WinWind
Increasing the acceptance of Wind Energy

## Deliverable 4.3

# SYNTHESIS & COMPARATIVE ANALYSIS OF BEST PRACTICE CASE STUDIES FOR PROMOTING THE SOCIAL ACCEPTANCE OF WIND ENERGY

V2 Date: 31.05.2019

## Summary

| **WP** | **4** | **Name of the WP: Best practice cases including socially inclusive governance forms and mechanisms** | |
|---|---|---|---|
| Dissemination level: | Public | Due delivery date: | 28.02.2019 |
| Nature: | Report | Actual delivery date: | 31.05.2019 |
| Lead beneficiary: Ecorys ES | | | |
| Contributing beneficiaries: | | All Partners | |
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| **Document history** | | | | | |
|---|---|---|---|---|---|
| Version | Date | Submitted by | Partner | Reviewed /approved by/Partner | Date |
| V0 | 16.05.2019 | P.Maleki-Dizaji | Ecorys | Rosaria Di Nucci & Michael Krug (FUB FFU) | 24.05.2019<br>27.05.2019 |
| V1 | 28.05.2019 | N. del Bufalo, | Ecorys | R.Di Nucci & M.l Krug (FUB- FFU) | 29.05.1019<br>30.05.2019 |
| V2 | 31.05.2019 | N. del Bufalo | Ecorys | R. Di Nucci & M. Krug (FUB-FFU) | 31.05.2019 |

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## 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 identified 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. This report review provides an inventory of best practice case studies (from the WinWind countries) for promoting community engagement and social acceptance of wind energy as well as a comparative analysis of the best practice cases.

Work Package 4 of the WinWind project develops a set of transferable best practice cases that showcase successful measures for improving the social acceptance of wind energy. These cases take into account the specific situations and needs of the WinWind target regions and can serve as orientation in other contexts.

The present deliverable - D4.3 (synthesis and comparative analysis of in-depth best practices) - directly builds on the two proceeding deliverables in Work Package 4: D4.1 (Methodological framework for best practice selection & analysis) and D4.2 (Good Practice Portfolio), which also selected the 10 best practice cases for in-depth assessment. In this regard, the present deliverable has utilised numerous primary and secondary research methods to carry out an in-depth assessment of the 10 best practice cases. On the basis of the outcomes and findings of these assessments, this deliverable provides a synthesis and comparative analysis on the lessons learnt concerning the successful removal of barriers of social acceptance, as well as the extent to which such measures are potentially transferable to other regions or countries.

Deliverable 4.3 proceeds by introducing the deliverable (section 1), an explanation of the structure of the report (section 2), followed by a clarification of the key/central concepts (section 3), the determination of the methodology of the synthesis and comparative analysis (section 4), a reminder of main identified categories of social acceptance factors and the 10 selected cases (section 5), followed by execution of the synthesis and analysis (section 6), by the conclusion (section 7) and a statement on ethics/privacy (section 8). The annex provides the full in-depth case studies and other relevant documents.

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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 identified 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. The present report provides an inventory of best practice cases for achieving social acceptance of wind energy as well as a comparative analysis of the cases presented.

A central mechanism used by the WinWind project to enhance social acceptability of wind energy is through the identification, analysis and transfer of successful measures from other contexts or similar situations to the WESR. In other words, the WinWind projects takes inspiration from a number of *existing* measures within the WinWind project countries that show how potential and real barriers to the market uptake of wind energy can be resolved, with the objective of transferring and implementing these successful measures in other regions.

Such an objective was elaborated upon and prescribed in Deliverable 4.1 (Methodological framework for best practice selection and analysis). D4.1 set the foundation for the present report by providing both a practical and theoretical basis for the identification and selection of good/best practice cases. Using this, Deliverable 4.2 created a Good Practice Portfolio, whereby 30 good practice cases among all the WinWind project countries were identified. The report also carried out an additional exercise of categorising all the good practices on the basis of their countries and typology of the measure. On the basis of this categorisation, the consortium reflected on the entire group of cases and came to a collective agreement on a selection of 10 best practice cases. The 10 cases resulting from this exercise represent the diversity of all countries and types of measures for promoting the social acceptance of this measure.

Deliverable 4.3 constitutes the next step in this process and the final step of Work Package 4. The activities carried out to elaborate this deliverable are based on two consecutive steps, which together lead to the central outcome - a consolidation of key findings and conclusions, which extract lessons of overall validity for the removal of barriers to social acceptance – serving as a foundation for the subsequent work packages of the project.

In this deliverable, first and foremost, an in-depth assessment of each of the 10 case studies is provided. This has been a collective exercise among all the partners in cooperation with the country desks, and has been coordinated by Ecorys. A broad variety of primary and secondary research methods were widely used for the data collection, which will be outlined in further detail below. As a result, 10 in-depth best practice cases, each between 9-17 pages, have been drafted.

Secondly, D4.3 provides a comparative analysis and synthesis of the best practice case studies. This focuses mainly on the lessons learnt for the effective removal of barriers (a starting point for Work Package 6), as well as examining the transfer potential of the cases (setting the foundation for the transfer of the measures into WinWind WESR under Work Package 5). As part of the synthesis, in order to create a more “digestible” and concise insight into the in-depth best practice cases, this report provides summaries of the cases. Additionally, on the basis of the summaries, a “truth-table” has been created to illustrate in a holistic and clear way the operation of specific drivers which have contributed to building social acceptance in each best practice case. A research synthesis is then carried out to outline the main overall findings. Subsequently, a more precise comparative analysis is provided by specifically examining the operation and success of various drivers in their attempts to effectively overcome the barriers for social acceptance. Lessons learnt are extracted for this analysis, which will feed the discussions and general findings on the transferability of the measures in the best practice cases to other contexts and regions in the WinWind project.

# 2 Structure of report

The main purpose of this report is to carry out an in-depth analysis of best practice cases that were successful in promoting the social acceptance of wind energy, followed by a consolidation of the key findings and conclusions to extract lessons of overall validity about the removal of barriers to social acceptance. In order to achieve this, the following steps will be taken:

In Section 3, a number of key concepts are outlined and elaborated, given their centrality with reference to the objective of this deliverable.

In Section 4, the methodology of the deliverable is explained. Given that the methodological steps of the present deliverable are subdivided into two consecutive, although slightly varying steps, each of these steps are discussed separately.

In Section 5, the categories of drivers identified in D2.3, which formed a central basis for the selection of the best-practice cases in D4.2, are highlighted and elaborated.

In Section 6, the 10 best practice case studies are summarised. This is followed by a research synthesis which provides an overview of the key general findings. This is then complemented by a comparative analysis which looks at each of the individual drivers and how they have contributed to shaping social acceptance. This section is completed with discussions on the lessons learnt and considerations for the transfer of the best practices.

Section 7 concludes the document.

Section 8 discusses issues related to privacy and ethics.

Section 9 provides the references.

Annex 1 – Template for data collection.

Annex 2 – The original in-depth best practice case studies.

# 3 Key concepts

A number of concepts are fundamental to the objective and vision of D4.3. Although some of them have been already visited in previous deliverables (namely D2.3 and D4.1), it is useful to refresh and sharpen one's understanding of these concepts.

**Social acceptance of wind energy**

A clear definition of social acceptance is paramount. 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 site technology or socio-technical system by members of a given social unit (country or region, community or town and household, organisation)" (Upham et al. 2015, p. 103).

It is important to also note that, as indicated in D2.3, the WinWind project is primarily concerned with analysing *community acceptance* of specific wind energy projects. This one of the three components of social acceptance (along with socio-political acceptance and market acceptance) (see Wüstenhagen et al: 2007). In the case of wind energy, it mostly refers to the specific acceptance of siting decisions and renewable energy projects by local stakeholders, in particular residents and local authorities. This is elaborated by Batel et al (2013), who understand wind energy acceptance as a passive tolerance of the infrastructure, which does not automatically imply people being in active support of the project.

**Good and Best-Practice Case Studies**

In the context of the WinWind project, a "Good practice" refers to measures either taken by the wind industry (project developers/planners, operators, investors) or by public/policy actors to enhance social acceptance and to address social acceptance barriers. This definition was elaborated in Deliverable 4.1 (Methodological Framework for Best Practice Case Studies) of the WinWind project. A good practice therefore encompasses a process of carrying out a task using recommended methods. Documentation of procedural manuals, guidelines and codes of practice are often required when implementing good practices. According to the Food and Agriculture Organisation (FAO) of the United Nations a good practice is "not only a practice that is good, but a practice that has been proven to work well and produce good results and is therefore recommended as a model. It is a successful experience, which has been tested and validated, in the broad sense, which has been repeated and deserves to be shared so that a greater number of people can adopt it." (UN FAO: 2019)

On the other hand, a "Best practice" is 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 recognised as best by peer organisations. This

approach focuses on developing improvements and promoting continuous learning – good practices are considered more static and procedure-based. Best practices are means to provide guidance. Through trial and error, best practices provide the framework to help guiding policies and measures to be implemented. The Merrian Webster Dictionary defines best practice as "a procedure that has been shown by research and experience to produce optimal results and that is established or proposed as a standard suitable for widespread adoption"[1]. According to the Business Dictionary best practice is a "a method or technique that has consistently shown results superior to those achieved with other means, and that is used as a benchmark"[2]. Best practice cases can be proposed for widespread adoption. All of these factors, particularly those concerning the transferability of the case, were strongly considered when selecting the 10 best practice cases to be assessed in-depth in this deliverable.

**A driver of social acceptance**

A "driver" is a procedural factor, applicable and/or present in multiple contexts, which positively influences the social, or community acceptance of wind energy projects. It can be regarded as a causal mechanism which leads to social acceptance and as a necessary but not a sufficient condition for social acceptance.

[1] https://www.merriam-webster.com/dictionary/best%20practice
[2] http://www.businessdictionary.com/definition/best-practice.html

# 4 Methodology

As noted in the introduction, the attainment of the objective D4.3 – the consolidation of key findings and conclusions to extract lessons of overall validity for the removal of barriers to social acceptance - is achieved through a two-step consecutive process. First, it is necessary to carry out the in-depth assessment of the 10 best practice cases. This enables the second step, which is a synthesis of the outcomes of the best-practice case studies, containing also a comparative analysis of the success factors/drivers which have led to social acceptance in the cases. Inherently, the methodological requirement and process for these two differ: the first step consists of a case-study research, the second of a qualitative comparative analysis. The subsections below outline the approach taken for each one.

**Case study research: the in-depth assessment of the best practice cases**

A case study may be understood as the "intensive study of a single case where the purpose of that study is – at least in part – to shed light on a larger class of cases" (Gerring: 2007, p.20). Indeed, this has been the objective of the first step within the present deliverable, has set the basis for extracting lessons on the effective removal of barriers which have an overall validity.

It has been mentioned already that the preceeding deliverable (D4.2) created a Good Practice Portfolio, whereby 30 good practice cases among all the WinWind project countries were identified. Crucially, for the purposes of the first step in D4.3, the previous deliverable also carried out an additional exercise of categorising all the good practices on the basis of countries and typology of the measure. It was on this basis that the consortium reflected on the entire group of cases and came to a collective agreement on a selection of 10 best practice cases which represented the diversity of h countries and types of measures promoting social acceptance of wind energy.

