danish Energy Agency.

In **Finland**, public support for wind power has generally remained strong over the past few decades, although the trend appears to be declining. A Finnish 2023 survey on attitudes toward different energy production methods showed that 77 percent of respondents favored increasing wind power production, 14 percent considered the current level adequate, and 5 percent thought it should be reduced (Energiateollisuus ry 2023). This survey has been conducted since 2000, when Finland only had 50 wind turbines (Suomen uusiutuvat ry 2024). At that time, attitudes were overwhelmingly positive, with 91 percent supporting an increase in wind power production – the highest level recorded, alongside a similar result in 2008 (see Figure 3). These findings are also supported by a survey (Metelinen 2022) in which 77 percent of respondents had a positive attitude towards wind power production. The positive attitude was present in all population and age groups, and the proportion of negative attitudes was small. There is a small divide in the attitudes between women and men: 84 percent of the women respondents and 69 percent of the men have a positive attitude towards wind production.

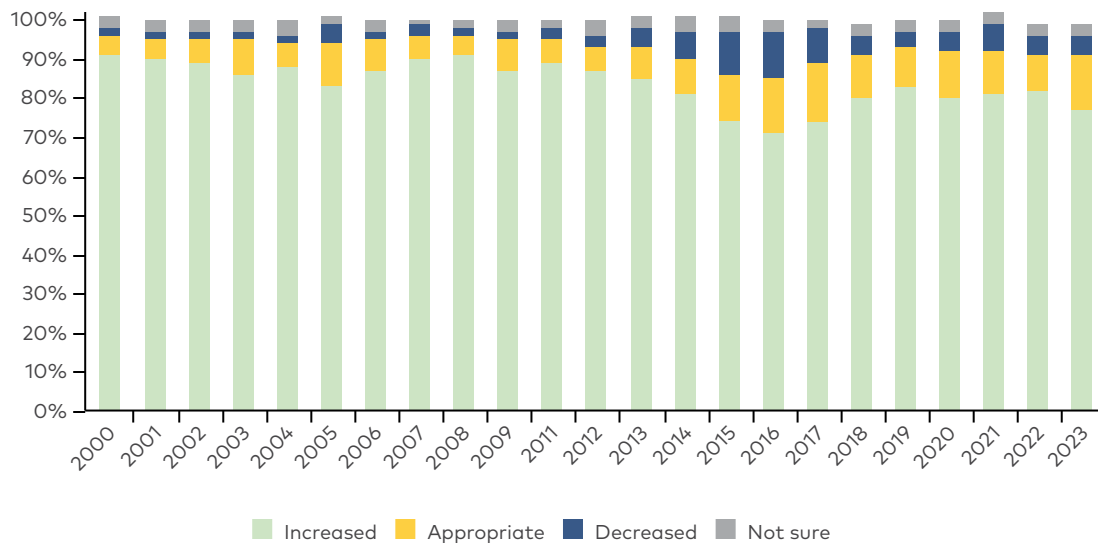


Figure 3: Opinions towards whether wind power in Finland should be increased or not (Energiateollisuus ry 2023).

While the overall public acceptance of wind power has been relatively high in opinion polls, local acceptance is a more complex issue, as the impacts are more concrete and cumulative locally. In a recent survey by Peltonen et al. (2024) the state of community acceptance appeared significantly lower and more polarized than, for example, the market and the socio-political acceptance of wind power. Only 5 percent considered the community acceptance to be very high, 33 percent fairly high, 22 percent fairly low, and 17 percent very low. Community acceptance also has large variation across regions and localities. It should also be noted that the regional distribution of the economic benefits of wind power is uneven. In practice, the investments are centered in western Finland, leaving eastern Finland (already suffering from low economic growth and regional vitality) without investments. This is mainly due to the needs of the defense forces and the restrictions caused by the regional surveillance system.

In the current Finnish government program, there are some wind energy related measures. According to Peltonen et al. (2024), the most critiqued measures were ambiguous obligation to provide energy storage, the minimum distance regulation, and the reduction of the steering effect of the regional plans. The most useful were increasing compensation for land rent, strengthening the position of landowners, bundling interconnectors, strengthening landscape assessment, and lowering the environmental impact assessment threshold for smaller wind farms.

In **Norway**, public support for increasing onshore wind power production has generally been high (higher than the opposition to it) until 2021 (Aasen et al. 2023). CICERO's climate survey has measured public opinion on wind power production, since 2018, finding that support for onshore wind halved from 2018 to 2021 from 65 percent to 33 percent. Opposition increased from 10 percent to 40 percent in this period.

In 2021 the share of the sample with negative opinions towards onshore wind power production is larger than the share of the sample with positive opinions. From 2021 and onwards, the data indicate a slight trend of increased support when compared with 2021. About a third of the sample indicate an undecided middle category or choose "do not know" every year (Aasen et al.

2023).

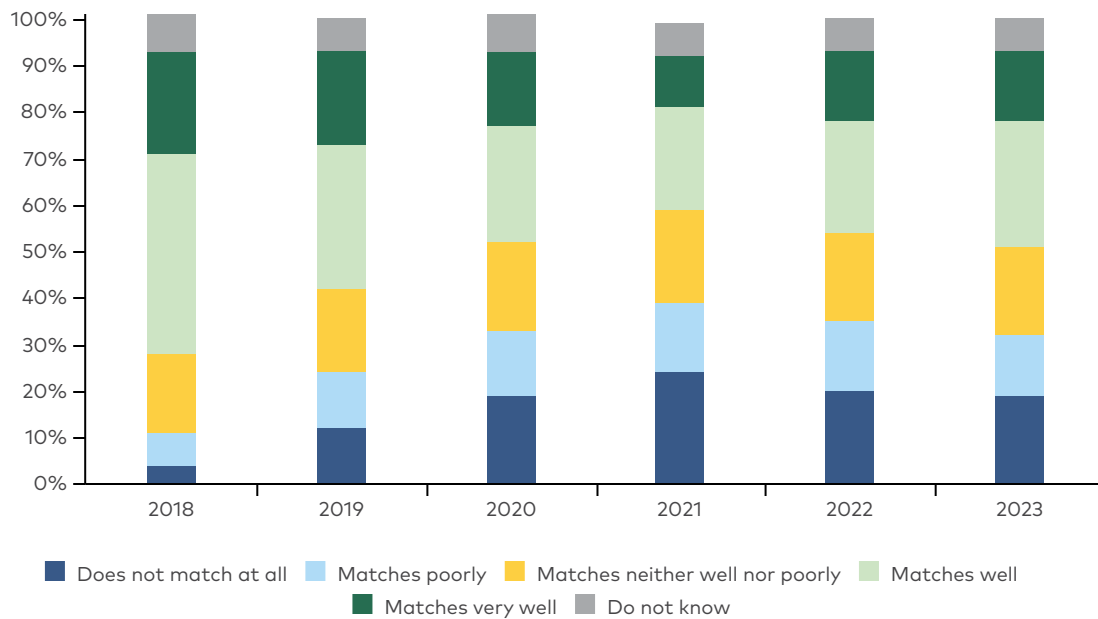


Figure 4: How well does the statement "Norway should increase its onshore wind power production" match with your opinion? (N2018 = 2052, N2019 = 2021, N 2020 = 2006, N2021 = 2477, N2022 = 2004, N2023 = 2079) (Aasen et al 2023)

In Autumn 2018, Norway saw the beginning of increasing mobilization against wind power onshore. The mobilization was increasingly well organized, with the establishment of a national organization, Motvind, in the following year (Motvind 2019). Negative sentiments towards wind power on social media peaked around the time the Norwegian Water Resources and Energy Directorate (NVE) presented the National Framework for Windpower Onshore in Spring 2019 and peaked again at an even higher level one year later (Vågerö et al. 2024).

