Ref. Ares(2019)6767959 - 31/10/2019

Deliverable 2.3: Taxonomy of social acceptance drivers and barriers. Updated version.

Date: 31.10.19

Version V5

Summary

WP	2	Name of the WP: Social acceptance analyses in target regions/communities	
Dissemination level:	Public	Due delivery date:	31 October 2019
Nature:	Report	Actual delivery date:	31 October 2019
Lead beneficiary:		CICERO	
Contributing beneficiaries:			
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Document history					
Version	Date	Submitted by	Partner	Reviewed/Approved by/Partner	Date
V0	04.09.18	Stine Aakre	CICERO	FUB-FFU	07.09.18
V1	14.09.18	Stine Aakre	CICERO	FUB-FFU	25.10.18
V2	11.12.18	Merethe Dotterud Leiren	CICERO	FFU (Michael Krug)	14.12.18
V3	18.12.18	Merethe Dotterud Leiren	CICERO	FUB-FFU	18.12.18
V4	23.10.19	Merethe Dotterud Leiren	CICERO	ICLEI (Arthur Hinsch)	25.10.19
V5	31.10.19	Stine Aakre	CICERO	FUB-FFU(R. Di Nucci)	31.10.2019

WinWind has received funding from European Union's Horizon 2020 Research and Innovation programme under Grant Agreement Nº 764717. The sole responsibility for any errors or omissions made lies with the consortium. The content does not necessarily reflect the opinion of the European Commission. The European Commission is also not responsible for any use that may be made of the information contained therein.

Abstract

The overall objective of the EU project WinWind is to enhance the (socially inclusive) deployment of wind energy by increasing social acceptance of, and support for, onshore wind energy in 'wind energy scarce regions' (WESR). The target regions are: Saxony and Thuringia in Germany, Lazio and Abruzzo in Italy, Latvia as a whole, Mid-Norway, the Warmian-Masurian Voivodeship in Poland and the Balearic Islands in Spain.

Work package 2 includes a systematic analysis of social acceptance barriers and drivers across the WESRs. The aim of this report (Deliverable 2.3, updated version), is to provide an updated taxonomy of acceptance barriers and drivers in the WESRs. The structure of the taxonomy is based on two previous studies undertaken in the frame of WinWind: Deliverable 2.1, which reviews the relevant literature on social acceptance of wind energy, and describes the technical, socio-economic and regulatory conditions for wind energy in the WESRs; and Deliverable 2.2, which presents a conceptual framework for analysing social acceptance barriers and drivers in the WESRs.

This document presents an updated version of the taxonomy (the original version, Deliverable 2.3, was submitted in December 2018). The update includes results from the online stakeholder consultations conducted in May-July 2019, where the WinWind stakeholders were asked to evaluate the level of impact of each barrier and driver identified by the partners in Deliverable 2.3. The results from the stakeholder consultations have allowed us to analyse the level of impact of each social acceptance barrier and driver across the WESRs and how frequently each barrier and driver has been reported by the stakeholders. These results form the basis for an evaluation of the overall criticality of each barrier and driver across the WESRs, which is presented in the updated report.

The taxonomy is structured as follows: After a brief introductory section in part 1, in part 2 we present key concepts, categories and definitions relevant to the study of social acceptance of wind energy. In part 3, we present the structure, classification and categorisation of the taxonomy. In part 4, we provide an overview of similarities and differences in barriers and drivers of acceptance in the WESRs. In part 5, we discuss the criticality of acceptance factors across the WESRs, while part 6 provides a summary and discussion. Appendix 1 gives specific information from all the WinWind target regions/countries provided by the partners.

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1 Introduction

WinWind has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement Nº 764717. The overall objective of WinWind is to enhance the (socially inclusive) deployment of wind energy by increasing social acceptance of, and support for, onshore wind energy in “wind energy scarce regions” (WESR). The target regions are: Saxony and Thuringia in Germany, Lazio and Abruzzo in Italy, Latvia as a whole, Mid-Norway, the Warmia-Masuria province in Poland and the Balearic Islands in Spain.

As part of this work, WinWind has developed a taxonomy of social acceptance barriers and drivers, which has been integrated into other activities in the WinWind project (Deliverable 2.3, submitted 18.12.18). The taxonomy provides an overview of key similarities and differences between social acceptance drivers and barriers in the WinWind target regions, including size and ownership of projects, perceived procedural or distributional justice of planning and permitting processes, grid infrastructure, critical community acceptance issues, like visual impact, noise, infrasound, shadow flicker, distance from residential buildings, protected areas etc., energy policy frameworks and support schemes, and policy measures to ensure community acceptance and support through procedural and financial participation. It also includes a template which was used to assess social acceptance barriers and drivers. The template is based on the findings of the literature analysis (Deliverable 2.1), which reviews the relevant literature on social acceptance of wind energy, and describes the technical, socio-economic and regulatory conditions for wind energy in the WESRs. The template is moreover based on Deliverable 2.2, which presents a conceptual framework for analysing social acceptance barriers and drivers in the WESRs.

This document presents an updated version of the taxonomy (the original version, Deliverable 2.3, was submitted on 18 December 2018). The update includes results from the online stakeholder consultations conducted in May-July 2019, where the WinWind stakeholders were asked to evaluate the level of impact of each barrier and driver identified by the partners in Deliverable 2.3. The results from the stakeholder consultations have allowed us to analyse the level of impact of each social acceptance barrier and driver across the WESRs and how frequently each barrier and driver has been reported by the stakeholders. These results form the basis for an evaluation of the overall criticality of each barrier and driver across the WESRs, which is presented in the present report.

1.1 Methodology

The taxonomy was developed in four steps:

1. A template was developed based on the Literature Review (Deliverable 2.1) and the Conceptual Framework (Deliverable 2.2). After earlier rounds of comments from the WinWind partners, a template was completed on 14 September 2018.
2. The WinWind project partners assessed and specified the relevant barriers and drivers in the target regions in their respective countries, using the template. Their input is included in Appendix 1, which was completed by 11 December 2018.
3. The gravity of each of the specified barriers have been evaluated by the stakeholders, as part of the regional stakeholder consultations in work package 3 (Task 3.4), which was completed by 31 July 2019. The level of impact of each barrier was evaluated using a

scale from -3 to 3, where -3 indicates “very strong acceptance barrier” and +3 indicates “very strong driver”.

4. Combining information on how frequently a given barrier is reported by the regions/countries with information on the barrier impacts allowed us to estimate the overall *criticality* of each barrier across the WESRs. The results are presented in this updated version of the taxonomy.

1.2 Structure of this report

The main purpose of this report is to provide an updated version of the taxonomy, where the barriers and drivers are classified according to their criticality and which analyses the importance of the different acceptance factors according to regions, countries, stakeholders and the project as a whole.

In part 2, we present key concepts, categories and definitions that we use in the taxonomy.

In part 3, we present the structure of the taxonomy, including the classification, and grouping of acceptance barriers/drivers and policy and corporate measures that aim to enhance acceptance.

In part 4, we use the barrier specification, based on input from the WinWind partners, to provide a systematic overview of key similarities and differences between social acceptance barriers and drivers in the WinWind target regions.

In part 5, we analyse the criticality of each social acceptance barrier and driver across the WinWind target regions. The analysis is based on the results from the online stakeholder consultations conducted May-July 2019, where the WinWind stakeholders were asked to evaluate the level of impact of each barrier and driver identified by the partners in Deliverable 2.3.

In part 6, we provide a summary and discussion of the results from the stakeholders’ evaluations of the different social acceptance barriers and drivers.

Appendix 1 contains specifications of the acceptance barriers and drivers in the WinWind target regions conducted by the partners.

2 Concepts, categories and definitions

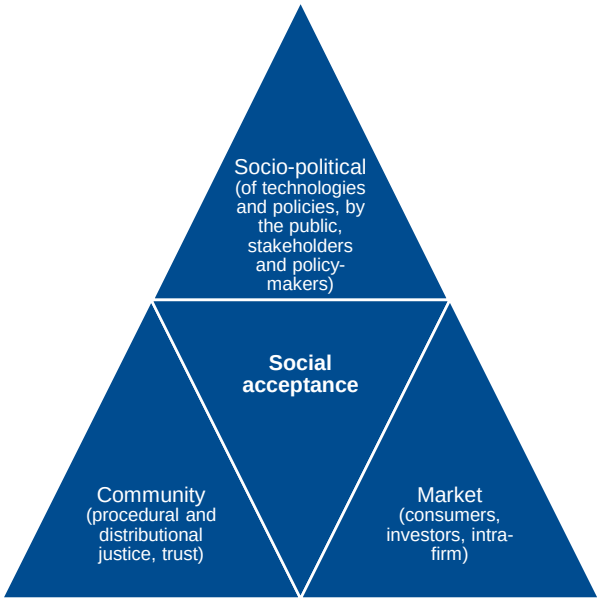
Broadly speaking, social acceptance may be defined as “a favourable or positive response (including attitude, intention, behaviour and — where appropriate — use) relating to a proposed or in situ technology or socio-technical system by members of a given social unit (country or region, community or town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

2.1 Socio-political acceptance, market acceptance and community acceptance

The WinWind project is primarily concerned with analysing **community acceptance** of specific wind energy projects. Figure 1 shows how community acceptance interacts with other dimensions of social acceptance. **Socio-political acceptance** refers to the general support for technologies and policies, whereas **market acceptance** relates to the meso level, involving

consumer-, investor-, and intra-firm acceptance. **Community acceptance** refers to the specific acceptance of siting decisions and renewable energy projects by local stakeholders, in particular residents and local authorities.

Figure 1. The triangle of social acceptance of renewable energy innovation



Source: Wüstenhagen et al. 2007.

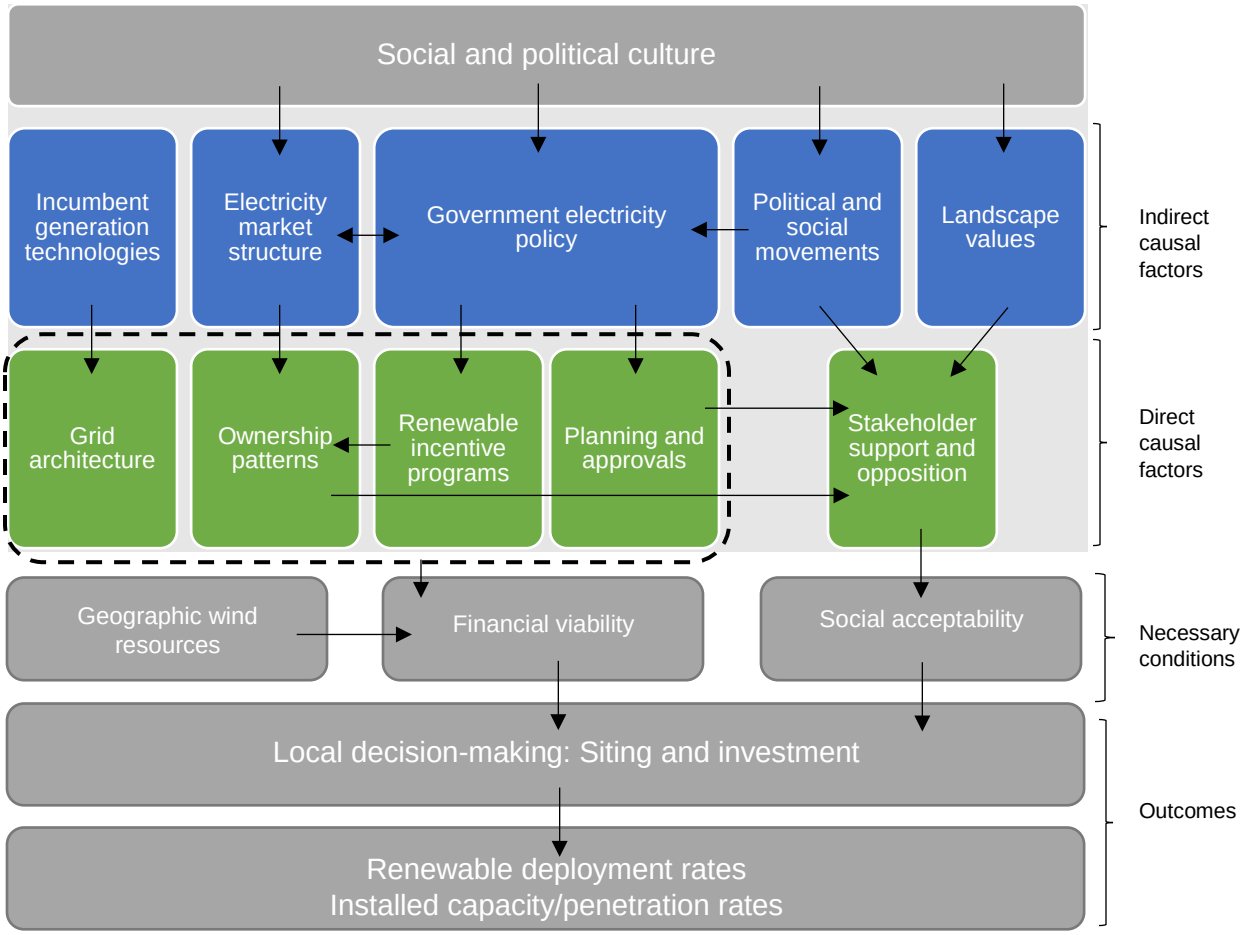
As discussed in the Literature Review and the Conceptual Framework (Deliverables 2.1 and 2.2), social acceptance of wind energy as an object is multi-faceted (as a technology, as projects, and as products), it is produced or constrained within a larger context (social acceptability), at different scales (socio-political, community and market), by actors at different levels (general, local), and by the relationship between them.

2.2 Social acceptance and wind energy deployment

Understanding social acceptance is key to understanding the prospects for successful wind energy deployment. While social acceptance can be regarded a *necessary condition* for successful wind energy deployment, it is not a *sufficient condition*.

Ferguson-Martin and Hill (2011) present a framework in which they conceptualise wind energy technology deployment as the outcome of a larger process of investment and local siting decisions. **Financial viability** and **social acceptability** (and ultimately social acceptance) are necessary conditions for successful deployment. Both are shaped by a range of factors (e.g. social, political and institutional), as shown in Figure 2 below.

Figure 2 Factors influencing wind energy deployment rates



Source: Ferguson-Martin and Hill (2011)

The financial viability of wind energy is determined by factors such as turbine and electricity prices, wind speeds resp. local wind energy densities, and by institutional factors such as grid architecture, ownership structures, the degree of certainty in planning and approval processes, and the nature and extent of financial incentives for wind energy.

Social acceptability (and acceptance) is determined by stakeholder attitudes, which in turn are shaped by the "nature of the planning and approval process (i.e. the effectiveness of public engagement), the degree of local ownership, the landscape values held by affected stakeholders, and broader socio-political movements around energy and electricity" (Ferguson-Martin and Hill 2011, p. 1650). Stakeholders include both supporters and those opposed, where those in favour "are generally centred on environmental concerns, such as climate change or air pollution, but can also include potential economic development, energy security and concerns over other energy technologies", while opponents typically cite concerns such as "noise, health impacts, landscape and aesthetic impacts, wildlife concerns, property value, and procedural fairness".

Thus, although the primary concern of the WinWind project is with understanding community acceptance (i.e. acceptance by local stakeholders, local populations, policy-makers and administration) of wind energy projects (i.e. acceptance of specific wind energy projects at a local level), it is important to be aware that such acceptance (as an outcome) is produced within a larger, complex and dynamic process.

2.3 Barrier identification and prioritisation

Wind energy is one of the key technologies in the endeavour to decarbonise the energy sector. However, this implies that more wind turbines need to be set up and that more sites to place them have to be identified. In broad surveys capturing socio-political acceptance, the public is generally in favour of wind energy. Implementation on a local level has, however, sometimes proved to be more challenging. For example, when mapping lead times for projects in the EU in 2007-2008, the European project WindBarriers found that over 20% of wind energy projects were delayed and close to 20% were seriously threatened due to appeals from local communities (Iuga et al. 2016).

Successful (and socially inclusive) wind energy deployment requires that barriers are identified, and that they are prioritized to ensure efficient resource allocation and effective measures to increase overall acceptance and support (Mosannenzadeh et al. 2017).

Tables 1 and 2 below summarise key categories and definitions of social acceptance.

Table 1. Acceptance types, objects and subjects

Acceptance type	Acceptance object	Acceptance subject
Socio-political acceptance	Wind energy, wind energy technology or associated policy	General public, central stakeholders, policy-makers
Community acceptance	Specific wind energy project at local level	Local stakeholders, local populations (particularly affected citizens), local policy makers and administration
Market acceptance	Technological products (wind turbines) or services associated with those products	Consumers, investors, companies, financing institutions.

Source: Adapted from Sonnberger and Ruddat 2017; Wüstenhagen et al. 2007.

Table 2. Definitions

Key definitions	
Acceptability	"The process of collective assessment of a given project (understood as the specific embodiment of complex interactions between technology and society within a given socio-technical project), integrating a plurality of actors (stakeholders) and spatial scales (from global to local), as well as involving the specific trajectory (past present and future) of a political group or polity (community/society)" (Fournis and Fortin 2016, p. 5).
Acceptance	"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)
Socio-political acceptance	Acceptance of both technologies and policies at the most general level. This general level is not limited to the general public, but includes acceptance by key stakeholders and policymakers.
Community acceptance	Acceptance of specific projects at the local level, including affected populations, key local stakeholders and local authorities
Market acceptance	Process by which market actors adopt and support (or otherwise) the energy innovation. Market acceptance is proposed in a wider sense, including not only consumers but also investors and, very significantly, intra-firm acceptance.
Barrier criticality	A barrier's criticality is defined as a function of 1) its frequency and 2) its level of impact.

Sources: Mosannenzadeh et al. 2017; Fournis and Fortin 2016; Upham et al. 2015; Wüstenhagen et al. 2007.

3 A taxonomy of the main barriers and drivers of social acceptance

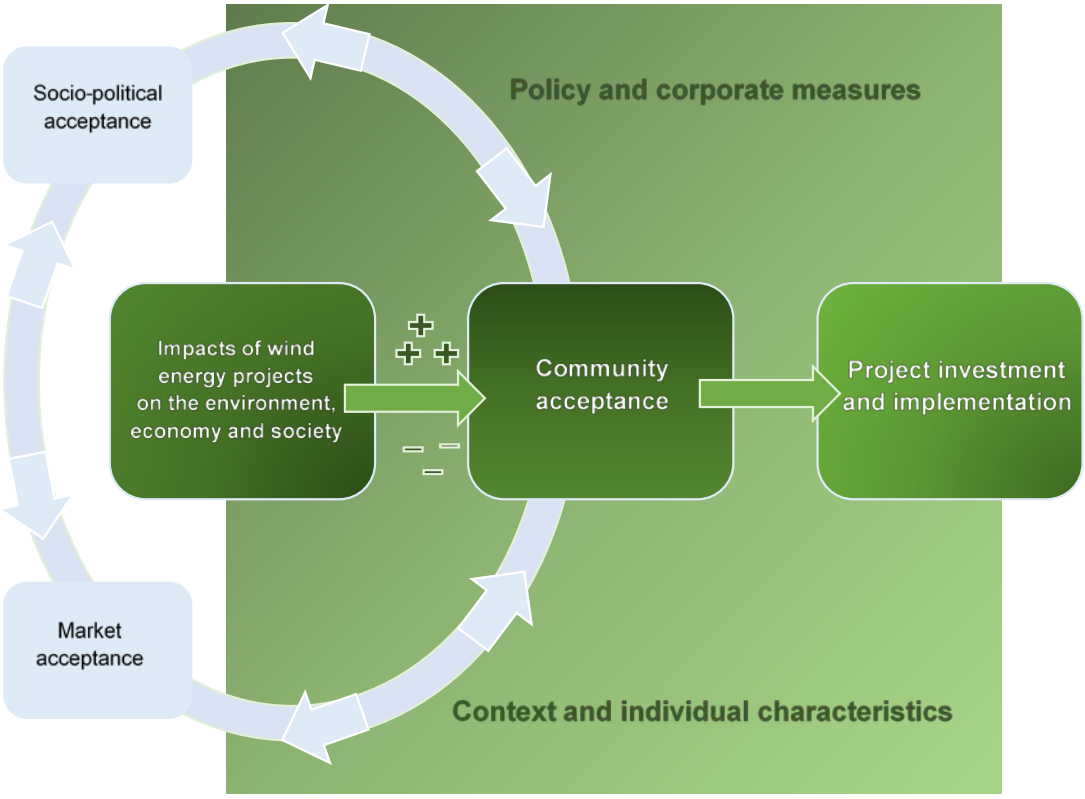
The selection and classification of main acceptance barriers draws extensively on two previous reports (Deliverables 2.1 and 2.2) The first of these reports (Deliverable 2.1) consists of (1) a review of existing scientific literature on the social acceptance of wind energy, and (2) information about technical, socio-economic and regulatory conditions in the WESRs.

The literature review focuses on the key peer-reviewed contributions published in scientific journals, primarily from the period 2007 to present. Relevant literature was identified through several key word searches (e.g. “wind energy” or similar, “social acceptance” or similar) in Scopus, Web of Science, and Google Scholar. The articles represent a broad range of themes, variables, disciplines and methodologies. Information on each article was entered into a detailed summary matrix to catalogue the year, research questions, methods, analysis techniques, geographic coverage, explanatory variables examined, major conclusions, and additional research recommendations of each study. These data formed the basis for the conceptual framework for analysing social acceptance barriers and drivers in the WESRs, presented in the second report (Deliverable 2.2) and summarised in Figure 3 below.

Broadly speaking, the reviewed literature on social acceptance suggests that community acceptance of specific wind energy projects is shaped by the (1) environmental (e.g. birds, bats, wildlife, ecosystems), (2) economic (e.g. costs and benefits, tourism, property prices, regional value creation, employment, distribution of costs and benefits), (3) societal (e.g. human health and well-being) impacts of the project (4), process related (e.g. transparency of information, formal/informal participation of citizens) and (5) contextual factors (e.g. national or regional energy market characteristics, regulatory conditions, political and institutional context, actor constellations), individual characteristics (e.g. personal values, socio-demographic factors) and measures that modify how these impacts are perceived. These measures include both policy and corporate *activities* specifically related to a particular wind energy project, targeting a particular acceptance factor or groups of acceptance factors to influence community acceptance. Examples of policy and corporate measures include activities aimed at increasing transparency (e.g. sharing of project relevant information) and inclusiveness (e.g. identifying and interacting with all relevant stakeholders) to enhance the perceived procedural justice, and the establishment of a benefit sharing scheme (e.g. a community fund, local contracting and local ownership) to enhance perceived distributional justice. A national, regional or local authority may introduce regulations to ensure a minimum degree of community ownership.

The Literature Analysis (Deliverable 2.1) which provides the basis for the present report, also includes a brief description of the physical, technical and political context for wind energy development in each of the WESRs. It describes the technical conditions for wind energy and challenges related to market development and grid connectivity. The report moreover describes relevant policies, support schemes and institutions that govern the development of wind energy. This part complements the literature review by focusing on factors that may influence social acceptance at the socio-political and market scale in the target regions of the WinWind project.

Figure 3. A conceptual framework for analysing social acceptance in the WESRs



To the extent possible, the classification of acceptance barriers and drivers in the taxonomy follows the methodological framework for good/best practice selection and analysis, which was prepared in the frame of the WinWind project (Deliverable 4.1). Good practices are measures either taken by the wind industry (project developers/planners, operators, investors, industry associations) or by public/policy actors to enhance social acceptance and to address social acceptance barriers, and which have been proven to work well and produce good results and are therefore recommended as a model. They are successful experiences, which have been tested and validated, are transferable and can be shared so that a greater number of people can adopt them (cf. Krug and Di Nucci 2018, p. 4, FAO 2014). Best practices are proven or innovative corporate or policy measures, preferably implemented in a WinWind model region, target region or any other region of the WinWind partner countries, or third countries (Krug and Di Nucci 2018, p. 14). Best practices are considered to be superior to good practices because they require innovative, testable, and replicable approaches which contribute to the improved performance of a project or policy, usually recognized as best by peer organizations (Rumohr-Voskuil 2014).

3.1 Main acceptance barriers and drivers

The literature review of social acceptance barriers and drivers (presented in Deliverable 2.1) highlights the complexity of social acceptance. For instance, although the WinWind project is primarily concerned with analysing community acceptance of specific wind energy projects, the report emphasises the fact that social acceptance is produced at different scales (socio-political, market and community acceptance), and these dimensions interact in shaping acceptance of wind energy development. Also, the report highlights the difference between outcomes and process (acceptance versus acceptability) and the fact that social acceptance can be regarded as one necessary condition for the successful deployment of wind energy technologies (besides financial viability). Regarding the latter point, in their study of social acceptance of wind energy development in Canadian provinces, Ferguson-Martin and Hill (2011) find that "the pro-wind gained political influence by capitalizing on a social movement toward banning coal and a need to create green energy jobs". The salience of these acceptance drivers could depend on factors such as incumbent generation technologies and the extent to which jobs are created locally. These complexities must be kept in mind aiming to enhance the (socially inclusive) deployment of wind energy increasing the social acceptance of wind energy in the WESRs.

A central theme in the peer-reviewed literature assessed in the above-mentioned report is the location-specific nature of impacts of wind energy projects, and how these impacts are perceived and valued by local communities. For instance, impacts depend on the technical and geographical characteristics of the respective wind energy project. Also, the environmental, economic and societal impacts of wind energy development could depend on what wildlife species are present in a particular location, on the extent and nature of local tourism, and whether the proposed land use changes conflict with existing societal uses, for instance by indigenous groups. How such impacts are perceived and valued, in turn, also depends on a range of contextual factors (including political-administrative factors) and personal factors (e.g. individual experience with wind projects, personal attitudes and values including political and socio-cultural values, and socio-psychological factors). Again, such location-specific nuances must be considered in order to fully understand local responses to wind energy development in the WESRs.

Location-specific characteristics are also key to the successful governance of wind energy development, and to the design and implementation of policy and corporate measures aimed at enhancing social acceptance in cases where barriers are identified.