Using the 10 selected cases, Ecorys has been leading the design and coordination of the in-depth analyses, in collaboration with all partners, who are practically (in terms of language and contacts) in the best position to carry out in-depth primary and secondary research on the cases. The central objective has been to, as far as possible, to harmonise the focus and structure of data within the case studies. It was crucial to enable an easier and clearer synthesis and comparative analysis of the best practice cases in the subsequent step.

Consequently, a template was designed to guide the further research and data collection of the partners on the selected in-depth case studies from their respective countries. This included 18 assessment criteria/headings which covered topics that each case study had to include and discuss. Under each heading, specific questions were posed in order to facilitate the data collection and understanding of the topic. The full template can be found in the annex. The following topics were covered by the data collection template, with the partners being asked to

pay particular attention to a number of issues (key) given their direct relevance for the subsequent step of comparative analysis:

1. Summary of measure (key)
2. Methodology used to gather data for the case study
3. Title of measure, administrative level and type of measure
4. Motivation/rationale behind the measures (key)
5. Detailed description of the measure and time frame
6. Contextual factors including policies/programmes
7. Target group of the measure
8. Key actors and stakeholders (including actor mappings)
9. Methodology / Procedures
10. Social acceptance barrier(s) addressed (key)
11. Drivers and success factors (key)
12. Effectiveness (key)
13. Innovativeness
14. Feasibility (including cost efficiency)
15. Transferability (key)
16. Other social/sustainability drivers e.g. employment issues, gender issues, sustainability issues
17. Lessons learnt

To further enable the clarity and harmonisation of the in-depth best practice case studies, using the template noted above, Ecorys carried out extensive research on the two Spanish case studies (Som Energia & Gran Canaria). This involved a number of semi-structured interviews, questionnaires and desk research. On the basis of the data gathered (following the template mentioned above), properly written and designed “model” case studies were completed. Once the template and “model” good practice case studies were complete, these were shared with the partners as an orientation, to carry out the research on the case studies chosen from their home countries. The key contents and heading of these case studies are illustrated below. Although it appears to be slightly different from the template for the raw data, all the contents of the case studies were included without the broader headings.

Thus, the partners within all the countries used this specific template to proceed with their data collection, considering the two “model” case studies to visualise the final outcome. Data was collected through various methods, which included both primary and secondary literature analysis: desk research, questionnaires, semi-structured, qualitative interviews with relevant stakeholders, focus groups, as well as and observations and outcomes from country desk meetings or thematic workshops (under Work Package 3).

In sum, each of the 10 case studies were between 9 – 17 pages in length, depending on the complexity and detail necessary to fully describe and analyse the case. This has provided a set of rich and complete case studies.


**A Case Study on XXXX**

Authors:

Organisation:



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**Figure 1: The final template for the in-depth case studies**

**Synthesis and qualitative comparative analysis**

Building on from the in-depth case study research outlined above, the second methodological step within this deliverable, which itself consists of two interconnected and complementary sub-steps, is to provide a synthesis and comparative analysis of the key findings, in order to more concretely identify the lessons learnt and implications for transferability. This is based on the argument that "no single case study can hope to have the breadth to create broad generalisations" (Mosteller & Colditz: 1996, p5).

*i) Research Synthesis*

A research synthesis has as its primary focus and goal "the attempt to integrate for the purpose of creating generalisation… paying attention to relevant theories, critically analysing the results they cover, and attempt to identify central issues for future research" (Cooper et al, 2009, p. 6). In other words, a research synthesis attempts to provide a holistic overview of the key findings and trends, and in doing so, compare the findings to existing research findings in the field.

As a first step of the research synthesis, it is claimed that it has long been part of a research synthesis to "review and summarise the outcome of the research" (Colditz, 1996, p.1). Given that each of the case studies are extensive and highly detailed (between 9 – 17 pages each), as well as inevitably being written in slightly different styles a summary of each case study has been written by Ecorys. These summaries (in section 6) provide an overview of the measure, its motives, with a specific and clear focus on the drivers of social acceptance within the measures, as well as consideration of the effectiveness and transferability (given their centrality to the objectives of this deliverable).

Furthermore, as second step of the synthesis, based on these summaries, a truth table has been developed. This truth table maps in a holistic and clear way all the different cases and their relevant drivers (i.e. the causal mechanisms) for social acceptance. The significance of the drivers has also been indicated on a scale of 1-3 (similar to the gravity of barriers set out in Deliverable 2.3), to determine and explain the significance of the role that the driver has played in driving social acceptance in the given case. These assessments of the significance of the barriers have been proposed by Ecorys and verified by the country desk partners and stakeholders who drafted the original case studies.

This has been a highly important practical exercise, because as it will be demonstrated in subsequent sections of the deliverable, a multitude of drivers have been in operation within each measure to enhance social acceptance. Thus, the summaries and the truth table have been developed to practically enable and facilitate the overview and comparative analysis of the lessons learnt for the effective removal of barriers.

As a final step of the synthesis, the initial results and outcomes which appear from the summaries and truth table are explained. Here is where the key findings are elaborated on and compared to the existing research on wind energy social acceptance drivers and barriers, outlined in D2.1 and D2.3 of the WinWind project.

*ii) Qualitative Comparative Analysis*

QCA is a means of analysing the causal contribution of different conditions (i.e. measures and drivers) to an outcome of interest (social acceptance of wind energy). In other words, in QCA, it is asked whether factor X (i.e. a combination of or a single measure or driver) is the reason why a given outcome Y (social acceptance of wind energy) has occurred (Legewie: 2013, p. 2). This further justifies the development of a truth table, given that truth tables have been described a common element of QCA (Ragin: 2015). QCA and a truth table are capable of "pinpointing decisive cross-case patters" (ibid).

In practice, this means that QCA allows for comparisons between different measures and drivers for social acceptance, which is crucial for the creating generalisable outcomes concerning lessons learnt on the effective removal of barriers and transferability of measures. Moreover, QCA is capable of providing various explanations and reasons (measure or drivers) for how one certain outcome (social acceptance of wind energy) is achieved. This is called "complex causality" (Mahoney & Goertz: 2006, p. 236).

# 5 Categories and selection of best practice cases

**Categorisation of good practice cases**

The Grant Agreement identifies five categories of measures of improving the social acceptance of wind energy which ought to be represented in the in-depth best practice case studies. An additional category was added by the consortium, "multi-measure approach". These measures, a short definition and relevant selected best practice cases representing those categories (as indicated by D4.2) are outlined below:

1) **Novel participatory models and mechanisms in planning and permitting procedures**

   Such measures seek to influence planning and permitting processes. This is done with the aim of increasing social acceptance at the planning/permitting stages whilst also attempting to improve the planning and permitting process itself.

   - *A process for continuous developer and community dialogue in Fosen – Norway*

2) **Direct and indirect financial participation of communities and citizens**

   This category describes the financial engagement of local communities/citizens. Direct financial participation is to be found where citizens/communities are shareholders or members, for instance through energy cooperatives. Indirect financial participation means that citizens do not directly participate with the profits or losses of the operating company/co-operative, but rather indirectly through loans, bonds and/or crowd investing.

   - *Tax cuts and landscape commitment in Tula Municipality, Sardinia – Italy*
   - *A local innovation house in Birkenes – Norway*

3) **Measures addressing distributional justice and the promotion of regional co-benefits**

   Given that distributional justice concerns the fairness of how benefits and costs are shared/distributed across various groups, measures within this category seek to promote a fairer distribution of costs and benefits of renewable energy production. This category contains measures aiming to achieve a fair level of local benefits, preferably among all inhabitants without any direct financial involvement. These kinds of measures are connected with the usage of public utility facilities developed by wind project developers. Thus, this category mainly relates to additional activities/developments conducted by developers.

- *Community wind farms and benefit sharing (Schleswig-Holstein) – Germany*
- *Som Energia - Energy Cooperative – Spain*

**4) Measures to reduce environmental impacts of wind energy**

The measures within this category are fairly self-explanatory - they seek to minimise the damage that the installation of wind farms causes to the natural environment.

- *Pro-active planning for wind energy areas in the Northern Vidzeme Biosphere Reserve (NVBR) – Latvia*

**5) Measures enhancing communication strategies and building of institutional structures including voluntary agreements and industry self-commitment**

Such measures promote the establishment or development of institutions which act in many ways and functions. Key examples include planning, consulting, advice, provision of neutral information and in some cases mediating conflicts, but also comprehensive and neutral advisory and technical assistance services for citizens, municipalities and developers.

- *Service Unit Wind Energy and Quality label for project developers in Thuringia – Germany*

**6) Multi-measure approach**

This describes measures which entail a combination of many different measures, making it difficult to identify a single leading measure to define and explain the action.

- *Wind farm repowering in Abruzzo – Italy;*
- *Preparation of wind turbine investment in Kisielice region – Poland;*
- *Mancomunidad del Sureste de Gran Canaria: Canary Islands Developing Wind and Water.*

It is noted on the outset that a key finding of this synthesis and comparative analysis has been that it is in actual fact almost impossible to exclusively categorise measures under a single type. Rather, after investigating and analysing the measures in detail, all measures appear to be “multi-measured approaches”. Nevertheless, this categorisation exercise was an entirely useful and necessary process to select 10 best practice cases out of the initial 30 good practices, and to achieve a relatively good mix of types of cases and countries represented.

| | Novel participatory models and mechanisms in planning and permitting procedures | Measures addressing direct and indirect financial participation of communities and citizens | Measures addressing distributional justice and promotion of regional co-benefits | Measures to reduce environmental impacts of wind energy | Measures enhancing communication and building of institutional structures including voluntary agreements and industry self-commitment | Multi measures approach |
|---|---|---|---|---|---|---|
| Germany | | Community wind park and civic non-profit association in the municipality of Neuenkirchen (Schleswig-Holstein) | | | Service Unit Wind Energy and Quality label for project developers in Thuringia | |
| Italy | | | Tax cuts and landscape commitment in Tula Municipality, Sardinia | | | Wind farm repowering in Abruzzo |
| Latvia | | | | Pro-active planning for Wind energy areas in the Northern Vidzeme Biosphere Reserve (NVBR) | | |
| Norway | A process for continuous developer and community dialogue in Afjord | | A local innovation house in Birkenes | | | |
| Poland | | | | | | Preparation of wind turbine investment in Kisielice region. |
| Spain | | Som Energia - Energy Cooperative | | | | Mancomunidad del Sureste de Gran Canaria: Developing Wind and Water |

**Figure 2: Overview of selected best practice cases**

# 6 Research Synthesis & Comparative Analysis

## 6.1 Summary of Best Practice Cases

As noted above, due to the length and detail of each of the in-depth best practice cases, as well as the slightly different structures (due the differences in nature/story behind each of the cases, summaries have been prepared for each of the cases. These summaries not only make the cases more digestible for the readers of this deliverable, but they also emphasise barriers, drivers, effectiveness and transferability. The cases are provided first according to the alphabetical order of their country of origin, and within the countries, or the alphabetical order of the measure name. The list of the cases is provided below, as well as the shortened name which will be used in the subsequent analysis and synthesis.