The National Framework consisted of a knowledge base, which addressed relevant topics for wind power (e.g. the knowledge status of different species and how they are affected by wind power), and a map, which designated the 13 most suitable areas for wind power onshore in Norway (NVE 2019). The intention of the National Framework was to map where the conditions are best suited for wind power in Norway (for example, due to good wind conditions or a well-developed power grid), as well as where the conditions are unsuitable. However, the framework was largely perceived as a development plan for wind power and created considerable opposition (Aftenposten 2019). Input to the hearing of the National Framework showed large resistance, with, for example, 49 out of 56 municipalities expressing that they were against development of wind power in their area. As a consequence, the Ministry of Energy decided not to go ahead with the National Framework and introduced a moratorium for all onshore wind permitting for three years (2019–2022).

Support for wind power decreased until 2022. In 2022, the electricity crisis with increased power prices and war in Europe highlighted the need for more power. During the moratorium, the government also tried to improve the licensing process emphasizing local anchorage, introducing ground rent tax and changing the rules for how to consider landscape and nature changes which

might also have played a role in the level of support for wind power (KLIMA 2022a and 2022b).

3.2 Challenges across the Nordic countries – wind power

Across the Nordic countries, the challenges with regards to social acceptance for wind energy projects can be divided into three main categories:

1. Balancing benefits and negative impacts of wind energy projects (see section 3.2.1.)
2. Sámi culture and reindeer herding (see section 3.2.2.)
3. Community involvement and process transparency (see section 3.2.3.)

These are described in further detail in their respective sections below.

3.2.1 Balancing benefits and negative impacts of wind energy projects

Negative impacts of wind energy projects

Perceived impacts play a crucial role in explaining local acceptance of wind power projects (e.g., Peltonen et al. 2024; Luoma et al. 2022; Janhunen, Hujala & Pätäri 2014). Common concerns include distributional impacts, and environmental consequences, including concerns about landscape and nature preservation.

A study on the social acceptability of wind power in central **Finland** identified the main concerns as impacts on landscape changes, property values, electricity transmission, buffer zones, tourism, and the golden eagle (Luoma et al. 2022). Among these, electricity transmission posed a significant challenge for regional land-use planning. As more wind turbines are built, a larger network is needed to transfer energy, resulting in greater forest clearance. Other concerns included the fragmentation of forests and natural areas, which affect recreational activities, changes to landscape and soundscape experiences, impacts on carbon sinks and biodiversity, and water bodies like groundwater. Additionally, residents raised health and quality-of-life concerns related to noise, visual impacts, and lighting from nearby wind power installations.

The importance of environmental impacts is widely seen as a growing challenge to acceptability in the future (Peltonen et al. 2024). Rapid wind development in Finland over the past decade has caused increasing and widespread environmental and ecological effects, due to land use changes. Also, it raised concerns that the fast-paced project approvals and construction may lead to quality issues in projects and processes, particularly in environmental impact assessments. Concern about biodiversity loss, as a global issue comparable to climate change, further intensifies this tension (Peltonen et al. 2024.)

In **Norway**, there is a similar high concern with the impact of wind energy development on nature and landscape, as many sites for wind power projects take place in the wilderness. Leiren et al. (2020) find that sense of place, self-identity and place attachment is perceived as a barrier to a larger extent in Norway than among stakeholders in many other European countries. They find that *"People in rural Norway, including the Sami people, and people who have grown up in rural Norway, typically have a special sense of self-identity and place attachment, which wind power affects in a negative way"* (Leiren et al. 2020, p. 17).

People value being able to experience nature without any constructions and use it for, among others, hiking, fishing, hunting and reindeer herding. Wind power constructions increase fragmentation of nature areas and affect vulnerable and rare habitat types and species, many of

which there is a lack of knowledge about the impact, for example, the habitats of bats and wild reindeer (NVE, 2022). Hence, debates about wind power in Norway often address the dilemma of climate versus nature, which highlights that deployment of renewables as a climate measure creates interventions in areas of untouched nature. Inderberg, Theisen et al. (2020) find that negative impacts on the local environment substantially reduce the chances of a wind power project being granted a license.

In **Denmark** the Environmental Impact Assessment (EIA) is the main decision-supporting tool in relation to the environmental impacts (including considerations for human health) of a wind energy project. Complaints about EIAs go through the Board of Appeals on Environment and Food. In 2020 and 2021 (until April 2021) a total of 13 rulings were registered in the board of appeals. The concerns in the rulings related mostly to human health and well-being such as concerns about noise (10 complaints) and visual impacts (8 complaints). The only biophysical issue raised was a concern about the local bat population (4 complaints) (Clausen et al., 2021).

Opportunities related to wind energy projects

Besides negative impacts, locals also recognize that wind power (or other renewable energy) can provide benefits to them or their local area.

Researchers find that economic benefits and opportunities for local businesses are key drivers for public acceptance in **Norway** (Rygg 2020; Figari et al. 2024). Municipalities benefit from property tax and may settle further benefits by compensation agreements (e.g., local development funds, hiking and skiing trails, tourist huts), although some developers and municipalities are more reluctant, given the moral and legal status of such agreements (Saglie et al. 2020, Aakre et al. 2020). However, economic spin-offs from tax income and new infrastructure and investments are important for municipalities which experience increased activity and jobs, in particular during the construction phase and opportunities for local entrepreneurs to expand their services (Figari et al. 2024).

Economic benefits are also highlighted by different stakeholders in **Denmark**. State of Green (a nonprofit partnership between the Danish government and Danish Industry, Green Power Denmark, and the Danish Agriculture and Food Council) has highlighted the socio-economic benefits of wind energy in Denmark. They highlight job creation, tax income, and export opportunities. For example, energy technologies and services have become an important aspect of Danish exports. In 2019, they accounted for nearly 14% of Denmark's total exported goods, of which over half was related to wind energy technology and services (State of Green 2021). It was also mentioned in the workshop that there is a need to better account for non-economic factors.

Individual perceptions and local anchorage

It is important to note that local residents have diverse perspectives, and attitudes toward wind power are shaped by individual perceptions of its impacts. According to Janhunen et al. (2014), in a study on wind power in **Finland**, permanent residents and second-home owners might have differing views. Second-home owners tend to hold more negative expectations regarding place image, landscape changes, tourism, economy, and property values, while permanent residents focus more on practical and personal aspects, seeing wind power to generate economic opportunities and support a sustainable future. Benefit sharing has also been a discussion regarding the impact of wind power on tourism. One concern is that the benefits of wind power go elsewhere while the negative effects will manifest locally (Luoma et al. 2022).

Impacts and benefits are also perceived differently by residents based on alignment with existing local goals, interests, and livelihoods. According to Peltonen et al. (2024), when alignment is high, wind power projects are more likely to gain community support. Projects initiated by private

landowners tend to have higher levels of local acceptance compared to those initiated by wind power companies, as they are seen as more aligned with local objectives. This sentiment was echoed in the aforementioned study in central Finland, where stakeholders highlighted benefits such as increased municipal tax revenue, financial gains for landowners leasing their land, and job creation during the construction phase (Luoma et al. 2022).

The online workshop also emphasized that there are varied concerns between rural and urban areas. For example, concerns related to Sámi reindeer herders (explained in the next chapter), or a feeling of imbalanced responsibility between rural and metropolitan Denmark.

Compensation schemes to increase the benefits of wind power

While not a direct benefit, policy instruments such as compensation schemes can help dampen perceived negative impacts of wind energy projects. In **Denmark**, the government has focused on improving the local benefit from wind energy projects by implementing several compensation schemes over the years. As of June 1, 2020, the Green Energy Arrangements ("VE-Ordninger") encompass four different schemes. They were updated on the 1st of July 2024, with increased compensation values in some schemes:

1. The property value loss scheme (*Værditabsordningen*): After the green energy plant (wind turbines) is put up neighbors can receive compensation if their property value decreases by more than 1%.
2. Option to sell property (*Salgsoptionsordning*): Neighbors at a distance of up to 6 times the wind turbine's height can choose to sell their property to the developers within one year after 1 kWh has been produced.
3. Renewable energy bonus scheme (*VE-bonusordningen*): Neighbors at a distance of up to 8 times the wind turbine's height have the right to get a yearly payment based on a share of the electricity production. As of July 1, 2024, this payment increased by 50%.
4. Green fund scheme (*Grøn pulje*): The developer must pay a certain amount per MW to the municipality, which can then be applied for by the local community, e.g. citizens, companies and associations in the municipality. As of July 1, 2024, the amount increased by 150% (Energistyrelsen 2024).