Local environmental, economic and societal impacts are key determinants in shaping social acceptance. Despite the very location-specific nature of such impacts, however, there seems to be a consensus in literature on the importance of the following three factors in shaping social acceptance, across diverse contexts:

1. **procedural justice** (fair and participative decision-making processes),
2. **distributional justice** (fair distribution of costs and benefits), and
3. **trust** (in information and the intentions of key actors)

Although recognized as among the more critical factors shaping social acceptance in general, the salience of each of these factors in a specific project depends on context-specific factors (including general socio-political acceptance and market acceptance), how these factors interact, and on the extent to which policy and corporate measures are introduced to address them. Thus, although common acceptance factors and "good practices" have been identified in

the literature, it ultimately depends on the specific circumstances and challenges surrounding a particular project how justice and trust are ensured.

Thus, a general conclusion from the literature review is that there is no “one size fits all” solution to enhancing social acceptance in the WinWind regions. Each project is unique, facing unique challenges and opportunities, rooted in the local context.

Indeed, the literature review also clearly illustrates the very different technical, socio-economic and regulatory conditions for wind energy development in the six WinWind countries. Thus, while the findings from the review can help direct attention to central challenges and key questions related to the social acceptance of wind energy development, solutions and answers to these questions must take into consideration the regional context and location-specific factors that ultimately shape community acceptance of specific wind energy projects.

3.2 Key categories of acceptance factors in the taxonomy

Table 3 presents a taxonomy of the main categories of acceptance factors. Each acceptance factor, including the relevant research on their potential effects on social acceptance, is discussed in more detail in Deliverable 2.1.

The taxonomy has been filled with information for each region in Appendix 1. This Information forms the basis for the overview of key similarities and differences between social acceptance drivers and barriers in the WinWind target regions (in Section 4).

Table 3. A taxonomy of acceptance factors in the WinWind regions

Acceptance factor category	**Acceptance factors**	**Specification of factor** (general or specific to target region)	**Measures** **Policy** (National, regional, local); **Corporate** (developers, other market actors)
Technical characteristics of project	The size of modern projects (e.g. number of turbines and turbine height The visibility of wind turbines The distance of wind turbines from residential areas The need for grid infrastructure improvement The need for other infrastructure improvement (e.g. transport and communications infrastructure) Other		
Impact on Environment	Impacts on the physical environment (e.g. landscape, protected areas, increased traffic) Impacts on biodiversity and wildlife Impacts on greenhouse gas emissions Other		
Impact on Economy	Impacts on tourism sector Impacts on agricultural sector Impacts on local profits and income generation (e.g. jobs, tax, local added value generation) Impacts on individuals' economy (e.g. electricity prices, income to landowners, property value) The distribution of economic benefits and costs between actors within the community The distribution of benefits and costs between communities hosting wind power and other communities The degree of local ownership of the plants Other		
Impact on Society	Impacts on health and well-being (e.g. electromagnetic frequencies, shadow flicker, noise) Impacts on quality of life (e.g. recreational opportunities) Other		
Individual characteristics	Socio-cultural values (e.g. equal rights, entrepreneurialism) Sense of place, self-identity, place attachment Discourse on wind energy in the public sphere/media Political climate for wind energy development Other		
Market	Regional (or national if regional is unknown) share of		

	renewables in the electricity sector Energy demand (e.g. exporter/importer of electricity, security of supply) Other		
Planning and permitting process	Opportunities for informal/formal participation and consultation in the planning and permitting process Information about projects and the transparency of the permitting process Trust in processes Trust in information Other		
Governance and regulatory framework	National/regional/local targets National/regional/local plans National/regional/local policies: taxation National/regional/local policies: financial support schemes (e.g. el-certificate scheme) Other		
Trust in key actors	Trust in national decision-makers Trust in regional/local decision- makers Trust in investors Other		
Other	Factors not listed above		

Sources: Adapted from IEA 2013; Krug and Di Nucci 2018; Linnerud et al. 2018a, b; Zaunbrecher and Ziefle 2016.

4 Similarities and differences of acceptance factors in the WESRs

Input from the WinWind partners to the taxonomy and the description of the technical, regulatory and socio-economic conditions for wind energy in the WES target regions in Deliverable 2.1, show the patterns of differences and similarities that exist across the regions. We summarise the key findings under the taxonomy's categories for social acceptance drivers and barriers:

4.1 Technical characteristics of projects

The category "Technical characteristics of projects" includes: The size of modern projects (e.g. number of turbines and turbine height); the visibility of wind turbines; the distance of wind turbines from residential areas; the need for grid infrastructure improvement; and the need for other infrastructure improvement (e.g. transport and communications infrastructure).

Related to the size of modern projects and visibility, several studies have proposed that impacts from wind facilities may be cumulative, increasing with the size of turbines, the number of turbines, and the clustering of turbines (Petrova, 2013; Walker et al., 2014). However, other European studies have not found a significant correlation between the number of turbines and negative attitudes (Krohn & Damborg, 1999; Pohl et al., 2012). Questions around cumulative impacts and visual accessibility deserve additional study. However, in Norway there is certain evidence that wind projects enjoy higher acceptance levels for example in terms of support from local authorities, once the original number and size of plants have been reduced. In the Warmian-Mazurian Region experiences also tend to support the view that a large number of wind turbines affects social acceptance negatively. However, visual impacts are not universally negative; there is also some, although more random evidence for positive visual and symbolic perceptions of wind turbines, for example in Germany.

Distance from residential and protected areas is an important social acceptance factor. The literature review highlights that siting of turbines close to the most sensitive and protected landscapes provokes the most negative responses to wind energy. All the WESRs under investigation have *restrictions on land use*. For example, they all define certain nature conservation areas that cannot be used for wind energy production. Most of the WESRs also have rules on minimum setback distances between settlements and the wind turbines. In Lazio and Abruzzo, the use of wind power is forbidden in urban areas. In Germany, the regional planning bodies define specific setback distances for settlement areas, infrastructure objects, monuments, and protected areas when designating suitable/preferable areas for wind energy in their regional plans. As a consequence, minimum distances between wind turbines and residential areas, for instance, may vary substantially across the sixteen federal states of Germany. In Saxony, the setback distance between wind turbines and residential areas used to be fixed at 1,000 metres but is more flexible under the new government. In Thuringia setback distances depend on the height of the wind turbine (>150 m: 1,000 m, <150 m: 750 m). In Latvia wind power plants shall not be placed closer than 500 metres to residential houses in rural areas and 1,000 metres to dense existing or planned residential buildings or public buildings. The distance between residential houses in rural areas and wind farms shall be no less than five times larger than the maximum height of the wind power station; for dense residential buildings and public buildings the distance shall be at least 2,000 metres. Poland also has setback distance regulations. In May 2016, Poland adopted limits on where wind farms can be built. Wind farms must be built at a distance from housing of at least 10 times the height of turbine. In

contrast, Norway does not have such setback rules, but because of noise and shadow flicker regulations there needs to be a distance of typically 700-900 metres from houses. In relation to the 'national frame' for wind energy that the Norwegian regulator launched 1 April 2019, the regulator recommends that a minimum setback standard should be introduced, but with exceptions.

However, in the literature there is no clear consensus on the relationship between social acceptance and distance to wind turbines, but setback rules may be important for social acceptance. One effect of such rules is that they exclude large areas from potential use for wind turbines. For example, the setback rules referring to settlement areas in Thuringia exclude 60% of Thuringia's area from being used for wind power. Interests like wind energy developers argue that setback distances are often too large (e.g. in the Balearic Islands, Latvia).

In general, in the WESRs, the larger the distance of wind turbines from settlements and single houses, the higher the local acceptance. However, this is not true everywhere. In Norway wind power development typically occurs in rural areas where the population density is scarce and wind resources large. Most planned projects occur in 'untouched' nature. This creates resistance among people and interest groups, who value such nature and use it for fishing, hunting, reindeer herding. Friends of Earth proposes that wind power development should occur closer to industry and in areas where nature has already been 'touched'; this means closer to houses and therefore also smaller wind turbines, which gives less effect. Others argue that it is better with bigger and fewer wind turbines, than many small ones.

Wind energy creates pressures on *grid infrastructure* and grid capacity. This is clear for example in Italy, where a large majority of new requests for connection to the national grid is because of new wind turbines. In Germany a major challenge is to improve transport of electricity from the northern/eastern regions where there is a lot of wind energy to the south of Germany where wind energy is not as developed and there is a high demand for power. In Italy, Germany and Norway grids are being upgraded to improve the security of supply and increase the capacity. Such improvements represent a social acceptance driver in many cases.

We also see that harsh climate, as in Norway, creates challenges for grid maintenance and causing outages. Other regions, like the Warmian-Masurian Province in Poland, experience grid problems due to a poor network and therefore a constant threat of power loss in large areas in the region, where power loss issues hamper the development of wind power.

Improvements in grid capacity may affect social acceptance in a negative way if wind power increases the need for grids that are perceived as large nature interventions (e.g. conflicts related to "monster masts" in Norway). The effect may enhance social acceptance when it contributes to expansion and increased capacity of existing grids that are considered weak and limits local businesses in expanding their activities. This has been important for municipalities in, for example, Fosen in Norway.

In Latvia grid infrastructure projects like interconnectors with the Nordic electricity market cause resistance against wind power, because certain groups in society argue for cheaper electricity from the Nordic market provided through interconnectors instead of domestic wind energy production. Also, in Thuringia and Saxony there are concerns related to increasing electricity bills. Where grid upgrades add to the electricity bill the increasing price may create a social acceptance barrier.

Development of *new infrastructure* such as roads or ports (i.e. they need to be improved for the transport of wind turbines) is mentioned as a positive driver for social acceptance in Abruzzo, Latvia and Norway.

4.2 Impact on environment

The category “Impact on environment” comprises effects on the physical environment (e.g. change of landscape, protected areas, increased traffic), biodiversity and wildlife, and greenhouse gas (GHG) emissions.

Landscape change and effects on *biodiversity and wildlife* are among the most important factors that negatively affect the local acceptance of wind energy projects and is mentioned as a barrier for social acceptance in all the WESRs. People perceive risks for the cultural and natural landscape. In Thuringia and other regions of Germany environmental NGOs and citizen initiatives opposing wind energy often demand more independent environmental impact assessments and expertises including expertises on the impact on wildlife. As a rule, such expertises are commissioned and paid for by the project developers which increases the risk of “courtesy expertises”. Also, in Norway interest groups like Friends of the Earth point out that environmental concerns are not being assessed as thoroughly as other aspects in impact assessments, an argument that has received support from the national audit authorities.

Increased traffic is also an issue that creates concern. While in Germany potential sites can often be reached using the existing road network, new roads typically have to be built for new wind energy projects in Norway. This results in large nature interventions in areas that are sparsely populated, where noise levels are lower and expectations of quietness higher than in urban areas. Increased traffic and wind turbines also disturb reindeer herding, which is an important industry for the Norwegian minority, the Sami population.

Dismantling and restoration of the used land is also important for the physical landscape. In Germany operators have to ensure that they will dismantle wind turbines and restore the nature back to how it was prior to being allowed to construct, for example by providing a bank guarantee. Operators are required to dismantle the whole turbine and remove the foundations up to a minimum of 1 meter into the ground so that the land can be used for agriculture. Poland also has rules that require that the area of wind parks shall be restored to its state before construction was made. In Norway the regulator requires that the wind park owner – after 12 years in operation – makes a plan for how to remove the wind turbines and recover the nature to its ‘original’ state. The regulator approves the plan. However, the nature will never be exactly like it used to be.

The effect of wind energy on *greenhouse gas emissions* is one important acceptance driver in Thuringia, Saxony, Latvia, the Warmian-Mazurian Province and the Balearic Islands. However, in Germany opponents argue that GHG savings from wind energy are only small or even non-existent, when taking into account lifecycle GHG emissions. In Norway one common argument is that wind power does not have any climate change mitigation effect domestically because the power sector is already fully renewable; therefore, the country should not destroy its nature. Other certain green NGOs and wind power associations that promote wind energy as a climate change mitigation solution, arguing that there will be a higher need for electricity in future, when other sectors are electrified, and that Europe needs Norwegian wind power. Along these lines,

the argument is that climate change will have a greater impact on nature than wind power constructions.

4.3 Impact on economy

The impact on economy category include: Impacts on the tourism sector; impacts on the agricultural sector; impacts on local profits and income generation (e.g. jobs, tax, local added value generation); impacts on individuals' economy (e.g. electricity prices, income to landowners, property value); the distribution of benefits and costs between actors within the community; the distribution of benefits and costs between communities hosting wind power and other communities; and the degree of local ownership of the plants.

In general, there are concerns related to *tourism*, particularly highlighted in the two Italian regions and the Balearic Islands, whose economies are dependent on tourism. Impacts on the agricultural sector are a source of concern in some regions, including in Latvia, where locals express concerns related to the potential loss of agricultural land and the potential impacts on wind power production on cattle. In others regions, impacts on the agricultural sector is considered a driver of social acceptance. On the Balearic Islands and in the Warmia-Masuria province, for instance, farmers see commercial opportunities associated with wind energy development.

Creation of *regional/local added value* in the form of tax revenues for municipalities, increased activity for local businesses and local employment is a key driver for local acceptance in all the WESRs, and has contributed to ensure local acceptance of wind energy projects. However, the extent to which local value creation can help to ensure local acceptance depends very much on the specific context, actor constellations and local circumstances of each individual project. In Germany the expected tax income for municipalities is often lower than expected. Similarly, in Norway municipalities with property tax, consider the tax income as particularly important, but the association for wind power municipalities argue that local compensation/benefits should be higher than today.

In rural, depopulated areas, such as in many Norwegian municipalities, wind power development gives sign of new investments and a belief that new working places arise. During the construction phase, wind power development contributes with a large number of jobs in areas, where there are local competitive entrepreneurs, who can carry out the necessary jobs. However, once the construction phase has been completed the number of jobs will be much more limited. Thuringia has experienced a considerable increase in the number of working places in the wind energy sector (i.e. increased by almost 300 in from 2014 to 2016).

Income and profits from the operation of wind power plants, particularly among shareholders and land owners, and those who indirectly benefit from wind power projects is a key social acceptance driver. However, a likewise important acceptance barrier is the risk of decreasing *housing and property values*. This is similar in all the WESRs. In general, there is a negative correlation between visible wind turbines and the selling price of nearby homes and vacation homes.

Community wind parks including citizen-owned wind parks are an important acceptance driver in many regions of Germany due to the relatively high local added value they can generate.

However, in East Germany (former GDR) local or community ownership of wind energy plants is underdeveloped. Also, in other countries, community ownership is less relevant. This also applies to Norway where it is primarily investors from abroad who invest in wind power projects.

The issues discussed above are closely related to *distributional justice.* In the German target regions of Saxony and Thuringia, host communities argue that they bear a disproportionate share of negative project impacts, that local communities and residents are forced “to finance wind and solar lobbyists, in return get higher electricity prices and must still financially compensate operators for turbines which have to be temporarily switched off due to grid improvements. In addition, grid usage charges (levy on the electricity price per kWh) vary regionally in Germany, depending on grid expansion activities. The highest electricity network tariffs exist in rural areas in the northern and eastern federal states, where wind energy expansion has progressed the most. This is considered a ‘double’ disadvantage. On the other hand, benefit sharing mechanisms, financial compensations for citizens and communities etc. can support distributional justice.

Renewable energy support schemes are also relevant to distributional justice. All the WESRs have support instruments for renewable energy including wind energy. However, Latvia has phased out its feed-in tariff support scheme (i.e. there is no feed-in tariff/feed-in premium support scheme for new RES power plants in Latvia) and Norway is phasing out its green certificate scheme in 2021. In Latvia the discussion has been heated with a focus on electricity prices, as in the past renewable energy support schemes contributed to drive up the costs for consumers. In Norway, there is also a focus on increasing electricity prices, but related to interconnectors abroad, not the renewable energy support instruments. Export of power to other countries increases the Norwegian electricity prices.

In some WinWind countries, it was mentioned that transferring and distributing part of wind park *owner* income to local communities can help to increase acceptance. In Germany there is extensive experience with community ownership of wind parks, but to a lesser extent in Thuringia and Saxony and other states in East Germany (former GDR) than in a number of West German regions (particularly Schleswig-Holstein). It means that profits and partly tax income do often not remain in the municipalities hosting wind power in Thuringia and Saxony. While there is a lack of experience with community ownership in Latvia, in the Warmian-Mazurian Province, and the Balearic Islands, such a measure was described as an important driver. In Norway, there are mainly foreign companies that invest in wind power. Foreign ownership is mentioned in Norwegian news and in discussions, but it is uncertain to what extent this is a social acceptance barrier. Also hydropower, which today is typically owned by local authorities, started out based on foreign investments. However, for large-scale hydropower (>10 MW) private companies can only own 30% and there is a ‘right of return’, meaning that the government takes over the hydropower plant after a certain number of years or the government asks for example, a local authority to buy the powerplant. For small-scale hydropower and wind power there are no such rules. For wind power, licenses are only granted for 25 years, with the obligation to make a cost plan for how to clean up the area by the end of the period, which means that national control over the areas of the wind power plants remains.

Norway differs from the other regions in particular because of distributional issues related to the indigenous people’s way of living, whose income is based on reindeer herding. Such farming is threatened by increasing pressure on land and untouched nature. Large areas in Mid-Norway

and the majority of land in Northern Norway is used for raising reindeer. Reindeers are not kept in captivity, but roam free on pasture grounds.

4.4 Impact on society

The category “Impact on society” comprises impacts on health and well-being (e.g. electromagnetic frequencies, shadow flicker, noise) and quality of life (e.g. recreational opportunities). The literature review emphasises the impacts of wind energy developments on human health and well-being, in particular of visual impacts and noise as well as the societal dimension of the use of contested land.

Health and well-being and quality of life issues are being raised in all the regions, although to a varying extent. For example, in Germany concerns that wind energy development could adversely affect human health and well-being are regularly being raised, in particular: Wind turbine noise (and the extent to which such noise is associated with health issues, such as sleep disturbance, cardiovascular disorders, high blood pressure, headache, cognitive disruptions, stress, anxiety etc); low-frequency sound and infrasound; optical emissions (shadow flicker, aviation lighting); other operational risks (ice throw, forest fire); and electromagnetic frequencies from transmission lines. In contrast such issues have not been an important or relevant issue at the Balearic Islands, with the exception of noise, in particular being pointed out by the tourism industry.

In Norway recreational life related to skiing possibilities, hunting and fishing is highlighted.

4.5 Individual characteristics

The category “Individual characteristics” includes: socio-cultural values (e.g. equal rights, entrepreneurialism); sense of place, self-identity and place attachment; discourses on wind energy in the public sphere/media, and political climate for wind energy development.

Cultural identities and place attachment are other important acceptance factors. In Norway many sites for existing and planned wind power projects are found in reindeer habitat, where the Sami community enjoy constitutionally protected user rights over the area for reindeer grazing, and the area is culturally and spiritually significant. Contestations over wind power developments on traditional Sami lands are not isolated local disputes, but “cut to the heart of indigenous claims to self-determination and resource sovereignty” (Lawrence 2014, p. 1037).

In the Balearic Islands there are issues related to archaeological sites, which can be damaged as a consequence of wind power development.

People’s general *attitudes* towards wind energy or renewables vary across the countries. In Germany people are in general positive towards renewables; a dominating majority support further expansion of renewable energy and consider such a development important. Yet it should be mentioned that Thuringia and Saxony are part of the former GDR, where the population tends to support wind energy to a lesser extent than the population in other federal states in Germany. When it comes to the acceptance of wind turbines in the local neighbourhood, surveys show that support is generally lower, but interestingly, among those who have already turbines installed in their vicinities, support rates tend to be higher than among

those who do not. In recent years opposition towards wind energy has been growing steadily in Thuringia and Saxony and becoming increasingly well organised.

In Latvia surveys indicate that there is a somewhat positive attitude towards renewables; however, a majority is not willing to pay more for energy. In this country, renewable energy has received rather negative attention in the media, mainly due to detrimental effects related to the pre-existing support scheme (e.g. increase in electricity tariffs as the number of those benefitting from feed-in support grew, a lack of communication on the feed-in support for different types of renewable energy installations, and illegal actions and misuse of the feed-in system that has in the meantime been phased-out). Nonetheless, Latvian stakeholders consider the EU targets for renewable energy to be an important driver of social acceptance of wind energy development.

In the Norwegian election survey in 2009 and 2013, a large majority agreed that wind power should be further developed in Norway. However, with increasing development that puts pressure on nature conservation, which has always spurred a lot of conflict in Norway, opposition against wind power might increase in future.

In the Warmian-Mazurian Province the general view of the population is that investments in wind energy can bring positive benefits for the region, including environmental improvements, boosting tax income and increasing employment. Also, in the Balearic Islands evidence suggests that the local population is largely in favour of wind energy. Similarly, in Italy a majority responds that they “trust” wind energy.

All the regions have particular cultural/nature heritage groups and/or environmental and conservation movements or interest groups that are against wind power, yet this is less pronounced in Latvia.

4.6 Market

The market category refers to the share of wind energy and other renewables and energy demand (e.g. exporter/importer of electricity, security of supply, energy mix). The *share of renewable energy* in the energy resp. electricity mix of the target regions varies considerably. While the share of renewables in Norwegian electricity generation is 98%, it is 13.5% in Saxony. This is an important condition for social acceptance because one aim of increasing the share of wind energy is to phase-out fossil fuels. In Norway, opponents of wind energy point to the fact that Norwegian nature should not be destroyed, when the electricity generation is already fully renewable. This is in contrast to for example Poland, which is highly dependent on coal and where concerns regarding social welfare effects of phasing out coal are prevailing. Safeguarding coal interests is therefore more important than climate policy rationales. Also, in Saxony, one of the two German WinWind target regions, and one of the main lignite mining states in Germany, wind energy industry proponents continuously criticize state government for supporting the local lignite mining industry and slowing down the further development of wind energy, e.g. by rather restrictive designation of priority zones in spatial planning. In 2017, close to 40 per cent of German electricity generation were based on coal (hard coal, lignite), but in contrast to Poland, the Federal Government of Germany has, in 2018, set up a “Coal Commission” (Commission on Growth, Structural Change and Employment) to find the appropriate measures to phase out coal. In other words, the share of renewables in existing electricity generations affects social acceptance, but the relationship is not clear (e.g. the contrast between Poland and Germany).

Both high shares of renewables (e.g. Norway) as well as high shares of fossil fuels and employment (e.g. Poland) may contribute to form opposition against wind energy.

While Norway and Saxony are exporters of electricity, all the other regions are dependent on import of electricity. Development of wind energy contributes to improve energy supply security and enhance the creation of regional/local added value. In so far, it is a social acceptance driver.

However, in German public discourses, opponents of wind energy emphasize that the intermittent electricity generation from wind results in comparatively low outputs requiring extra capacity, plus back-up from conventional power stations (fossil fuel, nuclear). Another argument put forth is that wind power plants can only cover a small proportion of society's needs and do not provide a satisfying solution, given the disadvantages.

4.7 Planning and permitting process

The category "Planning and permitting process" is about procedural justice (i.e. fair formal/informal participation of local residents and communities) and information and transparency, as well as trust in processes and information. The literature review highlights the importance of stakeholder participation (Deliverable 2.1). Broad, substantial and early involvement of citizens is key to increased acceptance of wind energy. Wind power imposed from above tends to meet increasing opposition.

Almost all the countries involve the public in consultations either during the licensing process and/or spatial planning processes. In Italy the public is not involved in the general permitting/concession procedure, unless the regions establish public consultation procedures. In the Warmian-Mazurian Province the involvement of residents in planning and permitting processes is low in general.

Regarding stakeholder participation, a distinction can be made between formal and informal participation, where the latter type of participation comprises voluntary arrangements going beyond the formal statutory participation. The Planning Region of Oderland-Spree, one of the five planning regions in the federal state of Brandenburg, one of the model regions in Germany, has developed regular "wind plan dialogues" as an informal public participation instrument addressing those municipalities and stakeholders affected by the designation of suitable areas for wind energy in the corresponding regional plan. In Saxony (Upper Elbe Valley/East Ore Mountains) informal working groups were established accompanying the designation of areas for wind energy in spatial planning. In Fosen in Norway, a process for continuous developer and community dialogue was established in relation to the concession process.

In Thuringia and Saxony wind power opponents complain that the participation possibilities are provided only for larger municipalities and not for smaller, in particular rural ones. Municipalities' ability to influence the exact position/design of wind turbines/height of the turbines within the priority zones in the frame of urban land use planning (micro-siting) is limited. There is a lack of effort to create local development plans. The designation of priority zones for wind energy in the regional plans is in a transitional stage, due to political and judicial decisions. It creates uncertainty for investors, communities and citizens and increases their concerns of an uncontrolled and uncoordinated development of wind energy. The local administrations including the mayors and other local decision makers (working as honorary persons, unpaid) often lack

the capacities and resources to cope with the complex issue of planning, constructing and operating wind turbines and ensuring public participation. Municipalities and local residents perceive the designation of priority zones as a top-down process with limited scope to influence the process. They often feel badly informed and that their concerns and objections are not sufficiently considered. Citizens experience that they are poorly informed about the regional plans and criticize the limited scope of participation and possibilities to influence and shape the outcome of the planning process and the designation of priority zones. When it comes to permitting procedures in Thuringia and Saxony, many municipalities seem to be overloaded and over-challenged with wind energy planning in their jurisdictions. There is a need to support municipalities and residents by providing 'neutral' information and advice regarding the planning of wind energy plants, including informal procedural participation formats and financial participation for citizens and communities.

Regarding trust in information and the planning and permitting process, in general, there is high trust in Norwegian laws, institutions and regulations of the energy sector. In the Warmian-Mazurian Province there is a lack of trust in processes. All the countries, also Norway (which is a member of the European Economic Area), are obliged to adhere to the EU Environmental Impact Assessment Directive, but the information provided in such processes is not always trusted. In Latvia parts of society do no trust environmental impact assessment reports and objectivity/fairness of involved experts, as they consider them as being too much influenced by wind park developers. The same applies partly to Germany as well.