1) Community Wind Farms in Schleswig-Holstein ***(Schleswig-Holstein* - Germany*)***
2) Service Unit Wind Energy & Quality Label in Thuringia ***(Thuringia - Germany)***
3) Abruzzo Repowering ***(Abruzzo – Italy)***
4) Sardinia Tax Cuts and Landscape Commitments **(*Sardinia- Italy*)**
5) Proactive Landscape Planning North Vidzeme ***(North Vidzeme - Latvia)***
6) Local Innovation House Birkenes ***(Birkenes- Norway)***
7) Fosen Community Dialogue ***(Fosen - Norway)***
8) Kisielice Municipality ***(Kisielice - Poland)***
9) Gran Canaria Wind and Water **(*Gran Canaria – Spain)***
10) Som Energia Energy Cooperative ***(Som Energia - Spain)***

### 6.1.1 Community Wind Farms in Schleswig-Holstein

**Overview describing the measures/motivation**

The present case study provides insights from three community wind farms in the administrative districts of Northern Friesland (*Ellhöft*, *Grenzland Vindtved*) and Dithmarschen (*Neuenkirchen*) in Schleswig-Holstein, two pioneering regions in Germany regarding the deployment of wind energy. The wind farms have been initiated by local farmers and land owners and the case illustrates how policy and corporate measures can effectively contribute to ensuring/enhancing community acceptance. These measures include, inter alia, informal procedural participation and active, direct financial participation of citizens, land lease pool models for land owners, community benefits via civic associations/foundations, and revenues from local business taxes.

The main motivation of these measures was to avoid the involvement of external investors and to make sure that the entire community would benefit from the wind farm, not only the land owners

and founding shareholders. Specifically, the wind farms should contribute towards raising local purchasing power and local added value through the generation of local profits and income, tax revenues, employment and additional benefits for the community (e.g. benefits in kind, civic non-profit associations or local foundations supporting social welfare projects in the community). The operation of wind turbines is subject to local business taxes (Gewerbesteuer). In the case of community wind farms, usually the operating company is registered where the project is located. This means that the hosting municipality receives 100% of the tax revenues.

## Summary of the determinants of social acceptance

### a) Initial barriers

The cases of Ellhöft and Grenzstrom Vindtved enjoyed a high level of local acceptance and support from the very beginning. Only in the case of Neuenkirchen was there local opposition, which came in the form of a citizens' group. This group successfully mobilised and initiated the first of two local referendums on the designation of suitable zones for wind energy on the territory of the municipality. As a result of this referendum a former council decision supporting the designation of suitable zones for wind energy was rejected by the majority of voters.

**The negative visual impact and landscape:** The key argument made by the opposition in Neuenkirchen referred to the intrusion caused by the wind turbines and the increasing "encirclement" of the community due to the high density of existing wind turbines in its vicinity, acoustic emissions, aviation lighting and too low setback distances.

### b) Drivers for social acceptance

*Procedural participation and trust*

**Transparent communication:** A policy of relatively open and transparent provision information implemented by the initiators.

**Political leadership:** In Neuenkirchen, where the opposition was rather pronounced, the mayor played an important role as a facilitator/mediator balancing the interests of the project initiators and the community in the planning process.

**Trustworthiness of key actors:** In Neuenkirchen the municipality also obtained shares at a symbolic amount of 20,000 EUR, which was the maximum legally allowed, to show its commitment to the project and the trustworthiness of the initiators.

**Informal procedural participation**: Active involvement of local citizens led to a high level of identification with the wind farms, particularly in Ellhöft and Grenzstrom Vindtved.

*Impact on economy*

**Active (direct) financial participation of citizens:** In all three cases there was a possibility to buy shares and participate directly as partners with limited liability. In order to ensure broad participation of the citizens in Neuenkirchen, minimum deposits were kept rather low (500 EUR) and in the end 145 citizens participated as shareholders. Importantly, in all cases there was also a direct involvement of the municipalities themselves as shareholders (as noted above).

**Passive financial participation of citizens:** On the individual level, in order to avoid conflicts and envy among the land owners, in all three cases the initiators decided to develop land lease pooling models (Flächenpoolmodelle). This also allowed also those land owners whose land was not envisaged for turbine installations to benefit from land lease payments. On the community level, local business tax revenues and local job creation from the wind farm was another factor driving social acceptance. Additionally, further community benefits were promoted: in Neuenkirchen 1% of annual remuneration of the wind-based energy went to a non-profit local civic association, to ensure that all members of local community would benefit in some way. In the other two cases in kind benefits (Ellhöft) and the creation of a community foundation to support social purposes and energy-saving measures (Grenzstrom Vindtved) were developed by the initiators.

*Reducing impact on environment*

**Impact on biodiversity**: In *Grenzstrom Vindtved,* the wind farm operators founded a local nature protection association for the management of compensation activities.

**Impact on landscape:** In Ellhöft, the operators of the plant supported the development of a new recreation area in the community, as well as a hiking, riding and bicycle path. *Grenzstrom Vindtved* was one of the first repowering projects in Germany and allowed the replacement of numerous older turbines by a smaller number of modern and more powerful ones which had a positive effect for the landscape.

**Other environmental factors:** The success of the second referendum in Neuenkirchen might be partly explained by the Fukushima Daiichi Accident of 11 March 2011.

*Technical characteristics*

**Technology innovation:** The managers of the Ellhöft plant are highly committed to link the *Energiewende* with a sustainable mobility transition based on electric battery vehicles and vehicles with fuel cell drive. They launched a sector coupling project which envisages the establishment of an electrolysis facility and hydrogen gas station.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

All the measures described in the cases study turned out to be effective in ensuring or increasing local acceptance. However, it is difficult to assess for the different cases which were the most important measures, given that many drivers were relevant. However, trust, transparency and financial participation (both active and passive) can be considered as the central elements.

### b) To what extent are the measures transferable?

Community wind farms are rather common in many regions of Germany. In practice the models vary from purely community led and community owned wind farms to investor-driven wind farms initiated by a professional, commercial developer and/or investors where citizens have the possibility to buy shares in the wind farm or single turbines. Community ownership of wind farms has been also successfully developed in several other European countries, although with different design (e.g. Austria, Belgium, Denmark, France, Ireland, Sweden, UK, The Netherlands). Hence, in general, transferability of the concept “community wind farm” as such can be regarded as good.

However, the specific participation and fairness mechanisms can likely not be transferred directly. Transferability depends very much on the context, legal framework, institutional settings, the actors, their interests, strategies, commitment, resources, and interactions with other actors. The showcases illustrate a number of accompanying measures which contribute to secure/enhance local acceptance which might be more easily transferable like lease pooling models or benefit sharing mechanisms like donations, in kind benefits, non-profit associations or foundations. Similarly, a key enabling factor common for the three showcases is the country’s long and strong tradition of energy communities and energy democracy, in other words, the participation and active role of citizens in bringing about the energy transition.

In Germany approximately, half of installed renewables capacity is already under community ownership. Even though the overall support scheme and remuneration structure has been reformed recently to be less favourable to small-scale community initiatives, projects in Germany have enjoyed a long-term feed-in-tariff support by national law promoting the uptake of citizen’s energy projects. Even before, but particularly after the Fukushima Daiichi nuclear disaster, renewable energy has enjoyed strong popular support from a public that has long called for a better alternative to nuclear. While wind turbines in Germany also face scrutiny, energy democracy is a strongly recognized approach in German politics. This makes it far easier to call for a participatory approach to wind turbine deployment.

The three showcases presented here reveal a high level of political and administrative feasibility. However, the implementation of community wind farms can be relatively challenging due to higher transaction costs for collective decision-making, the administration of a large membership and the limited financial capabilities of small, community-based actors. Planning and implementation of wind energy projects is capital intensive and requires a relatively high amount of risk capital for pre-financing various planning and permitting expenditures (e.g. expert assessments for species protection). This means that often community wind farm initiators face a financial gap in the planning phase of the wind farm which needs to be overcome.

### 6.1.2 Service Unit Wind Energy & Quality Label in Thuringia

**Overview describing the measures/motivation**

In 2015, a Wind Energy Service Unit was set up in Thuringia by the state's Energy and GreenTech Agency (ThEGA). The establishment was in part motivated by the political will to restore trust in local wind energy projects by promoting fair and more transparent planning and decision-making procedures. Promoting fairness namely concerned the desire to facilitate projects whereby the financial benefits of wind farms would be retained within the state. This was combined with objective the state government's formulated goal to increase the area on which wind energy plants are built from 0.3% to 1% of the total state territory. It is therefore the task of the Service Unit, mandated by the Thuringian Government, to support this goal. This objective stems from the fact that the federal state needs to import more than half of its electricity demand from other federal states.

More specifically, the Service Unit in Thuringia provides free, comprehensive and neutral advisory and technical assistance services for citizens, municipalities and developers. In addition, in 2016, the Service Unit started to award a quality label for wind energy project developers committing themselves to adhere to certain standards concerning involvement of different interest groups, transparency and fair participation of the local communities. Hence, this measure constitutes a voluntary agreement between the Service Unit and project developers. Furthermore, the measures help to bring together developers and communities/citizens and improve the active and passive financial participation of citizens and communities in wind energy projects. The service unit awards a quality label "Fair Wind Energy" to project planners and developers based on strict criteria and guidelines. For the award of the label, it is required that planners and developers fulfil transparency and participation criteria also including the development of direct financial participation opportunities for citizens and municipalities in Thuringia.

## Summary of the determinants of social acceptance

### a) Initial barriers

**Lack of local value creation and community benefits***:* This namely concerns the existing imbalances of wind energy costs and benefits, caused mainly by the fact that it is largely external companies that are operating in Thuringia. Consequently, the financial benefits do often not stay in the region.

**Lack of procedural participation and complex planning and permitting procedures:**

Citizens feel badly informed and that their concerns and objections are not sufficiently considered. In this regard, there is a knowledge gap between professional wind energy developers on the one hand and municipal decision-makers and citizens on the other. Additionally, smaller municipalities often face time, informational and staff constraints and are therefore overburdened with the complex planning and permitting procedures. The designation of priority areas is often perceived as a technocratic top down process where the opportunities for municipalities to effectively influence the location of wind farms are very limited.

### b) Drivers for social acceptance

*Impact on economy*

**Effect on local economy:** On the individual level, a positive trend towards employment can be observed in the wind energy sector. In 2018, in Thuringia approximately 300 more jobs have been created in the wind energy sector compared to 2014, something which can in part be attribtuted to this measure. On the community level, the Service Unit assists land owners to establish local communities of interest (“Eigentümerinteressen-gemeinschaften”) and contributes to unlocking the potential of additional value creation for municipalities.

*Procedural participation and enhancing trust*

**Transparent communication:** This is achieved by providing more direct and better information to all stakeholders, thus “bringing the communities back into action”. There is fully transparent information on the projects, their benefit and their local impacts.

**Effective informal procedural participation:** Furthermore, the Service Unit enables informal procedural participation as an important addition towards formal participation procedures. The Service Unit brings stakeholders together to ensure a constructive dialogue from an early stage of the project, serving as a sort of broker/mediator.

**Trustworthiness of key actors:** The Service Unit enjoys a high credibility among almost all stakeholders. It is perceived as neutral but also as a competent and strong in its position towards the wind energy development in Thuringia.

**Political leadership/commitment:** Another reason, arguably the central one, was the formulation of a new energy strategy and the recently adopted (end of 2018) climate law (ThüKliG). The Thuringian government is striving for the region to be energy independent.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

There are several factors that led to a successful outcome of the Service Unit and the label. The Service Unit has already been very widely used, suggesting there is a strong degree of trust in it. From 2015 to 2018, 102 communities and 180 companies or other organisations in Thuringia have been consulted by ThEGA. There were 143 citizen requests. Also, the label shows growing effectiveness as it is getting increasingly difficult for project developers to do business in Thuringia without the label for fair wind energy. Both illustrate the effectiveness and significance of the measures.