The old compensation schemes were evaluated by Ramboll in 2022, as a baseline, with another assessment planned in 2024 to assess the new compensation schemes from June 2020. The Ramboll report concluded that the three old compensation schemes did not influence the local acceptance (Ramboll 2022), with the main reason being that survey respondents perceived the compensation values as too low. The government has therefore increased the compensation in the new compensation schemes from 2024.

In the online workshop, it was emphasized that Sweden lacks a local monetary incentive system, which is now being initiated, with the recognition that local support (and getting past the local/municipal veto power) requires local benefits.

While compensation can help gain social acceptance, it is important to consider how much is given and to whom, ensuring that citizens perceive it as fair. Compensation should be accompanied with dialogue with locals, so citizens do not feel they are simply being paid off, as this undermines trust and fairness (Hübner et al. 2023). This was further highlighted in the online workshop, where the importance of not just relying on economic compensation in securing local support was highlighted.

3.2.2 Sámi culture and reindeer herding

Northern parts of Finland, Norway and Sweden are attractive to wind power due to its sparse population and favorable wind conditions. However, it is also where Sápmi and reindeer herding areas are located, which creates challenges for balancing indigenous cultures, local livelihoods, and wind power investments.

Traditionally, Indigenous peoples have contributed little to climate change but are affected by a warmer climate, as well as by interventions aimed at cutting emissions such as wind power. In a study of the effects of wind power development on reindeer in Finnmark, **Norway**, the herders expressed that wind power had negative effects on reindeers' general habitat use and their intra-range movements, resulting in the herd using the grazing areas surrounding the wind power less, leading to increased workload for the herders (Eftestøl et al. 2023).

Focusing on the court case between the wind energy company Fosen Vind DA and the Southern Sámi reindeer herders in Norway, Fjellheim (2023) finds that climate change policies and the green energy transition has renewed colonial structures and injustices for Indigenous peoples in land-use conflicts. She finds that the competing parties represented different knowledge systems and worldviews. In this power struggle, the "Norwegian state strategically ignored all knowledge that threatened capitalist and green colonial interests" (Fjellheim 2023). Kårtveit (2021) shows how the concept of green colonialism serves as a political narrative that informs Sámi opposition to wind power plants, structures people's understanding of such projects and places their understanding within a history of several encroachments on Sámi land.

Similar issues are prevalent in **Finland**, where the Sámi homeland area and the reindeer herding area in Northern Finland are attractive for wind power development. The reindeer herding areas cover more than a third of the country, and several wind power projects in these areas have created tensions. Reindeer herding has a special legal status in Finland, having free grazing rights in the reindeer herding area regardless of the land ownership (Luoma & Kangasoja 2023).

Nevertheless, wind power operators are unfamiliar with the practices of reindeer herding and usually do not recognize its special status, which has resulted in tensions between the industries. According to the reindeer herders, they have been ignored in planning processes for wind power, or their views have been considered too late, resulting in disruptions and loss of herding areas as well as loss of livelihoods. In these kinds of situations, the only recourse for herding cooperatives has traditionally been legal action, which might have deepened the conflicts and hindered the development of the whole region. One of the main issues has been the lack of shared understanding of the impact of wind power projects on reindeer herding practices, grazing areas, and the prospects of their livelihood. There have also been differences in the operating and communication cultures between the wind energy operators and reindeer herders. Also, the traditional knowledge in reindeer herding does not easily translate into geographic information systems or statistical data. (Luoma & Kangasoja 2023). To solve the issues between the wind power sector and reindeer herders, a dialogue forum has been developed (see Section 3.3.).

In **Sweden**, the wind power production is heavily focused in the southern part of the country, but there are installations in the north as well. Based on the findings of the workshop, the situation in Sweden is similar to Norway and Finland.

3.2.3 Community involvement and process transparency

Another factor that influences the degree of local opposition and community acceptance is how just and transparent the planning process is perceived to be by the local community (Palsberg et al. 2024), and how the procedures and their fairness are perceived (Peltonen et al. 2024).

In **Finland**, regional plans play a crucial role in guiding wind power development, and the consultation process during regional planning is a key stage of interaction. Zoning decisions are made on the municipal level. As a result, it can be challenging for participants to distinguish between the roles and processes of regional and municipal planning, leading to confusion. In addition, the municipalities in the region can have different practices regarding zoning, decision-making, and engaging with residents on wind power projects (Luoma et al. 2022). Also, Janhunen et al. (2018) found that the planning processes are seen as complicated. According to the study, the residents' participation in the planning process was passive, and local people did not perceive they had an opportunity to participate. The study suggests that lack of perceived participation in the planning process decreases the acceptability in terms of perceived personal well-being, and the participation processes stay at the level of tokenism.

In many municipalities, a lack of transparency and insufficient public involvement has undermined trust in the decision-making process related to wind power projects (Luoma et al. 2022). Moreover, the landowners find the current expropriation process for land required by transmission corridors unreasonable. According to Peltonen et al. (2024), the features that support acceptability of wind energy projects are landowner engagement and cooperation in the early stages of wind projects, fair treatment of landowners, impact management and compensation. The benefits are increased if there is early and long-term interaction from wind companies with local stakeholders. The importance of involvement has been noted, and there is a successful case of continuing dialogue within reindeer herders (see Section 3.3.).

The rapid pace of wind power development in Finland with lack of coordination has been identified as an issue for stakeholders (Peltonen et al. 2024). Wind energy companies, consultants and municipalities have a lot of influence on the acceptability of wind energy. Peltonen et al. (2024) states that the field would benefit if common guidelines were developed, but the public and private actors should improve their interaction and cooperation to coordinate the development of wind power. It should be noted that the municipalities have a strong role in Finland in land use planning and decision-making related to wind power through zoning and a property tax model that allows municipalities to benefit financially from wind power projects. The combination of local decision making and economic benefits seems to be important for the local acceptance of wind power (Peltonen et al. 2024).

A further challenge in terms of involvement of locals is how different types of concerns are handled in the existing framework of the planning process. In their study on **Danish** wind power, Borch, Kirkegaard and Nyborg (2023) divide citizen concerns regarding wind turbine projects into two categories: 1) tangible concerns that are quantifiable (such as wind turbine size, environmental impact assessment, legal rights, and compensation) and 2) intangible concerns which are harder to quantify (such as issues related to relationships and social values). They argue that the current system in Denmark often neglects these intangible concerns, as they are harder to calculate and measure and can be perceived as less legitimate. This can result in locals feeling that their concerns are not taken into consideration, making them lose trust in the system (Borch et al. 2023). The paper furthermore showcases examples of Danish wind power projects where an insufficient dialogue and handling of concerns reached the media, in turn creating more

opposition to the project. They recommend that one solution for handling intangible concerns is to focus on dialog with the locals and having a system that can help facilitate such a dialog.

The Danish municipalities play an important role in facilitating dialogue between different stakeholders (locals, developers, and the government). However, practices vary between municipalities in how they approach these involvement processes (Palsberg et al. 2024). When assessing different successful examples of green energy projects in the municipalities, one of the main success factors has been the early involvement of the locals. Municipalities can do this, but the developers can also take the initiative (Green Power Denmark 2024).

Furthermore, there can be differences in terms of the local politicians' views on whether they support wind turbines in their municipality. Some examples show that the local politicians change their views based on local opposition, even if the opposition does not represent the majority's views. This can cause local politicians to reject a project proposal before a local project hearing (Green Power Denmark 2019).