4.8 Governance and regulatory framework

The governance and regulatory framework category refers to national/regional/local targets, plans and policies. *National and regional policy targets for RES* is an important issue. Targets are considered as being important drivers for social acceptance, but not under every condition. In Latvia the discussion about renewable energy development is ongoing. Social acceptance depends on whether and how local communities are able to benefit on the renewables development.

In Thuringia the state government aims to cover its total primary energy supply by a mix of locally available RES by 2040. The area dedicated to the development of wind energy is planned to be increased from 0.3 to 1% of the total area. In Thuringia, the ambitious policy targets are often perceived as arbitrary and not well-argued by opponents. The process of target setting and breaking those targets down in the context of regional planning and the designation of suitable/preferable areas for wind energy is often perceived as biased and not open-ended.

In Norway, wind power is taxed to a lesser extent than hydro power. In 2018, surplus in the power sector is taxed as ordinary income with 23%. Hydropower plants with an installed capacity above 10 MW is subject to an additional resource tax of 35,7%; thus, marginal taxes may be as high as 58,7%. This means that large hydropower installations, often with the flexibility to regulate production, are taxed much more heavily than wind power and small hydropower. In addition, operators of large hydropower have to sell 10% of their production to lower-than-market prices to the municipality. Wind power is from 2016 subject to favourable tax depreciation rules. The investment can be depreciated linearly over only five years, resulting in more positive cash flows early in the project's life. Associations such as the one for wind power municipalities are of the opinion that wind power and hydro power should operate under the same taxation rules. The difference in taxation, combined with difference in ownership (hydro power is typically owned by local authorities, wind power by foreign investors), may contribute to reduce social acceptance for wind power.

4.9 Trust in key actors

Trust of citizens and local communities in key actors is key for local acceptance of wind turbines.

While the Norwegian regulator has achieved high scores in survey about trust among citizens, opponents to wind energy argue that the regulator is biased towards the interests of wind power developers. In the Warmian-Mazurian Province there is a lack of trust in key actors. In Thuringia and Saxony, there are low levels of trust in investors and planners, and often in regional or municipal decision-makers, which seem to prevail among citizens in relatively many municipalities in Thuringia. In Germany, the low level of trust is relatded ownership: Only 10 % of the companies operating renewable energy plants including wind turbines in Thuringia are local (i.e. based in Thuringia). There are few community wind energy plants. Most wind energy plants are owned by external investors. The owners of the land where turbines are located are often not local. It means that profits and taxes do not remain in the municipalities. These factors provide key barriers for the trust in the investors and planners of wind plants. Annulment of two of the four regional plans designating priority zones for wind energy in Thuringia by court decisions led partly to aggressive and non-transparent land acquisition practices by developers. Project developers act in an increasingly competitive environment with strong cost pressure due

to the transition from feed-in tariff system to competitive bidding procedures. There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Municipalities, but also public authorities (responsible for planning and permitting) often face time, informational and staff constraints. The willingness of municipalities to enter into a dialogue with project developers is declining. The situation is partly aggravated by the following problems, particularly in rural areas: Decreasing trust of citizens in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures; perceived heteronomy (including the perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany); perception of being left behind; perception of the *Energiewende* as an (urban) elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.

In Latvia, past political decisions related to the renewables feed-in tariff have created scepticism of whether such tariffs are fair in the society. As several former politicians have been involved in the ownership and operation of renewable energy plants, including wind turbines, a great part of society does not trust related decisions.

5 The criticality of acceptance factors across the WESRs

In this section, we analyse the **criticality** of each acceptance factor in the taxonomy, as evaluated by stakeholders from the WinWind countries through an online consultation conducted May-July 2019. The **criticality** of an acceptance factor is defined as a function of:

1) its **frequency**
2) its **level of impact**.

Regarding the ***frequency***, scores range from 0 to 7, depending on how many of the seven included WESRs have evaluated a specific acceptance factor as being either a barrier or a driver of social acceptance. The online stakeholder survey was distributed to stakeholders in the WESRs in Norway (Mid-Norway), Latvia (most of Latvia), Poland (Warmia-Masuria province), Spain (Balearic Islands), Italy (Abruzzo and Lazio) and Germany (Saxony and Thuringia). A total of 181[1,2] respondents had completed the survey by 31 July 2019, and respondents included representatives from the public administration, politicians, electricity producers, cooperatives and distributors, project planners/developers, sub-contractors to wind energy developers, environmental and other NGOs, researchers and consultants. Because the number of responses from Abruzzo and Lazio were relatively few (8 and 3 respondents, respectively), we combine the results from these two regions into one overall score for Italy. Thus, we report the average results from each of the seven following regions: 1) Mid-Norway; 2) Latvia; 3) the Warmia-Masuria province in Poland; 4) the Balearic Islands in Spain; 5) Italy (Abruzzo and Lazio combined); 6) Saxony in Germany; 7) Thuringia in Germany.

Regarding the ***level of impact***, stakeholders were asked to evaluate each acceptance factor using a scale from -3 to 3, where the values reflect the assessments described in Table 4 below.

[1] This number includes stakeholders in other regions in Germany, who also responded to the survey. In the following we focus on the results from the WESRs, leaving out the responses from the German regions other than Thuringia and Saxony. See Deliverable 3.5 for a presentation of all results from the stakeholder consultations.
[2] Of the 181 respondents, 88 were from Germany (see footnote above), 11 were from Spain, 11 were from Italy, 25 were from Latvia, 21 were from Norway, and 25 were from Poland.

Table 4. A scale to assess the level of impact of social acceptance factors in the WESRs

Barrier	**-3**	This factor, by itself, is *sufficient to prevent* projects from being realized.
	-2	This factor will have a clear negative impact on social acceptance, but it will not be enough, by itself, to hinder the project from being realized. Yet, the barrier is so important it will have a significant impact on the overall assessment of the social acceptance of the project.
	-1	This factor has a small but negative impact on the social acceptance. Or, that the negative impacts are slightly greater than the positive impacts, and there are no considerable conflicts related to the acceptance factor.
Neutral	**0**	This factor has an overall neutral impact on acceptance.
Driver	**1**	This factor has a small but positive impact on the social acceptance for wind power. Or, positive impacts are slightly greater than the negative impacts, and there are no considerable conflicts related to the acceptance factor.
	2	This factor will have a clear positive impact on social acceptance, but it will not be enough by itself to guarantee that the project is realized. Yet, the driver is so important it will have a significant impact on the overall assessment of the acceptance of the project.
	3	This factor, by itself, may be *enough to ensure* a considerable support for the wind power project.

When assessing the criticality of each acceptance factor across regions, we round the average impact score to the nearest whole number (-3 to +3), corresponding to the scale above. Thus, acceptance factors that receive average scores ≤-0.5 are categorized as barriers (factors with average scores ≤-2.5 are classified as a -3 barrier, factors with average scores between -2.49 and -1.5 are classified as a -2 barrier, while factors with average scores -1.49 and -0.5 are classified as a -1 barrier). Factors that receive average scores ranging from -0.49 to +0.49 are categorized as having a neutral impact on social acceptance. Factors that receive average scores ≥+0.5 are categorized as drivers (average scores ≥2.5 are classified as a +3 driver, average scores between 1.5 and 2.49 are classified as a +2 driver, and average scores between 0.5 and 1.49 are classified as a +1 driver).

5.1 The criticality of acceptance barriers in the WESRs

A total of nine acceptance factors out of the 34 acceptance factors in the taxonomy (26%) were given an overall average score across regions which indicates that the factor is a barrier to social acceptance (average scores ≤-0.5). The social acceptance barriers, including their overall

average impact score and frequency is reported in Table 5 below. Figure 4 illustrates the overall criticality of each barrier, where the factor's size increases with increasing criticality.

An average score of -3 indicates that the acceptance factor, by itself, is *sufficient to prevent* projects from being realized. No acceptance factors have an overall average score of -3 (-3 to -2.50) across regions.

An average score of -2 indicates that the acceptance factor will have a clear negative impact on social acceptance, but it will not be enough, by itself, to hinder the project from being realized. Four acceptance factors have an overall rounded average score across the regions of -2, and all four were evaluated as a barrier by all seven regions. The most critical acceptance barrier to local acceptance of wind energy development is an environmental impact – impacts on the physical environment (e.g. landscape, protected areas, increased traffic) – with an average impact score of -2.0 (average regional scores ranged from -2.5 in Italy to -1.4 in the Warmia-Masuria province). The second most critical acceptance barrier across the WESRs, the distance of wind turbines from residential areas, is related to the technical characteristics of projects. The barrier was given an average impact evaluation of -1.8 (with regional average evaluations ranging from -2.3 in Saxony to -1.1 in Mid-Norway). The factor ranking third in terms of criticality is the impacts on biodiversity and wildlife, with an average score across regions of -1.7 (regional average evaluations range from -2.2 in Italy to -1.3 in the Warmia-Masuria province). The fourth most critical factor is the visibility of wind turbines, which was given an average score of -1.6 (regional average evaluations range from -2.1 in the Balearic Islands to -1.0 in the Warmia-Masuria province).

An average score of -1 indicates that the acceptance factor has a small but negative impact on social acceptance. Five acceptance factors have an overall rounded score of -1. The most critical of these is the size of modern projects (e.g. number of turbines and turbine height), which received an average score of -1.4 (regional average evaluations range from -1.7 in Mid-Norway to -1.1 in Italy and the Warmia-Masuria province). The factor was evaluated as a barrier by all seven regions. Second, impacts on health and well-being (e.g. electromagnetic frequencies, shadow flicker, noise) received an average score of -1.2 (regional averages range from -1.9 in Latvia to -0.45 in the Balearic Islands). The factor was evaluated as a barrier in all regions except the Balearic Islands, where the factor received an average score which indicates that it has a neutral impact on social acceptance (-0.45). Impacts on quality of life (e.g. recreational opportunities) received an overall average score of -0.9 across the WESRs, with regional averages ranging from -1.4 to -0.1. The factor was evaluated as a barrier by five regions, while it received an average evaluation indicating that the factor has a neutral impact in Italy and in the Balearic Islands. The factor sense of place, self-identity, place attachment was given an overall average score of -0.6 across the WESRs, with regional averages ranging from -1.2 in Mid-Norway to -0.2 in Italy. The factor was evaluated as a barrier by all regions except in Italy and the Warmia-Masuria province, where the factor has a neutral impact. Impacts on the tourism sector received an overall average score of -0.6 and was evaluated as a barrier in five regions. In Latvia and in the Balearic Islands this factor was on average evaluated as having a neutral impact on social acceptance.

Table 5. Barriers to social acceptance in the WESRs

Acceptance factor	Acceptance factor category	Avg. all regions	Lowest avg.	Highest avg.	Frequency (region*)
Physical environment	Environmental impacts	-2.0	-2.5	-1.4	7.0 (DES, DET, ES, IT, LV, NO, PL)
Distance	Technical characteristics	-1.8	-2.3	-1.1	7.0 (DES, DET, ES, IT, LV, NO, PL)
Biodiversity & wildlife	Environmental impacts	-1.7	-2.2	-1.3	7.0 (DES, DET, ES, IT, LV, NO, PL)
Visibility	Technical characteristics	-1.6	-2.1	-1.0	7.0 (DES, DET, ES, IT, LV, NO, PL)
Size	Technical characteristics	-1.4	-1.7	-1.1	7.0 (DES, DET, ES, IT, LV, NO, PL)
Health & well-being	Societal impacts	-1.2	-1.9	-0.45	6.0 (DES, DET, IT, LV, NO, PL)
Quality of life	Societal impacts	-0.9	-1.4	-0.1	5.0 (DES, DET, LV, NO, PL)
Sense of place	Individual characteristics	-0.6	-1.2	-0.2	5.0 (DES, DET, ES, LV, NO)
Tourism sector	Economic impacts	-0.6	-1.4	0.1	5.0 (DES, DET, IT, NO, PL)

*Regions which have, on average, scored the factor as a social acceptance barrier.
DES: Saxony, Germany; DET: Thuringia, Germany; ES: Balearic Islands, Spain; IT: Abruzzo and Lazio, Italy; LV: Latvia; NO: Mid-Norway, Norway; PL: Warmia-Masuria province, Poland.

Figure 4. The criticality of barriers to social acceptance in the WESRs

5.2 The criticality of acceptance drivers in the WESRs

A total of fourteen acceptance factors out of the 34 acceptance factors in the taxonomy (41%) were given an overall average score across regions which indicates that the factor is a driver of social acceptance (average scores ≥-0.5). The social acceptance drivers, including their overall average impact score and frequency is reported in Table 6 below. Figure 5 illustrates the overall criticality of each driver, where the factor's size increases with increasing criticality.

An average score of +3 would indicate that the acceptance factor, by itself, may be *enough to ensure* a considerable support for the wind power project. No acceptance factors have an overall average score of +3 (+2.50 to +3.0) across regions.

An average score of +2 would indicate that the acceptance factor will have a clear positive impact on social acceptance, but it will not be enough by itself to guarantee that the project is realized. No acceptance factors have an overall score of +2 (+1.50 to +2.49).

An average score of +1 indicates that the acceptance factor has a small but positive impact on the social acceptance for wind power. All fourteen drivers have an overall rounded average score of +1 across the WESRs. In terms of criticality, impacts on greenhouse gas emissions received the highest overall impact score (1.3, with regional variations ranging from 0.4 to 2.3), but the factor was not evaluated as a driver by all regions. In Italy, this factor is on average evaluated as having a neutral impact on social acceptance, with a score of 0.4. Impacts on local profits and income generation (e.g. jobs, tax, local added value generation) received an overall impact score of 1.1, which is slightly lower than the score assigned to impacts on greenhouse gas emissions. However, unlike impacts on greenhouse gas emissions, all seven regions considered impacts on local profits and income generation to be a driver of social acceptance (average regional evaluations range from 0.6 to 1.8). Similarly, the degree of local ownership of the plants received an overall average impact score of 1.0 (average regional scores range from

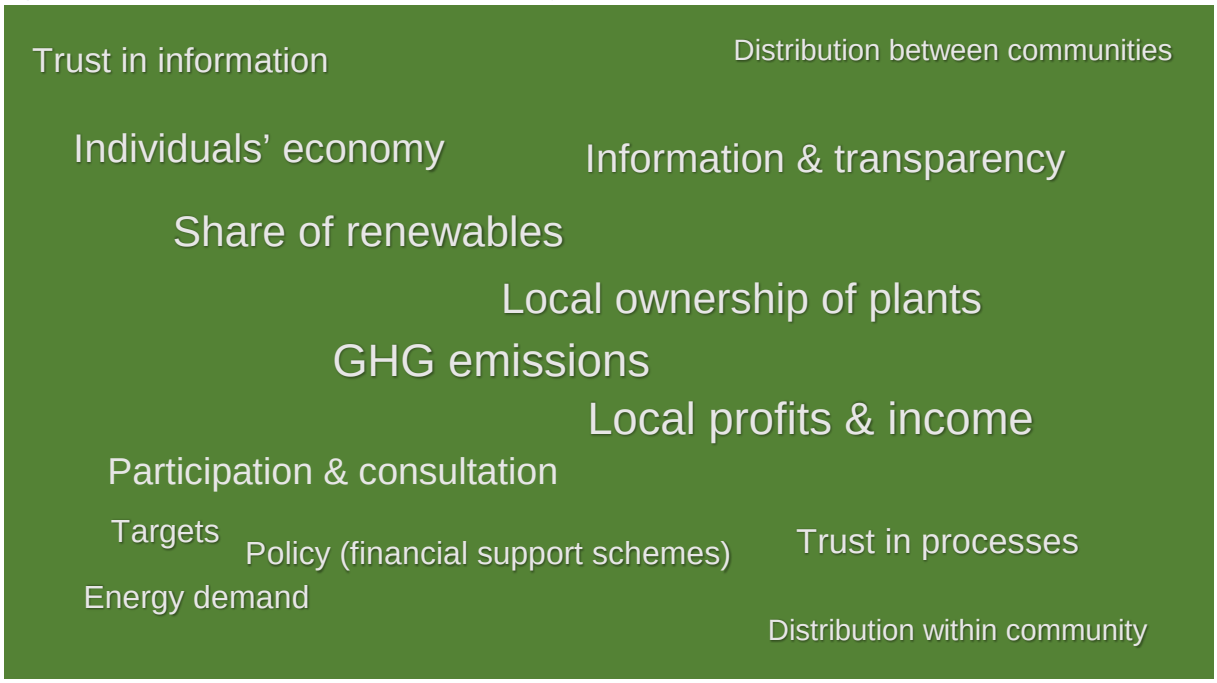
0.6 to 1.4) and a frequency of 7. Information about projects and the transparency of the permitting process received an overall impact score of 1.0, and a frequency score of 6. In the Balearic Islands, this factor is on average evaluated as having a neutral impact on social acceptance. The other drivers received overall average scores between 0.5 and 0.9, and were reported as a driver by an increasing number of regions with increasing scores (see Table 6).

Table 6. Drivers of social acceptance in the WESRs

Acceptance factor	Acceptance factor category	Avg. across regions	Lowest avg.	Highest avg.	Frequency (region*)
GHG emissions	Environmental impacts	1.3	0.4	2.3	6.0 (DES, DET, ES, LV, NO, PL)
Local profits & income	Economic impacts	1.1	0.6	1.8	7.0 (DES, DET, ES, IT, LV, NO, PL)
Local ownership	Economic impacts	1.0	0.6	1.4	7.0 (DES, DET, ES, IT, LV, NO, PL)
Information & transparency	Planning & permitting	1.0	0.1	1.7	6.0 (DES, DET, IT, LV, NO, PL)
Share of renewables	Market	0.9	0.5	1.5	7.0 (DES, DET, ES, IT, LV, NO, PL)
Individuals' economy	Economic impacts	0.9	0.6	1.2	7.0 (DES, DET, ES, IT, LV, NO, PL)
Participation & consultation	Planning & permitting	0.8	-0.2	1.8	6.0 (DES, DET, IT, LV, NO, PL)
Trust in information	Planning & permitting	0.8	0.2	1.7	5.0 (DET, IT, LV, NO, PL)
Trust in processes	Planning & permitting	0.7	0.1	1.5	5.0 (DET, IT, LV, NO, PL)
Targets	Governance & regulatory framework	0.7	-0.4	1.5	4.0 (ES, IT, LV, PL)
Energy demand	Market	0.7	-0.1	1.3	4.0 (IT, LV, NO, PL)
Policies: financial support schemes	Governance & regulatory framework	0.7	-0.1	1.2	4.0 (ES, IT, NO, PL)
Distribution within community	Economic impacts	0.6	-0.3	1.8	4.0 (ES, IT, LV, PL)
Distribution betw. communities	Economic impacts	0.5	0.1	1.3	3.0 (ES, IT, LV)

*Regions which have, on average, scored the factor as a social acceptance driver.
DES: Saxony, Germany; DET: Thuringia, Germany; ES: Balearic Islands, Spain; IT: Abruzzo and Lazio, Italy; LV: Latvia; NO: Mid-Norway, Norway; PL: Warmia-Masuria province, Poland.

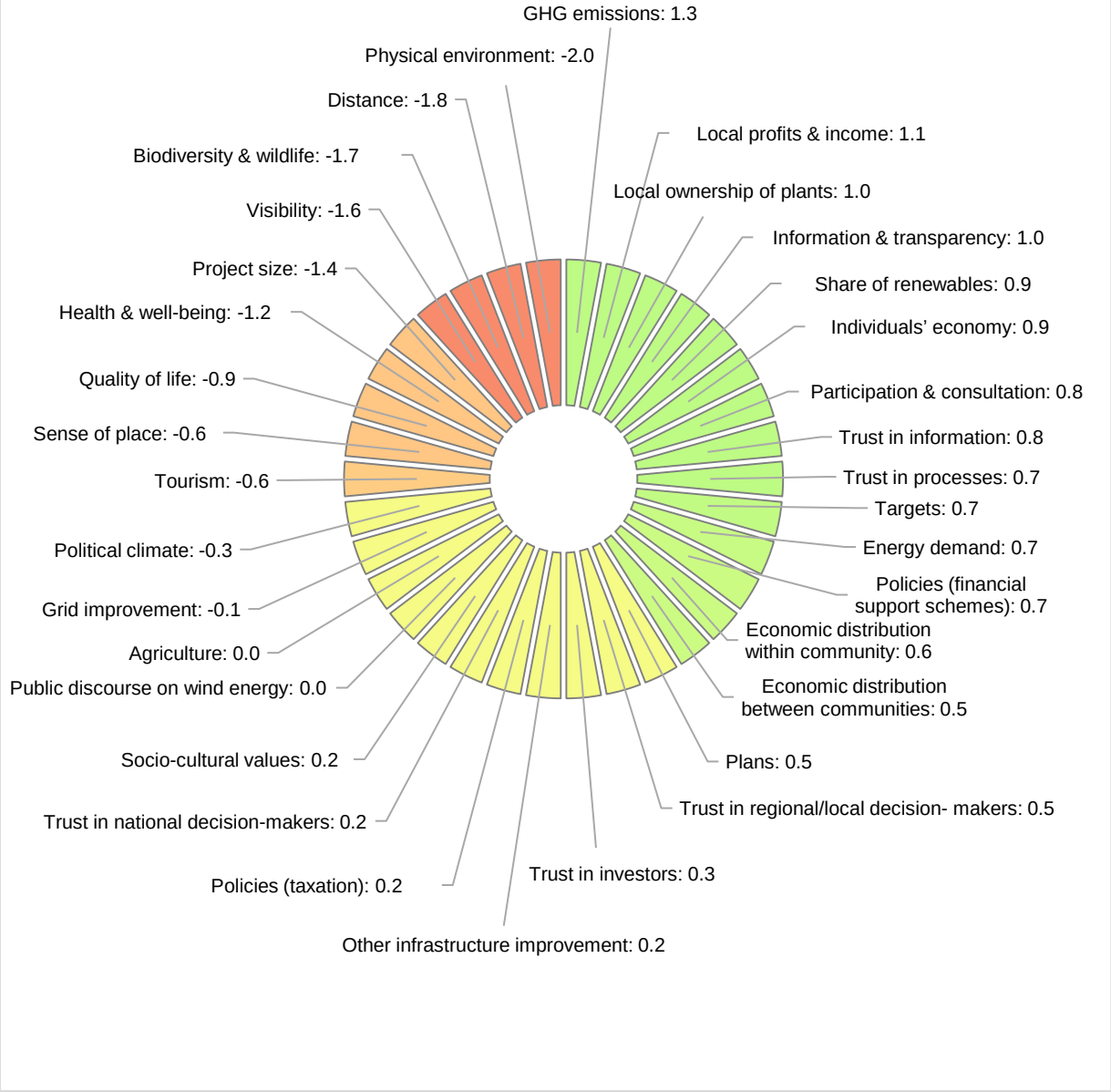
Figure 5. The criticality of drivers of social acceptance in the WESRs



6 Summary and discussion

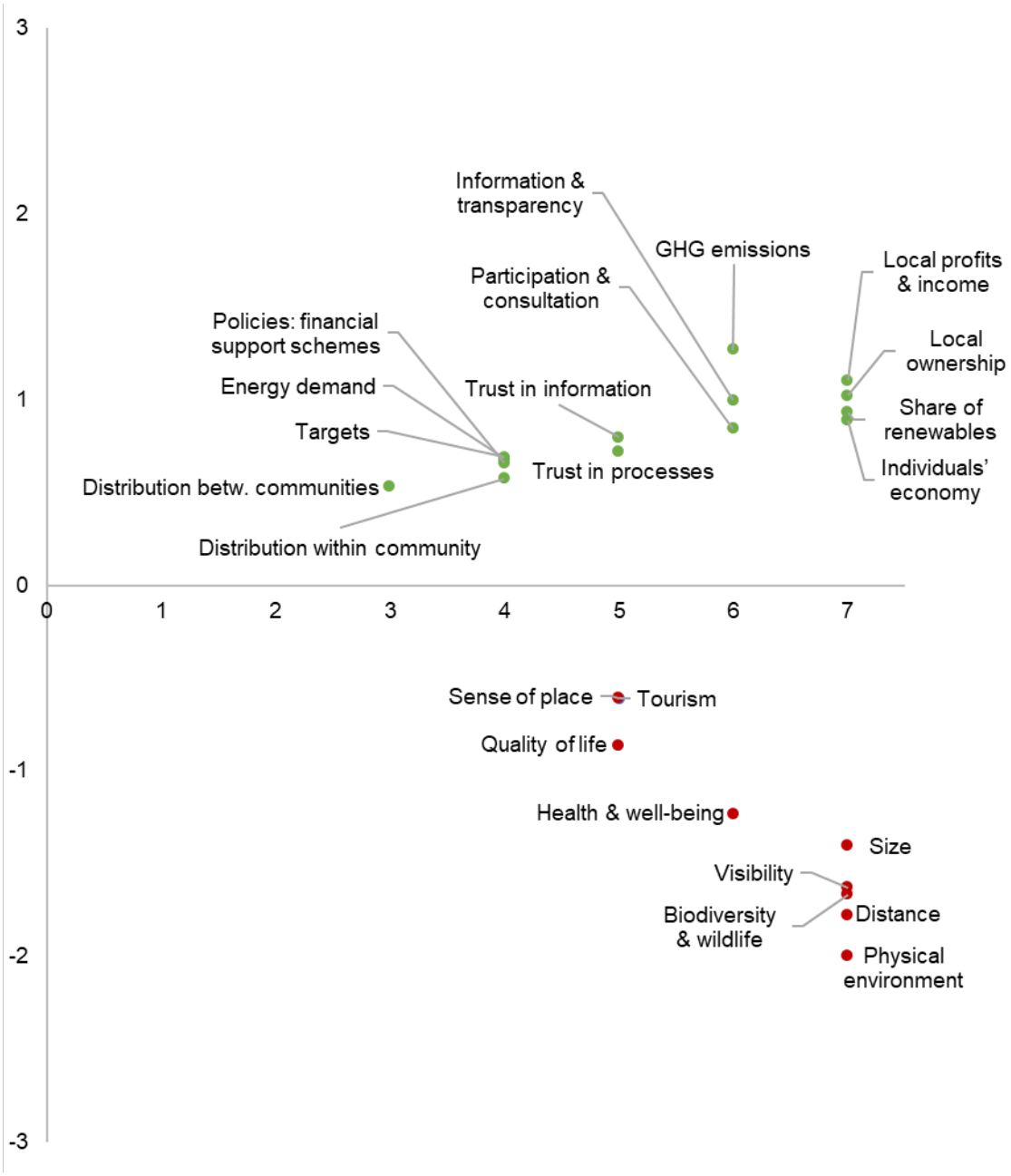
Of the 34 acceptance factors evaluated by the stakeholders, 9 received an overall average impact score across the WESRs which classifies the factor as a barrier, 14 received an overall average impact score which classifies the factor as a driver, while 11 received an overall average impact score which classifies the factor as having a neutral impact on social acceptance. The results are summarized in Figure 6 below.