However, the interviewed developers (of which one is a citizen energy cooperative) criticised the label. They argue firstly that the label it is not strict enough, as it is implemented on a voluntary basis and there are no resources to sufficiently monitor if its guidelines are met by each developer. Secondly, it is perceived as too basic and low-level, if nearly every project developer in Thuringia is being certified as is the situation right now.

### b) To what extent are the measures transferable?

For the Service Unit, the transfer potential can be regarded as high. The Service Unit is asked for advice by actors from other federal states too. There have been transfer initiatives in other regions of Germany aiming to follow the example of Thuringia by transferring/adapting the concept of a Service Unit, partly in combination with a labelling scheme for developers (e.g. Saxony-Anhalt, Brandenburg, Saxony, Hesse, Schleswig-Holstein). Furthermore, the Thuringian model itself is an example of a successful transfer namely from the Service Unit in the district of Steinfurt. However, the head of the Thuringian Service Unit and some other interview partners emphasize that the design of a unit cannot be transferred without adaptations taking into account regional characteristics. Every federal state or region has its own specific characteristics and challenges, e.g. geographical conditions, financial strength of the region, planning policy, density of wind energy infrastructure, history/culture of energy cooperatives and citizen/community ownership, conflict potentials between different actors, etc. In this regard, it is generally agreed that the national level would be too distant from the municipalities and citizens. The federal state level is

evaluated as the highest possible political level for its operation. In terms of feasibility, currently, the Service Unit has a staff of 3.5 full time employed persons. Funding is partly provided by the federal state government and partly by the European Regional Development Fund. The establishment of a Service Unit needs strong and continuous policy commitment and support, organisational efforts, qualified and committed staff, time and funding.

For the quality label in Thuringia, its corresponding guidelines have been inspired by the guidelines for community wind energy in the district of Steinfurt (North Rhine-Westphalia). This fact demonstrates the high transferability of this measure, all the more, as stakeholders in the federal state of Schleswig-Holstein also have recently launched a similar, market-based labelling/certification scheme under private law. But this label differs from the one in Thuringia as the label in Schleswig-Holstein is privately organised and applicants have to pay for it. For those reasons this label faces certain scepticism. There is no common view of whether a national label would make sense, in order to avoid the plethora of 16 different federal state level labels.

### 6.1.3 Abruzzo Repowering

**Overview describing the measures/motivation**

Repowering of wind farms is the process of replacing existing older and less productive wind turbines with new turbines and better features. These are usually installed in the same location, thus not expanding into additional territories. The central objectives of such measures are to both increase the energy production and reduce the environmental and visual impact of the installations. Such a measure has served as a best-practice case for promoting the social acceptance of wind energy in Abruzzo.

Importantly, further benefits for local communities are also generated from repowering. These include new local jobs and better transport infrastructure. This measure in Abruzzo, achieved through constant consultation and dialogue between local authorities, citizens and developers, maintained throughout all the project phases, has led to strong social acceptance of wind energy in Abruzzo.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**Impact on environment:** There was concern in Abruzzo that the increased generation of energy through wind resources would both have negative consequences on biodiversity and also on the landscape.

**Procedural participation and trust:** In Abruzzo, the local community both felt disengaged from the planning process for the previous wind farms and this had led to low levels of trust in the municipality and the developers.

**Lack of benefit to local economy:** There existed a degree of scepticism about the added value and community benefit of such wind farms.

**b) Drivers for social acceptance**

*Impact on environment*

**Reducing the impact on landscape**: Particular attention was paid to the layout design, avoiding visual impact and reducing acoustic emission. Crucially, to maintain or reduce the land use, the same area was utilised (no exploitation of new territories). Additionally, the "forest effect" of wind farms was reduced by improvements of landscape.

**Reducing the impact on biodiversity/welfare:** The use of anti-reflective coatings reduced the impact from glint and glare on avifauna.

*Procedural participation and trust*

**Effective formal procedural participation**: Public participation was highly encouraged through public meetings from the planning stage throughout until the actual implementation. The local administrations played a crucial role by acting as the interface towards the local communities, ensuring a constant and informed dialogue with citizens. A result of the public debate was that some proposals were made about the possibility of making some changes to the project.

**Trust in key actors:** As a consequence of this process and the responses to local concerns, a strong degree of trust has been created among between the developer (E2i) and both the local community and the local authority.

*Impact on economy*

**Impact on local economy:** This came in two forms. Firstly, employment was created in the local areas to carry out the repowering process. Secondly, there was a restoration of the road network and grid connection (for the purpose of repowering) increasing the accessibility of the area.

**Lessons learnt**

a) **Effectiveness in achieving social acceptance**

The measure has been highly effective in achieving social acceptance in Abruzzo. However, the lasting effectiveness of social acceptance of this initiative depends on continuous knowledge and information about the site's electricity production, as well as the direct and indirect environmental and economic benefits that the initiative has brought and continues to bring to the territory. Furthermore, it is necessary to maintain and consolidate the existing benefits, such as the specialised employment and ensuring that the environmental impact does not get worse.

**b) To what extent are the measures transferable?**

It is necessary to consider the age of the existing wind farms and to determine whether the lifetime of the existing wind farm is appropriate for intervention and repowering. Normally, turbines are between 12-20 years old when they get repowered. The expected repowering ought to generate approximately 50% more energy.

Additionally, it is important to consider other contextual factors such the favourability of existing regulations and local decision makers, funding availability, the approaches/strategies of relevant investors and developers and the strength resources.

### 6.1.4 Sardinia Tax Cuts and Landscape Commitments

**Overview describing the measures/motivation**

The case primarily concerns the extension of a wind farm by ENEL Greenpower, who is the sole investor and owner of the farm. The establishment of the farm faced almost no barriers of social acceptance. This was particularly thanks to the positive determination of the local administration, mayor and municipal council who worked in coordination with the regional government of Sardinia. However, during the second expansionary stage, the project was faced with two major obstacles. Firstly, in the form of demands for a more equal distribution of financial benefits of the farm, and secondly, demands to minimise the environmental and visual impact of the extension.

Through a participatory and constructive approach, the developer, local authority and the local community came together and successfully overcame the barriers at hand. These namely came through contributions by the developer to the municipal budget (2% of the gross income achieved each year would be given to the municipality accounting for approx. 12% of the local municipalities budget), as well as listening to and acting upon the environmental and landscape concerns of the local population.

## Summary of the determinants of social acceptance

### a) Initial barriers

**Lack of regional co-benefits:** During the development of the first stage of the development of the wind farm, due to the lack of engagement and concern of the local community, there was no pressure on the developer and municipality to maximise the financial benefits stemming from wind energy generation. However, during the second stage, the awareness among the local population of the fact that such financial benefits could and perhaps should be extended to them became a strong condition to enhance social acceptance extending the wind farm.

**Environmental damage:** During the first phase of the project (2002-2004), there was a lack of information and experience of wind energy and its environmental implications, therefore there was little opposition. However, in the second phase (2008-2010), increasingly regional awareness led to greater concern and opposition to the wind farm expansion based on the environmental and visual impact of the farms. This opposition was mobilised by the environmental NGO Legambiente, who were namely concerned about the visual impact and noise pollution of the proposed wind farm.

### b) Drivers for social acceptance

*Impact on economy*

**Effect on local economy:** On the individual level, the realisation of the plant has led to the recruitment of local workers by ENEL. These are for the management and maintenance of the wind farm. Since the years of production, ENEL has set up an operating office in the municipality of Tula. This is with the commitment to keep it them running throughout the period of operation, thereby creating 10 stable jobs.

**Passive financial participation:** On the community level, as noted above, 2% of gross revenue achieved annually for every kWh (kilowatt hour) produced and fed to the network is given to the local municipality. There have been more than 20 types of local social interventions, with a total of 400,000 EUR used with these resources. The allocation of the budget was done in a highly participatory way and the increased revenue meant that local residents had to pay lower proportions of local council tax.

*Procedural participation and trust*

**Informal procedural participation:** Central to the allocation and spending of the income resulting from the wind farm, there was a highly participatory nature of the budget determination, whereby

the local community directly contributed towards the decision making on what the new income would be used for. The local municipality also clearly disseminated clearly how the wind farms would benefit the local community. Additionally, in reducing the environmental and landscape impact of the proposed extension of the wind farm, a participatory approach was further utilised whereby a number of meetings were also organised directly by the Municipality of Tula. The outcomes are explained below.

*Impact on environment*

**Impact on environment:** Reductions in the number and density of the wind farms to minimise the impact on avifauna.

**Impact on landscape**: Reduced noise pollution through appropriate technologies.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

The measures implemented in Tula, primarily during the second development period, have been highly effective in reaching their goals. These have namely concerned local community information and education; involvement of local communities in the decision making (on both the revenues and in the planning process) and the creation of a collaborative relationship between Enel Greenpower, Sardinian Region and the public administration of Tula. As a result of the success of this wind farm and its promotion of social acceptance, the municipality of Tula has participated and been commended by a number of EU initiatives

### b) To what extent are the measures transferable

Tula's experience has shown some important aspects for the purpose of transferability. Firstly, Tula's experience shows that an active involvement of the stakeholders is more important than single consultation or information activity. Secondly, the feasibility of this experience lies in the availability, above all, of the responsible parties (Region, Municipalities and ENEL) to open a common path without prejudice to other positions. It is certainly financially feasible for other wind energy developers to also allocate a small share of the income to the local municipality which their installations affect.

However, such a participatory approach, whereby local citizens contribute towards determining the specific budget and the spending of the income from the wind farm, is only practically viable in small municipalities such as Tula where there is closer proximity between the citizens and local administration. Thus, the key enabling factor for this case study is the small size of the municipality which is connected to a closer proximity between citizens and the local administration.

### 6.1.5 Proactive Landscape Planning North Vidzeme

**Overview describing the measures/motivation**

The present case study reflects on a planning measure undertaken at the national level in North Vidzeme, Latvia. This area is significant in the sense that it is one of high national and international biodiversity and culture heritage, as well as also being a zone suitable for wind energy given the high wind speeds. The measure demonstrates a method for planning unconventional landscape elements, such as wind turbines, in protected landscapes, while maintaining the values of the biosphere reserve. Within the Landscape Ecological Plan (LEP), those biosphere reserve zones were defined exactly where wind turbines may be located. These were enabled by agreements among stakeholders on zoning. In this regard, the national regulation on North Vidzeme Biosphere Reserve (NVBR) states that in the areas marked as “permissible” for wind energy technologies, it is possible to install wind turbines which if they fulfil certain conditions. Those conditions are that: 1) a written permit from the Latvian Nature Conservation Agency and 2) the no more than 20 wind turbines will be grouped together 3) as far as possible the distance between adjacent wind turbines must be minimised and the distance between the wind turbines groups shall not be less than two kilometres

It is however important to underline that the described practice relates to only one of pre-conditions necessary for wind energy deployment, namely, the designation of suitable zones in spatial planning. Additionally, it is noted that although this process has been set out and agreed upon, it is yet to actually be used in practice. Nevertheless, the participatory process during the development and agreement of wind energy zones map justifies the belief that the future performance of the planning practice will contribute to better social acceptance in the NVBR area.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**Impact on the environment:** The area is a biosphere reserve, with sensitive risks for avifauna. Additionally, the area is one of cultural heritage and has a significant impact on the lives of local residence.

**The socio-cultural values attached to the land:** The area is one of cultural heritage and has a significant impact on the lives of local residents.