Norway used to have a centralized licensing model for wind power, where the Norwegian Water Resources and Energy Directorate (NVE) was in charge of permitting. Although the municipal authorities' approval has weighed heavily in decisions on granting wind power licenses (Inderberg et al. 2019), Gulbrandsen et al. (2021) argue that this model has resulted in serious conflicts between the central and local levels, as well as between energy and nature protection interests. They are of the opinion that NVE 'pushed greater development of wind power, at the expense of transparent and predictable consideration for nature concerns' (Gulbrandsen et al. 2021).

As a direct consequence of the opposition against wind power in 2019, the Norwegian government changed the regulations for wind power licensing (KLIMA 2022a, 2022b). The new rules imply limited possibilities for changes once permits are granted (e.g., the permits need to be acted upon sooner) and processes are now entrenched in municipal planning, which means two authorities are involved in permitting, the national authorities and the local authorities need to cooperate. Since the peak resistance in 2019, there are, however, not many municipalities that have launched an interest in hosting wind energy (Eikeland et al. 2023).

Leiren and Linnerud (2019) point out that the developers' opportunity to use the best available technology at the time of realization of a project has played a role for acceptance of wind power in Norway. As the technology of wind turbines develops fast, as well as that it might take a long time before a permit is acted upon, this rule might imply changes in the project, including larger turbines, and therefore less turbines, that are placed differently in the landscape. When turbines are up to 50 meters higher than in the original plan, people feel that they have been misinformed during the process. However, this issue has been addressed by shortening the scope of time within which a project has to be realized. Therefore, there is now less possibility for change of the original proposal.

3.3 Policy experiences - wind power and social acceptance

In this section, we present several examples of how social acceptance has been addressed in the Nordic countries in relation to wind power and renewable energy installations. The examples connect to the main challenges outlined above. As the examples serve to share learnings and inspire the Nordic countries, not all examples depict a successful intervention or initiative.

The examples covered are:

- [Cooperation forums, Finland](#)
- [Local investments, Denmark](#)
- [Direct and indirect ownership, Norway](#)
- [Recommendations from the NEKST working group, Denmark](#)
- [Taskforce to pave the way for wind power, Iceland](#)
- [Competence center and guides, Norway](#)

Example 1: Cooperation forums, Finland

In Finland there are multiple examples of cooperation forums aimed to improve the dialogue between different stakeholders.

Tensions between the wind power sector and reindeer herders have been a large issue in Finland. From 2019 to 2023, dialogue between the wind power sector and reindeer herding was developed to address these tensions. A neutral cooperation forum was established by the Reindeer Herders' Association and the Finnish Wind Power Association with the help of an independent mediator. This forum facilitated understanding between the sectors, identified key issues for reconciling their interests, and produced jointly approved recommendations for wind power project planning and operations in reindeer herding areas. (Luoma & Kangasoja 2023).

The dialogue has increased the mutual understanding of the sectors. Local acceptability has been built with regular communication, while taking the time to discuss the hard questions. Sector dialogue has shifted from project-level conflicts to developing mutually accepted practices in these discussions. This "collaborative intervention" approach has resulted in a continuous cooperation forum with over 100 participants (Luoma & Kangasoja 2023).

Such dialogue was also taken up in relation to upcoming projects in offshore wind, where the environmental ministry of Finland led an "interaction forum" for the stakeholders in order to enable the interaction. In the forum, the participants raised worries about whether there is sufficient information, resources, and time for thoughtful project siting and careful planning as the projects progress rapidly. (Gaia Consulting 2023.)

Example 2: Local investments, Denmark

As mentioned previously, local ownership of wind power installations is one approach to strengthen local acceptance. This approach has been very successful in different Danish projects. One example is the installation of a large locally owned wind turbine in Thyborøn. The goal, to establish a locally anchored project in which only citizens in the municipality could buy a share, has resulted in over 2,800 locals investing in the project, corresponding to around 20% of citizens over 18 years in the municipality. Early involvement of locals and organizations like the Danish Society for Nature Conservation has created local support of the project, and the project has received no official complaints (Tornbjerg 2024). There has been a long tradition (since 1987) of citizen-owned wind turbines in the municipality, which could also play a role in the success. Furthermore, it is worth noting that the concept of locally owned wind turbine projects played a big role in the initial establishment of wind power in Denmark, which has later transitioned into large-scale investments taking over (Skjærseth et al. 2023).

Example 3: Direct and indirect ownership, Norway

THEMA Consulting Group (2024) has looked into how to strengthen local ownership in renewable power projects in Norway. As investments in wind power projects are capital intensive, they suggest overcoming this capital barrier by ensuring that the municipality or the county has a share of ownership from the initiation of the project, which is then paid off over time. They also point out that there is a need for municipalities and counties for standardized contracts or commercial advice that can be supportive in negotiations. Loan financing via the Norwegian Agency for Local Governments ('Kommunalbanken') would also be helpful.

Example 4: Recommendations from NEKST working group, Denmark

In 2023, the Danish government set up a working group tasked with supporting a faster expansion of wind and solar energy on land (Klima-, Energi- og Forsyningsministeriet, n.d.). The aims of this "national energy crisis staff", called "NEKST" is to 1) support a faster expansion of wind and solar energy on land, 2) phase out natural gas in Danish homes, and 3) ensure a faster and more streamlined process for expanding the electrical grid. The working group on "Wind and solar energy on land" has identified barriers and solutions to four themes, first among them community acceptance ("*lokal opbakning*").

In general, the working group recommends a more uniform regulatory framework across municipalities and states that it must be more attractive for municipalities to set aside land for renewable energy projects. Specific recommendations include: Transparency about local gains from installing renewable energy on land; a simpler and clearer payment scheme for municipalities; earlier payment of the "green fund" from developers to the municipality; a larger share of the tax revenue for the renewable energy systems to the municipalities, and the possibility of a voluntary agreement-based sale of electricity from RE plants to neighbors (NEKST-arbejdsgruppe *Mere sol og vind på land*, n.d.).

Example 5: Taskforce to pave the way for wind power, Iceland

In 2022, the Icelandic Ministry for the Environment, Energy, and Climate launched a task force to explore the potential for wind energy development in the country (Stjórnarráð Íslands 2023). Despite Iceland's abundant renewable energy resources, primarily in geothermal and hydropower, rising energy demand and the need to diversify prompted the government to look toward wind power.

The task force was tasked with addressing legal, environmental, and social barriers to wind energy expansion. A key focus was on ensuring that wind power development aligns with Iceland's national climate goals while minimizing environmental impacts and fostering social acceptance.

To facilitate this, the task force proposed legislative changes, such as incorporating wind energy into the existing Master Plan for Nature Protection and Energy Utilization (Rammaáætlun) or developing a standalone regulatory framework. Public consultation and the role of local governments were central to these proposals, with suggestions for clearer regulations on environmental impacts and mechanisms to distribute economic benefits to communities near wind farms.

The strategy aims to strike a balance between scaling up renewable energy production and ensuring that wind farms contribute to Iceland's climate commitments, while addressing the concerns of local communities and environmental protection.

Example 6: Competence center and guides, Norway

While competence centers of wind power projects exist (e.g. 'Nasjonal vindenergisenter' at Smøla), there is a call for establishing a neutral national competence center, which can provide for education and capacity building. According to THEMA Consulting Group (2024) such a competence center can help motivate municipal planners and politicians to make well-informed decisions in cases of wind power. A guide with "best practices" is also mentioned as being helpful when municipalities with lack of wind power experiences carry out their planning processes. The Ministry of Energy and the Ministry of Local Government and Regional Development have made a guide about how municipalities can coordinate planning processes with license processing in accordance with the Energy Act. It describes how municipalities, initiative holders, and others can contribute to effective processes for clarifying wind power development, and how they can facilitate inclusive participation. The guide also mentions the obligation to consult with Sámi interests.

4. Social acceptance and fuel taxes

Transportation emissions, especially those from road transportation, account for a substantial part of the Nordic countries' territorial emissions. Economic theory points to fuel taxation – or more precisely – the taxation of CO₂-emissions from fuels to be the most cost-effective tool to reduce emissions, as it ensures that the polluter pays (e.g., Sivonen & Koivula 2020). Increasing the price of fuel, carbon or fuel taxes provides an incentive to limit driving, switch to more fuel efficient (or zero emissions) vehicles, and adapt everyday practices to achieve larger long-term changes (e.g., choosing to live closer to work or school). As such, ensuring public support for initiatives targeting these emissions is an essential part of the path towards climate neutrality in the Nordic region.