Figure 6. The level of impact of acceptance factors in the WESRs



The criticality of identified social acceptance barriers and drivers in the WESRs is summarized in Figure 7 below. The figure highlights that, compared to the drivers, the barriers to social acceptance are relatively few. Nevertheless, on average the barriers are more important in terms of their impact on social acceptance (four barriers have an average rounded score across the WESRs of -2, while none of the drivers receive a higher score than +1), and five of the barriers have a frequency score of 7 (compared to 4 drivers, despite there being more drivers than barriers).

Figure 7. The criticality of social acceptance barriers and drivers in the WESRs



Although there are more drivers (41% of the acceptance factors) than barriers (26% of the acceptance factors), the overall average impact of the barriers is relatively higher than the overall impact of the drivers. Specifically, 44% of the barriers received an average overall evaluation of -2 across the WESRs, which indicates that the factor will have a clear negative impact on social acceptance. 56% of the barriers received an overall average score of +1 across

the WESRs, which indicates a small but negative effect on social acceptance. All of the identified social acceptance drivers received an overall average score of +1, and none received an overall average impact score of +2 or +3 across the WESRs. The results from the online stakeholder consultations suggests that a fruitful approach to enhancing the socially inclusive uptake of wind energy by increasing social acceptance could be to focus on enhancing existing drivers and reducing barriers.

Several of the economic impacts of wind energy development receive an overall rounded impact score of +1, indicating only a small positive effect on social acceptance. Deliverable 4.3 provides clear policy lessons for enhancing existing drivers, based on the outcomes, successes and failures of ten in-depth best practice cases. With regard to impacts on the local economy, Deliverable 4.3 demonstrates that emphasis must be placed on the *locality* of employment creation. One possible policy advice would therefore be to include a criterion in the permitting process that project developers demonstrate local employment opportunities. Also, ensuring that a percentage of the economic benefits generated is retained locally, e.g via taxation, may be an attractive option in terms of enhancing social acceptance.

The overall rounded impact scores of the acceptance factors in the category “planning and permitting” are all +1, again indicating a small positive impact on social acceptance. Deliverable 4.3 contains clear policy advice with regard to ensuring effective formal and informal participation of citizens, and ensuring transparent communication. Regarding transparent communication, for instance, policy should facilitate the early provision and dissemination of transparent and objective information, from the very beginning of the project.

Many of the most critical barriers identified in the online stakeholder consultation revolve around the technical characteristics of wind energy projects and their impacts on the environment. With regard to impacts on landscape, Deliverable 4.3 suggests that measures that minimize visual impacts on the landscape may be more effective at limiting the negative impacts on social acceptance than measures which aim to compensate for visual impacts. Assessment instruments should be used to map local risks and identify areas where visual impacts can be minimized. With regard to impacts on wildlife and biodiversity, introducing more stringent requirements than those contained in European minimum standards referring to environmental impact assessments (EIA) for wind farms, could be considered.

Although overall average scores for the WESRs suggest a higher number of drivers but a higher impact of the identified barriers, it must be noted that there are important variations across regions. While there are more drivers than barriers in the Balearic Islands, Italy, Latvia, Mid-Norway and the Warmian-Mazurian province, the opposite holds in Saxony and Thuringia. In Saxony, stakeholders on average identify 11 barriers and 7 drivers. In Thuringia, stakeholders on average identify 13 barriers and 9 drivers. Thuringia has the largest number of barriers of all WESR regions (11), while Italy has the largest number of drivers (20).

In addition to a variation in the *number* of drivers and barriers across regions, there are also variations in regional average impact scores, summarized in Table 7 below.

Impacts on greenhouse gas emissions, which received the highest overall WESRs score (average score 1.3), is not considered to be a driver in Italy (average score 0.4), while it is evaluated as a factor with clear positive impact in the Balearic Islands in Spain and in Latvia (an

average rounded score of + 2). In Italy, there is little focus on the impact of wind energy development on GHG emissions, as most of the debate revolves around the negative impacts on the environment. In the Balearic Islands, there are currently positive attempts in regional politics and policies to diversify the energy mix. The recently approved Law of Climate Change and Energy Transition of the Balearic Islands is pushing the further use of wind energy in order to diversify the energy mix on the islands and thereby enable wind energy to reach a significant share of the energy mix on the islands. This is a positive driver of wind energy on the islands.

Impacts on local profits and income generation is scored as a social acceptance driver by all seven regions, with an average score across regions of 1.1. In Mid-Norway and the Balearic Islands, this factor is given an average rounded score of +2, which indicates a clear positive impact on social acceptance. In the Balearic Islands, this factor is considered as a driver because of the fact that seasonal job fluctuation in an island which depends on tourism always perceives positively the opportunity for new job creation for building farms as well as a stable source of income which does not vary depending on seasons. In the five other regions, the rounded score is +1, which indicates a small but positive impact. All four of the factors related to the planning and permitting process (information about projects and the transparency of the permitting process; opportunities for informal/formal participation and consultation in the planning and permitting process; trust in processes; trust in information) are considered to have a clear positive impact in Italy (rounded score of +2), and a neutral impact on social acceptance in the Balearic Islands (rounded score of 0).

There is also variation across regions with regard to impact scores for the social acceptance *barriers*. Impacts on the physical environment (e.g. landscape, protected areas, increased traffic) receives an overall rounded impact score of -2 across the WESRs. Five regions (Saxony and Thuringia, Latvia, Mid-Norway, the Balearic Islands) have a rounded score of -2. In Italy this factor is on average considered to be *sufficient to prevent* projects from being realized (rounded score -3), while in the Warmia-Masuria province it is only considered to have a small but negative impact on social acceptance (rounded score -1). In Lazio, the impact of wind energy development on landscape characteristics and territorial “vocation”, in particular related to sites that are popular among tourists, is an important social acceptance barrier. More generally, in Italy most of the debate on the environmental impacts of wind energy development revolve around the negative impacts, notably impacts on the physical environment, and there is little focus on the potential positive impacts, such as reduced greenhouse gas emissions. Impacts on health and well-being (e.g. electromagnetic frequencies, shadow flicker, noise) are considered to have a clear negative impact on social acceptance (rounded score -2) in Saxony, Thuringia and Latvia, while it has a neutral effect (rounded score 0) in the Balearic Islands. In the Balearic Islands, this factor has not yet been an important or relevant issue. However, the tourism industry has some concerns about visual impacts and the noise pollution which could be created by wind energy development. In Saxony and Thuringia, concerns that wind energy development could adversely affect human health and well-being are regularly being raised, as noted in section 4.4 in this report. This is also the case in Latvia, where such arguments are widely expressed by opponents in the public sphere. In a recent survey, performed as part of the environmental impact assessment procedures for wind energy projects in Latvia, a high number of respondents expect wind energy development to have negative

Of the 34 acceptance factors assessed in the regional stakeholder consultations, 11 factors have an overall rounded average score which indicates a neutral impact on social acceptance

(overall average scores ranging from -0.49 to +0.49). Here, too, however, there are variations across regions. In fact, two of the factors with the highest variations in regional averages have an overall WESR average which classifies the factor as having a neutral impact on acceptance. Both factors belong to the category “individual characteristics”. Firstly, the factor “political climate for wind energy development”, is on average considered as a driver with a clear positive impact in Italy (average 1.6), and a driver with a small positive impact in the Balearic Islands (average 0.7). In the other five regions, this factor has an average score which indicates a small but negative impact on social acceptance (averages range from -1.2 in mid-Norway to -0.5 in Saxony and Latvia). Secondly, the factor “discourse on wind energy in the public sphere/media” is on average considered as a driver with a small positive impact in Italy and in the Balearic Islands (average 1.5 and 0.9, respectively), it is considered to be a neutral factor in Latvia, the Warmian-Mazurian province and Saxony (average -0.45, 0.0 and 0.2, respectively) while it is considered to be a barrier with small but negative impact in Mid-Norway and Thuringia (averages -1.3 and -0.7, respectively). In Mid-Norway, the finding that stakeholders on average consider both factors to be a barrier correspond well with the overall impression that wind energy development has become subject to an increasing amount of opposition in the politically and in the public sphere and media over the past few years. The strong opposition in the public discourse often revolves around other important acceptance factors, including perceived or real impacts on the physical environment (average -2.0), biodiversity and wildlife (average -1.7), impacts on quality of life including recreational opportunities (average -1.2) and sense of place (average -1.2), but also a perceived lack of economic benefits to local communities and individuals and the fact that Norway already has close to 100% share of renewables. In the Balearic Islands and in Italy the population is generally positive toward wind energy development, as noted in section 4. This observation corresponds well with the overall results from the stakeholder survey, in which the political climate and discourse on wind energy are both considered to be drivers of social acceptance in both regions.

Table 7. Regional variations in impact scores

Acceptance factor	DES	DET	ES	IT	LV	NO	PL	Avg. across regions
Acceptance factor category: Technical characteristics of project								
The size of modern projects	-2	-2	-1	-1	-2	-2	-1	-1
The visibility of wind turbines	-2	-2	-2	-2	-1	-2	-1	-2
The distance of wind turbines from residential areas	-2	-2	-2	-2	-2	-1	-2	-2
The need for grid infrastructure improvement	-1	-1	0	0	0	0	0	0
The need for other infrastructure improvement	0	0	0	0	1	0	1	0
Acceptance factor category: Environmental impacts of project								
Impacts on the physical environment	-2	-2	-2	-3	-2	-2	-1	-2
Impacts on biodiversity and wildlife	-2	-2	-1	-2	-2	-2	-1	-2
Impacts on greenhouse gas emissions	1	1	2	0	2	1	1	1
Acceptance factor category: Economic impacts of project								
Impacts on tourism sector	-1	-1	0	-1	0	-1	-1	-1
Impacts on agricultural sector	0	0	1	-1	-1	0	1	0
Impacts on local profits and income generation	1	1	2	1	1	2	1	1
Impacts on individuals' economy	1	1	1	1	1	1	1	1
Economic distribution between actors within the community	0	0	1	2	1	0	1	1
Economic distribution between communities hosting wind power and other communities	0	0	1	1	1	0	0	1
The degree of local ownership of the plants	1	1	1	1	1	1	1	1
Acceptance factor category: Societal impacts of project								
Impacts on health and well-being	-2	-2	0	-1	-2	-1	-1	-1
Impacts on quality of life	-1	-1	0	0	-1	-1	-1	-1

Acceptance factor	DES	DET	ES	IT	LV	NO	PL	Avg. across regions
Acceptance factor category: Individual characteristics								
Socio-cultural values	0	0	0	1	0	0	0	0
Sense of place, self-identity, place attachment	-1	-1	-1	0	-1	-1	0	-1
Discourse on wind energy in the public sphere/media	0	-1	1	1	0	-1	0	0
Political climate for wind energy development	-1	-1	1	2	-1	-1	-1	0
Acceptance factor category: Market								
Regional (or national if regional is unknown) share of renewables in the electricity sector	1	1	1	1	2	1	1	1
Energy demand (e.g. exporter/importer of electricity, security of supply)	0	0	0	1	1	1	1	1
Acceptance factor category: Governance and regulatory framework								
National/regional/local wind energy targets	0	0	2	1	1	0	1	1
National/regional/local wind energy plans	0	0	1	2	1	0	0	0
National/regional/local wind energy policies: taxation	0	-1	1	1	0	1	0	0
National/regional/local wind energy policies: financial support schemes (e.g. el-certificate scheme)	0	0	1	1	0	1	1	1
Acceptance factor category: Planning and permitting								
Opportunities for informal/formal participation and consultation in the planning and permitting process	1	1	0	2	1	1	1	1
Information about projects and the transparency of the permitting process	1	1	0	2	1	1	1	1
Trust in processes	0	1	0	2	1	1	1	1
Trust in information	0	1	0	2	1	1	1	1
Acceptance factor category: Trust in key actors								
Trust in national decision-makers	0	0	0	1	0	1	0	0
Trust in regional/local decision- makers	0	0	0	1	0	1	1	0
Trust in investors	0	0	1	0	0	0	0	0

In terms of the criticality of social acceptance barriers and drivers, the stakeholder results indicate important similarities across regions. In general, several factors related to the technical characteristics of projects and the environmental impacts of projects are considered critical barriers, in the sense that the factors on average have high impact scores and high frequency scores. Several of the identified drivers also have high frequency scores (i.e. they are reported by many regions as being a driver), but typically have lower impact scores than the barriers. Factors related to the planning and permitting process and the economic impacts of projects are examples of such drivers. Thus, a general conclusion would be to focus efforts on strengthening existing drivers and reducing existing barriers, as discussed in detail in Deliverable 4.3.

Despite similarities across regions, the regional variations in the number of barriers and drivers and in the average impact scores across barriers and drivers and the frequency with which they are reported across regions, also highlight the very context-specific nature of social acceptance barriers and drivers, as discussed in section 4 of this report and in Deliverable 2.1. Each project is unique, facing unique challenges and opportunities, rooted in the local context. Thus, a second general conclusion would be that efforts to strengthen existing drivers and reduce barriers must take into consideration the location-specific factors that ultimately shape community acceptance of specific wind energy projects.

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Appendix 1	Country/region specific information	

Appendix 1. Country/region-specific information

The first column specifies the target region (DES is Saxony in Germany; DET is Thuringia in Germany; ES is the Balearic Islands in Spain; IT is the Abruzzo and Lazio regions in Italy; LV is Latvia; NO is Mid-Norway; and PL is the Warmia-Mazurian province in Poland). Partners have specified relevant acceptance factors in the second column, including information on whether the factor is general or specific to the region. Not all factors listed are present in each region/country. Factors that exist but are not listed are indicated in the third column, under “other”.

The third, fourth and fifth columns specify whether any measures (policy or corporate) have been introduced to address the acceptance factor in the target region, provide examples of measures/good practices from other regions in the country, and information on any measures at the national level which help to address the factor. Some measures may address several factors and are entered where relevant. For example, the Service Unit Wind Energy in Thuringia is directed at strengthening local value creation, financial participation of communities/citizens to achieve a more balanced distribution of costs and benefits, and trust-building. Much of the information contained in Appendix 1 is based on the WinWind Report “Technical and socio-economic conditions - Literature analysis” (Deliverable 2.1) (http://winwind-project.eu/fileadmin/user_upload/Resources/Del2.1_final.pdf). Additional references are contained below. Further sources include information provided by the stakeholders in the respective WinWind country desks.

The sixth column shows average impact scores from each region, as evaluated by the regional stakeholders in the online stakeholder survey conducted between May-July 2019.

WinWind has received funding from European Union's Horizon 2020 Research and Innovation programme under Grant Agreement Nº 764717. The sole responsibility for any errors or omissions made lies with the consortium. The content does not necessarily reflect the opinion of the European Commission. The European Commission is also not responsible for any use that may be made of the information contained therein.

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Technical characteristics of project					
Acceptance factor: The size of modern projects (e.g. number of turbines and turbine height					
DES	• Saxony is an inland region. Due to lower average wind speeds, height of the turbine towers and rotor diameters are normally larger than in coastal areas.	• Visualization tools • Guided tours • Provision of hard and soft taboo zones in spatial planning • Some regional planning associations (e.g. Leipzig-West Saxony) define certain cultural landscape elements/areas as soft taboo zones stipulating that landscape-forming mountain ridges, hilltops and hilltop landscapes must be kept free of wind turbines. • Partly height restrictions in spatial planning (e.g. Saxony)	• Brandenburg does not allow the total encirclement of a village with wind power plants		-2
DET	• Thuringia is an inland region. Due to lower average wind speeds, height of the turbine towers and rotor diameters are normally larger than in coastal areas. • 0.3 % of the area in Thuringia is presently reserved for wind turbines. This share shall be increased to 1%.				-2
ES	• There are only four wind turbines on the Balearic Islands (the En Mila site in Menorca). The wind turbines are old and only stand at 55m, the visual impact is lower than in other European regions.				-1
IT	• In 2016, Lazio had a total installed wind energy capacity of 52.2 MW distributed in 46 plants with which it produced 97.4 GWh (Terna). ANEV (Associazione Nazionale Energia del Vento) estimates a total installed capacity of 750 MW by 2030, with relative production of 1.58 TWh. • In Abruzzo, the repowering process, where obsolete turbines are replaced with next-generation wind turbines, allows an increase in wind energy production and reduction in the number of turbines. It is specific for target region in which obsolete wind farm need to be restored.	• Lazio: Energy Regional Plan (ERP) • Abruzzo. Since the approval of the D.G.R. n. 754 del 30 July 2007, the Abruzzo Region established guidelines for the construction of wind farms and indicated the directives to the Environmental Impact Assessment. • Abruzzo: Public authorities' consultation during the final project phases. • Abruzzo: Specific solutions have been agreed adapting the initial project plan to the territory needs.	• Repowering was carried out in the neighbouring region Molise.	• The Legislative Decree D.Lgs 387/03 transposed the EU Directive 2001/77/CE for the promotion of electricity from renewable energy sources • Ministerial Decree 10 September 2010 (national guidelines for RES plants authorization) - Annex IV	-1
LV	• Total installed on-shore wind capacity in Latvia is only 78 MW (Central Statistics Bureau of Latvia 2018). The size of existing wind parks is rather small and the specific capacity of individual turbines is low or medium. The existing wind capacities are placed in the Kurzeme region, which is a coastal region. • Increase of height of turbine allows to site wind parks in inland regions. Currently the few large scale wind parks (specific power capacity of individual turbine around 3-4 MW, height 200 meters and more) are under planning/evaluation in Latvia inland regions.				-2

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	• Latvia does not have experience with the implementation of large scale (height, occupied area, etc.) wind parks and the local population has high concerns about the negative impact of such large wind parks. • Another factor, underlined by opponents, is how the underground foundation and piles (which requires use of large amount of concrete) of heavy wind turbines will influence groundwater system, etc, in the event that wind parks are sited on agricultural land,				
NO	• There are examples that wind projects increase their acceptance in terms of support from local authorities, once original number and size of plants have been reduced. However, such reductions are typically only marginal and does not have much effect on visibility, and therefore, does not affect social acceptance among the population much. • The technology for wind power is developing quickly. Few and tall turbines replace many and small, and they are placed in new places. In Norway the developers are allowed to use new technology, even if it differs from the technology in the project description when the licence was granted. The fact that projects differ considerably from the information that was originally given has created opposition and mobilization against wind power.				-2
PL	• There may be concerns that larger wind farms have greater negative impact on health and well-being.				-1
Acceptance factor: The visibility of wind turbines					
DES	• Areas with good wind energy conditions are often located on mountain tops or ranges. This can negatively influence visibility of the plants. Furthermore, mountain tops/ranges are often covered by forests.	• Visualization tools • Guided tours • Provision of hard and soft taboo zones in spatial planning • Some regional planning associations (e.g. Leipzig-West Saxony) define certain cultural landscape elements/areas as soft taboo zones stipulating that landscape-forming mountain ridges, hilltops and hilltop landscapes must be kept free of wind turbines. • Partly height restrictions in spatial planning (e.g. Saxony)	Brandenburg does not allow the total encirclement of a village with wind power plants		-2
DET					-2
ES	• Visual impact is of great concern for local residents, who do not want any landscape disturbance on the island due Menorca's protected area status.				-2
IT	• See category above.				-2
LV	• The latest EIA survey (2018), which was conducted in the Zemgale regions which currently does not have wind turbines, indicates a certain worry among respondents which have no experience with the visual impact of large turbines. • Only a few of the locals who live in the close vicinity of the existing wind park in Kurzeme region, have expressed that there is a negative visual				-1

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	impact on landscape[3]. Thus it might be concluded that people who already live near wind turbines could have less negative attitude about visibility compared to those who don't see wind turbines daily. • Within the WinWind evaluation several respondents considered that wind parks should be sited in degraded territories, among them brownfields. Siting in industrial brownfields might have higher visibility which in such case might be accepted.				
NO	• See category above.				-2
PL	• There is a concern that a large number of wind turbines may cause negative visual impact.				-1
Acceptance factor: The distance of wind turbines from residential areas					
DES	• The higher the distance of wind turbines from settlements and single houses, the higher seems to be the local acceptability (ex ante).	• Flexible setback distances (but in compliance with minimum thresholds set out in Federal Pollution Control Act) • Turbines located < 750 m from residential areas subject to height limit ≤ 150 m	• Hard and soft exclusion ("taboo") criteria at state level, further specified by the regional planning bodies. • Bavaria: 10H-rule (distance between a wind turbine and settlements at least 10 times the height of the turbine).	• Temporary 'opening clause' for binding minimum distances in the Federal Building Code • Court decisions: "optically distressing impact" precluded if the distance between turbine and housing is at least three times the total height of the wind plant (i.e. hub height + ½ rotor diameter).	-2
DET		• Recommended setback distances for housing of 1,000 m for wind turbines with a total height of >150 m, and 750 m for plants ≤150 m.			-2
ES	• The distance between wind farms and residential areas, tourist accommodation, and protected areas is a significant barrier. Wind farms are considered highly damaging, particularly for the two latter. The distances and restrictions are regulated by the local governments. Local governments have leaned more towards protecting the interests and preferences of residents, hotel owners and conservationists than wind farm developers. The only wind farm on the islands is located nearby a landfill site. Regulation on distances poses a barrier.	• The regional Balearic Climate Change Law (BCCL) 9347, (2018) enables the local governments to determine specific regulations concerning minimum setback distances.			-2
IT	• In Lazio, plant installation is forbidden in the following areas: Urban areas; Regional and National Parks; ZPS (Zone di Protezione Speciale), Appennine areas > 1200 metres above sea level.	• Energy Regional Plan (ERP) • Abruzzo: Critical Areas (CA) for WE are IBA, ZPS, SIC, SPA and others. In these CA an assessment over 1 year before and over 2 years by the starting of works must be carried out following the method Before and After Control Impact (BACI)	• The Apulia regional rule L.R. 31/08 prohibits WE installation in SCI, SPA,ZPS, IBA, Ramsar and Regional protected areas and buffer zone of 200m must be respected; 5 km from IBA.	• Ministerial Decree 10 September 2010 (national guidelines for RES plants authorization) - Annex IV	-2
LV	• In EIA processes, locals express strong concerns regarding the impact on residential areas. The shorter the distance of wind turbines from				-2

[3] M.Bumbiere (2018). Landscape of the Alsunga wind farm: dwelling, subjective perception and place identity (*Alsungas vēja parka ainava: mājošana, subjektīvā uztvere un vietas identitāte),* in Latvian. Master Thesis. Rīga, Faculty of Geography and Earth Sciences, University of Latvia, https://dspace.lu.lv/dspace/handle/7/38982 . This study was done in the area of relatively small wind park (12 turbines with total capacity around 5 MW, the height of turbine around 100 meters),

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	settlements and single houses, the lower seems to be the local acceptance. Within the WinWind evaluation several respondents considered that wind power could be acceptable if a sparsely populated areas would be selected for wind parks. • There are currently specified set-back distances, determined by the Governmental Regulations[4]. Wind energy project developers argue that these specified setback distances are too large and significantly restrict the development of larger wind parks, particularly in the region of Kurzeme with high average wind speeds and large number of individual rural houses (Wind energy association have submitted the proposals to revise the setback distances). On the other hand, reducing the setback distances would result in stronger objections from the population. • The project of the National Energy-Climate Plan 2030 proposes that the setback distances could be revised, among others taking into account the requirements arising from the conditions/terms of EIA and municipal territorial development planning documents - thus flexibility might be considered.				
NO	• There are no specified setback distances, but because of noise and shadow flicker regulations there needs to be a distance of typically 700-900 metres from houses. • The regulator recommends that a minimum setback standard should be introduced, but with exceptions. • Wind power development typically happens in rural areas where the population density is scarce and wind resources large. • Many sites for wind power projects are found in 'untouched' nature. This creates resistance among people and interest groups, who value such nature and use it for fishing, hunting, reindeer herding. Friends of Earth proposes that wind power development should occur closer to industry and in areas where nature has already been 'touched'. This means closer to houses and therefore also smaller wind turbines, which gives less effect. Others argue that it is better with bigger and fewer wind turbines, than many small ones.			• The regulator advises that the municipality and certain interest groups meet in a "common counselling forum"	-1
PL	• In general there is a risk of decreasing value of property and/or land.			• Wind Farm Investment Act – the so-called distance act entered into force on 16 July 2016. It introduced, inter alia, requirements for the distance of wind farms from residential buildings or mixed-use buildings with a residential function and from forests. Wind farms must be	-2

[4] A wind farm shall be placed not closer to the residential houses of a rural area than the distance which is five times larger than the maximum height of the wind power turbine and not closer 2 km to a dense residential building and public building in villages and towns as well as from a health resort territory (single turbine – not closer to the residential houses of the rural area than 500 m, to the dense residential and public building in urban areas – not closer than 1 km).