**The ineffective regulatory framework / the trust in key actors**

**b) Drivers for social acceptance**

**c)**

*Impact on environment*

**Impact on biodiversity/wildlife**: To reduce the potential risks created by wind parks to welfare of birds and bats, there is a need to use an assessment instrument for mapping the risks and identifying the risk territories. The absence of such risk mapping, which essentially means a lack of adequate unbiased information, is one of the causes leading to the conflict between the wind energy developers and the public and/or NGOs engaged in environment protection.

**Impact on landscape:** The application of the LEP method made it possible for the stakeholders to agree on criteria for defining areas permitted for the deployment of wind energy (and vice versa, on the criteria in which areas wind energy development should not be permitted and why).

*Individual characteristics*

***Concern for socio-cultural features:*** The LEP does not allow for the deployment of wind plants near valuable heritage sites and landscape areas of high visual quality, as well as by considering local people's lifestyles in terms of the territory development perspective. Determination of these are achieved by the participatory processes during the LEP elaboration, which has contributed to the inclusion of local society interests.

*Procedural participation and trust*

**Effective formal participation of citizens**: Following from above**,** the local community were able to object to wind energy in specific areas by being included public discussions and participating in a public survey (among the inhabitants residing in the NVBR area) about what should be considered as a characterstic landscape.

**Trust in key actors:** This has been achieved in the various participatory phases, most importantly during the elaboration of the LEP.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

Due to a number of reasons, such as the radical change in national regulation on setback distances for wind parks and turbines (adopted in 2013), wind parks have not yet been placed in the North Vidzeme region. Thus, it is difficult to determine the full effectiveness of this measure to promote social acceptance. However, the determination of this process and the zoning which has already been carried out has significantly improved the social acceptance of the stakeholders and citizens who are particularly engaged with the topic.

**b) To what extent are the measures transferable**

There are no clear barriers for the transferability of the LEP approach. It is important to note that the transferability relates to the main principles and approaches, not to the specific features of the practice and the way these features were implemented in the NVBR. While the LEP provided the backbone for the highly participatory process, the key enabling factor was the willingness between the national/regional and local-level authorities to discuss the siting of wind turbines in biosphere reserve zones in the first place. Particularly as the NVBR occupies a large area and the necessity to open the area for new economic activity was evident. Additionally, the successful transfer of the measure highly depends on the extent of public participation during the wind energy zoning elaboration procedures. The mapping methods are not by themselves the solution.

Moreover, an important pre-condition is discussions within local community on the benefits and potential conflicts concerning wind energy in early planning stage, even during the beginning the delivery of the wind energy project. The local government should take active and systematic part in the dialogue and discussions. It should also establish the forum for discussion and promote and disseminate the discussion. These efforts will result in a well-informed local community. The map of areas permitted for wind energy developments might be a highly useful tool in such a discussion Indeed, it is also fundamental that the local authority who has authorised the zones for wind energy development communicates and informs the local community of their decision, as well as explaining such a decision. Additional important factors determining and enabling transferability are availability of data, expert staff availability, and availability of financial resources.

Feasibility in the administrative sense is also important and this refers to the existence of national or regional administrative structures/institutions of adequate capacity to lead the wind energy areas zoning. This would be at the national or regional level and is achieved through horizontal cooperation between ministries of environmental protection, regional development, economics and energy, as well as vertical cooperation among involved states and municipal governance institutions.

### 6.1.6 Local House Birkenes

**Overview describing the measures/motivation**

In the Norwegian municipality of Birkenes, the national regulator has given *E.ON Vind Norway* a permit to develop 21 wind turbines. Before the permit was issued, as part of a broader voluntary agreement, the developer offered to build a local maintenance and educational house, labelled the ‘innovation house’ in Birkenes. In the agreement, the developer states that it is positive towards building the house from local timber. It will serve as a local educational centre, promoting

understanding and social acceptance of wind energy. Another part of the agreement was to reduce possible negative effects of the construction and operation of the wind power plants for local interests, by ensuring reasonable and relevant mitigation measures. This agreement tipped the political majority in the municipality in favour of wind power development in Birkenes, yet only marginally. The fact that the local council supported the wind project has probably made it politically easier for the Ministry of Petroleum and Energy to decide to give the developer the permit. The local businesses were very important actors in persuading politicians to initiate negotiations with the developer.

However, the innovation house itself has not been decisive for increasing social acceptance. The most important contents in the agreement with E.ON, that made more politicians vote in favour of the project, were the mitigating and compensatory measures. The local society remains split on the issue.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**Socio cultural factors*:*** Birkenes is characterised by many forests and hills. The environmental and local groups argue that this scenery is important to the local community's quality of life, particularly outdoor life and recreational activities. They are concerned about the destruction of untouched nature, and the removal of the silence that usually follows in untouched nature areas, e.g. shadow flickering and noise nuisance. Another negative impact is reduced enjoyment of hunting activity, and there is lack of knowledge about the impact on salmon fishing.

**Environmental impact:** The land disturbance is seen as a threat to the area's untouched nature and biological diversity (e.g. red-listed birds and bats). Opponents highlight that wind power does not contribute towards mitigating climate change, because Norwegian electricity generation is already fully renewable.

**Efficiency:** Opponents argued that there is an oversupply of electricity in Norway. The power will be exported and are expected to increase domestic electricity prices.

**Trust in key actors and planning process:** *Motvind*, a central local group, believes that E.ON has used "underhand means", arguing that the company has contacted landowners directly and held "secret" meetings.

### b) Drivers for social acceptance

*Procedural participation and trust*

**Transparent communication:** By engaging citizens in the operation of the wind power plant and providing new opportunities, the innovation house is expected to strengthen the view that wind power development can help mitigate climate change, whilst also creating optimism and new jobs in rural areas.

**Effective informal participation:** Direct community involvement, not only during the permitting process, but also in the operating phase of the project, is expected to increase local acceptance of wind power.

*Impact on economy*

***Impact on local economy:*** This issue is important as the innovation house is expected to have a positive effect on the local economy, if the developer and its subcontractors make use of products and services from local businesses.

*Impact on environment*

**Impact on GHG emission:** Impact on environment is relevant in terms of effects on greenhouse gas emissions. If (local) timber will be used and local glass fibre produced, using renewable energy rather than fossil fuels (i.e. made in Norway and not for example China), the footprint of the construction phase will decrease.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

While the innovation house and the other mitigating and compensatory measures have been important for tipping the majority of the municipal council to vote in favour of the proposed project, it is uncertain to what extent the measure has affected local acceptance in the population as a whole.

Moreover, there is still considerable resistance. The project developers' financing of other local facilities to enable their own wind energy developments is sometimes perceived as a form of bribery. Additionally, opponents also argue that the content and the process of negotiating the voluntary agreement is 'dubious', which may affect the level of trust. The opponents are of the

opinion that the voluntary agreement has many vague formulations and commitments, and that E.ON is not really committed to any other principles other than promoting its own income.

**b) To what extent are the measures transferable?**

An innovation house in itself is not particularly innovative, as this is promoted by wind developers in many different municipalities in Norway. Additionally, the measure can be transferred to other regions, but it would be useful to adapt it to local contexts, depending on what local businesses and resources exist. This may be of less relevance in areas where logging is not an established industry. But generally, the transferability of the innovation house is high, as it is not considered as being too resource demanding for a developer to build a house and attend for some educational purposes.

### 6.1.7 Fosen Community Dialogue

**Overview describing the measures/motivation**

This project relates to the biggest onshore wind energy project in Europe. In terms of social acceptance, the Fosen wind energy case is interesting because the dialogue has been extensive. The national regulator arranged for 35 meetings between the developers and the local community. These dialogue meetings were primarily a policy measure that provides information from the regulator and developer to the population and vice versa. These were part of the concession process, but in contrast to other concession processes, which focus on one particular project, the four projects were coordinated and discussed in the same process. The Sami Parliament of Norway (who were the key affected stakeholders and opposition) and the reindeer herder groups in Fosen both requested that the Fosen projects be considered together. This was to get a better idea of the overall impacts, before they could evaluate which projects should be granted concessions.

The meetings have contributed towards creating legitimacy of the process and trust in the national regulator, who decides whether to give a permitting license after mapping out the advantages and disadvantages of wind power projects. Although the permitting procedure is organised and carried out by national actors, the direction and content of the projects are heavily influenced by the local authorities. However, while the dialogue process has been an important driver in facilitating social acceptance, economic benefits and opportunities for local businesses have been more important drivers of acceptance. Additionally, although the dialogue has helped to increase social acceptance in Fosen, deep conflict still remains.

**Summary of the determinants of social acceptance**

### a) Initial barriers

**Socio-cultural factors:** Fosen is characterised by fjords, forests and mountains, which the local population has a significant amount of sentimental attachment towards. Specifically, existing and proposed wind parks are located in an area used by the Sami population for reindeer grazing. There is a concern that the construction will negatively impact reindeer husbandry (central to Sami Culture).

**Impact on environment:** There was significant concern about the impact which the proposed wind parks would have in terms of the industrial intervention of untouched nature, biodiversity and avifauna. Additionally, the land would restrict the purity of recreational activities.

**Trust in key actors and planning process:** Some environmental organisations are of the opinion that the decision makers have considered the preferences of the local authorities more than that of the public opinion during the decision-making process.

### b) Drivers for social acceptance

*Procedural participation and trust*

**Effective formal participation:** A key strength of the policy measure was its ability to engage the local community in the decision-making and planning. The regulator decided to merge the dialogue process of four projects (Kvenndalsfjellet, Roan, Storheia and Sørmarkfjellet), and to consider the projects in relation to each other (both the advantages and disadvantages). The concession process in Fosen has entailed several opportunities for affected parties to provide feedback, through public hearings of project messages, hearings of applications and accompanying investigation reports, and through opportunities to submit formal complaints to OED. Hearings have been announced in several local newspapers and sent to affected municipalities, regional authorities, local and regional interest groups, as well as affected ministries and directorates at national level.

**Effective informal participation:** In addition to several rounds of public hearings, NVE arranged about 30 public meetings, and approximately 35 meetings were held with local and regional authorities. Thus, a total of 65 meetings were held. The purpose of such meetings is to give the public an arena for expressing their views and to address which areas should be investigated to decide whether a project is feasible.

*Environmental impact*

**Impact on biodiversity/wildlife:** Based on the complaints regarding Storheia, NVE recommended that the power line pathway be modified and that further investigations of the environmental impacts of Storheia be conducted.

*Impact on economy*

**Impact on local economy:** As a result of the development of the wind farms, local businesses have increased their activities; carrying out a lot of the infrastructure work and accommodating and catering for the many workers in the parks. Power lines have been strengthened and road improvements have been made. In 2016, Statkraft estimated that around 600 people would be employed during the period with most hectic construction activity in the Fosen Vind DA projects in Fosen. Modernisation, employment opportunities and the increased tax income has been an important driver for the local authorities.

*Market*

**Security of supply of energy:** When the four projects were proposed, there was a shortage of energy supply in the region, and wind energy development would therefore contribute to meeting existing energy demands and security of supply.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

Although this measure has been highly resource-demanding, to organise all the meetings, yet several stakeholders argue that it has been effective. Beyond the above-mentioned meetings that were part of the formal concession process, NVE organised four separate meetings with the reindeer husbandry groups. The husbandry groups opposed the developing of wind energy in Storheia, but according to NVE's official documents, they had also expressed satisfaction about the dialogue with NVE.

However, some environmental organisations experienced that the national regulator NVE had considered the opinion of local authorities more than that of the local public opinion, during the decision-making process. While the informants support that the extensive dialogue process has been important for creating support for the Fosen project, considerable opposition against the project remains.