Fuel taxes are, however, also unpopular. They impose direct and therefore very salient costs on consumers, and many are skeptical of the environmental benefits of fuel taxation. As in the case of wind power, it is important to look at the country's context to understand the variation in and reasons for (lack of) social acceptance for fuel taxes across the Nordic region. As fuel is a globally traded commodity, the price before taxes fluctuates significantly over time, but it does not vary much across borders. National regulation can, however, affect the price at the pump, due to primarily 1) taxes and 2) blending requirements (e.g. biofuel percentage). Moreover, the use of policy instruments varies substantially across Nordic countries. There are many likely reasons for this, including the level of other car-related taxes and the size of the national biofuel industry.

Across the Nordics, the opposition to existing or proposed taxes on fuels has manifested itself in different ways, from protests, lobbying, and petitions to shifts in voting patterns and the emergence of political parties and social movements opposed to taxation.

The following chapter explores how fuel taxes are perceived, what drives social acceptance, and how this currently plays out across the Nordic countries. We conclude with examples of how these issues have been addressed across the region, in line with the structure in the wind power case.

4.1 Status of social acceptance of fuel price increases in the Nordics

Social acceptance of fuel price increases (and fuel taxes in general) has been less researched than social acceptance of wind power. For that reason, there are fewer studies in the Nordic countries that can be used to give an overview of the status of social acceptance of fuel price increases across the Nordic region.

Using data from the European Social Survey 2016–2017, Sivonen (2023) found that Nordic residents (in this case Norway, Finland, and Sweden) show higher support for carbon taxation compared to the rest of Europe. Büchs et al. (2024) relates this difference to the comparably more socially equal societies in the Nordics.

Table 2: Support for higher fossil fuel taxation

	Finland	Norway	Sweden	European study sample mean
Mean of attitudes on higher fossil fuel taxation	3.35	3.20	3.48	2.82

Source: Sivonen (2023). Support is coded based on a scale from 1 "strongly against" to 5 "strongly in favor". Data is only available for Finland, Norway, and Sweden.

Across these three countries, Sivonen found that the attitude towards carbon taxation was closely linked with political party affiliation; the attitude towards taxation was more positive among those who supported green and leftist political parties, and more negative among those who supported populist right-wing factions (Sivonen 2023). Furthermore, the data shows that while Norwegians are comparatively supportive of carbon taxes in a European context, their support is still lower than that of Swedes and Finns. This aligns with similar findings from the same survey in Fairbrother et al. (2019), who conclude that "the nations whose populations are most supportive of higher taxes on fossil fuels are not those that are more aware and concerned about climate change; rather, they are those with the highest levels of political trust."

The European Social Survey data can also be used to compare the attitude towards/social acceptance of different climate policies. In most countries included in the survey, the policy '*Using public money to subsidize renewable energy such as wind and solar power*' is the most popular instrument, while '*Increasing taxes on fossil fuels, such as oil, gas, and coal*' is the least popular (Davidovic & Harring 2020).

In Finland, attitudes towards fuel taxation appear to be divided. The Finnish Business and Policy Forum has studied the willingness to reform the current fuel tax system in conjunction with energy taxation. Between 2011 and 2024, the preference for reducing fuel and energy taxes has been prevalent, ranging from 33 percent to 54 percent, while support for increasing these taxes has varied between 14 percent and 26 percent. A significant shift occurred between 2023 and 2024. More Finns now support raising taxes (rising from 14 percent to 26 percent), while the desire to lower taxes has decreased (from 53 percent to 33 percent). (Finnish Business and Policy Forum EVA 2024a, 2024b.).

The price of fuel has been debated a lot in politics during recent years. Decreasing the price was an important theme for the Finns Party for the parliament elections in 2023. As a result of that, the recent government program of 2023 outlines that the price of transport fuels will not rise due to the government's measures (Finnish Government 2023), which has led to lowering the excise duty and decreasing the ambition of distribution obligation.

Attitudes towards fuel and energy taxes vary significantly across different political groups in Finland. Supporters of the Green League and the Left Alliance strongly favor increasing taxes, while those aligned with the Finns Party, the Christian Democrats, and Movement Now are more in favor of reductions even after the reduction made in 2023, based on the survey from 2024. At the same time, the majority of the National Coalition Party, Social Democratic Party, and Centre Party supporters are content with the current tax structure; roughly equal shares support increases and decreases (Finnish Business and Policy Forum EVA 2024a, 2024b).

Recent surveys and studies from Finnish Business and Policy Forum EVA explore the attitudes towards fuel taxation in more detail compared to other studies. Despite the respondents being Finnish, we judge that results would look relatively similar in the other Nordic countries. The studies note that attitudes vary within different groups. As mentioned above, attitudes towards fuel and energy taxes vary greatly across different political parties. Furthermore, attitudes vary across different demographic groups, though less than across political views. Men are generally more inclined to support reducing taxes, while women tend to favor increasing them. Younger people are more likely to advocate for tax increases, whereas older individuals prefer tax cuts. Residents of larger cities are more supportive of tax hikes, while those in smaller towns lean towards decreasing taxes. Additionally, individuals with higher education levels are more inclined to support raising fuel and energy taxes. (Finnish Business and Policy Forum EVA 2024a, 2024b).

In Denmark, available surveys are not as detailed, but a recent general survey (NBER 2024) shows relatively high (43%) support for a fuel tax on \$45/ton CO₂. There has been a Danish discussion about whether private cars are overtaxed, through a combination of taxes (registration tax, yearly tax, fuel taxes and insurance tax), even if several reductions of registration taxes for mainly smaller cars have reduced the overall car taxation. The Danish Economic Councils showed in a 2021-report that the current taxation does not cover the externalities from car traffic (De Økonomiske Råd 2021), but a more recent analysis by Finansministeriet (2024) has shown that when disaggregating into electric vehicles (EVs) and internal combustion engine (ICE) cars, it is found that EVs are undertaxed, and ICE cars are generally overtaxed. This is the case outside the cities particularly, where congestion is lower, even if fuel taxes are the same. Fuel taxation changes must be seen in this light.

The Danish Ministry of Finance generally opposes earmarking of tax revenue, due to economic inefficiency. There is however a broad political understanding that earmarking can increase social acceptability, particularly for green purposes, as also documented in NBER (2024; figure 9).

In Norway, the general level of support for fuel (or carbon) taxes is relatively high, though somewhat lower than in at least some of the other Nordic countries (see results in Sivonen (2020) referred to above). Harring et al. (2019), in a comparative study of Norway, Sweden, New Zealand, and Australia, found that Norwegians were the least supportive of such taxes. Despite sharing a political culture with Sweden, Norway's lower support levels may stem from its economic dependence on the fossil fuel sector.

CICERO's annual climate survey covering the years 2018–2024 (Aasen et al. 2023) asks people to take a position on the statement: "We should increase the price of fossil energy sources such as oil, diesel, and gasoline". Those who believe the statement aligns with their own views make up 28 percent in 2024, while those who believe it does not align make up 48 percent. There is a slight decrease in opposition from the previous year. However, the numbers are fairly stable over the years the survey has run (from 2018). There seems to be a slight trend that both strong support and strong opposition are increasing somewhat over the years. That is, more people are taking a clear stance.

Two recent studies explore the social acceptance of specific tax proposals: The study by Tatham and Peters (2023) indicates that the average Norwegian is supportive of increasing the fuel tax by 5 percent but opposed to increasing it by 20 percent. Dugstad et al. (2024) find that households on average would support an increase of NOK 2.7-3.4 in the carbon tax per liter of fuel "if the revenues are earmarked to finance mitigation efforts instead of general public expenses as it is today", but the majority would prefer a (large) reduction in the carbon taxes for other revenue uses.