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				built at a distance from housing of at least 10 times the height of turbine.	
Acceptance factor: The need for grid infrastructure improvement					
DES	• Lack of grid capacity to transport wind-based electricity from the northern/eastern regions with high wind energy densities to the southern parts of Germany with low wind energy densities but large industry shares. • Opponents argue that as long as there is not enough grid capacity or sufficient storage facilities, further expansion of wind power is harmful to the environment and economically senseless. • Saxony is affected by network expansion, but not as strongly as Thuringia.			• Federal Grid Expansion Plan • Grid Development Plan with 62 measures	-1
DET	• Lack of grid capacity to transport wind-based electricity from the northern/eastern regions with high wind energy densities to the southern parts of Germany with low wind energy densities but large industrial centres. • Opponents argue that as long as there is not enough grid capacity or sufficient storage facilities, further expansion of wind power is harmful to the environment and economically senseless. • Construction of three new high voltage transmission lines (Thüringer Strombrücke, SuedLink (planned), SueostLink (planned) have raised strong opposition by citizens, the state government and other stakeholders. • High level of discontent and feeling of injustice due to the double burden and unfair distribution between regions and federal states.				-1
ES	• The overall power of grids in the Balearic Islands have weak characteristics and is sensible to changes in voltage and frequency. This weakness creates some difficulties for the integration of REs projects, not only by the resource variability, but also by the extensive of power electronics which isolate the projects to the grid and they cannot react those disturbances. One issue is the lack of culture of the grid owners (REE and Endesa) to introduce storage and compensation solutions, which are only tested in small and innovated projects but without a real commitment to extend its use in real applications. One of the future actions will be to launch auctions to incorporate integrated solutions which could overcome the characteristics of variability and isolation of the wind projects. In this sense, education of grid owners is important. REE is for example known to propose an increase in conventional generation or the reinforcement of the interconnection between islands (in spite of the bad experience of the existing cable between Mallorca and Menorca).	• The RE sector proposes different solutions for example storage systems and dynamic compensation systems.			0
IT	• Obsolete infrastructures.	• Abruzzo: Particular attention is given to the recovery and reuse of existing infrastructures such as roads, cableways and substations.			0
LV	• The Baltic States are interconnected with the electric power systems of the Nordic countries and of Central Europe through several electricity interconnectors. Development of these interconnectors continues. Latvian transmission network provides good opportunities for connection –				0

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	around 800 MW of wind power capacity into the Latvian power network could be integrated in principle. E.g., the line "Kurzeme Circle" ("Kurzemes Loks") provides the transmission infrastructure for development of wind parks in Kurzeme region and connects the largest (central and western) power production-demand regions in Latvia. The information of transmission network developments is actively communicated in media. • At the same time, the availability of grid infrastructure shall be evaluated for individual wind park projects. It might appear that in areas wind good wind energy development conditions the appropriate grid infrastructure is still not available.				
NO	• The transmission network is sometimes strengthened as a consequence of wind power development. This is a driver for social acceptance among for example, local businesses, which have not been able to increase their activities due to lack of grid capacity. • These infrastructures will have an impact on wilderness areas. Therefore, in particular groups concerned with nature conservation oppose such development. • Grid expansions have met considerable social protests in Norway.				0
PL	• Limited capability of connection to the grid; bad condition of grid infrastructure. Probably the stakeholders do not feel that this factor have a real impact on them directly. Thus in the end it rather has neutral impact on social acceptance.				0
Acceptance factor: The need for other infrastructure improvement (e.g. transport and communications infrastructure)					
DES					0
DET					0
ES	• In the Balearic Islands, transport and communication infrastructure already exists to a sufficient level, particularly given that the land is scare on islands and thereby very noticeable. Certain improvements could be made and acceptance, but no new infrastructure is desired and therefore is considered as a neutral driver.				0
IT	• Obsolete infrastructures.	• Abruzzo: Particular attention is given to the recovery and reuse of existing infrastructures such as roads, cableways and substations.			0
LV	• Stakeholders do not consider need for other infrastructure improvement as a barrier.				1
NO	• Other infrastructure is sometimes strengthened as a consequence of wind power development. This is a driver for social acceptance among some, e.g. local businesses. At the same time, impacts on wilderness areas may cause opposition. • Wind power plants may require new roads (in Fosen: 241 km of new roads). Such infrastructure has an impact on wilderness areas.				0
PL	• It affects social acceptance positively, because citizens consider improvement of especially transport/road infrastructure as a benefit, to a greater extent than grid infrastructure improvement.				1
Acceptance factor: Other					
DES					

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DET	
ES	
IT	
LV	
NO	Wind energy resources in Northern Norway and the Mid-Norway region are excellent, with an estimated wind power potential among the best in Europe.
PL	

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Impact on Environment					
Acceptance factor: Impacts on the physical environment (e.g. landscape, protected areas, increased traffic)					
DES	• Visual impacts and landscape change are among the most important factors negatively affecting the local acceptance of wind energy projects.	• Spatial planning and designation of suitable/priority areas for wind energy • Sensitive siting • Proactive governmental planning • Hard and soft taboo zones: wind energy is mainly allowed in commercial, less valuable forests • Environmental and nature protection legislation • EIAs • In the permitting process, developers have to submit environmental pre-construction expertises defining impacts on nature, biodiversity and their mitigation. • Compensation payments and measures to be implemented by the developer/operator for impacts on landscape and nature		• Competence Center for Nature Protection and Energy Transition, which provides expertise, consultation, and conflict mediation services for municipalities • NGOs propose trust building measures (e.g. quality labeling/certification of environmental assessors, commissioning of studies by permitting authority rather than by the developers)	-2
DET	• Visual impacts and landscape change are among the most important factors negatively affecting the local acceptance of wind energy projects. Also, nature protection rationales play a central role as acceptance factors in Thuringia (impacts on (avi)fauna and bats). • Trust among NGOs and opponents of wind energy projects in the independence and quality of pre-construction environmental expertises (commissioned and financed by developers) is partly low. • Citizen initiatives opposing wind energy in Thuringia demand more independent assessments. They also request to make EIA generally mandatory for all wind turbines (presently an EIA is mandatory only if the number of wind turbines reaches 20). • Wind power developments in forest areas raise massive protests.	• Spatial planning and designation of suitable/priority areas for wind energy • Sensitive siting • Proactive governmental planning • Hard and soft taboo zones: wind energy is mainly allowed in commercial, less valuable forests • Environmental and nature protection legislation • EIAs • Developers have to submit environmental pre-construction expertises defining impacts on			-2

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		nature, biodiversity and their mitigation.			
ES	• In the Balearic Islands there exists many designated Natural Parks such as the Cabrera Archipelago, a small island of 100sq meters 14 km off the coast of Mallorca. Numerous natural reserves also exist across the Islands. In Mallorca there are 4, the largest being Parc Natural de s'Albufera de Mallorca which is a protected wetland park of 1,647 hectares. In Menorca there also exists 2 nature reserves, and in Ibiza one. It is also noted that the Island of Menorca was declared a Biosphere Reserve by UNESCO in 1993, given the great variety of habitats that it comprises. Collectively, these pose a significant barrier.				-2
IT	• In Lazio, landscaping characteristics and territorial 'vocation' in particular related to items that are popular among tourists is a social acceptance barrier • In Abruzzo, repowering of existing turbines by setting of powerful turbines in order to reduce the number of turbines reduces visual impact.	• Abruzzo: Voluntary self-commitments by industry • Abruzzo: Involvement of municipal administrations	• Policy: Tax cuts and Landscape commitment in Tula Municipality, Sardinia.		-3
LV	• Visual impacts and landscape change are among the important factors negatively affecting local acceptance, expressed by the Latvia society in general and by local people, and particularly by opponents. Also high concerns are expressed by local people regarding damaging of (local) roads in case of construction large wind park requiring intensive traffic of heavy vehicles. • People might base their perception on the discourse and information provided in the public sphere/media and attribute high importance to this factor. • The latest EIA survey (2018) in the Zemgale region also indicated that a number of respondents, which expect or might expect the negative impact of wind park on the quality of environmental infrastructure and landscape, is higher than the number of respondents which do not or might not expect negative impact (although the difference in number is not very large). Almost half of respondents of this EIA survey had expected the damage of roads due to wind park construction process. Also there are concerns regarding ice-throw on local roads.			• Policy at national level: Pro-active planning for wind energy areas in the Northern Vidzeme Biosphere Reserve – spatial planning, based on the landscape ecological planning method, for wind energy areas in valuable environmental and landscape territory.	-2
NO	• In general, there is high concern with impact of wind energy development on landscape. • One issue is the fact that the wind power plants require new roads (in Fosen: 241 km of new roads). Such infrastructure has an impact on wilderness areas.	• Corporate: Møllestua cabin in Fosen – facility open to the general public built by the developer – helping general public experience the physical impacts on nature.			-2
PL	• Warmian – Masurian Voivodeship is a tourist region, and there is a concern that change of landscape will reduce tourist values				-1
Acceptance factor: Impacts on biodiversity and wildlife					
DES	• Besides landscape change, nature protection rationales play a central role as acceptance factors. Impacts on (avi)fauna and flora are an argument often put forward by nature protection organizations, but also community and opponent groups. • Trust among NGOs and opponents of wind energy projects in the independence and quality of pre-construction environmental studies is often low. Citizen initiatives opposing wind energy in Saxony demand	• Technologies and operational measures (e.g. radar detection of birds, adapting turbine operation to wildlife behavior, e.g. birds and bats). • Environmental Impact assessments (EIA)	Spatial planning: • Designation of priority zones for wind energy in regional plans takes into consideration protected areas and corresponding minimum	Spatial planning: • Regional plans determine priority areas for wind energy and are subject to Strategic Environmental Assessments (SEA) that help ensure that significant	-2

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	more independent assessments. They also request to make EIA generally mandatory for all wind turbines (presently an EIA is mandatory only if the number of wind turbines reaches 20).	• Voluntary EIAs Spatial planning: • Policy documents guiding siting of wind energy plants. However, nature and biodiversity related issues are only marginally addressed, and there is much discretion of the regional planning associations. Permitting: • Project developers have to submit environmental pre-construction expertises defining the impacts on nature, biodiversity and their mitigation. • Implementation of compensatory measures is strictly required • Developers are usually required to perform bat monitoring and temporarily shut down wind turbines during certain time periods where appropriate.	distances and buffer zones (state or region-specific). • Biodiversity guidelines which guide the spatial planning and permitting process. • Intermediary organisations provide expertise, consultation and conflict mediation services, particularly where conflicts arise between nature protection and the development of RES projects.	environmental effects are considered Permitting: • Environmental Impact Assessments are mandatory if the number of wind turbines reaches 20. For projects with 3 to 19 wind turbines, conditional EIAs are required, depending on the results of an initial screening procedure. • Developers have to submit nature and biodiversity related pre-construction expertises. • R&D activities analyzing impacts • Institution & Capacity Building, e.g. Competence Center for Nature Protection and Energy Transition (at federal level) • In the Coalition Agreement (CDU/CSU and SPD): the Government parties committed themselves to reconcile the renewable energy interests with nature conservation and protection of local residents (CDU, CSU, SPD, 2018).	
DET	• Visual impacts and landscape change are among the most important factors negatively affecting the local acceptance of wind energy projects. Also, nature protection rationales play a central role as acceptance factors in Thuringia (impacts on (avi)fauna and bats). • Trust among NGOs and opponents of wind energy projects in the independence and quality of pre-construction environmental expertises (commissioned and financed by developers) is partly low. • Citizen initiatives opposing wind energy in Thuringia demand more independent assessments. They also request to make EIA generally mandatory for all wind turbines (presently an EIA is mandatory only if the number of wind turbines reaches 20). • Wind power developments in forest areas raise massive protests.	• Technologies and operational measures (e.g. radar detection of birds, adapting turbine operation to wildlife behavior, e.g. birds and bats). • Bat monitoring and shut down wind turbines during certain time periods • Offsetting or compensation for, nature/landscape impacts by the developer • Biodiversity guidelines for wind energy • Documents guiding siting and permitting of wind energy plants			-2
ES	• The local Balearic Ornithology and Nature Defence Group (GOB) has been the most significant and effective form of opposition against the use of wind energy. It wants protected natural areas to be excluded from the implementation of wind and photovoltaic parks; and demands that Areas of Agricultural Interest of the Territorial Plan of Mallorca should be excluded from the areas of exploitation. The installation of wind farms is understood as posing a serious risk during the migratory movements for threatened species as they pass through Mallorca				-1
IT	• Acoustic emission control • Use of anti-reflective paints in Abruzzo	• Abruzzo: Selection of sites with no environmental restrictions in the area (natural reserve, protected area, SIC etc.)	• Sardinia Regional procedure of Environmental Impact Assessment must be carried out for wind farm to be built in SCI over 60kW.	• Ministerial Decree 10 September 2010 (national guidelines for RES plants authorization) - Annex IV.	-2

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			• The Region has compiled a list of non-suitable areas for WE. • 'Rivoli Veronese and Affi communities Wind Farm', Verona, Italy. • Policy: Tax cuts and landscape commitment in Tula Municipality, Sardinia		
LV	• Impacts on biodiversity and wildlife, especially avio-fauna and bats, is a highly important factor expressed by the Latvian society and NGOs in general and particularly by local people and especially by opponent groups. Even if the acceptance varies from project to project, the biodiversity/wildlife aspects always play a role, as shown by the EIA surveys of planned wind park projects. Latvian society clearly objects against siting of wind parks in birds and biodiversity valuable areas. • At an individual level Latvian people feel "emotional ownership" of local nature values. • People might base their perception on the discourse and information provided in a public sphere/media and attribute high importance to this factor. • Opinions of stakeholders, expressed in the WinWind evaluation, suggests that there are many degraded areas in Latvia, in which wind parks should be sited, so there is no any necessity to make pressure on valuable territories. • Opponents of wind parks express doubts regarding the independence as well as quality of pre-construction environmental studies. Also the public (at least a significant part) worries (and are not convinced) whether state-of-the-art technologies will be used in wind turbines to minimise impact on birds and bats. • In the past some activities of particular wind park developers also had raised the negative attitude, e.g., part of the area of some planned wind parks had been sited initially on birds migration routes and corrected only after objections of birds experts and nature NGOs. • Latvia lacks modern tools which could help developers, like wind energy maps defining suitable and non-suitable areas (the project of the National energy-climate plan 2030 proposes that such maps could be developed).				-2
NO	• There is a concern related to the fact that wind power development in Norway usually takes place in the wilderness. Development in 'untouched' nature contributes to make nature areas more fragmented and affect vulnerable and rare habitat types and species. • There is a lack of knowledge about certain species and the impact of wind power on their habitats, for example related to bats.			• Policy: Funding for Research and Development (R&D) – project "BirdWind" (about 35 million NOK).	-2
PL	• There are concerns of wind farms' negative impact on birds and other wildlife				-1
Acceptance factor: Impacts on greenhouse gas emissions					
DES	• Climate change mitigation is one key acceptance driver. However, opponents argue that taking into account lifecycle GHG emissions, GHG savings from wind energy are only small or even non-existent.	• Publications on avoided GHG emissions through wind energy		• Publications on avoided GHG emissions through wind energy	1
DET					1

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ES	• Currently there are positive attempts in regional politics and policies to diversify the energy mix. The recent BCC Law is pushing the further use of wind energy in order to diversify the energy mix on the islands and thereby enable wind energy to reach a significant share of the energy mix on the islands. This is a positive driver of wind energy on the islands.				2
IT	• There is little focus on the impact of wind energy development on GHG emissions in Italy, as most of the debate revolves around the negative impacts on the environment.				0
LV	• The Latvian public survey company SKDS (2018) conducted a (representative) survey on renewable energy resources, particularly wind energy, commissioned by Latvia Wind energy association. Results showed that over 70% of the respondents agree with the statement that wind energy is a sustainable energy that mitigates climate change. • The Baltic Environmental Forum survey (2016) indicated that 68% of the respondents agree that there is a need to work towards solutions to mitigate the effects of climate change, • Wind park developers always highlight the positive impact of wind power on GHG emissions. Also environmental NGOs emphasise the importance of renewable energy in contribution to reduce GHG emissions.				2
NO	• Because Norway's electricity generation is almost fully renewable (hydro 96%, natural gas 2% and wind 2%), phasing out fossil fuels is not considered as being an important driver for social acceptability in Norway. • Certain green NGOs and the Norwegian Wind Energy Association emphasise the importance of the wind energy and its contribution to reducing climate gas emissions. In this sense, climate change is a social acceptance driver. • Nature conservationist groups argue that investments in wind power does not contribute to decreasing GHG emissions in Europe. This is because Norwegian electricity generation is part of the EU Emissions Trading System (ETS). An increase in renewable electricity production does not reduce the emissions that are included in the ETS. • If, however the electricity produced replaces fossil fuels in sectors not covered by EU ETS, such as transport, increased wind power production may reduce GHG emissions. The long-term impact of more wind power may also be to enable a more ambitious climate policy in EU.				1
PL	• This factor can be considered as a positive driver for wind energy development. It affects social acceptance positively, because people are aware that Poland pursues RES targets.				1
Acceptance factor: Other					
DES					
DET					
ES					
IT					
LV					
NO					
PL	A large area of the Warmian-Mazurian Voivodeship is covered by NATURA 2000 areas and other forms of territorial environmental protection.				

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Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Impact on Economy					
Acceptance factor: Impacts on local profits and income generation (e.g. tourism, agriculture, jobs, tax, local added value generation)					
DES	• There is a modest tourist industry in that largely serves German travellers, and which is focused on cultural activities and historical sites in towns and on the scenic landscapes of the Ore mountains or Vogtland. • Several communities, and representatives of the tourism industry fear adverse effects of wind turbines on tourism through the potential loss of scenic value. • Regional/local added value is a key driver for local acceptance (e.g. municipal tax revenues, employment). • Business tax revenues from the operation of wind energy plants in municipalities often are lower than expected • Low level of citizen/community ownership of wind plants • Individual allocation ratio of tax revenues • Benefit sharing mechanisms • The total number of persons employed in the wind energy sector has been recently estimated at roughly 5,900.	• Direct and/or indirect financial participation of citizens and communities • Benefit-sharing mechanisms (e.g. sponsoring, reduced electricity tariffs etc.)	• Direct and indirect financial participation of citizens and communities • Compensations and other benefit sharing mechanisms. • The Service Unit Wind Energy in Thuringia helps to strengthen local value creation by providing guidance, technical assistance and comprehensive consulting services for municipalities, communities and citizens. • The quality label “Partner for Fair Wind Energy” to project developers in Thuringia • - Mandatory financial participation of citizens/ municipalities as shareholders in Mecklenburg-Vorpommern. • Community ownership of wind farms (e.g. North Frisia, where 90% of the wind power plants are citizen-owned). • Regional support schemes community ownership (financial incentives, capacity development, information, advise, networking etc)	• Tax incentives (e.g. 70%-100% transferred to the community where the project is located, 0-30% to the communities where the operators have their headquarters). • Financial incentives for community energy in the national RES support schemes: special rules for community wind power in auctions; however, these privileges have been misused by commercial developers	Tourism: -1 Agriculture: 0 Jobs, tax, local added value generation: 1
DET	• There is a significant tourist industry in Thuringia, primarily German travellers focused on cultural activities and historical sites. • Several communities, and representatives of the tourism industry fear adverse effects of wind turbines on tourism through the potential loss of scenic value. • Regional/local added value is a key driver for local acceptance (e.g. municipal tax revenues, employment). • Business tax revenues for the municipalities from the operation of wind energy plants are often lower than expected • Low level of citizen/community ownership of wind energy plants • Allocation ratio of business tax revenues • Benefit sharing mechanisms • Thuringia has an increasing number of working places in the wind energy sector: 2.710 in 2014 and 3.000 in 2016	• Direct and/or indirect financial participation of citizens and communities • Benefit-sharing mechanisms (e.g. sponsoring, reduced electricity tariffs etc.) • The Service Unit Wind Energy in Thuringia helps to strengthen local value creation by providing guidance, technical assistance and comprehensive consulting services for municipalities, communities and citizens • Issuance of the quality label “Partner for Fair Wind Energy” to project developers			Tourism: -1 Agriculture: 0 Jobs, tax, local added value generation: 1
ES	• The Balearic Islands hosts 13 million tourists each in a multibillion-euro sector. Therefore, a significant amount of the jobs in the Balearic economy are dependent on tourism. • There are concerns that the installation of wind energy plants can negatively affect tourism, due to the negative impacts on the landscape and perception of the islands. Such concerns are not yet at the forefront of the debate concerning wind energy. • Farmers see commercial opportunities associated with wind energy development.		• Som Energia – non-profit oriented energy cooperative governed and financed by its members. • Galicia singular wind farms. • Galicia Regional wind farm plans. • Social Wind energy Project (Lanzarote).		Tourism: 0 Agriculture: 1 Jobs, tax, local added value generation:

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	• Impacts on local profits and income generation is considered as a driver because of the fact that seasonal job fluctuation in an island which depends on tourism always perceives positively the opportunity for new job creation for building farms as well as a stable source of income which does not vary depending on seasons.		• Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		2
IT	• Tourism is a significant sector in Italy's national economy. Many destinations are historic places, often protected as world heritage sites. • In Abruzzo, repowering extends the investments on the area producing sustained benefits for the municipalities. • In some cases, in Abruzzo the repowering has offered to local operators the opportunity to collaborate in the realization of the project. • In 2016, Lazio had a total installed wind energy capacity of 52.2 MW distributed in 46 plants with which it produced 97.4 GWh (Terna). ANEV (Associazione Nazionale Energia del Vento) estimates a total installed capacity of 750 MW by 2030, with relative production of 1.58 TWh. This corresponds to the generation of up to 3400 additional jobs in the region. The GSE (Gestore Servizi Energetici) provides a conservative estimate in the increase of installed capacity of 65 MW by 2020 and of 100 MW by 2050, which results in a techno-economic potential for total installed capacity in Lazio of 170-190 MW, translating in 330 GWh/year of electric producibility. If we add the conservative estimates of off-shore potential (325 GWh/year) these figures reach 250 MW and 650 GWh/year.		• Policy: Tax cuts and landscape commitment in Tula Municipality, Sardinia.	Policy: Many destinations protected as world heritage sites	Tourism: -1 Agriculture: -1 Jobs, tax, local added value generation: 1
LV	• Latvia today has small amount of wind capacities – 78 MW (2018). Even these capacities are sited in coastal Kurzeme region, this amount of wind capacities are not perceived by public as significant threat to tourism industry in general[5]. • The latest EIA survey (2018) in Zemgale region indicated that number of respondents, which expect wind energy to have a negative effect on cultural values was equal to the number of respondents which do not expect such negative impacts, both around 40%. • Existing wind parks in Kurzeme region have been mentioned as tourism objects in the tourism websites[6] of several municipalities (e.g., Liepāja city, Grobiņa) • There are tourism sector entrepreneurs and their associations which worry about negative impacts. Mostly it relates to health tourism, e.g., bathhouses and could be attributed to the argument "our guests want health and peaceful rural area". • Where a wind park is planned on agricultural land, locals express concerns related to the potential loss of agricultural land. Agricultural land is considered as one of Latvia's main assets. Particularly they		• Corporate measures: Sharing the profit from wind energy production with local communities through voluntary donations by wind park owner (fixed donation per MWh of produced electricity, implemented by the Nelja Energia, operating in Estonia and Lithuania)		Tourism: 0 Agriculture: -1 Jobs, tax, local added value generation: 1

[5] Setback distance, required by Governmental Regulation, of wind parks from health resort areas shall not be closer than 2 km. Also it is required that the impact of wind power plants on the landscape shall be assessed in the visual perceptibility area of State protected cultural monuments, taking into account the particular situation and the specific character of the particular cultural monument.

[6] https://www.redzet.lv/photo/veja-generators-liepaja-DA-054-09 ; http://www.grobinasturisms.lv/lv/apskates-objekti-2/veja-parks/

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	express high concerns related to wind park siting in the valuable agriculture land. • Landowners worry whether and what burdens on land use would be caused by wind parks. • Latvian people object against siting of wind parks in the regions which have the largest amount of fertile soils. The latest EIA survey (2018) had indicated clear negative attitude regarding the siting of wind parks in fertile agriculture land (Zemgale): most respondents considered that agriculture land will be lost (53% of respondents) or might be lost (18% of respondents). • Another worry is expressed by farmers regarding the impact of wind power production on cattle. This group is visible in media when wind park projects are discussed and thus could have certain impact on the point of view of public in general[7]. • The effect on the overall local economy is an important driver for local citizens and the local municipalities hosting wind energy plants. • However, there are certain factors which limits the perception of the positive impact on the local economy. For instance, the existing Latvia tax system does not provide significant tax revenues in municipal budget as wind park payments. • Also several WinWind stakeholders underline that particular existing wind park operators are indifferent and ignore the interest of local community, and some feel that there is lack of information on the impact of existing wind parks on the local economy. • As expressed by opponents, the siting of large scale wind parks can provide a negative perception (due to perceived health effects) in the population, particularly in families with children which might move elsewhere or might not arrive to live in the region, thus having a negative impact on the local and regional economy. There is no available representative survey how important such perception could be in Latvia society in general.				
NO	• In general, untouched nature plays a central part in promoting tourism, and some tourist destinations would be particularly vulnerable to wind energy development. • In the knowledge base for the 'national frame' for wind power, the national regulator writes that in general impact assessments conclude that wind turbines do not cause significant negative impacts on agricultural land because the area that is directly affected constitutes only a small part of the resource base for wilderness in the areas. The same report suggests that grazers are negatively affected during the construction phase. When it comes to forests, the report mentions that		• Nord-Odal skiing facilities – compensatory measure (corporate, local) • A local innovation house in Birkenes – compensatory measure (corporate, local) • In Lister, the wind developer has built 25 km roads with 50 exits. As a result, farmers can collect timber, have cultivated		Tourism: -1 Agriculture: 0 Jobs, tax, local added value generation:

[7] For instance, interview of biological farmer in Akniste (in this sub-region 10 wind turbines of large height are planned and EIA procedure currently is on-going) to regional TV, also re-translated in national TV, https://www.lsm.lv/raksts/zinas/latvija/aknistes-iedzivotajus-uztrauc-iecere-veidot-veja-generatoru-parku.a323011/. The concerns were expressed that wind parks causes stress for cattle resulting in lower milk yield, lower growth in weight of young cattle, increase of Ph level.