Finally, it has become apparent that the most important factor/condition that made the municipal councils vote in favour of wind power development in Fosen has been the expected economic benefits.

**b) To what extent are the measures transferable?**

The transfer potential is high, as almost all the EU states involve the public in consultations during the licensing process and/or spatial planning processes. Whether the innovative element of the measure, discussing several projects together, is transferable depends on whether wind developers send several applications focusing on the same area about the same time.

One aspect that has been particularly important in Fosen is the fact that all the municipalities in the region where the projects were being planned, were rural municipalities with similar challenges and opportunities. Many of the social acceptance barriers and drivers were therefore similar across the different projects, and this facilitated a coordinated discussion.

Additionally, a key enabling factor for the highly participatory process was the financial and human resource capacity of the national regulator to hold 35 meetings in the first place. Almost all the countries in the WinWind project involve the public in consultations during the licensing process and/or spatial planning processes, however not in all cases is funding available.

### 6.1.8 Kisielice Municipality

**Overview describing the measures/motivation**

Despite its small size, the municipality of Kisielice has become a well-known best practice for promoting social acceptance of wind energy. This has been achieved due to its investments in renewable energy sources as a means of stimulating local economic development. The municipality of Kisielice was the first energy self-sufficient municipality in Poland. Thanks to the fact that 72% of the land in the municipal area is farmland, reflecting on the agricultural character of the municipality, achieving this energy self-sufficiency was largely possible through the installation of wind energy. An initial pilot wind farms were invested in and coordinated by the local municipality.

During these years, the local authorities, especially the mayor of municipality, significantly contributed towards creating mutually beneficial wind energy developments. This was done by creating a platform of trust to enable dialogue and information exchange among all the relevant stakeholders. The mayor was also instrument in carrying out research and guaranteeing external finance for the developments: a central task in all of this.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**A lack of knowledge on wind energy among the residents:** The residents were mainly concerned about their health, well-being and local environment.

**Perception of no financial benefits for the local community:** The residents were under the impression that wind energy does not bring any positive results or added value for people and local economy.

**b) Drivers for social acceptance**

*Impact on economy*

**Impact on local economy:** In 2012 Kisielice raised over 500,000 EUR in taxes from the wind farms (i.e. 6 per cent of the municipality's total revenue). The development of renewable energy sources has also led to improvements in local infrastructure. The investors of the wind farms covered the costs of modernisation of some 30 km of municipal roads, 4.5 km of district road and 6.5 km of voivodeship road. Moreover, 12 km of power lines of 110 kV and two Main Supply Points were built as part of local grid adjustments to serve the wind turbines.

**Passive financial participation:** Farmers – on whose land the wind turbines have been built – are paid on average EUR 5,000 in land lease fees per year for each turbine. Additional easement fees were paid to land owners for providing access to build power lines connecting the turbines to the grid. This reinforced social support as farmers were able to recognise an opportunity to also benefit from wind energy development in the area. Given the rural nature of the municipality, these farmers were important stakeholders.

*Procedural participation and trust*

**Formal procedural participation:** It is also worth mentioning that during the whole preparatory process, public consultations were held in a systematic way. The inhabitants were fully informed, which significantly helped to avoid any objections.

**Informal procedural participation:** In the town of Łęgowo, where the land for the pilot investment was purchased, additional meetings with farmers were held to familiarise them with the project and inform them about the land lease agreements and the foreseen locations for the wind turbines.

**Transparent communication:** Through providing reliable information, presenting experiences of other countries, and informing about local benefits through informational meetings, local residents were positively convinced of the benefits of wind energy. Crucially, from the very beginning of the pilot project, activities addressing social acceptance were carried out with the objective of ensuring the local community were aware of all the processes and technicalities of wind farms. The social

acceptance among the residents was achieved as a result of complex preparatory work and communication before the wind turbines were implemented.

*Governance*

**Political leadership:** In this regard, a vision of better future for local economy and residents was constantly pitched and developed by the mayor of Kisielice, who played a key role in this energy transition and improving social acceptance. He was not only the local leader, but also a mediator between developers and all the residents.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

The municipality also took part in a competition called “Our Municipality Protects Climate”, organised by The Polish Institute for Sustainable Development. In the competition, the pilot project received great appraisal for a sustainable utilisation of local resources and promising approach towards energy transition**.** The many other awards and appraisal serve on the outset as evidence that this initiative has been highly successful in its implementation and objectives.

### b) To what extent are the measures transferable

The project executed in the Kisielice municipality may be replicated in small rural municipalities with a strong agriculture base, with one or two dominant and densely built-up towns or villages and a relatively low mean population density. Such municipalities typically have extensive stretches of farmland further away from inhabited areas.

Effective communication with the main stakeholders has proven to be a central success factor in such projects. Key for this to be a credible success is for the communication to be led in a way that avoids unfulfilled promises.

Moreover, populations between 5,000-10,000 people make it relatively easy to carry out communication campaigns, public consultations and therefore effective communication and engagement. However, the most important success factor is a person/institution responsible for implementation of such an idea. Ideally, it may be a person representing local authorities, who has a power to act, capability of connecting residents and ability of resolving social problems and opposition. It should be a reliable person, who is considered respected and fully committed to a project.

### 6.1.9 Gran Canaria Wind and Water

**Overview describing the measures/motivation**

Following a major crisis concerning the supply of water and energy in the South-East of the Island of Gran Canaria, three local authorities joined forces to resolve the issue, creating the Mancomunidad del Sureste de Gran Canaria. Although the objective was to resolve the water crisis, through the desalination of water, vast amounts of energy were required for this. Consequently, the municipality allowed for private investors to develop a number of very large wind farms in the region, in return for a share of the income from the installations. A total of 71 MW has now been installed in the Mancomunidad.

Through the provision of energy for water desalination, and also through benefiting the local society through value creation and enabling financial participation, the initiative has drastically improved the social acceptance of wind energy. Crucially, much of this success can be attributed to an excellent and effective communication strategy.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**Mistrust and lack of transparency of wind farm installation processes:** Previously, the local community did not trust the process and motives for the establishment of any such farms. The concern was that if an external actor, organisation or business would come to the region and seek to extract a public resource, such as wind or the sun, they would do so with selfish motives which may ignorant/harmful to the local community.

**Lack of regional co-benefits:** Moreover, in the process of extracting any such public resource, the local community believed that not only this would there be little or no benefit for the local population. This had led to both the social and political rejection of both wind farms and gas plants in the past. Even if any such initiative was to benefit the local populations, making this group aware of such benefits had been a major problem in the past.

**b) Drivers for social acceptance**

*Market*

**Secure supply of energy and water & emotional ownership:** The installation of the wind farms enabled the provision of affordable, sufficient and consistent supply of water and energy.

*Impact on economy*

**Impact on local economy:** Local value creation (300 jobs for both wind and desalination plants).

**Passive financial participation:** This was done on the community level, given that 25% of income from wind farms is given to local municipality (in return for land) and this expanded the local municipal budget.

**Active (direct) financial participation:** Local business had opportunities to invest in wind farms (5% of farms are now owned by the local businesses).

*Procedural participation and trust*

**Transparent communication:** Information and knowledge of the fruits of the initiative to the general public. This stage was arguably the most substantial and effective means of promoting the social acceptance. Enormous amount of public dissemination work took place to explain the need for wind farm establishment: promotion videos, radio discussions, school posters, brochures, educational activities.

## Lessons learnt

### a) Effectiveness in achieving social acceptance

Vast amount of wind turbines installed and therefore the continuous expansion strongly demonstrates that MSGR has been able to successfully improve the social acceptance of wind energy. Indeed, such rapid and significant expansion would not be possible if there was considerable social rejection. Additionally, now, the residents have an emotional ownership over the farms, and thereby the social acceptance has become something which is almost never questioned by the local populations. Rather than seeing the wind farm in terms of territorial damage, they are seen as an asset which produces economic and environmental opportunities in the region. Furthermore, the Spanish Wind Energy Association (AEE) has given the Mancomunidad the 7th Eolo Prize. This is an award for cases whereby wind energy has had a significantly positive social impact.

However, weakness is the fact that the intention for the local community to actively and directly participate financially has not been as successful as initially hoped.

### b) To what extent are the measures transferable

Two steps have been identified as highly necessary for successful transfer of this initiative. Firstly, there must be a specific need/lack of energy. Indeed, this problem must be apparent and real within the local populations. Secondly, in order to enable the installation of the wind farms, there

must be explicit and well communicated benefits for the local populations. The idea of using wind energy to supply water and to promote the use of agriculture is thousands of years old.

In sum, the transferability of this measure can be considered as reasonably high. This is due to the fact that there are inevitably many regions both nationally and internationally which require a considerable amount of energy for local economic purposes. Generating and using this energy locally can serve as a highly effective means of improving the social acceptance of wind energy.

### 6.1.10 Som Energia Energy Cooperative

**Overview describing the measures/motivation**

Som Energia, which in Catalan translates to “we are energy”, is the first and now largest energy cooperative in Spain. The fundamental basis of most energy cooperatives is to invest in or provide reliable and fairly priced energy. Although, a rapidly growing feature of energy cooperatives is to promote the production and use of sustainable energies. In this regard, Som Energia is involved in the marketing and consumption of sustainable energies. It provides a 100% guarantee that the energy that members purchase comes from renewable energy production facilities. Such energy transparency had not previously existed in Spain. Additionally, Som Energia has in recent years begun to play a significant role in encouraging and facilitating its members to invest in sustainable energy production facilities. Currently, wind energy accounts for 47% of the total energy used by Som Energia members.

With over 50,000 members and an annual production of 50GWh per year of sustainable energy, half of which is accounted for by wind energy, Som Energia is a highly notable best-practice case for promoting the social acceptance of consumption and production of wind energy in Spain. It is an ongoing project which began in Catalonia, however has since expanded the scope of its operation to almost all of Spain. Its activities have both directly and indirectly contributed towards the improving the social acceptance of wind energy in Spain.

**Summary of the determinants of social acceptance**

**a) Initial barriers**

**Lack of opportunities to procedural/financially participate**: Previously in Spain, there was a lack of participatory and localised methods to engage ordinary citizens in investing and bringing about the energy transition**.**

**Transparent information:** A complete lack of transparency or choice for the sources of energy consumed in Spain.

**b) Drivers for social acceptance**

*Impact on economy*

**Active (direct) financial participation:** In order to become a member of Som Energia, a 100 EUR contribution is required. In return for this, Som Energia gives the members a 100% guarantee that the energy they purchase comes from renewable energy production facilities. Som Energia is also involved in projects which actually produce electrical energy from renewable energy sources. These installations, which include Solar PV, wind and biomass, are financed by additional voluntary contributions from its members. In other words, Som Energia encourages and facilitates its members to invest in sustainable energy production facilities.

*Procedural participation and trust*

**Effective informal procedural participation** Som Energia, as a non-profit entity, is governed and financed by its members. A guiding principle of Som Energia is its bottom-up approach. In other words, the key target group is consumers and producers of energy, rather than policy makers. Thus, through its democratic annual general assembly, members are able to contribute towards the processes and strategies of the energy cooperative.