4.2 Challenges across the Nordic countries – Fuel taxes

Literature reviews and meta-analyses, such as Bergquist et al. (2023), have identified a number of factors that consistently influence the level of public support for environmental taxes. Since a large part of the studies are done in or include a Nordic country, these findings apply well to the Nordic region. These studies emphasize that fairness and perceived effectiveness are key determinants of public support for fuel taxes, as well as the use of the tax revenues. These two main challenges are also highlighted across the Nordic countries:

1. Distributive fairness and rural-urban divide (see section 4.2.1.)
2. Perceived effectiveness of taxation (see section 4.2.2.)

These challenges are described in further detail in their respective sections below.

4.2.1 Distributive fairness and rural-urban divide

Across the Nordic countries, fairness encompasses a large set of issues, but distributive fairness is central. Concerns for citizens living in car-dependent rural areas is an issue raised particularly frequently in Denmark, Finland, and Norway based on the literature review. Based on the workshop it appears to be a key issue all over the Nordics.

Grimsrud et al. (2020) respondents in **Norway** identified the need to "avoid increased economic inequality" as the top priority in policy design. Kallbekken and Sælen (2011) similarly found that the financial impact on others is one of the three key predictors of support for fuel taxes in Norway. Expanding the scope to other taxes, Kallbekken et al. (2013) reported that a significant majority of respondents in Norway (82.6%, 69.9%, and 75.2% respectively) "strongly believe that fuel taxes, road pricing and parking negatively affect the welfare of the poor". This belief in negative distributional impacts is, in turn, a significant predictor of opposition to increased fuel/transportation taxation.

One of the main dimensions of distributive fairness is geography, and in particular the rural-urban divide. In urban areas, alternative transportation (public transportation, bicycle paths etc.), as well as shorter distances and better access to EV charging, make it easier to switch away from fossil fuel use and fossil fuel vehicles, whereas it is much more challenging in rural areas. Uniform increases in fuel taxation have therefore been seen as problematic in Norway. For this reason, recent increases in the general CO₂ taxation were offset by a decrease in other fuel taxes in both 2022 and 2024 (proposed budget) in Norway. The high share of EVs in car sales, and gradually also in the car fleet, means that fewer people are affected by fuel taxes, but as there is a strong difference in EV penetration between urban and rural areas, this has not necessarily made the politics of fuel taxation easier to manage.

The rural-urban divide is also clear in **Finland**. The attitudes of people living in rural areas, towards the decarbonization of transportation, were assessed in a study by Heiskanen et al. (2024). The majority of rural respondents (9 out of 10) considered substantial fuel price hikes very unfair. Compared to people living in cities, this share is high: 6 out of 10 city residents found the fuel price hikes unfair. The rural respondents saw taxes of various kinds as the source of many problems, and fuel taxes were one of them. The aversion to taxes was connected to the financial struggles of the respondents, as well as a general view on the government neglecting to deliver services for the countryside and investing unfairly in the development of cities instead. (Heiskanen et al 2024). In addition, according to a survey by Kurronen (2022), 61 percent of Finns believe that high fuel prices excessively limit people's freedom to move and choose their place of residence, which adds

to the rural-urban divide, as people are more car dependent in the rural areas. Regional economic disparities can, to some extent, explain the aversion towards fuel taxes as well as the perceived unfairness in the distribution of government support between cities and rural areas. According to Rajavuori (2023), the age of the car fleet indicates that people living in the most rural areas are driving older cars than those in cities, which is also an indicator of lower wealth in rural areas. It may seem unreasonable to rural residents if the fuel tax is increased, and their costs rise while the city residents' EVs are supported through lower taxation. Rajavuori (2023) states that low-income and vulnerable people should be taken into consideration when designing climate action, and the effect on those groups should be evaluated regularly. The study also suggests that the fair transition to sustainable mobility and transport entails that overall car dependency is reduced.

There has been an overall worry that the fuel taxes will fall disproportionately on low-income households in Finland, but the statistics do not support this conclusion (Sahari & Palanne 2021). On average, low-income households do not incur more fuel costs in relation to their income compared to average-income households. In Finland, the share of fuel expenses increases with income between the low second and high seventh income category. The share decreases in the highest income categories. However, the tax burden could be balanced by recycling tax revenue back to households, which could also lead to fuel taxes being considered more acceptable (Sahari & Palanne 2021).

In **Denmark**, there is a general view that if fuel taxes are increased, other car-related taxes should be reduced due to the high level of taxation on ICE cars, as mentioned previously. The challenge is thus to find ways to reduce other taxes without undercutting the CO₂-emission reductions, which should occur as a result of an increased fuel tax.

Concerns were also voiced in the workshop in terms of an urban-rural dilemma in Denmark. It was noted that if you only look across the national income distribution, those hit hardest by fuel taxes are the middle class and upper middle class, as the poorest deciles have low rates of car ownership. However, in the rural areas, poorer households with car dependency are hit disproportionately hard. Given that there is a growing rural/urban divide in Denmark, this may decrease the acceptance of higher fuel taxations in rural areas further where incomes are lower, and transport needs are higher; many people can only afford to buy used cars. They will, therefore, have difficulty in changing to a suitable electric vehicle.

4.2.2 Perceived effectiveness of taxation

The second cross-Nordic challenge relates to how effective taxation is perceived to be in reducing fuel use. The effectiveness of a tax should be seen in relation to its stated goal. In our case, the relevant goal is to lower emissions from road transportation through reduced fuel use (other taxes are designed to generate revenue). The perceived effectiveness of a tax is often a very strong predictor of the level of support, but the perceived effectiveness may differ from the actual effectiveness. This was also brought up in the online workshop, highlighting that there is a perception of fuel taxes being ineffective in driving change across the Nordics. While these perceptions do not always align with the evidence on actual effectiveness, they should be handled to avoid resistance.

Many **Norwegians** are skeptical about the ability of taxes to reduce emissions, which contributes to opposition. Grimsrud et al. (2020) noted that many respondents do not see or believe in the connection between taxes and emission reductions. Kallbekken et al. (2013) also found that perceived (low) effectiveness is the most powerful determinant of support for transportation-related taxes, including road pricing and parking fees.

In **Denmark**, most car users seem to acknowledge that higher fuel prices lead to lower consumption, and thus to lower CO₂-emissions. This was emphasized in a recent survey (Vejdirektoratet 2024) by the Danish Road Directorate on why people continue to drive slower on the highways, even if fuel prices have come down again after the spike in 2022; 61 percent of the respondents point to increased awareness of fuel use at various speeds. As a general observation, studies have shown that people generally accept fuel price increases that are due to market fluctuations, as '*this is how it has always been*', but they also reduce fuel use to a lesser extent (compared to an increase due to taxes), as the expectation is that the price will come down again (which is less likely for a tax-driven price increase) (Bajo-Buenestado 2016).

In **Finland**, the perceived effectiveness of fuel tax increase has not been much of a debate. It seems that people are more concerned with the price itself than the effectiveness of the price increases. The low price of fuel is seen as more important than, for example, lowering carbon emissions: according to a survey by Kurronen (2022), 53 percent of Finns do not view the high price level of fossil fuels as a good thing, even though it encourages people, companies, and the public sector to transition into low or zero carbon technologies. In a survey regarding Finnish opinions on how to lower emissions effectively and fairly (Motiva 2024), 74.5 percent of respondents stated that the notable increase in fuel prices would be very unfair, and only 9 percent felt that it would be acceptable. When asked if the increase in fuel prices would affect their own car usage, 40 percent felt that it would not affect it at all, 30 percent thought there would be of little effect and 24 percent thought it would affect their car usage greatly.

4.3 Policy experiences – fuel taxes and social acceptance

Different initiatives can be taken to address issues regarding fairness and perceived effectiveness when increasing fuel taxes. This section contains examples of how social acceptance has been addressed across the Nordic countries in relation to fuel price increases/fuel taxes. The examples largely connect to the main challenges outlined above.