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	the network of roads that are constructed may contribute to more easily get control of forest fires. • In Fosen the construction phase gives a large number of regional jobs, as there are local competitive entrepreneurs, who can take these jobs. • In Fosen the operating phase is 5-15 man-years for operating each of the 6 windfarms. The service sector experiences a similar number of increase in man-years. • In general, municipalities that have property tax regulations, benefit from this tax (e.g. in Fosen the municipalities will receive a 0,7% property tax from wind power installations, which is equal to 0,7% of estimated value of a new installation minus depreciations).		moors and can more easily bring and collect grazers.		2
PL	• There is a fear that wind energy development could possibly entail a negative impact on tourism. • Possible financial benefits for land owners. • Effect on local economy is rather positive. Increasing an income of municipalities in the region; creation of new jobs.			• Policy: Property tax on wind turbines – as a source of additional income for municipalities.	Tourism: -1 Agriculture: 1 Jobs, tax, local added value generation: 1
Acceptance factor: Impacts on individuals' economy (e.g. electricity prices, income to landowners, property value)					
DES	• One of the key arguments of the opponents of wind energy projects in Saxony is that property/housing values may decrease due to the installation of wind turbines.	• Compensatory payments. • Direct financial participation of those homeowners who are directly affected by the installation of wind turbines can increase acceptance/acceptability			1
DET	• Income and profits from the operation of wind power are key drivers of social acceptance, particularly if citizens/communities are benefiting directly as shareholders and if local land owners benefit from land lease payments However, community/citizen owned wind parks are still rather rare in Thuringia. • One key acceptance barrier is the risk of decreasing property/housing values for those who are living in the vicinity of wind energy plants.				1
ES	• Many land owners are currently in favor of using their land for sustainable energy purposes, given their positive experience and incomes gained from solar PV land rent. Further profiting through the installation of wind energy plants is an attractive option. • Menorcan land is most commonly owned by large and historically wealthy land owners who often prefer to preserve the quality and nature of their land, rather than use it for pure commercial purposes, other than traditional agriculture.				1
IT	• In Abruzzo, during and after the repowering have arisen many commercial activities carried out by residents.		• Policy: Tax cuts and landscape commitment in Tula Municipality, Sardinia.		1
LV	• In general, landowners are benefiting due to rent payment. However corporate and fair principles of determining rent amount and involving				1

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	neighbouring landowners have to be applied (which might not be currently a case). • A significant part of society is cautious regarding the argument that state-of-the-art wind technologies could work at market conditions without significant support and consider the wind power is expensive and could raise the electricity price. Seems, the information on the competitiveness of modern state-of-art wind technologies is not enough and/or is not provided by credible experts. At the same time there is certain part of society expecting the lowering the power price in general or considering as the driver the option to buy electricity at a cheaper price from wind park. These two driving points of view have been also reflected within open answers of WinWind evaluation. • EIA surveys currently indicate a perception of some negative impact on property value. For instance, the latest EIA survey (2018) in Zemgale region indicates that the number of local respondents (22%), who consider the impact on property value would be negative are slightly larger than number of respondents (18%) which consider the impact might be positive, with rest of respondents being neutral or hard to say. One of the against-wind arguments is that, the creation of a wind park limits the future construction of residential buildings.				
NO	• Land owners who benefit from selling land to wind project developers are positive. • People who live nearby are concerned with decreasing values of their land and houses. • In general, there is a negative correlation between visible wind turbines and the selling price of nearby homes and vacation homes. Norconsult, which has carried out a study on this topic, suggests that this also applies in Norway. • In cottage areas where an important factor for market value is easily accessible hiking areas, wind turbines which affect large parts of these areas, can create a negative effect on property prices, even in cases where the wind turbine is not visible or visually dominant from the view of the cabins.		• In Lister, the wind developer has built 25 km roads with 50 exits. As a result, farmers can collect timber, have cultivated moors and can more easily bring and collect grazers.		1
PL	• In general, there is a concern with possibly negative impacts on the value of property and land. • In some municipalities (e.g. Kisielice), citizens are aware of the economic benefits mainly due to strong engagement and commitment of local authorities (the mayor). In other municipalities with wind energy, citizens do not see/obtain any benefits.				1
Acceptance factor: Distributional justice (the distribution of economic benefits and costs between a) actors within the community and b) communities hosting wind power and other communities)					
DES	• Host communities argue that they bear a disproportionate share of negative project impacts, that local communities and residents are forced “to finance wind and solar lobbyists, in return get higher electricity prices and must still financially compensate operators for turbines which have to be temporarily switched off due to grid • Grid usage charges (levy on the electricity price per kWh) vary from region to region, depending on grid expansion activities. The highest electricity network tariffs exist in rural areas in the northern and eastern	• Wind turbines owned by citizen co-operative (e.g. Wülknitz, Saxony). • Voluntary monetary payments (e.g. via non- profit associations, foundations, trusts, community benefit funds). • Direct funding of projects, energy price discount schemes or other site-specific benefits.	• Direct financial participation of citizens as shareholders • Community/citizen owned wind energy parks (e.g. Schleswig-Holstein/North Frisia, many other regions in Germany) • Indirect financial participation of citizens, benefit sharing	• Financial incentives for community energy in RES support schemes (e.g. preferential treatment for community wind parks in the new auctioning system regulated under the Renewable Energy Sources Act) • The Federal government aims to create better opportunities for	Distribution within communities: 0 Distribution between communities:

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	federal states, where wind energy expansion has progressed the most. This is considered a 'double' disadvantage.	• Employment of local companies, skills training, apprenticeships, educational visits. • Material benefits such as improved infrastructure.	mechanisms (e.g. non-profit associations, sponsoring etc.) • The Service Unit Wind Energy in Thuringia provides guidance, technical assistance and comprehensive consulting services for municipalities, communities and citizens. • The quality label "Partner for Fair Wind Energy" for project developers in Thuringia • Financial support including seed money for community/citizen owned wind parks (e.g. in Schleswig Holstein) • Legal obligation for developers to share equity in Mecklenburg-West Pomerania. • Public support for benefit sharing mechanisms • Guidance, capacity building, networking and financial incentives (e.g. seed-money) for citizen/community energy initiatives and projects. • Technical assistance and consulting services • Brandenburg plans a special charge for the plant operators.	municipalities and citizens to participate in the construction of wind turbines. • Under debate: special levies paid to municipalities; minimum share of developers' annual turnover to be shared with communities; reform of the municipal concession fee system (under which grid operators have to pay concession fees for the admission to use public install electric power supply lines). • The Act on the Modernisation of the Grid Fee Structure (NEMoG) stipulates that from January 1, 2019, the transmission network charges will be gradually aligned and, as of 1 January 2023, be set uniformly throughout Germany.	0
DET	• Host communities argue that they bear a disproportionate share of negative project impacts, that local communities and residents are forced "to finance wind and solar lobbyists, in return get higher electricity prices and must still financially compensate operators for turbines which have to be temporarily switched off due to grid congestions" • Grid usage charges (levy on the electricity price per kWh) vary from region to region, depending on grid expansion activities. The highest electricity network tariffs exist in rural areas in the northern and eastern federal states, where wind energy expansion has progressed the most. This is considered a 'double' disadvantage.	• Voluntary monetary payments from the developer to the community (e.g. via non- profit associations, foundations, trusts, community benefit funds) • Direct funding of projects, energy price discount schemes or other site-specific benefits • Employment of local companies, skills training, apprentices, educational visits. • Material benefits (e.g. improved infrastructure) • The Service Unit Wind Energy in Thuringia provides guidance, technical assistance and comprehensive consulting services for municipalities, communities and citizens. • The quality label "Partner for Fair Wind Energy" to project developers focuses on distributional justice and local value creation.			Distribution within communities: 0 Distribution between communities: 0
ES	• In light of the new Balearic CC law and the future expected growth in renewable energy production, people are becoming more conscious of the fair distribution of costs and benefits of renewable energy. This also builds on the small niche of people who previously were aware of and strongly rejected attempts by big energy companies to explore the islands lands for renewable energies. Nevertheless, this is still a fairly non-mainstreamed topic and therefore is only a slightly significant driver. • In a small and fragile territory this is seen as a potential driver because sense of common ownership and belonging is very strong. Thus, given this limited scope of who can benefit and the close proximity of the people in the islands, people are generally happy to share and distribute the income generated with other communities.		• Som Energia – non-profit oriented energy cooperative governed and financed by its members. • Social Wind Energy Project (Lanzarote). • The newly passed BCC Law will prescribe that there must be a certain degree of community ownership and fair distribution of benefits from sustainable energy revenues. But this is not yet implemented nor realized in practice.		Distribution within communities: 1 Distribution between communities: 1
IT			• 'Rivoli Veronese and Affi communities Wind Farm', Verona, Italy. New power contract for citizens provided by AGSM at reduced prices.		Distribution within communities: 2

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					Distribution between communities: 1
LV	• The WinWind evaluation indicates that the stakeholders perceive the possibility of positive impacts, which could be reached in case of implementation of right procedures. • In general, landowners, on which land wind power turbines are sitting, are benefiting due to rent payment. However corporate and fair principles of determining rent amount and involving neighbouring landowners have to be applied (which might not be currently a case). • The significant part of society is cautious regarding the argument that state-of-art wind technologies could work at market conditions without significant support and consider the wind power is expensive and could raise the electricity price. Seems, the information on the competitiveness of modern state-of-art wind technologies is not enough and/or is not provided by credible experts. At the same time there is certain part of society expecting the lowering the power price in general or considering as the driver the option to buy electricity at a cheaper price from wind park. These two driving points of view have been also reflected within open answers of WinWind evaluation. • The WinWind evaluation shows that range of respondents do not see the benefits at the level of individual households. • EIA surveys currently indicate the perception of some negative impact on property value. For instance, the latest EIA survey (2018) in Zemgale region indicates that the number of local respondents (22%), who consider the impact on property value would be negative are slightly larger than number of respondents (18%) which consider the impact might be positive, with rest of respondents being neutral or hard to say. One of the against-wind arguments is that, the creation of a wind park limits the future construction of residential buildings.		• Corporate: Sharing the profit from wind energy production with local communities through voluntary donations by wind park owner (fixed donation per MWh of produced electricity). (implemented by the Nelja Energia, operating in Estonia and Lithuania)		Distribution within communities: 1 Distribution between communities: 1
NO	• The indigenous people's way of living and in particular reindeer herding by increasing pressure on land and untouched nature. Most of the land in Northern Norway is used for raising reindeer. • In the Fosen Vind project area there is about 2100 reindeers. Reindeers are not kept in captivity but roam free on pasture grounds. The UN Committee on the Elimination of Racial Discrimination has asked Norway to stop the ongoing wind power constructions in Fosen.		• Nord-Odal skiing facilities – compensatory measure (corporate, local) • A local innovation house in Birkenes – compensatory measure (corporate, local)		Distribution within communities: 0 Distribution between communities: 0
PL	• At local level there is a lack of distributional justice, low level of trust of local authorities and public actors and residents to wind farms developers, owners (and to technologies generally).				Distribution within communities: 1

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					Distribution between communities: 0
Acceptance factor: The degree of local ownership of the plants					
DES	• In Saxony, a large part of the existing wind farms has been realized by external developers and investors. • There are only few community/citizen owned wind parks or wind parks owned by cooperatives. • Long planning and lead times, high investment costs and associated risks makes community/citizen cooperation models in wind difficult to implement. • Lack of availability of suitable land. • Profits and partly business taxes from the operation of wind plants do not remain in the municipalities hosting wind projects. • Often the owners of the land are not local farmers, local residents or communities. This is related to the privatisation of formerly state-owned agricultural and forestry areas in Eastern Germany. The Bodenverwertungs - and Management GmbH (BVVG) auctions land in designated suitable/priority wind areas so that financially strong investors have competitive advantages when securing land for wind turbines (Gotchev 2016). Opportunities for citizen/community wind parks are often limited. Municipalities only own a small fraction of land. Income from land lease payments partially is generated by land owners, who are not located on-site. Local/regional value creation from wind turbines has therefore been limited so far.	• Few community/citizen owned wind parks or wind parks owned by cooperatives (e.g. Wind turbine owned by a citizen co-operative in Wülknitz, Saxony).	• The Service Unit Wind Energy (see above for more details) • Quality label "Partner for Fair Wind Energy" (see above for more details) • Benefit sharing mechanisms (e.g. land lease pooling schemes) • Mandatory financial participation of citizens/ municipalities as shareholders, Mecklenburg-Vorpommern. • In several federal states like e.g. Schleswig-Holstein or North Rhine-Westphalia, numerous citizen/community owned wind parks have been implemented, completely or partly owned by citizens in cooperation with local partners.	• Financial incentives for community energy in RES support schemes (e.g. preferential treatment for community wind parks in the new auctioning system).	1
DET	• In Thuringia, 80% of all wind turbines are owned by investors from outside Thuringia (Gude, 2015). There are only few community/citizen owned wind parks or wind parks owned by cooperatives, although Thuringia has generally the highest share of energy co-operatives in Germany (compared to the number of inhabitants) • Long planning and lead times, high investment costs and associated risks makes community/citizen cooperation models in wind difficult to implement. • Lack of availability of suitable land. • Profits and partly business taxes from the operation of wind plants do not remain in the municipalities hosting wind projects. • Often, the owners of the land are not local farmers, local residents or communities. This is related to the privatisation of formerly state-owned agricultural and forestry areas in Eastern Germany. The Bodenverwertungs - and Management GmbH (BVVG) auctions land in designated suitable/priority wind areas so that financially strong investors have competitive advantages when securing land for wind turbines (Gotchev, 2016). Opportunities for citizen/community wind parks are often limited. Municipalities only own a small fraction of land. Income from land lease payments partially is generated by land owners, who are not located on-site. Local/regional value creation from wind turbines has therefore been limited so far.	• Service Unit Wind Energy • Quality label "Partner for Fair Wind Energy" • Developers and municipal authorities increasingly create or support benefit sharing mechanisms (e.g. land lease pooling schemes).			1

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ES	• The wind park in Menorca is owned and managed by the local authority. Not much has been directly or individually distributed to the local residents, but this type of public ownership has been positively received, which suggests it could be an important driver for the future installations. Indeed, it is likely that any future installations would also be locally owned.		• Som Energia – non-profit oriented energy cooperative governed and financed by its members. • Policy: Galicia Singular Wind Farms. • Social Wind energy Project (Lanzarote).		1
IT			• 'Rivoli Veronese and Affi communities Wind Farm', Verona, Italy. Bond issue to finance the wind farms.		1
LV	• Citizen/Community ownership of wind energy does not currently exist in Latvia. The WinWind evaluation suggests that the stakeholders consider that this factor could be small positive driver in case the right framework will be implemented. National energy-climate plan 2030 envisages to develop the framework conditions for the renewable energy communities in accordance with recasted RES directive.				1
NO	• Many foreign companies invest in Norwegian wind power. Foreign ownership is mentioned in the news and in discussions, but it is uncertain whether and to what extent it is an important social acceptance barrier. • In Fosen, Statkraft is responsible for project execution on behalf of Fosen Vind. The joint venture is owned by the Norwegian utilities TrønderEnergi and Statkraft, and the European investor consortium Nordic Wind Power DA. Wind Power DA is established by Credit Swisse Energy Infrastructure Partners and is supported by the Swiss power company BKW. The fact that a regional owner is part of the project has been considered as being a driver for social acceptance initially, although perhaps not a necessary condition.				1
PL	• Locally, there is a lack of community energy initiatives and best practice examples in order to ensure fairer distribution of benefits among residents.				1
Acceptance factor: Other					
DES DET	Cost of electricity generation from wind: Opponents argue that the **electricity price burden** for households and enterprises in Saxony is too high. In particular, they demand to reduce the surcharge that German consumers pay through their electricity bills to support RES based electricity. However, electricity generation from wind has become significantly cheaper, potentially providing wind power a long-term competitive advantage over coal-fired power production. This might increasingly become a driving force for social acceptance. - There are several examples from other regions and federal states where communities hosting wind parks benefit directly from reduced electricity prices (e.g. Brandenburg)				
ES					
IT					
LV					
NO					
PL					

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Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Impact on Society					
Acceptance factor: Impacts on health and well-being (e.g. electromagnetic frequencies, shadow flicker, noise)					
DES	• Concerns that wind energy development could adversely affect human health and well-being are regularly raised, in particular, the following concerns: Wind turbine noise (and the extent to which such noise is associated with health issues, such as sleep disturbance, cardiovascular disorders, high blood pressure, headache, cognitive disruptions, stress, anxiety etc.); low-frequency sound and infrasound; optical emissions (shadow flicker, aviation lighting); other operational risks (ice throw, forest fire); and electromagnetic frequencies from transmission lines. • The opposition parties in the Thuringian Parliament have asked the state government to review its wind energy development plans in accordance with the WHO Guidelines. One opposition party (AfD) called for a moratorium to temporarily stop any wind energy development.	• Technical measures (e.g. optimizing rotor blade constructions) • Demand-oriented navigation lights reduce the need for permanent lighting systems (Thuringia favors a national solution in order to avoid competitive distortions and it considers to provide financial support to introduce such systems in pilot projects) • The new WHO Environmental Noise Guidelines for the European Region released in October 2018 include recommendations for noise from wind turbines for the first time (The WHO Regional Office for Europe, 2018)	• In the federal state of Mecklenburg-West Pomerania demand-oriented marking systems are mandatory for all new wind parks, which include more than four turbines.	• The Federal Pollution Control Act includes provisions regulating noise and refers to the area specific thresholds that are listed in the corresponding Technical Instructions on Noise Abatement; regulates shadow flicker and formation of ice. Amendments to the General Administrative Regulation on Marking of Aviation Obstacles from July 2015 provided the general possibility to introduce demand-oriented night marking of wind turbines. This regulation is under evaluation. In December 2018 the federal parliament (Bundestag) adopted a new law (“Energiesammelgesetz”) which, inter alia, requires new and existing wind plants to install demand oriented navigation lighting systems by July 2020.	-2
DET					-2
ES	• This has not yet been an important or relevant issue; however, it is noted that the tourism industry has some concerns about visual impacts and the noise pollution which could be created by wind farms				0
IT		• Abruzzo: The repowering reduced acoustic emissions by using new technologies. • Abruzzo: The repowering of old wind farms met a large consensus among the population. The reductions of visual impact by reducing the number of turbines associated to an increase in energy production have been success factors for social acceptance.			-1

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LV	• Concerns that wind energy development could adversely affect health and well-being are regularly raised as a factor of high importance. This argument is widely expressed by opponents in the public sphere[8]. • The latest EIA survey (2018) indicates that there is high number of respondents who expect the development of wind parks to have or might have negative impact on health (vibration, shadow flicker, increase in noise) compared to number of respondents which do not or might not expect such negative impact. • Among other important factors underlined by local society is electromagnetic radiation and low-frequency sound. Also the factor correlate with the distance from residential areas. • There are various presumptions in society about the impact on health from noise, infrasound, electromagnetic fields, which affect social acceptance. Seems, there is no available credible information on wind power impact regarding these factors. Range of people do not trust to EIA statements due to EIA is paid by wind park developer and even consider that range of facts on the impact on health are concealed.			• Policy: Pro-active planning for wind energy areas in the Northern Vidzeme Biosphere Reserve – spatial planning, based on the landscape ecological planning method for wind energy areas in valuable environmental and landscape territory.	-2
NO	• Local and general: Concern with impact of wind energy development on health.				-1
PL	• The general perception of impact on health and well-being is rather negative.				-1
Acceptance factor: Impacts on quality of life (e.g. recreational opportunities)					
DES	• See category above.				-1
DET					-1
ES	• This is seen as a neutral element as the target region has a high tourism recreational activity, due to its natural and climatic resources. However, it is not considered that a WE installation could have a particular effect on this the vocational activities.				0
IT		• Abruzzo: The repowering reduced acoustic emissions by using new technologies. • Abruzzo: The repowering of ancient wind farms met a large consensus among the population. The reductions of visual impact by reducing the number of turbines associated to an increase in energy production have been success factors for social acceptance.			0
LV	• Currently there is no mapping of wind park suitable areas in Latvia. Thus society in general has no clear spatial percept in which areas wind parks can be sited and in which areas have not be sited. Thus, the society			• Policy: Pro-active planning for wind energy areas in the Northern Vidzeme Biosphere Reserve –	-1

[8] It could be said, there is similar situation also regarding other new technologies, e.g., G5 mobile network

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	could perceive that the construction on wind parks might happen in such areas which would negatively impact recreational opportunities. • In reality wind parks has only very small, if any, impact on the opportunities for active recreation, People could perceive the negative impact related to passive ("silent") recreation – see also above, impact on tourism sector.			spatial planning, based on the landscape ecological planning method for wind energy areas in valuable environmental and landscape territory. (National level)	
NO	• Local and general: Concern with impact of wind energy development on recreational opportunities (e.g. hunting, fishing, skiing).	• Møllestua cabin in Fosen – facility open to the general public built by the developer – helping facilitate the continued use of the area for recreational purposes (corporate, local).	• Midtfjellet wind farm organises events such as a 'Midtfjellet Day' and a run in the wind park area ('Møllespринten').		-1
PL	• Warmian – Masurian Voivodeship is a touristic region, thus a change of recreational opportunities may result in reduction of tourist values				-1
Acceptance factor: Other					
DES					
DET					
ES					
IT					
LV					
NO					
PL					

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Individual characteristics					
Acceptance factor: Socio-cultural values (e.g. equal rights, entrepreneurialism)					
DES	• Community wind energy is comparatively underdeveloped and there is no 'tradition' of citizen/community wind energy as in other regions of Germany, like e.g. in Northern Frisia/Schleswig-Holstein. This might be partly explained socio-culturally (e.g. scepticism/reluctance of the population to invest in community owned companies and cooperatives due to historical reasons and the socialist heritage) and economically/institutionally (e.g. land ownership). • In other federal states like Schleswig-Holstein a variety of financial participation schemes emerged in the 1990s and 2000s, when investment amounts and permitting processes were less complex than today. • Average incomes and properties of private households in Thuringia are below the German average. - The generally high share of renewable energy communities in Thuringia suggests that there is an interest in direct investments by citizens , but mainly in PV projects which have lower entry barriers and lower complexity.				0
DET					0
ES	• Archaeological sites in all of Menorca, (the Navettas), have a high level of touristic and archaeological significance. Moreover, the existence of special types of drywalls created which are particular to the Balearic				0

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	Islands, have meant that wind farms cannot be built in areas which may disrupt or damage these walls.				
IT					1
LV	• Due to the lack of community wind parks, as well as lack of benefits sharing there is no developed "emotional ownership" of wind parks to individuals and local communities.				0
NO	• Sami people in Norway make their living from reindeer herding and most of the region of Northern Norway is used for raising reindeer. In Norway many sites for existing and planned wind power projects are found in reindeer habitat, where the Sami community enjoy constitutionally protected user rights over the area for reindeer grazing, and the area is culturally and spiritually significant. Contestations over wind power developments on traditional Sami lands are not isolated local disputes, but touching the heart of indigenous claims to self-determination and resource sovereignty. • In the Fosen Vind project area there is about 2,100 reindeers. Reindeers are not kept in captivity but roam free on pasture grounds.				0
PL	• Low level of individual engagement.				0
Acceptance factor: Sense of place, self-identity, place attachment					
DES	• Place attachment (emotional bonds between individuals and the familiar locations they inhabit) play a role as acceptance factors.				-1
DET					-1
ES	• On the Balearic Islands land is scarce and "sacred". High value is attached to it by the local population because it is a limited resource to protect.				-1
IT					0
LV	• In general, an important aspect is local patriotic feelings of people living in Latvia. This factor may negatively affect the development of wind parks ("there are a lot of values in our land, there should not be any wind parks in our land"). As noticed also above, regarding the impact on wildlife, Latvia people feel "emotional ownership' of the local nature values.				-1
NO	• Sami people in Norway have a special sense of self-identity and place attachment (see socio-cultural values). Wind power affects this in a negative way. • In general, citizens' place-identity and associations to the place where they live, have grown up or regularly visit is a barrier.				-1
PL					0
Acceptance factor: Discourse on wind energy in the public sphere/media					
DES	• In recent years opposition towards wind energy has been growing steadily. Opponents vary from "conditional supporters" to "fundamental opponents". Besides "silent" groups of supporters and the group of indifferent/undecided persons, there seems to be a growing share of "fundamental opponent groups", which are well organized and effective in shaping local discourses. • Protest groups and opponents of wind energy are well organized. The network which unites many of the local wind opponent groups and citizen	• Communication strategies addressing the "silent" group of supporters and the group of indifferent/undecided persons in local communities. • Innovative informal, participatory formats			0

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	initiatives lists 43 local citizen initiatives currently in Saxony, while the newspaper Sächsische Zeitung reported 65 citizens' initiatives as of 9 September 2018. • Wind opponent groups have some affiliations to right-wing populistic parties and movements, which are perceived as instrumentalizing local protest for their political purposes.	• Separate formats addressing the needs of the different target groups (traditional information events for the entire municipality are not very conducive) • Intermediary organisations may contribute to create trust.			
DET	• In recent years opposition towards wind energy has been growing steadily in Thuringia. Opponents vary from "conditional supporters" to "fundamental opponents". Besides "silent" groups of supporters and the group of indifferent/undecided persons, there seems to be a growing share of "fundamental opponent groups", which are well organized and effective in shaping local discourses. • As of 4 October 2016, the Thuringian Association for a Reasonable Energy Transition, which unites local wind opponent groups and citizen initiatives listed 39 local citizen initiatives as member organizations opposing wind energy development in Thuringia. • Wind opponent groups have some affiliations to right-wing populistic parties and movements, which are perceived as instrumentalizing local protest for their political purposes. • The culture of debate and conflict has worsened. Conflicts are becoming increasingly emotional and the discourses on wind energy in Thuringia increasingly aggressive. • Negative reporting in the media plays a role in shaping wind energy discourses.				-1
ES	• There have been negative experiences with previous wind parks developments with a fairly intransparent planning process on the islands. Previously, promoters and investors attempted to bypass the local population to deal directly with local policy makers. Once this was exposed, local populations immediately moved to (successfully) block the move. Thus, distrust towards wind farm investors and developers is prevalent among the location populations.				1
IT	• The environmental and conservation movements disagree about the need for wind power: To meet the climate targets the largest environmental advocacy group (Legambiente) supports further development of wind power. In contrast, cultural/nature heritage groups (e.g. Italia Nostra, Comitato Nazionale del Paesaggio) have organised national campaigns to ban wind energy projects, frequently quoting the Constitution's Article 9.				1
LV	• Discourse on wind energy in the media could be characterized as rather neutral. • The media only rarely, if any, has own research journalism articles on wind energy, explaining state-of-the-art wind technologies and their place and role in meeting challenges of climate change mitigation, clean air and energy supply security. Thus, it could be said, part of publications is initiated by certain stakeholders (and, thus could be considered, at least partially, as PR publications), another part is based on interviews with representatives of state authorities. • The WinWind evaluation shows that the discourse and information provided in public sphere has not made positive impact on stakeholders. With regard to the general population, the survey by SKDS (2018)				0

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	indicates that a high share of respondents support wind energy development in Latvia in general (at the same time, as shown by WinWind evaluation of other factors, there is a significant gap between general acceptance and local acceptance). • New wind park projects are discussed in both regional media (reaching also national audience) and national media, the opposition points of view are always reflected. • Past political decisions on the feed-in tariff system has created scepticism in society related to its fairness and costs which were considered by society in general as high. In general, discourse in the political sphere, reflected by media, is that the renewables can be accepted only if they are able to produce energy on market conditions without support like feed-in tariff/premium systems or others[9]. As indicated by the DNB survey (2016), most respondents (61%) would not be willing to pay more for energy if more renewables would be used. At the same time this situation cannot be interpreted as unequivocal. E..g, several studies focuced to young people have indicated that this important audience could be ready to pay a little more for RES electricity being convinced on the fairness of the system. • Opposition towards wind energy regards to the particular projects. For instance, the opponents of the wind park project in Zemgale region (planned up to around 50 turbines with total up to 208 MW capacity) was able to self-organize and to establish non-formal people initiative group " Zemgale region without wind generators". At the same time the actions of the group focus on local/regional level. There is no visible against-wind coordinated opposition at national level.				
NO	• The regulator presented a national map for areas suited for land-based wind power 1 April 2019. In light of this, the media coverage and mobilization of wind power has increased tremendeously. There are three key arguments: (1) Land based wind power can help mitigate climate change while simultaneously create new jobs in the rural areas. (2) Land-based wind power will harm the nature without giving any climate change mitigation effects. (3) There is a need for increasing electricity generation in future, when more sectors are electrified and big companies like data centres may enter into long-term contracts.				-1
PL	• Locally, the environmental protection organisations and associations are opposing wind energy developments (in some cases very strongly).				0
Acceptance factor: Political climate for wind energy development					
DES	• There is broad consensus in German society on the energy transition in all sections of the population and across the political spectrum (cf. for example the Social Sustainability Barometer for the German Energiewende, Setton et al., 2017). A large majority also favours the involvement of citizens in the expansion of renewable energy sources.	• There is a desire for political involvement in an 'expanded culture of participation'. • Wind energy projects imposed from 'above' are increasingly being rejected.			-1
DET					-1

[9] It can be also noted that range of articles on this support topic had been published with the wind turbines pictures.