**Transparent communication:** The energy and enthusiasm of the members in favour of wind energy has had highly positive spill over effects for promoting further communication and participation among other segments of society. The local groups throughout Spain, which consisted of Som Energia members and volunteers, mobilise and transmit ideas about the importance of sustainable energy use and the energy transition. They do so in many ways such as workshops, an annual summer school, engaging with other cooperatives and progressive movements, and participating in university and/or public debates. Their activities not only encourage people to use wind and sustainable energies, but they also mobilise people to actively participate in planning and political processes in order to drive forward proposals for wind energy installations.

*Individual characteristics*

**Emotional ownership:** By providing citizens with an opportunity to both consume and invest in energy sourced from wind, this creates a real connection between the citizens and the means of energy production.

## Lessons learnt

**a) Effectiveness in achieving social acceptance**

Som Energia has effectively contributed towards overcoming numerous social acceptance barriers which were particularly high in Spain. In 9 years, it has gathered 50,000 members, generated 10 million kWh/year and has invested almost 13 million EUR in sustainable energies. Through enabling citizens to financially participate and invest in wind energy, a highly positive perception has been created. The positive perception in this group has fuelled the enthusiasm of many to further contribute towards the cause, something which has led to spill over effects on other social groups, local politicians and even other utilities companies.

**b) To what extent are the measures transferable**

It appears that this initiative has plenty of transfer and replicability potential. Som Energia has rapidly expanded from only operating in Catalonia to operation throughout almost the entirety of Spain. Som Energia has also facilitated the establishment of a handful of other energy cooperatives across Spain in Galicia and the Basque Country. However, a crucial driver for this is sharing the same values and priorities as this energy cooperatives. In Catalonia, this existed, and the land was already reasonably industrialised. However, in areas such as Castilla Leon, where social acceptance of this was much lower due, it has been harder. Nevertheless, Som Energia argues that there is nothing that cannot be resolved by a well explained and clear argument, communication and local engagement strategy.

Furthermore, it has been explained that a first step for establishing an energy cooperative is to mobilise, create and promote a local group. The second step would be to gather sufficient finances to invest in the projects and the cooperative. Som Energia claims that, for a cooperative, this is not a significant hurdle to overcome, given that the model that they propose is low cost and more cost-efficient. This is explained by the fact that they do not have many of the sunk costs which big utility companies have, such as old technologies (cooperatives rely more on the internet and new technologies), offices in expensive capital cities (Som Energia has just one office in the countryside of Girona), and high human resource costs (given that it is non-profit and voluntary). This suggests that energy cooperatives can indeed be implemented in cost-efficient way.

## 6.2 Drivers for social acceptance

This truth table maps in a holistic and clear way all the different cases and their relevant drivers (i.e. the causal mechanisms) for social acceptance. The significance of the drivers has also been indicated on a scale of 1-3, to determine the significance of the role that driver has played in driving social acceptance in the given case. These assessments have been proposed by Ecorys and verified by the partners and stakeholders in the respective country desks who contributed towards drafting the original case studies.

***Table 1: Truth table on the drivers of social acceptance***

| | **Technical characteristics of project** | **Neutral or positive impact on environment** | | | **Financial participation (Positive impact on economy)** | | | **Individual characteristics** | **Procedural participation (Planning and permitting process)** | | | **Market** | **Governance** | **Trust** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Technology innovation | Neutral or positive impact on landscape | Neutral or positive impact on Biodiversity/wild life | Neutral or positive impact on GHG emissions | Positive effect on local economy | Active (Direct/indirect) financial participation of citizens | Passive financial participation/ community benefits | High level of identification with wind turbines ("emotional ownership") | Transparent communication | Effective formal procedural participation of citizens | Effective informal procedural participation of citizens (beyond formal, statutory participation) | Security of supply (energy, water) | Political commitment, leadership | Credibility, trustworthiness of key actors |
| Schlewsig-Holstein (DE) | Partly X (Grenzstrom V.) | Partly XX (Grenzstrom V.) | Partly X (Ellhöft, Grenzstrom V.) | x | XXX | XXX | XX | XXX (Ellhöft, Grenzstrom V.) | XX | X | XX | Partly X (Neuenkirchen) | XX | XXX (Ellhöft, Grenzstrom V.) |
| Service Unit & Label (DE) | | | | | XX | X | XXX | | XXX | XX | XX | | XX | XXX |
| Repowering (IT) | XXX | XXX | XX | XX | XX | | | | | XXX | | | XX | XX |
| Tax cut & planning (IT) | | XX | XX | | XX | | XXX | | | | XXX | | XX | |
| Proactive Planning (LV) | | XX | XXX | | | | | | XXX | XXX | X | | XXX | XX |
| Innovation house (NO) | | | | X | XXX | | XXX | | X | | X | | | |
| Community Dialogue (NO) | | | | | XXX | | XXX | | XX | XXX | XXX | XX | | X |
| Energy self-sufficiency (PL) | | | | | XX | | XX | | XXX | XX | XX | X | XXX | XX |
| Water & Wind (ES) | | | | | XXX | X | X | XXX | XXX | | | XXX | | |
| Energy Co-op (ES) | | | | | | XXX | | X | XXX | XXX | XXX | | | |

xxx High importance xx Important x Relevant

## 6.3 Overview of main findings and conclusion

This section serves to integrate the findings of the case studies, with the view of critically analysing the outcomes, where possible in light of existing research. The primary goal is to create generalisation and arguments of overall validity. The case study summaries and the truth table form a central basis for deriving such overall findings and conclusions, and reference is made to a number of relevant existing research, which was identified in D2.1 and D2.3. This section will be followed by attempts to comparatively analyse in more depth and detail the specific measures and drivers, providing more specific analysis and generalisation on each of those. Firstly though, below, a number of the key overall findings which were derived from the in-depth case studies are presented in form of statements, which is followed by an elaboration on those findings.

***A) No case falls under only a single category of measures for improving social acceptance: all cases studied are multi-measure approaches***

Section 4 of this deliverable and D4.2 (Good Practice Portfolio) elaborated on the six categories of measures of improving the social acceptance of wind energy, six of which had been identified in the Grant Agreement, with an additional one (multi-measure approaches) being identified by the consortium in D4.2. These served to characterise and explain the method by which a measure functions to improve social acceptance, i.e.in other words, its causal mechanism to overcome the barriers for social acceptance. On the basis of the initial five categories, D2.3 identified broadly, within each of the different measures, the specific drivers which more precisely explain how a measure may contribute to delivering social acceptance of wind energy, which have also been elaborated in section 4.

As a result of the process of summarising the in-depth case studies (with a particular focus on the drivers for social acceptance) and the assessment and mapping of the drivers (and their significance) in the truth table, what its strikingly yet clear is that none of cases exclusively possess drivers from just one of the original categories of measures. This is observed by the fact that most cases show a very broad spectrum of drivers from different categories in operation, with each case study having at least two drivers falling under different categories of measures that are characterised as “highly important”. Just as an illustration, this has meant that drivers which have a positive impact on the environment, a positive impact on the economy, as well as entailing participatory planning and permitting processes have all been present a single case study (Sardinia).

Consequently, all case studies more accurately fall under the multi-measure approaches category, the category of measures newly identified by D4.2. In sum, this category describes measures which entail a combination of many different measures, making it difficult to identify a single leading measure to define and explain the action.

It is therefore clear that social acceptance of wind energy is generated by a combination of different drivers, thereby when attempting to overcome barriers, an integrated and holistic approach is required. The need for such an integrated and holistic approach constitutes the central and perhaps most novel finding of this research exercise and is not something which has been clearly picked up on by previous research in the field.

Additionally, it is important to reiterate that three of the cases had already been identified as multi-measure approach (Abruzzo, Kisielice, Gran Canaria). The reason why the other seven measures were not also categorised as multi-measure approaches is that within those cases, a specific drivers was initially more apparent or seemingly more significant as a mechanism/drivers for social acceptance than any other driver. The statements below elaborate on this point.

***B) Although a multitude of drivers is necessary to achieve social acceptance, drivers under procedural and financial participation are central to all measures.***

What is overwhelmingly evident from the summaries and the truth table is the presence, as well as the significance (according to the degree of significance assessments), of drivers which relate to either financial or procedural participation in every single one of the cases. The truth table above illustrates and maps the drivers, which have served to contribute towards social acceptance, with the presence and degree of significance of each driver being allocated a certain number of "x" depending on how significantly they have contributed towards achieving social acceptance. Of the total of 161 "X"s tallied on the truth table to demonstrate the degree of significance a particular driver has had in the achievement of social acceptance, 94 "X"s (58%) fell under procedural and distributional justice. This is illustrated in the table below; yellow and orange sections represent financial participation and procedural participation respectively. The findings from the case study research lend strong support to the findings on the literature review, which were reflected upon in D2.1 and D2.3. These found that locally the key determinants of social acceptance are three-fold:

1. Procedural justice (fair and participative decision-making processes)
2. Distributional justice (fair distribution of costs and benefits)
3. Trust (in information and the intentions of key actors)

To be clear, financial participation concerns distributional justice, and procedural participation is related to procedural justice. Thus, the analysis of the case studies demonstrates that the drivers falling under either of these categories have been both present in every case. Additionally, each of the cases, at least one driver falling under procedural or distributional justice has been described as a "highly significant" driver, lending further support to the centrality of these categories of measures. Thus, it is confirmed that the first 2/3 of key determinants of social acceptance, indicated by the literature, are indeed central for achieving social acceptance. However, what the case studies also show is that there is no clear third key determinant of social acceptance, as suggested in the literature review (trust). The other categories of drivers, identified

above and in D2.3, mostly account for a roughly a similar proportion of the drivers, with positive of neutral environmental impact, governance and trust being the slightly more significant and widely present drivers for social acceptance. Additionally, what the findings clearly show is that the combinations on which the drivers (which include participatory methods) vary extensively and that the causes of social acceptance are by no means universal. This forms the essence of the next statement.

*Table 2: Comparative representation of drivers in the best practice cases*

| Category | Driver | Number | Percentage |
|---|---|---|---|
| Technical Characteristics | Technological Innovation | 4 | 2.5% |
| Environment | Landscape | 9 | 5.5% |
| Environment | Biodiversity | 8 | 5% |
| Environment | GHG emissions | 4 | 2.5% |
| Financial Participation | Effect on local economy | 18 | 11% |
| Financial Participation | Active financial participation | 8 | 5% |
| Financial Participation | Passive financial participation | 17 | 10.5% |
| Individual characteristics | Identification and ownership | 7 | 5% |
| Procedural participation | Transparent communication | 20 | 12.5% |
| Procedural participation | Formal procedural participation | 14 | 8.5% |
| Procedural participation | Informal procedural participation | 17 | 10.5% |
| Market | Security of supply | 7 | 4.5% |
| Governance | Political leadership | 14 | 9% |
| Trust | Credibility/trust | 13 | 8.5% |
| | | **Total: 161** | |

### *C) Given that most measures take a multi-measure approach, it is possible to a fairly strong degree predict and explain the combinations of drivers within a measure*

In light of the fact that the categories and types of drivers require an integrated and mixed approach, another notable observation from the summaries and the truth table is that the mix/combinations between drivers in achieving social acceptance can to some extent be foreseen and explained. In other words, the combination of drivers which work collectively to achieve social acceptance are often interdependent and complementary. However, this is not always the case, and often the mix/combinations of drivers within similar cases cannot be foreseen and explained universally.

A number of notable examples/combinations from the 10 cases are worth highlighting. In light of the fact that it has been established that drivers relating to procedural and financial participation constitute the central drivers in the cases, the relationships between these two drivers with the other drivers, as well as with one another, are described. In sum, the relationship between drivers relating to procedural participation and financial participation are strongly foreseeable. However, the relationships between different combinations of drivers are much less so.