The examples covered are:

- [Lower annual taxes for diesel cars, plus temporary support for haulers, Denmark](#)
- [Experiences with urban-growth agreements and the potential for rural growth agreements, Norway](#)
- [Scrapping the premium campaign for old cars, Finland](#)

Example 1: Lower annual taxes for diesel cars, plus temporary support for haulers, Denmark

In a review of Denmark's 2025 climate goal, a gap had been identified, and the government suggested to increase the hydrotreated vegetable oil (HVO) biofuel fraction of diesel as one of the actions to close the gap.^[2]

As the main effect would be from the price increase (HVO is expensive) and from reduced fuel sales at the borders, CONCITO and others suggested just increasing the diesel tax instead, and – if deemed politically needed to increase political acceptance by keeping the total ICE car taxation constant – compensating private car owners by lowering the yearly taxes for diesel cars.

2. Actually, it turned out that the gap was smaller, so the initiative was not needed for reaching the 2025 goal. But the government carried through, presumably as the initiative also contribute to the 2030 goal, where agriculture then can deliver a little less.

The haulers tried to use this as an argument to delay the start of road pricing for trucks. They got a temporary rebate and (increased) support for green trucks instead.

Example 2: Experiences with urban-growth agreements and the potential for rural growth agreements

Urban-growth agreements (UGAs) have been an important policy tool in Norway since 2016 for managing urban mobility challenges. With UGAs "all three levels of government must implement measures and policy" and "the national government grants 50% of the investment costs for large infrastructure projects, with the county and municipal contribution mainly covered by toll-road payment" (Tønnesen et al. 2019). The UGAs are, therefore, tools that directly reduce urban road traffic, and indirectly enable higher fuel taxes by facilitating alternative transport (public transportation and active transportation). Tønnesen et al. (2022) argue that "if Norway is to reach its national climate goals, policy structures to promote climate-friendly transport outside urban areas are needed", and that one useful strategy could be the use of policy packages (inspired by the UGAs) to "strengthen the integration of land-use and transport-system development."

Example 3: Scrapping premium campaign for old cars, Finland

The Finnish Transport and Communications Agency offered scrapping premiums in 2020–2021 to people who scrapped their cars taken into use before December 2010 to replace them with a new car, public transportation tickets or an electric-assisted bicycle. The aim was to reduce traffic emissions and renew Finland's vehicle fleet. Depending on the fuel type of the car being purchased, the scrapping premium was between 1,000 and 2,000 euros. For the purchase of a public transportation ticket or an electric-assisted bicycle, the bonus was up to 1,000 euros. (Traficom 2021.) The scrapping bonus was very popular; there were a lot of applications, and the allocated 8 million euros were used up within five months. The majority of applications (70%) were for purchasing an electric bicycle. According to statistical analysis (Hytti et al. 2023), as a measure to reduce emissions, the scrapping premium campaign was targeted quite equally among different income groups, and more equitably than actions solely aimed at new car buyers. Even though the campaign was short-lived and the effect on emission reductions were not very high, the effectiveness could be increased by tightening the criteria for purchasing new cars to exclude cars that use gasoline or diesel. (Jääskeläinen 2021). As the premiums were very popular and it was noted they are equal for different income groups, there is an indication that this type of policy instrument can encourage a shift away from high-consumption cars in a socially acceptable way.

5. General lessons learned and ways forward

Social acceptance issues need to be addressed wisely if the Nordic region wants to remain a green frontrunner and a source of inspiration globally. As the findings in this project show, considerations about social acceptance shape local and national policies and decisions with regards to wind power development and fuel taxes.

The project has also shown that there are significant differences between the countries in terms of how opposition to wind power and increased fuel taxes manifest themselves, and how they are handled politically. Social acceptance for a given policy is e.g., partly determined by an individual's political alignment and one's preferred party's stance on the policy, and political landscapes differ across the Nordics. Social acceptance issues also overlap with other, pre-existing, divides in each country e.g., between rural and urban people or between the state and indigenous peoples.

However, several themes are relevant across the Nordic region. In this chapter, we summarize the main cross-Nordic lessons learned based on insights from the literature and the virtual workshops:

- The need for holistic perspectives, planning and shared visions
- Navigating and addressing existing divides in society
- Ensuring involvement and democracy
- Social climate plans as a lever for change

They serve to highlight the main issues that policymakers across the Nordic countries and the Nordic Council of Ministers should emphasize going forward. Under each heading, we also highlight some ways forward.

The need for holistic perspectives, planning and shared visions

Green energy initiatives, such as wind and solar power, inevitably require space and compete with other land uses. This is a growing debate across the Nordic region, as land is increasingly becoming a scarce resource.

The debate includes a wide range of concerns, for example, the need for nature conservation, biodiversity, food production, climate mitigation, energy production, infrastructure development, and indigenous rights. These competing needs, and the diverse set of stakeholders associated with them, often result in a lack of social acceptance towards green transition initiatives in general.

As such, lack of community acceptance towards a specific wind power development project is not necessarily created by the wind power project itself. Instead, it is the public response to the sum of the many different green transition initiatives (and other initiatives) that impact their daily lives. For example, for the Sámi populations in Norway, Finland, and Sweden, wind power is just one type of (land) development among others that encroach on their way of living.

The same logic applies to fuel taxes. Citizens might not necessarily be opposed to environmental taxes per se, but when these are added to other existing taxes/initiatives – and without a holistic narrative for how these interact – social acceptance is low.

Initiatives fall short of gaining social acceptance when they only involve fuel taxes but gain more support when they comprehensively address the challenge of phasing out fossil fuels in the transportation sector, e.g. by bundling fuel taxes with the increased provision of affordable transportation alternatives. Creating a shared (Nordic) vision on sustainable mobility of the future (and similarly local visions for wind power and land-use) would bring solutions to the discussion as well and ensure that decisionmakers bring attractive solutions to the challenges and with a roadmap for the future, so that people – in the case of fuel price increases - would not be left to find their own alternatives to the increased costs.

Table 3: The need for holistic perspectives, planning and shared vision – ways forward

Generally applicable	Provide transparent information and clear communication. Perceived impacts play a key role in explaining local acceptance of wind power projects. Concerns include distributional impacts and environmental consequences. To ensure that perceptions are not based on misunderstandings (e.g., regarding the placement of wind turbines or the impact of a new fuel tax on fuel prices) this calls for transparency with regard to information about the project/initiative and clear communication about the purpose of policies and their expected impacts and co-benefits. This applies at all government levels and for developers etc.
Specifically for wind power	Facilitate co-created local vision on the green transition. To improve social acceptance of wind power developments, locals need to be able to see the development in the larger context of the green transition – and their role in it. This might be achieved with a local vision co-created between local government and citizens. We suggest that visions, as a minimum, encompass local land use in general and consider other needs and goals as well (e.g., biodiversity, local economy, contribution to national goals etc.).
Specifically for fuel taxes	Facilitate a Nordic vision on sustainable mobility. There is Nordic added value in co-creating a shared (Nordic) vision on sustainable mobility that national and local decision-makers can tap into, refer to, and build on. This also has the potential to be a blueprint for an approach/process that can be applied in national, regional, and local contexts. Since it requires cross-Nordic collaboration, it could be an effort led by the Nordic Council of Ministers. Gather examples of successful policy mixes. Unpopular policies, such as fuel taxes, gain support if they are bundled/mixed with other policies that benefit citizens. As has become clear in this report, there is a sparsity of Nordic examples in the mobility area, indicating a need to look beyond the Nordics for inspiration. Work could be initiated to gather examples of successful policy mixes from around the world.
References to the NJUST toolbox (Sánchez et al. 2024)	3. Develop a vision for the green transition ● Establish clear goals and common ground. ● Co-create an inspiring vision. ● Use the vision to inspire action. 5. Assess and mitigate social and regional impacts of the green transition ● Conduct impact assessments. ● Mitigate adverse impacts. ● Promote a universal design perspective. ● Monitor impacts.

Navigating and addressing existing societal divides

For both wind power and fuel taxes, one must pay close attention to existing societal divides. Green transition initiatives risk tapping into existing grievances and inequalities and are received accordingly by the affected citizens.