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	• More than 87% of the supporters of the conservative CDU/CSU, the social- democratic SPD, the liberal Free Democrats (FDP), the Left Party, and Alliance 90/The Greens and 59 % of the supporters of the Alternative for Germany (AfD) are in favour of the Energiewende. • The population's attitudes towards the implementation of the Energiewende are more varied, including negative labels such as being 'unfair', 'expensive' or 'chaotic', even though most respondents find that the implementation is good, all in all. The majority does not see any specific disadvantages for the economy but are concerned with higher costs/increased electricity prices. 2/3 are convinced that the cost burden of the Energiewende is borne mostly by "ordinary people", while those well-off and companies tend to profit from it. ½ of wealthier respondents share this opinion. • 1/4 rejects the expansion of onshore wind energy, irrespective of whether the plants are built in their vicinity or elsewhere in Germany. This reflects doubts about the necessity and suitability of wind energy in the context of the energy transition. PV plants are rated much more positively. • People wish to participate more directly in wind energy expansion. • People want more opportunities for political participation, which is only possible to a limited degree under current planning/permitting law. • Older surveys from 2012 show that in most of the federal states being formerly parts of the GDR (particularly i.e. federal states of Brandenburg, Thuringia, Saxony and Saxony-Anhalt) support rates for wind energy are generally lower than in the rest of the country. • The latest survey "Energiewelt Ost" conducted in 2016 found that the support for the Energy Transition in East Germany has decreased since 2015. • Satisfaction with the implementation of the Energiewende in East Germany is low: 65% of citizens, 55% of the municipalities and 67% of the energy-intensive companies are dissatisfied with the implementation. Key issues include unfair distribution of costs, and lacking policy coherence between federal and state policies and between European and national policies (Universität Leipzig Kompetenzzentrum and enviaM, 2016) • In a 2018 survey in Thuringia (Stimmungsbild Windkraft in Thüringen), 364 persons living in a distance of 600 m to 5,000 m to wind turbines were asked about their acceptance. 57% were fully or rather in favour of the plant(s); 41 % were not or rather not in favour of the plants. 59% of 1,051 persons see rather disadvantages for people in the region;18% see rather advantages; and 19% no impact. From 364 respondents living in a distance of 600 m to 5,000 m to wind turbines only 15% see rather advantages, 15% see no impact, 65% see more disadvantages. From 691 respondents who do not live in the vicinity of any wind turbine, 19% see rather advantages, 22% no impact, while 55% see rather disadvantages (C-KCM Richard Schmidt, 2018).	• A change in legal parameters so that it is possible for citizens to participate meaningfully and at an early stage in the planning of projects. • More informal possibilities of becoming involved could allow those who live near new energy installations to have more of a say in local planning processes.			
ES	• A recent study carried out by The Environmental Technologies Park of Mallorca shows that the local populations in the region are largely in favor of wind energy and are concerned about the lack of its existence in the Islands. The general wind energy acceptance in the in the Islands is 71% (2017).				1

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	• In the individual islands, Menorca has the highest acceptance with 72%, followed by Ibiza 69%, Mallorca 66% and Formentera 62%.				
IT	• 66% of the Italian population trust wind energy (2017, Univerde-IPR Marketing Report) • Disputes over hydro and wind energy plants are quite significant.				2
LV	• Latvia has currently not yet elaborated a national RES development plan. Thus, there is still uncertainty regarding the role of RES and implementation instruments for RES energy. • There is negative overall political climate regarding renewables use for electricity – political acceptance for such use might be expected if it does not increase electricity price, namely, can be done on market conditions. However it cannot be stated that there are particular negative political climate focused to wind energy within the overall renewable energy policy. • Political parties want to avoid negative point of view from people and thus offer to install wind parks in non-populated areas, a range of Latvian political figures particularly propose to implement off-shore wind parks. • An important political factor, impacting future decisions in the renewable energy sector, might be the statement (Spring 2019) of Latvia Government that Latvia wants to be a front-runner of EU climate policy.				-1
NO	• In CICERO's climate survey 2018, 6 out of 10 responded that they were positive to increased onshore wind power in Norway, while only 1 in 10 were negative. The same survey was carried out in 2019. While the majority is still positive to wind power, there is a clear change in opinion. While only 1 in 10 Norwegians were negative in 2018, in 2019 1 in 4 Norwegians respond that they are negative.				-1
PL	• The 2013 Polish Wind Energy Association's survey shows that most respondents do not believe that wind power has a negative aesthetic impact on landscape (61%) or that wind power makes areas surrounding wind farms less attractive to tourists (54%). 47% of the respondents express that they are concerned with noise from wind turbines (i.e. respondents who have the opinion that wind turbines generate bothersome noise to residents living nearby). 35% of the respondents do not believe wind power creates bothersome noise. 40% of respondents were afraid of infrasound; in contrast, 34% were not afraid of such sounds; and as many as 26% had no opinion. • In 2013 the Polish Wind Energy Association hired an independent company to carry out a questionnaire in the Warmian-Mazurian Province. The findings suggest that 78% of the inhabitants are of the opinion that investments in wind energy can bring positive benefits for their region. Benefits from investments in wind energy that were most commonly ticked off by the respondents included: environmental benefits (65%), increase in communal income from taxes paid by the investor (51%) and a decrease in unemployment (46%). Research shows that residents of communes with wind farms see significantly more benefits related to wind farms compared to the general population. • Locally, almost half of the residents of the Warmian-Mazury Province have heard about risks related to the operation of wind farms. The three most frequently mentioned threats were listed: noise caused by turbines (57%), location of wind farms too close to buildings (47%), and				-1

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	depreciation of the value of the land around the power plant (44%). The vast majority of respondents (87%) expressed that wind farms are a good source of energy, of which 39% think that it is a very good source. 75% of the respondents also agreed that such power plants should be established within their own commune.				
Acceptance factor: Other					
DES DET	Overall political attitudes: 28 years after German reunification many municipalities particularly in rural areas of East Germany including Thuringia and Saxony still face serious economic problems (e.g. rural depopulation, increasing economic, social and infrastructural disparities between urban and rural areas in East Germany, structural weakness, higher unemployment rates, low average income, decreasing revenues for municipalities) (Bundesministerium für Wirtschaft und Energie, 2018). This leads to a general discontent, and may aggravate negative perceptions related to the *Energiewende* such as: decreasing trust in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures of democracy; perceived heteronomy (e.g. perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany); perception of the rural population as being left behind; perception of the *Energiewende* as an elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.				
ES					
IT					
LV	Willingness to participate in the discussion of local development plans: - Such willingness is rather low. In general, participation in discussion of development plans is low. - A recent survey carried out in relation to the EIA procedure for several planned wind parks shows that around 40% of the respondents find that it is not important to participate in the discussions and 30% respondents are neutral. - There is one active group of people, who are usually against wind park developments and participate and actively express their opinion; and there is one group of people, who is indifferent when it comes to participating and who is not particularly interested in searching information.				
NO					
PL					

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Market					
Acceptance factor: Regional (or national if regional is unknown) share of renewables in the electricity sector					
DES	• In 2016, 921 wind turbines were in operation in Saxony. However, the development of wind energy has been stagnating for several years. In the past three years, Saxony had the lowest annual growth rates in terms of wind turbine installations of all federal states (except Berlin).				1
DET	• The proportion of domestic power generation in Thuringia is relatively low, but net electricity imports could be reduced due to the continuous expansion of renewable energies. In 2015, electricity from RES covered 34.6% of electricity consumption and 58.6% of electricity generation. The current government has ambitious targets and aims to cover the entire energy demand by 2040 by RES. In contrast, opponents of wind energy ask to reduce the “over-ambitious” targets of the state government and to synchronize the RES targets with those of the federal government.				1
ES	• The Balearic Islands current wind energy generation is the second lowest of all regions in Spain, after Extremadura. The current amount installed is 3.68 MW (AEE, 2017) generated by four wind turbines in the Es Milá Wind Park on the island of Menorca. This provides for 0.02% of the market share and total energy used in the Balearic Islands. The present				1

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	wind park was created in 2004, however has since not experienced any form of expansion or growth.				
IT	• During 2016, wind energy accounted for roughly 16.8% of the total renewable electricity production in Italy.				1
LV	• In Latvia the annual gross electricity consumption is 7 TWh (in 2018 - 7,111 GWh, in 2017 – 6,958 GWh). Share of the renewable energy in electricity supply is slightly more than a half (in 2017 – 54.4%). However wind energy contributes with only around 2% of the total electricity supply[10]. • WinWind evaluation indicates that the stakeholders perceive the determination of RES-electricity share for 2030 and beyond (up to 2050) in a great extent will drive the on-shore wind development.				2
NO	• Norway has installed power plants with a total capacity of 33.8 GW, a peak load capacity of 33.8 GW and an annual generation of 144 TWh. 10% of total generation in 2015 was exported. The electricity generation mix consists of: hydro 96%, natural gas 2% and wind 2%. Norway has the highest share of electricity produced from renewable sources in Europe (98%) (IEA, 2017). One key argument against development of wind power is related to the fact that wind energy does not contribute to phase out fossil fuels in Norwegian electricity generation. • Most of the electricity generation in Norway is publicly owned (state and municipalities): approximately 90% of hydroelectric generation, 90% of thermal generation, and 80% of wind generation (IEA, 2017). Under the 1917 Industrial Concessions Act, the government has a "right of reversion", which allows it to resume ownership of privately-owned hydropower assets without compensation once the original 60-years license expires. As expected, the Act has resulted in privately developed hydropower plants gradually passing into public ownership. In capacity terms, the three largest generation owners (Statkraft, Agder Energi, and E-co) controls just under half of the assets. Statkraft produces around one-third of Norway's net generation (IEA, 2017). • More than 90% of the physical power trade in Norway takes place at the Nord Pool AS, a power exchange for the Nordic and Baltic region. Nord Pool AS was the world's first multinational exchange for trading electric power. Nord Pool AS runs the largest market for electrical energy in Europe. It operates in Norway, Denmark, Sweden, Finland, Estonia, Latvia, Lithuania, Germany and the UK. For the regional market to function properly, regulatory frameworks are harmonised across all the member countries. The Nord Pool AS has two physical power markets: a day-ahead market (Elspot) and a continuous intraday market (Elbas). Financial power contracts are traded through NASDAQ OMX.				1
PL	• The share of wind energy in RES electricity generation in Poland is 55% (2016) according to data of Central Statistical Office.				1

[10] Central Statistical Bureau of Latvia. The data bases ENG020 "Energy Balances", ENG051 "Share of Renewable Energy Resources", ENG090 "Electrical capacity and produced electricity from renewables", http://data1.csb.gov.lv/pxweb/en/vide/vide__energetika__ikgad/?tablelist=true

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Acceptance factor: Energy demand (e.g. exporter/importer of electricity, security of supply)					
DES	• Saxony's gross electricity generation in 2015 reached more than 42.4 billion kilowatt hours (kWh). The most important source of energy for power generation in Saxony is lignite. In 2015, lignite accounted for around 32 billion kWh, or three quarters of gross electricity generation. The combined share of renewable energies reached 13.5 percent in 2015 (5.7 billion kWh) followed by natural gas with 8.8 percent (3.7 billion kWh). • The electricity generated in Saxony is consumed only partially in Saxony itself. Electricity supplies on the one hand and electricity exports on the other hand resulted in a provisional export surplus of 15.9 billion kWh in 2015. • In the public discourses on wind energy, opponents of wind energy regularly emphasize that the intermittent electricity generation from wind results in comparatively low outputs requiring extra capacity, plus back up from conventional power stations (fossil fuel, nuclear). Furthermore, they argue, that wind power plants can only cover a small proportion of society's needs and do not provide a satisfying solution taking into account their disadvantages.				0
DET	• About 50% of electricity consumption in Thuringia is dependent on imports from other regions. Development of wind energy contributes to improve energy supply security and enhance the creation of regional/local added value. • In public discourses, opponents of wind energy emphasize that the intermittent electricity generation from wind results in comparatively low outputs requiring extra capacity, plus back-up from conventional power stations (fossil fuel, nuclear). Another argument put forth is that wind power plants can only cover a small proportion of society's needs and do not provide a satisfying solution, given the disadvantages.				0
ES	• Four thermal power plants exist in Mallorca (527 MW, 432 MW, 412 MW and 400 MW), one thermal power plant in each of Ibiza (292 MW), Formentera (10.5 MW) and Menorca (245 MW). These are all either coal-oil fired or gas turbines. The coal is largely imported from South Africa and oil is also imported. Thus, the islands are heavily dependent on net imports of energy.				0
IT	• The regional energy balance report suggests that in 2014 Lazio was almost fully dependent on imports (91,7% of Gross Internal Consumption) • The regional energy balance report suggests that in 2014 the primary production in Abruzzo covered only 24% of gross internal consumption.				1
LV	• A significant part of society supports use of local fuel, although mainly in the heat sector -instead of import of natural gas from third countries, including Russia. The SKDS survey (published January 2019) indicated that 64% of the population agree that the use of wind energy contributes to Latvia's energy independence. • At the same time a considerable part of society is concerned that increase of the RES share in electricity supply may result in increasing electricity prices. Regarding electricity supply, Latvia has interconnections (through Estonia and Lithuania) with EU countries (see above – the need for grid infrastructure improvement), thus society can assume high security of electricity supply.				1

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NO	• There is an over-supply of electricity in Norway. Therefore, energy demand is not a driver for social acceptability, although some interest groups argue that – with increasing electrification of sectors – there will be an increasing demand in future. • 10% of total electricity generation in 2015 was exported. Norway's consumption of electricity was 118 TWh. More than 75% of the Norwegian capacity is flexible, and Norway has half of Europe's hydro reservoir capacity (IEA, 2017). • Norway is part of a highly integrated Nordic power system that has interconnectors to the Baltics, Northern Europe and Russia. Nearly all the imports and exports go via land cables to Sweden or submarine cables to Denmark and the Netherlands. The flexibility of Norway's hydropower production makes it a valuable resource to balance variable renewable power. In a recent review of the Norwegian energy sector, the International Energy Agency recommended for the electricity sector (IEA, 2017 p. 11): "Continue to support further harmonisation and integration within the Nordic electricity market, facilitate an increase in cross-border connections and demand-side measures to this end, and take measures to encourage market-based investments in low-carbon power generation."				1
PL	• There is low coverage of demand by local sources.				1
Acceptance factor: Other					
DES DET	Competitiveness of wind energy - Due to massive cost reductions wind power has become competitive with fossil power plants. The levelized cost of electricity (LCOE) for new wind power plants is partly in the range of the LCOE of new coal fired power plants (Kost et al., 2018). - Opponents of wind energy in Thuringia and Saxony argue that due to over-optimistic wind potential calculations, many of the existing wind parks are not economically competitive.				
ES					
IT					
LV					
NO	Wind power has become competitive with hydropower,and is subject to favourable taxation compared with large hydropower installations.				
PL					

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Planning and permitting process					
Acceptance factor: Opportunities for informal/formal participation and consultation in the planning and permitting process					
DES	• Spatial planning: Saxony is divided into four regional planning bodies. All four are required to designate corresponding priority and suitability zones for wind energy in the corresponding regional plans. Construction of wind energy plants is only possible within these areas. The highest decision-making body is the association meeting. Voting members are the district councillors and mayors of the independent cities and in addition for every 75,000 inhabitants a further association council will be elected. The number of association councils may not exceed six per member body.	• Permitting: The state government developed Recommendations on the Permission of Wind Energy Plants (2011), which provide an overview of existing regulations for the permission of wind energy turbines, but do not contain any special	• Spatial planning: Informal and voluntary public participation formats going beyond formal statutory participation (e.g. the planning association Upper Elbe Valley / Ore Mountains set up a (temporary) informal working group involving		1

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	• The acceptance factors described for Thuringia below largely apply to Saxony.	measures promoting informal participation of communities/citizens	different stakeholder groups. In Oderland-Spree, one of the five planning regions in the federal state of Brandenburg, one of the WinWind model regions, the regional planning bodies organize regular, informal "wind plan dialogues" involving various stakeholders in those municipalities which are affected by the designation of wind energy zones in the regional plans)		
DET	Spatial planning: • Thuringia is divided into four planning regions, which consist of counties, cities and municipalities identified as 'middle centers' in the Federal State Development Program. These are responsible for regional planning including the designation of wind priority zones in their regional plans. The highest decision-making body is the Planning Assembly. Some members are ex officio (district councillors and mayors of the middle centers), others are elected by the political committees of the districts. • Wind power opponents complain that the participation possibilities are given only for larger municipalities and not for smaller, in particular rural ones. • Municipalities' ability to influence the exact position/design of wind turbines/height of the turbines within the priority zones in the frame of urban land use planning (micro-siting) is limited. Municipalities are reluctant to develop local land use plans plans. • The designation of priority zones for wind energy in the regional plans is currently in a transitional stage, due to political and judicial decisions. It creates uncertainty for investors, communities and citizens and increases their concerns of an uncontrolled and uncoordinated development of wind energy. • The local administrations including the mayors and other local decision makers (working as honorary persons, unpaid) often lack the capacities and resources to cope with the complex issue of planning, constructing and operating wind turbines and ensuring public participation. • Municipalities and local residents perceive the designation of priority zones as a top-down process with limited scope to influence the process. They often feel badly informed and that their concerns and objections are not sufficiently considered. • Citizens experience that they are poorly informed about the regional plans and criticize the limited scope of participation and possibilities to influence and shape the outcome of the planning process and the designation of priority zones. Permitting: • Formal participation of the public in the wind turbine permitting process is required only if the number of wind turbines reaches or exceeds 20. For projects with 3-19 plants, the scope of public participation is dependent of	• Voluntary EIA with comprehensive public participation; various informal participation formats (information events, information markets etc.) Spatial planning: • Formal public consultation of the Wind Energy Decree (2016) and regional plans. Formal consultation procedures are partly accompanied by informal participation formats (e.g. regional dialogue fora for debating the Wind Energy Decree) • The Service Unit Wind Energy in Thuringia provides advisory and technical assistance services for citizens, municipalities and developers. • The quality label for project developers, "Fair wind energy developer", seeks to address procedural and distributional justice. • The state government plans to develop a Codex for Citizen Participation to strengthen participation before and during the permitting process • The state plans to develop a Community energy advisory programme.	Spatial planning: • In Brandenburg, the mayors of the municipalities with > 10,000 inhabitants are members ex officio of the regional assembly. To ensure a fairer participation of smaller communities in this decision-making body the threshold under which ex officio membership of mayors shall be reduced to 5,000 inhabitants. • The state planning authorities and regional planning bodies in the 16 federal states use increasingly informal and voluntary public participation formats beyond formal statutory participation (e.g. informal working groups in Saxony, informal wind plan dialogues in Oderland-Spree, one of the five planning regions in the state of Brandenburg, public information events, expert talks and informal mappings in Schleswig-Holstein). • Other informal measures being discussed is 'citizen persons of trust' and 'planning cells' Permitting: • Informal local meetings, hearings, public discussions to involve and engage the public. • In autumn 2018, the state government of Brandenburg launched an initiative that aims		1

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	the results of an initial screening process. There is a call for making public participation mandatory in general. • Many municipalities seem to be overloaded and over-challenged with wind energy planning in their jurisdictions. • There is a need to support municipalities and residents by providing 'neutral' information and advice regarding the planning of wind energy plants, including informal procedural participation formats and financial participation for citizens and communities.		to abolish the privileged status of wind energy in spatial planning and thus increase acceptance for wind energy (Wind farms are currently treated as privileged structures in areas without land-use plans under the German Federal Building Code. Giving up the privileged status would mean in the end it is the municipalities which solely specify in their land use plans on whether and where wind turbines might be constructed		
ES	• There has been significant distrust towards investors and the non-transparent planning processes.	• The recently approved BCC Law requires positive action to ensure more formal and information participation of the public, in particularly through the empowerment of publicly elected local officials.	• Policy: Galicia Singular Wind Farms. • El Hierro Energy Transition. • Social Wind Energy Project (Lanzarote). • Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		0
IT		• Abruzzo: The participatory process involved the local residents and local administration through public meetings from the planning stage to the actual implementation.			2
LV	• Consultations, carried out by public authorities, are perceived as the instrument to increase the fair/objective information provided to people. • Possibilities of formal participation and consultation in the planning process at municipal level is rather high (details provided in the WinWind deliverable 6.1) and this could be an enabling factor. • Municipalities may develop wind park areas zoning in their administrative territory according the general framework established by the Governmental General Regulations for the Planning, Use and Building of the Territory. However municipalities are rather reluctant to develop precise wind park areas zoning within the spatial plan. The reason could be that local administration often lack the capacities and resources to cope with the complex issue of planning wind turbines and ensuring public participation on this. In its turn, the lack of clear and widely discussed framework for siting wind plants in the municipality territory is one of important reasons causing future opposition to particular wind park projects. • In an "ideal case" the framework conditions on wind energy development shall be established within the spatial planning procedure. Thus, the participation can be driver in case the timely and active public involvement in all planning processes is ensured. • However Latvia society in general is rather passive on its involvement in planning processes and "last-minute awakening" is rather characteristics.	• Policy: Survey about inhabitant's awareness and attitude towards a wind farm, voluntary survey commissioned by a public body (municipality) at the planning and permitting stage.			1

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	Partially it can be caused by that the informal methods for providing and wide dissemination of information on the planning and on particular wind projects are not widely applied by public authorities. • There is a need to support municipalities and local communities by providing "neutral" information and advice regarding the planning of wind plants, including informal procedural participation formats, among them formats for direct dialogue with citizens. This issue should be considered in the context of planned administrative territorial reform in Latvia (decreasing the number of local municipalities around 3 times, to be done in 2021).				
NO	• Planning of energy power plants is not a local responsibility, but in the hands of national authorities. • The regulator (Norwegian Water Resources and Energy Directorate) is a directorate under the Ministry of Petroleum and Energy (OED), with responsibility for the management of the nation's water and energy resources. The main task of the regulator's licensing department is to process license applications for the construction of power plants, dams and other installations in our water courses, for major power lines and other energy installation that require permission according to the Energy and/or the Water Course Act. The process involves the public in open hearings. NVE is a trusted organisation (i.e. in terms of all the tasks it carries out, not in particular related to wind energy).		• At Hitra in 2001, a local "common counselling forum" was established between the municipality, local businesses and nature, environment and recreational interest groups. Ever since, the regulator advises municipalities and local interest groups to establish such forums.		1
PL	• The involvement of residents in planning and permitting processes is low in general.			• Policy: Public participation in the issuance process of a decision on environmental conditions – supported by the Act on Providing Information on the Environment and Environmental Protection, Public Participation in Environmental Protection and on Environmental Impact Assessment.	1
Acceptance factor: Information about projects and the transparency of the permitting process					
DES	• See former category • There is a knowledge gap between professional wind energy developers on the one hand and municipal decision-makers and citizens on the other. Local authorities often face time, informational and staff constraints.		• The Service Unit Wind Energy in Thuringia provides comprehensive information and technical assistance services to citizens and communities. • The quality label "Partner for Fair Wind Energy" and related guidelines envisage, inter alia: involvement of all interest groups in the vicinity; transparent handling of project-related information on-site, provision of assistance and informational services; and fair participation of everyone affected		1