These considerations have also been highlighted in the cross-Nordic "Not Just a Green Transition" (NJUST) project. The report *"In all fairness: perceptions of climate policies and the green transition in the Nordic Region"* shows that the Nordic population feel that climate policies affect people in different ways, depending on socioeconomic background, location (urban vs. rural) and if they are indigenous people (such as the Sámi). This perceived inequality and injustice, whether or not it is accurate, affects social acceptance.

For fuel tax increases, conclusions in the literature across all Nordic countries point towards a need for addressing the perceived (and often real) unequal impacts of the tax between people living in cities compared to rural areas. In rural areas where public transportation systems are lacking, additional initiatives that make transport less affordable or less approachable are unpopular, no matter their intended purpose. This must be taken into consideration when designing fuel tax policies/policies for sustainable mobility. Earmarking is a possible solution. This has been shown to increase both the perceived fairness and effectiveness of taxes. Studies such as Dugstad et al. (2024) found that acceptance is highest when tax revenues are used to fund both climate mitigation measures and reduce rural-urban inequalities. There are, however, also significant drawbacks with earmarking of revenues, particularly that it restricts budgetary flexibility.

The same conclusions are valid for wind power development. If the placement of wind power is perceived to be biased towards certain regions, affecting certain groups in society disproportionately, the perceived injustice negatively affects social acceptance. If local communities feel they bear the burden without receiving any tangible benefits, this creates resistance. Community ownership, local involvement and benefit sharing are possible, and maybe necessary, solutions (see also the next section).

Table 4: Navigating and addressing existing societal divides – ways forward

Generally applicable	Research on and experimentation with compensation mechanisms. There is a need for more research on and experimentation with compensation mechanisms that ensure equality in the transition without compromising the effectiveness of a price signal. These mechanisms do not have to compensate for specific impacts of specific policies but help ensure equitable outcomes more broadly. Do note that compensation should be accompanied by dialogue with citizens. If they feel that they are simply being paid off, this instead undermines trust and fairness (see also section on Involvement and democracy below).
Specifically for wind power	Share and scale Nordic example of benefit sharing practices. Often, landowners are the primary beneficiaries of wind power development. To ensure social acceptance, benefits must be shared more broadly in the local community. For example, economic benefits and opportunities for local businesses are key drivers for social acceptance of wind power. A good place to start is by sharing and scaling good examples across the Nordic countries. Ensure local anchorage. Projects initiated by private landowners tend to have higher levels of local acceptance compared to those initiated by wind power companies, as they are perceived to better reflect local objectives. Local anchorage can also be improved with transparency and clear communication (see section above) and involvement (see section below).
Specifically for fuel taxes	Identify Nordic and international examples of earmarking. Earmarking tax revenue for environmental initiatives has consistently been shown to increase the level of support. There is thus a need for more examples of earmarking to help guide decision makers, and an assessment of what works and what does not (in a Nordic context). Increase knowledge about alternatives. As this report has shown, the urban-rural divide, and the mobility initiatives such as fuel taxes that risk deepening the divide, hinder social acceptance. Some of this is based on the perception that there are no feasible alternatives to current, fossil-fueled mobility practices. However, there are alternatives available, also for rural areas, and there is a need to spread this knowledge to decision makers and citizens. Increase attractiveness of alternatives. Making unsustainable practices more expensive does not necessarily increase the attractiveness of sustainable alternatives. Especially for low-income groups, decision makers need to provide economic incentives to move away from fossil fuels, e.g. support for used EVs.
References to the NJUST toolbox (Sánchez et al. 2024)	6. Adopt a place-based approach for your policies ● Develop place-based action plans. ● Ensure local quality-of-life benefits. Close ties to 4. Engage people in the green transition, and 3. Develop a vision for the green transition.

Ensuring involvement and democracy

For wind power and other local green transition investments, everything points to involvement as a key to ensuring social acceptance. Especially early community engagement has been highlighted both in Nordic studies and by participants in the workshops as an effective tool.

The Nordic countries generally have a strong tradition of involving citizens in local land-use development, for example, through citizen hearings. However, there are still aspects that can be improved, e.g. with respect to the way in which citizens are involved in the process. For example, for wind power, early engagement and transparent communication by both the municipality and developers is recommended by multiple sources.

However, the urgency of the green transition creates a dilemma: how to create more involvement while also speeding up the green transition, as well as how to make sure involvement does not become a burden for certain people or certain groups, municipalities or developers, especially in areas with multiple projects? As was highlighted by multiple stakeholders in the virtual workshop on wind power, involvement requires a lot of time and knowledge from the local people, emphasizing a need to improve the efficiency of involvement from a local perspective.

While classic forms of involvement and citizen engagement might help ensure a minimum of social acceptance, there might be a need for trying out other and newer forms of citizen participation. For example, across the Nordic countries, experiments with citizen assemblies and similar democratic forms of engagement should be assessed and scaled (if successful). This is neither easy nor cheap. Both at the national and local levels, government employees need to be equipped with the right competencies to handle and facilitate citizen involvement processes. Involving locals project by project requires a lot of resources from the citizens, implying that coordination between projects (not only wind power or green transition projects, but all projects impacting the locals) and combination of involvement processes decreases the burden of involvement and serves to demonstrate, for the locals, expected overall impacts and cumulative effects.

Table 5: Ensuring involvement and democracy – ways forward

Generally applicable	Facilitate early engagement and transparent communication. Early engagement and transparent communication by both the municipality and developers is recommended by multiple sources. As this report has shown, lack of perceived participation in the planning process decreases social acceptance in terms of perceived personal well-being. Specifically, in many Nordic municipalities, a lack of transparency and insufficient public involvement has undermined trust in the decision-making process related to wind power. Therefore, early engagement with citizens and transparent communication is key. This will require allocation of funds to e.g., the local governments or core agencies responsible for engagement, involvement, and communication. Experiment with different forms of engagement. Considering the challenge of the urgency of the green transition clashing with the need to involve and engage citizens, there is a need for cross-Nordic assessment of the many different experiments with citizen assemblies and similar democratic forms of engagement taking place across the Nordic countries. There are opportunities for scaling and implementing across countries (see e.g. ongoing Nordic work: https://www.nordforsk.org/projects/legitimacy-and-acceleration-green-energy-initiatives-and-transitions-legit) but these need to be sold to national and local policymakers. Competencies for citizen involvement. Both at the national and local levels, government employees need to be equipped with the right competencies to handle and facilitate citizen involvement processes, e.g., how and when to involve citizens. There are examples across the Nordic countries of specialized organizations, teams, etc., with these kinds of competencies, but national policymakers must ensure that these organizations and teams are scaled accordingly or that competencies are spread out more evenly across relevant agencies and government levels.
References to the NJUST toolbox (Sánchez et al. 2024)	4. Engage people in the green transition ● Map stakeholders who should be involved. ● Make meetings accessible and inclusive. ● Engage experts and facilitators. ● Ensure that engagement processes have a concrete impact. ● Make citizen engagement practices a regular routine.

Social climate plans as a lever for change

Except for Iceland, all the Nordic countries are participating in the EU's emissions trading system (ETS), which from 2027 is extended to also cover smaller industries, heating, and transportation (ETS2). It will thus have the same effect as a fuel tax.

Knowing that this may put a financial burden on some households, the ETS2 regulation includes: 1) allocation of some of the revenue to the individual states (SCF – Social Climate Fund), to alleviate social aspects, as well as 2) a requirement that the states develop Social Climate Plans describing how they will handle fuel poverty in relation to the new regulation.

This presents an opportunity for the Nordic countries to use this strategically to enhance social acceptance of this implicit additional tax on fuel by 1) developing the required plan – not only due to EU requirements, but because it can give value nationally, and 2) communicating clearly and proactively that "yes, there is a risk that fuel prices may increase if the transition doesn't happen fast enough, but rest assured that we have plans – and funding – in place to handle this."

Ways forward: We suggest that the Nordic countries collaborate on how to best use the social climate plans as a lever for change.

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