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DET	• See former category. • In a recent 2018 survey, Stimmungsbild Windkraft in Thüringen, approximately 1,000 persons were asked to identify measures which raise social acceptance for regional wind energy development. The measures receiving most answers were "More/better information" and "Direct dialogue with citizens (discussions, presentations, information events) (C-KCM Richard Schmidt, 2018) • There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Local authorities face time, informational and staff constraints.	• The Service Unit Wind Energy provides information and technical assistance services to citizens and communities. • The quality label "Partner for Fair Wind Energy" and related guidelines envisage, inter alia: involvement of all interest groups in the vicinity; transparent handling of project-related information on-site, provision of assistance and informational services; and fair participation of everyone affected			1
ES	• There has been significant historical distrust towards investors and the non- transparent planning processes, especially in the past (when the first RE plans were built). But this now seems to have been forgotten/resolved and now is not a barrier.		• Som Energia – non-profit oriented energy cooperative governed and financed by its members. • Policy: Galicia Singular Wind Farms. • El Hierro Energy Transition. • Social Wind energy Project (Lanzarote). • Mancomunidad del Sureste de Gran Canarias: Developing Wind and Water		0
IT		• The Abruzzo Region has efficient procedures and definite timeframe for authorization process.		• The "Conferenza dei Servizi" (Conference of services) (Law 241/90) represents the institution that enhances the dialogue and cooperation between public authorities to implement the administrative simplification of the activities related to project realization.	2
LV	• Transparent information on planning and permitting process and detailed information on particular wind park project is perceived as an enabling factor. • Open answers of WinWind evaluation indicate that there is lack of public information/ awareness on wind energy. Communication shall involve facts and verifiable data. Important information measure which could raise the local social acceptance could be direct information exchange among communities having and not having wind plants • However there is knowledge gap between professional wind energy developers on the one hand and municipal decision-makers, specialists of municipal administration and local citizens on the other. Local authorities often face time, informational and staff constraints. These constraints decrease the importance of the given factor as a driver. • Important task is to provide information to local people from the outset of the wind park project. The noted EIA survey (2018) done in the area of planned wind park project in Zemgale region indicated that around of half				1

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	of local people in the vicinity of planned park is not informed on the project (the similar results appeared also in other EIA surveys). Late and non-adequate information is one of reasons for opposition.				
NO	• The concession process is transparent in terms of making all the documentation publicly available on its home page and carrying out public meetings. • Interest groups opposing wind power argue that the process is not sufficiently transparent, as for example land owners and developers have sometimes already made agreements prior to a project has been reported to the regulator (i.e. before entering into the concession process).		• At Hitra in 2001, a local "common counselling forum" was established between the municipality, local businesses and other interest groups. Ever since, the regulator advises municipalities and local interest groups to establish such forums.		1
PL	• Low level of public awareness concerning impacts and benefits of wind energy on a local level. A little engagement of public authorities in informational activities and campaigns dedicated for residents.		• Preparation of pilot wind turbine investment (policy, local)		1
Acceptance factor: Trust in processes					
DES	• Low levels of trust in investors and planners, but often also in regional or municipal decision-makers seem to prevail among citizens in many municipalities in Saxony. This is a consequence of several factors: Few citizen/community owned wind energy plants/parks; most wind energy plants are owned by external investors which are not rooted locally; the owners of the land where turbines are located are often not local, and hence profits and taxes do not stay in the site municipalities. • There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Municipalities, but also public authorities (responsible for planning and permitting) often face time, informational and staff constraints. • The willingness of municipalities to enter into a dialogue with project developers is declining. • The situation is partly aggravated by the following problems, particularly in rural areas: decreasing trust of citizens in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures; perceived heteronomy (including the perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany); perception of being left behind; perception of the Energiewende as an (urban) elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.	• The Saxon Energy Agency SAENA provides consulting services for municipalities and citizens, but with limited resources the focus being more on energy efficiency. • In February 2018, the parliamentary group of the Green Party brought forward a parliamentary motion to establish a service unit wind energy and labelling scheme for project developers following the Thuringian model.	• Intermediary organizations and advisory units providing unbiased technical assistance to local communities and stakeholders in Baden-Wurttemberg, Rhineland-Palatinate, Hesse:Citizens' Forum Hesse Quality label and certification scheme "Fair Wind Park Developer" for project planners and developers in Schleswig-Holstein. • The Service Unit Wind Energy in Thuringia acts as a neutral intermediary organization. • The quality label "Partner for Fair Wind Energy" for project developers) has been introduced to strengthen procedural and distributional justice, to increase credibility of planners and developers and to build trust.		0
DET	• Low levels of trust in investors and planners, and often in regional or municipal decision-makers seem to prevail among citizens in relatively many municipalities in Thuringia. This is a consequence of several factors: 80% of all wind turbines are owned by investors from outside Thuringia (Gude, 2015). There are only few community wind energy plants. The owners of the land where turbines are located are often not local. It means that profits and taxes do not remain in the municipalities. These factors provide key barriers for the trust in the investors and planners of wind plants.	• Trust-building through intermediary organizations, informal participation measures, institution building, capacity building, effective communication, unbiased technical assistance to local stakeholders incl. policy makers and planners. • The Service Unit Wind Energy in Thuringia acts as a neutral intermediary organization.	• Intermediary organizations and advisory units providing unbiased technical assistance to local communities and stakeholders in Baden-Wurttemberg, Rhineland-Palatinate, Hesse:Citizens' Forum Hesse Quality label and certification scheme "Fair Wind Park		1

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	• Annulment of two of the four regional plans designating priority zones for wind energy in Thuringia by court decisions led partly to aggressive and non-transparent land acquisition practices by developers (Gude, 2015). Project developers act in an increasingly competitive environment with strong cost pressure due to the transition from feed-in tariff system to competitive bidding procedures. • There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Municipalities, but also public authorities (responsible for planning and permitting) often face time, informational and staff constraints. • The willingness of municipalities to enter a dialogue with project developers is declining. • The situation is partly aggravated by the following problems, particularly in rural areas: Decreasing trust of citizens in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures; perceived hheteronomy (including the perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany); perception of being left behind; perception of the Energiewende as an (urban) elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.	• The quality label "Partner for Fair Wind Energy" for project developers) has been introduced to increase trust.	Developer" for project planners and developers in Schleswig-Holstein.		
ES	• There has been significant distrust towards investors and the non-transparent planning processes.		• Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		0
IT		• The clear procedures and timeframe for authorization represent a good model for citizens' increasing social acceptance of wind farms.	• Lazio: Wrong communication modalities and a lack of attention to the social network • Abruzzo: Local administrators, Wind energy companies		2
LV	• In Latvia certain factors decrease the impact of this driver. Past political decisions on the RES-electricity feed-in tariffs scheme have created scepticism in the society whether such tariffs are fair. There is historical association of use of wind energy to the well-being of (former) political figures. The combination of these aspects has important negative influence. • The latest EIA survey (2018) of local population carried out in the area of planned wind park indicates that high number of local residents (40%) considered it is not important to be involved in public discussion events of wind park project and 30% respondents had no opinion. Partially this result could be explained by individual characteristics of the respondents, on the other hand, this may reflect distrust in processes / non-possibility to impact the decisions.				1
NO	• In general, there is high trust in Norwegian laws, institutions and regulations of the energy sector. However, opponents argue that the regulator 'sing from the same hymn sheet' as the wind energy developers.				1
PL	• The course of processes is determined by regulations, which are generally positively perceived by stakeholders.				1
Acceptance factor: Trust in information					

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DES	See category above.				0
DET	See category above.				1
ES	• Given the limited amount of public information provision and dissemination in the past, this cannot be considered as a driver nor a barrier.				0
IT	See category above.				2
LV	• However in Latvia parts of society, as indicated by expressions in public meetings on EIA reports and other events do not trust EIA reports and objectivity/fairness of involved experts (as they consider them as being too inspired by wind park developers). The opponents indicate the lack for reliable (independent and reputable experts) research on the impacts and benefits of on-shore wind energy in Latvia. It means process of informing should be considered more carefully (however also the opposing stakeholders should be ready to accept the information which might be opposite to their initial perceptions). • As noted above characterising the discourse of media, there is a lack of analytical information regarding RES electricity and media only rarely provide such information, partially due to a lack of research journalism traditions.				1
NO	See category above.				1
PL	• Trust in information is low, but any information is appreciated.				1
Acceptance factor: Other					
DES					
DET					
ES					
IT					
LV	Information - In general, the quality and objectivity of information is an important factor. There is a lack of analytic information regarding RES electricity, and mass media rarely provide such analytic information (partially due to a lack of research journalism traditions). - In the latest survey carried out in relation to the EIA procedure in the sites of planned wind parks a significant part of respondents indicate that information on the negative impacts of wind parks is based on their own personal thoughts.				
NO					
PL					

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Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Governance and regulatory framework					
Acceptance factor: National/regional/local targets, plans and policies					
DES	• In its Energy and Climate Programme of 2013 (EKP 2013) the previous state government has set out a RES expansion target of reaching 28% in gross electricity consumption by 2022. In 2016, this share was approximately 21%. • After the parliamentary elections in Saxony of 2014, the new government coalition agreed to pursue the (more ambitious) RES targets of the federal government (40-45% until 2025 and 55-60% until 2035), and to revise the EKP 2013, a key issue being the further expansion of RES with the participation of citizens. • The slow market development can be explained by the: limited designation of wind priority/suitability zones in the regional plans; increasingly demanding nature protection requirements (see above); increasing local opposition; low number of successful bids in the auctions. • The wind industry claims that the state government actively impedes an expansion of wind energy, e.g. by restrictive designation of wind priority/suitability zones, or height restrictions. The industry also argues that the state government has a strong bias to promote the domestic lignite industry at the expense of the wind energy sector and other RES sectors. • According to the EKP 2013, areas must be reserved enabling an annual energy output of 2,200 GWh from wind energy which means an increase of 1,050 GWh/year. This state-wide energy target has been broken down into individual minimum wind energy outputs to be achieved by each of the four planning regions. • Saxony has not set any area-related expansion target for the development of wind energy (e.g. as a minimum percentage of the total area to be reserved for wind energy), but a state-wide minimum wind energy output target which has been broken down for each of the four planning regions according to their respective shares in the total area. • All four regional plans which designate wind priority/suitability zones are currently under revision. But the revision is based on the existing (outdated) policy goals and does not consider any updated EKP. Political goal setting and spatial planning are not synchronized. Due to the obsolete expansion targets contained in the existing EKP which has been developed by the previous government, proponents of the wind industry expect further stagnation of wind energy in the coming years.	• Energy and Climate Programme, Coalition Agreement of the state government. Saxony	• Wind Energy Masterplan and Guidelines for Community Wind Energy in the district of Steinfurt (North-Rhine-Westphalia) • Policy target setting (social acceptance of wind energy has been included as a political priority of the regional energy strategy 2030), Brandenburg.	• The Renewable Energy Sources Act contains provisions which give community wind park planners and operators certain privileges under the new auctioning system • The federal government (Coalition Agreement 2018) aims to reconcile the interests of the renewable energy industry with nature conservation and create better opportunities for municipalities and citizens to participate in the construction of wind turbines. • Several proposals are being debated including, e.g., special levies paid to municipalities, minimum share of developers' annual turnover to be shared with communities, or reform of the municipal concession fee system. • In October 2018 the coalition partners decided to set up a working group to debate and develop measures to increase social acceptance.	Targets: 0 Plans: 0 Policies (taxation): 0 Policies (financial support schemes): 0
DET	• The leftwing state government coalition of Thuringia pursues ambitious RES expansion targets (more ambitious than federal targets and of other German states) and seeks to increase the share of RES in overall energy consumption to 100% by 2040. To achieve the targets, the area dedicated to the development of wind energy is planned to increase from 0.3 to 1% of the total area of Thuringia.				Targets: 0 Plans: 0

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	• Opponents perceive the targets as arbitrary, not well argued, too ambitious, ideological, and inflexible. The process of target setting and breaking those targets down in the context of regional planning and the designation of suitable/preferable areas for wind energy is often perceived as biased and not open-ended. • Opponents criticize the insufficient synchronization of RES expansion policies and grid/storage expansion which leads to massive temporary shutdowns of wind turbines, particularly in the North Germany (particularly Schleswig-Holstein), but also in other regions including Thuringia.				Policies (taxation): -1 Policies (financial support schemes): 0
ES	• Plan de Energías Renovables 2011-2020. (Vol. I.) is a broad national action plan designed to implement and deliver the obligations under the EU Renewable Energy Directive 2009/28/EC • Royal Decree-Law 413/2014: Under the Spanish incentive scheme, renewable power generators sell the electricity they generate into the Spanish wholesale market and receive the market price for such sales; and also receive additional regulated payments during their respective regulatory lifetime (e.g., 20 years for wind farms and 30 years for solar photovoltaic facilities, starting on the commissioning operation date). • Royal Decree 947/2015 16th of October Orden IET/2212/2915 • This announced a call for renewable energy actions to be held yearly in order to procure wind and biomass generation capacity. This capacity development was aimed at contributing to Spain´s EU 2020 renewable energy target. More specifically, the government opened an auction for 500 MW of onshore wind generation capacity, and for all the years thus far, all opened capacity was awarded according to the Balearic Climate Change Law,9347 (2018): 35% renewable energies by 2030; 100% by 2050; implementing details to be set out however very positive foundations for further measure to enable the use of wind energy in order to realise the renewable energy objectives.		• Policy: Galicia Singular Wind Farms. • Galicia Regional wind farm plans. • Policy: El Hierro Energy Transition		Targets: 2 Plans: 1 Policies (taxation): 1 Policies (financial support schemes): 1
IT		• Energy Regional Plan (ERP)	• Energy Regional Plan (ERP) are still not completed for all Italian regions. • Rivoli Veronese and Affi communities Wind Far", Verona. • Tax cuts and landscape commitment in Tula Municipality, Sardinia. • Progetto Integrato Energie Rinnovabli per lo Sviluppo Ecocopatibile dell'Appennino (P.E.R.S.E.A.), Apulia and Campania.	• Legislative Decree No 387 of 29 December 2003, Ministerial Decree 10 September 2010 "Guidelines for the authorization of plants powered by renewable sources", Legislative Decree No 28, 3 March 2011, Legislative Decree Law 152/2006 „Code on the Environment, Cultural Heritage and Landscape Code, Law 42/2004 and Amendments. Presidential Decree n. 327 of 8 June 2001. • National Renewable Energy Action Plan, National Energy Strategy. • Ministerial Decree (MD) of 6 July 2012, Feed-in premium for renewable energy sources other than photovoltaic, Ministerial	Targets: 1 Plans: 2 Policies (taxation): 1 Policies (financial support schemes): 1

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				Decree (MD) of 30 June 2016: Feed-in premium for renewable energy sources other than photovoltaic.	
LV	• Stakeholders perceive that clear definition of targets and plans can be positive driver for acceptance and development of on-shore wind. Clear policy and transparent planning are the pre-conditions for the social acceptance. At the same time the targets and plans could not be considered as only drivers for successful development of on-shore wind. • The project of National Energy-Climate Plan 2030 (September 2019) states as the (indicative) target to have in 2030 50% of renewable energy contribution in Latvia gross final energy consumption. To meet this target, the Plan foresees the RES share in electricity supply at least 60%. • National Energy-Climate Plan 2030 foresees the wind energy as the important option which has to be developed. The project of the Plan consider the technical availability of around 800 MW of on-shore wind, in practice around a half of this figure could be implemented. • Detailed national/regional wind energy plans and wind energy spatial plans are not yet developed. • To promote the wind energy development, the project of National Energy-Climate Plan 2030 states as the option creation of maps of areas suitable for siting wind parks. If well communicated to public, this measure could be positive driver. • In its turn, municipalities could provide wind energy planning in the corresponding administrative territory expressed by municipal planning documents - municipality sustainable development strategy, development programme, and particularly zoning for wind energy in municipality spatial plan. However as seen in current practice, such precise mapping of wind energy area in the municipality spatial plan is done only in few municipalities (particularly in those municipalities of coastal Kurzeme region which already has "experience" on siting wind turbines). • The administrative territorial reform is under construction at the moment in Latvia. According to that, as the option it might be the strengthening of the role of planning regions, and one of the functions of planning regions might be also zoning territories for RES. • Currently Latvia has no particular taxation schemes focused to wind parks which could significantly contribute in municipal budget. Thus stakeholders currently do not see the impact of this factor. • As noted above, there is negative overall political climate regarding renewables use for electricity – political acceptance for such use might be expected if it does not increase electricity price, namely, can be done on market conditions, or the necessary support scheme is clearly communicated and the benefits (meeting climate policy targets, refuse of fossil fuel, energy supply security, and others) are shown and fairly distributed. • However, due to shortcomings of existing feed-in-tariff system the national financial support policy could be considered by society, at least large part, as a negative factor. Thus the framework conditions for possible future support is not yet discussed and developed – evidently this support shall be based on clear, transparent and fair principles.			• Cabinet of Ministers Regulations No 240 (in force 22 May 2013) "General Regulations for the Planning, Use and Building of the Territory" (issued pursuant to the Spatial Development Planning Law). • The Energy Law • Law on Regulators of Public Utilities. • Electricity Market Law. • Spatial Development Planning Law • Regional Development Law • Protection Zone Law • Land Management Law • Construction Law. • Electricity Tax Law • Other laws: TourismLaw; Environmental Protection Law; Law on Environmental Impact Assessment; Law on the Conservation of Species and Biotopes; Law on Specially Protected Nature Territories; Law on Protection of Cultural Monuments	Targets: 1 Plans: 1 Policies (taxation): 0 Policies (financial support schemes): 0

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	• At the same time, it is important that National Energy-Climate Plan 2030 propose to evaluate the establishment of national RES and energy efficiency support fund which could provide support for renewable energy communities as well (including grants for preparation of necessary technological documentation and assessments).				
NO	• The target in the EU Renewables Energy Directive of achieving a 67,5% share of renewable energy was, when this target was introduced, a driver for social acceptability of wind power. At the same time, the national government introduced a target for how much the elcertificate scheme was supposed to contribute with (see the next point). The Parliament unilaterally agreed with this. The new Norwegian Energy White Paper from 2016 is less clear: The government aims to fostering economic development and value creation through the effective use of profitable renewable resources. It does not include a particular target for wind energy. • In 2012, Norway and Sweden implemented a common market for RES elcertificates to achieve each country's renewable-energy target. The Swedish-Norwegian elcertificate scheme (Regjeringen, 2011; LOVDATA, 2011) is designed to achieve a given increase in annual renewable-electricity production capacity at the least cost to society and to provide incentives to producers to respond to market developments. The scheme gives the producers of new (i.e., the added production under the scheme), renewable electricity the same support per MWh delivered on the electricity grid irrespective of which technology is used and regardless of whether the plant is located in Norway or Sweden or whether the additional production comes from a new plant or from updating and expanding an existing plant. To be entitled to sell elcertificates, the power plant must be completed by 31 December 2021. There are no plans of supporting renewable electricity production after this date (but radically, new renewable energy production technologies may receive investment subsidies through ENOVA). • Overall, wind power is taxed to a lesser extent than hydro power. • In 2018, surplus in the power sector is taxed as ordinary income with 23%. Hydropower plants with an installed capacity above 10 MW is subject to an additional resource tax of 35,7%; thus, marginal taxes may be as high as 58.7%. This means that large hydropower installations, often with the flexibility to regulate production, are taxed much more heavily than wind power and small hydropower. In addition, operators of large hydropower must sell 10% of their production to lower-than-market prices to the municipality. Wind power is from 2016 subject to favourable tax depreciation rules. The investment can be depreciated linearly over only five years, resulting in more positive cash flows early in the project's life. This fact contributes to make citizens more in favour of hydropower than wind power (i.e. they experience that there are larger local benefits from hydropower than wind power).				Targets: 0 Plans: 0 Policies (taxation): 1 Policies (financial support schemes): 1
PL	• The national target for RES in 2020 is a positive driver of social acceptance. • Plans (if there are any) are rather unknown for the society. • Taxation policies (if there are any) are rather unknown for the society.			• Property tax on wind turbines – as a source of additional income for municipalities.	Targets: 1 Plans:

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	• Support schemes operate at national level, so the perception is that their impact on regions is rather equal.				0 Policies (taxation): 0 Policies (financial support schemes): 1
Acceptance factor: Other					
DES					
DET					
ES					
IT					
LV					
NO					
PL					

Region	Specification of factor	Policy and corporate measures in target region	Measures/good practices from other regions in country	Measure taken at national level which help to address factor	Avg. score
Acceptance factor category: Trust in key actors					
Acceptance factor: Trust in national decision-makers					
DES	• Low levels of trust in investors and planners, but often also in regional or municipal decision-makers seem to prevail among citizens in many municipalities in Saxony. This is a consequence of several factors: Few citizen/community owned wind energy plants/parks; most wind energy plants are owned by external investors which are not rooted locally; the owners of the land where turbines are located are often not local, and hence profits and taxes do not stay in the site municipalities. • There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Municipalities, but also public authorities (responsible for planning and permitting) often face time, informational and staff constraints. • The willingness of municipalities to enter into a dialogue with project developers is declining. • The situation is partly aggravated by the following problems, particularly in rural areas: decreasing trust of citizens in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures; perceived heteronomy (including the perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany);	• The Saxon Energy Agency SAENA provides consulting services for municipalities and citizens, but with limited resources the focus being more on energy efficiency. • In February 2018, the parliamentary group of the Green Party brought forward a parliamentary motion to establish a service unit wind energy and labelling scheme for project developers following the Thuringian model.	• Intermediary organizations and advisory units providing unbiased technical assistance to local communities and stakeholders in Baden-Wurttemberg, Rhineland-Palatinate, Hesse:Citizens' Forum Hesse Quality label and certification scheme "Fair Wind Park Developer" for project planners and developers in Schleswig-Holstein. • The Service Unit Wind Energy in Thuringia acts as a neutral intermediary organization. • The quality label "Partner for Fair Wind Energy" for project developers) has been		0

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	perception of being left behind; perception of the Energiewende as an (urban) elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.		introduced to strengthen procedural and distributional justice, to increase credibility of planners and developers and to build trust.		
DET	• Low levels of trust in investors and planners, and often in regional or municipal decision-makers seem to prevail among citizens in relatively many municipalities in Thuringia. This is a consequence of several factors: 80% of all wind turbines are owned by investors from outside Thuringia (Gude, 2015). There are only few community wind energy plants. The owners of the land where turbines are located are often not local. It means that profits and taxes do not remain in the municipalities. These factors provide key barriers for the trust in the investors and planners of wind plants. • Annulment of two of the four regional plans designating priority zones for wind energy in Thuringia by court decisions led partly to aggressive and non-transparent land acquisition practices by developers (Gude, 2015). Project developers act in an increasingly competitive environment with strong cost pressure due to the transition from feed-in tariff system to competitive bidding procedures. • There is a knowledge gap between professional wind energy developers, on the one hand, and municipal decision-makers and citizens, on the other. Municipalities, but also public authorities (responsible for planning and permitting) often face time, informational and staff constraints. • The willingness of municipalities to enter a dialogue with project developers is declining. • The situation is partly aggravated by the following problems, particularly in rural areas: Decreasing trust of citizens in political and administrative elites; political alienation and increasing distance of citizens from the political institutions, actors and procedures; perceived hheteronomy (including the perception that leading positions in politics, administration, jurisdiction, media etc. are occupied by elites from West Germany); perception of being left behind; perception of the Energiewende as an (urban) elitist project; increasing distrust towards scientific experts; increasing affinity to (right wing) populistic movements and parties.	• Trust-building through intermediary organizations, informal participation measures, institution building, capacity building, effective communication, unbiased technical assistance to local stakeholders incl. policy makers and planners. • The Service Unit Wind Energy in Thuringia acts as a neutral intermediary organization. • The quality label “Partner for Fair Wind Energy” for project developers) has been introduced to increase trust.	• Intermediary organizations and advisory units providing unbiased technical assistance to local communities and stakeholders in Baden-Wurttemberg, Rhineland-Palatinate, Hesse:Citizens‘ Forum Hesse Quality label and certification scheme “Fair Wind Park Developer” for project planners and developers in Schleswig-Holstein.		0
ES	• There has been significant distrust towards investors and the non-transparent planning processes.		• Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		0
IT		• The clear procedures and timeframe for authorization represent a good model for citizens‘ increasing social acceptance of wind farms.	• Lazio: Wrong communication modalities and a lack of attention to the social network • Abruzzo: Local administrators, wind energy companies		1
LV	• See the categories “trust in information” and “trust in processes” above.				0
NO	• In general, there is high trust in Norwegian laws, institutions and regulations of the energy sector. However, opponents argue that the regulator ‘sing from the same hymn sheet’ as the wind energy developers.				1

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PL	• There is a lack of trust in key actors and processes, however activities of national decision makers are being perceived rather as a neutral from a local point of view.		• Preparation of pilot wind turbine investment (policy, local).		0
Acceptance factor: Trust in regional/local decision-makers					
DES	• See category above				0
DET	• See category above.				0
ES	• Historically there was mistrust in the regional decision makers but this has now improved given the positivity surrounding the new climate change law.		Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		0
IT	See category above.				1
LV	• Low level of transparency in municipal decision-making processes (noted by several open answers on WinWind evaluation), non-activity of decision-makers to lead the process, as well as change of decision-makers as a result of election, do not provide for stakeholders the background for optimism that consistent policy at local level can be performed.				0
NO	• See category above.				1
PL	• Trust in local decision makers is higher than in the case of national decision makers.		• Preparation of pilot wind turbine investment (policy, local).		1
Acceptance factor: Trust in investors					
DES	• See category above.				0
DET	• See category above.				0
ES	• Investors have begun to be more transparent and positive with their intentions to develop RE projects in the island and have been responsive towards the opinions of local residents.		• Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water		1
IT	• See category above.				0
LV	• Latvia has no experience with highly well-known companies, having highly reputable name and previous experience, coming into Latvia to develop wind energy.				0
NO	• See category above.				0
PL	• The citizens have negative and positive experiences with investors.		• Preparation of pilot wind turbine investment (policy, local).		0
Acceptance factor: Other					
DES					
DET					
ES					
IT					
LV					
NO					
PL					

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Region	
Acceptance factor category: Other (factors not listed above)	
Acceptance factor: Other	
DES	Active local protest groups, partly affiliated with right wing populistic movements and parties (AfD) which are very sceptical towards man made climate change and the energy transition.
DET	
ES	
IT	
LV	Information of local people regarding the planned project: The surveys carried out within the EIA procedure indicate that up 1/2 of the local citizens had no information on planned wind park projects. Evidently, late information regarding planned projects may decrease social acceptance.
NO	
PL	

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