Trust as a driver has in all cases been accompanied by strong procedural participation (Schleswig-Holstein, Thuringia, Sardinia, North Vidzeme, Kisielice). This could be explained in two ways. Firstly, by the fact that trust is created through open, transparent and fair procedural participation, thereby indicating that procedural participation is a precondition for trust as a driver for social acceptance. Secondly, that in order for the public to be willing to procedurally participate, they must have trust in the actors and processes. Moreover, it was found that financial participation as a driver is very often accompanied by drivers relating to transparent communication, this is not true in all cases (e.g. Abruzzo). This suggests that although trust can be created through financial participation, it can also exist independently of it.

A similar trend found concerning governance as a driver, in the sense that in the case studies it is always accompanied by a driver relating to procedural participation. This can be explained by the fact that good governance - which in the case studies has most commonly come in the form of strong political leadership - necessitates a form of procedural participation. For instance, such participation has come either in the form of effective and transparent communication, whereby the committed political leader has supported the communicated the benefits of the wind energy proposals, or whereby the committed political leadership served to mediate and moderate differing opinions of the public/stakeholders once they had (formally or informally) engaged with the procedural processes. On the other hand, once again, although governance is accompanied by financial participation as a driver, the two do not seem strongly interdependent (e.g. North Vidzeme).

From the findings of the case studies, it is apparent that drivers relating to neutral or positive impact on the environment are also always accompanied by drivers relating to procedural participation (Schleswig-Holstein, repowering, tax cuts and planning, proactive planning). This can be explained by the fact that one of the ways in which developers or planners become aware of the concerns (and thereby perhaps act upon this concern) for the environment is through the local populations who voice their concerns. The local populations expression and understanding of concerns for the local environment most commonly achieved through sort of procedural participation. Thus, procedural participation seems to serve as an enabling condition for neutral or positive impact on the environment to operate as a driver. On the other hand, such environmental drivers are less commonly or less significantly linked with drivers relating to financial participation. Thus, in order for drivers relating to environmental protection to operate, it is not necessary, although can be complementary, for drivers relating to financial participation to exists.

Market drivers, namely security of supply, has in all cases been accompanied with strong financial participation (Gran Canaria, Fosen, Kisielice). This is explained by the fact that measures, which ensure a security of supply of basic commodities such as water and energy have a financial spill over effect on the local and broader economy. By guaranteeing the supply of a basic commodity (which thereby enables economic activity), this provides some form of financial participation for the local community. Thus, such benefits and participation stemming from the wind farm contributes towards social acceptance. In parallel, security of supply is also accompanied by procedural participation in all the cases. One explanation for this could be that in order to identify or address the issue of security of supply, or to communicate the benefits of it at a driver, it is useful to have procedural participation in order to promote social acceptance.

Drivers relating to identification/emotional ownership of wind turbines are also strongly accompanied by drivers relating to both procedural and financial participation. This quite simply explained by the fact that the deeper involvement and participation of the local community in a variety of forms inherently leads to a stronger identification with the wind turbines. Less participation would thereby lead to this being a less significant driver.

From the 10 case studies identified in this exercise, with regards to the relationship between procedural and financial participation, it is more difficult to make generalisations about the relationship between the two, given their broad and varying relationship. However, one observation which is certainly clear, is the fact that whenever both are present as drivers in a case, particular to a strong degree, then there seems to also be a strong existence of trust (Schleswig-Holstein, Thuringia, Abruzzo, Kisielice). This is explained by the fact that trust is a cumulative and participatory driver, the more ways in which the local population can participate in a wind energy project, the more likely they are to trust it and thereby create social acceptance.

Additionally, with regards to the drivers which do not relate to procedural participation and financial participation, the combinations are much more varied, and no clear trends have been identified. It seems that these are much more context-specific and locally dependants.

***D) Achieving local acceptance is to some extent site specific and context dependent and to some extent predictable***

In light of the findings from the case study-research outlined above, it is important to consider these against the literature review in D2.1 and D2.3. Indeed, a central outcome of the literature review was the location-specific nature of wind energy projects, and how these impacts are perceived and valued by local communities. In other words, there is no "one size fits all" solution for enhancing social acceptance in WinWind regions. Each project is unique, facing unique challenges and opportunities, rooted in local context.

The outcome of the literature review (D2.1 and D2.3) has been given significant consideration and support by this research. It has been proven in that there is no single "one size fits all" solution for social acceptance. It is clearly demonstrated within each one of the cases, as illustrated in the summaries and the wide spread of drivers in the truth table, that social acceptance is not achieved by a single method. Rather, a highly broad variety of drivers and combinations generate social acceptance. These varieties are caused by the differing local contexts and their respective needs/barriers which were analysed in the literature review (D2.1 and D2.3).

However, although there is no "one size fits all" way to improve social acceptance - on the basis of the findings in statement C – there is certainly some measures, models and activities (which constitute different forms of drivers) which can be transferred to other situations to promote social acceptance. The existence of these forms the central basis for transferability of the measures and drivers of social acceptance to other regions and countries in Europe. The following sections explore in more detail exactly how the individual drivers have operated in the case studies, to uncover whether there is indeed a great deal of similarity between the cases in achieving social acceptance, setting the basis for discussion on lessons learnt and transferability.

## 6.4 Comparative analysis of drivers for social acceptance

The present subsection outlines and compares the ways in which individual categories of measures and drivers have in different cases, specifically and practically, contributed towards promoting the social acceptance of wind energy. In doing so, it begins with looking at the most significant drivers of social acceptance identified in the previous subsection (thus financial and procedural participation), whilst gradually paying attention to the next most important drivers in order of their overall presence. The objective of this exercise and comparative analysis is two-fold. Firstly, to better understand the individualities and similarities of the operation and success of drivers in different contexts. Secondly, leading on from the first, to feed the development of the

lessons learned about the measures and drivers which will be elaborated upon in the next subsection. Practically speaking, each driver will be succinctly defined. This will be followed by consideration on how commonly the driver has been relevant in the 10 case studies, as well as comment on how significant the driver has been in each of the cases in the achievement of social acceptance in the cases. Subsequently, a comparative analysis is provided on how specifically the driver has operated in practice.

**Financial participation**

As illustrated in this and previous deliverables (D2.1, D2.3, D4.2), three specific drivers fall under this category. These include “positive impact on local economy”, “active financial participation”, and “passive financial participation”. Each of these are analysed individually below:

i) Positive impact on local economy

This driver refers to the creation of regional/local added value in the form of tax revenues for municipalities, increased activity for local businesses and local employment. This has been the second most common driver for social acceptance, being present and significant in 8/10 of cases.

In all of these cases, a key mechanism has been the creation of jobs in the local economy. It must however be noted that the significance of this driver has varied to a fairly large extent, namely due to the number of jobs created. For instance, in the Thuringian Service Unit and Label case study, it was mentioned that 300 new jobs have been created in the Thuringian wind energy sector since 2014. Although there is no evidence for any direct employment effects evoked by the service unit, (except the jobs created in the service unit itself) there might be certain positive indirect or induced employment effects. In general, job creation through wind energy constituted a significant driver for social acceptance.

Improvement to local infrastructure has also been another key way in which the case studies have contributed to the improvement of social acceptance. This has come in the form of the construction of new/ improvements of local roads (Abruzzo and Kisielice) as well as additional or improvements to local power lines (Fosen, Kisielice and Gran Canaria).

ii) Active (direct/indirect) participation of citizens

In the direct sense, this refers to citizens as owners/shareholders of the plants (e.g. co-operative, limited liability company, other legal forms etc.) whilst in an indirect sense, it refers to citizens as creditors/lenders/financers. In all of the case studies, the active participation of citizens came in the direct sense.

This driver has been one of the least common drivers among the cases, only being present in 4/10 cases. This is explained by the fact that it requires much more positive and burdensome responses/action by the local citizens, therefore it is a difficult driver for universal use. Another reason is that community energy with active financial participation of citizens is not equally developed in the countries/regions under investigation.

In two cases, (Schleswig-Holstein and Som Energia) this driver was significantly strong compared to the other cases. This was because a large number of local citizens actually directly participated financially in the wind farms either as co-owners of the wind farm or as members of a co-operative. In the community wind farm in Neuenkirchen (Schleswig-Holstein) the number of limited partners from the local municipality reached 145. Som Energia, the first renewable energy co-operative in Spain which was founded in 2010, has in the meantime reached a membership of 47,000. Whereas in Neuenkirchen only residents and land owners of the municipality were able to become limited partners, in the case of Som Energia the spectre of eligible members was much broader. The initial purpose of the co-operative was to sell RES based electricity to its members and later it started to invest in RES installations. A crucial success factor in both cases is that the minimum contributions were relatively low (500 EUR in the case of the community wind farm, 100 EUR in the case of the co-operative). This has provided a wide opportunity for citizens to participate in the project, particularly in the case of the co-operative. In the Gran Canaria case, where active financial participation of citizens or local communities was relevant, the level of local ownership was much lower. Only 5% of the shares of the wind farms were eventually owned by local businesses and entrepreneurs, which covered a minimal fraction of the local population. Consequently, this driver was not highly significant in that case.

iii) Passive (individual or community level) financial participation

On the individual level, passive financial participation comprises, for instance, land lease payments for land owners/boni for local residents, or special electricity tariffs for local residents. On the community level passive financial participation refers to community foundations/trusts, community associations, compensation payments for the community, in-kind benefits for the community, municipal ownership of the plants or tax revenues from the operation of wind power plants. Both types are present in the cases, and in one case both have existed (Schleswig-Holstein).

On the individual level, both the Schleswig-Holstein and Kisielice cases have involved land lease payments using pool models which seek to achieve a fair distribution of land lease payments among different types of land owners where the wind turbines have been built. Given that these have been highly rural places where farmers play an influential role in the local community, these have been particularly significant drivers for social acceptance. In the case of the community wind farms in Schleswig-Holstein, land lease pool models contributed to avoid or reduce conflicts among land owners.

On the community level, in the Schleswig-Holstein case, Sardinia tax cuts/planning case and the Gran Canaria wind and water case, a certain proportion of the incomes or profits from the wind energy generated was given to the local municipality. These proportions have depended whether public land has been used or not, with much greater contributions if the land belongs to the local municipality (e.g. Gran Canaria). The incomes were thereby used for and distributed among the local community in the form of additional/better services, municipal tax cuts, or the creation of civil associations to redistribute some of the revenues. A key observation here was that in Sardinia, this was highly significant in driving social acceptance because the determination and distribution of the income was done in a highly transparent and participatory manner with local citizens, whereas in the other two cases this was not the case and thereby the driver was considered less significant for bringing social acceptance.

***Table 3: Types of financial participation of citizens in the operation of wind farms***

| **Active participation of citizens** | |
|---|---|
| **Direct** | Citizens as owners/stakeholders of the plants (e.g. co-operative, limited liability company, other legal forms etc.) |
| **Indirect** | Citizens as creditors/lenders/financers |

| **Passive participation of citizens** | |
|---|---|
| **Individuals** | Land lease payments for land owners, bonus payments for local residents, special electricity tariffs for local residents |
| **Community level** | Community foundations/trusts, community associations, compensation payments for the community, in-kind benefits for the community<br>Municipality as owner of the plant<br>Tax revenues from the operation of wind plants |

Source: based on EnergieAgentur NRW: 2014, p.6

**Procedural participation**

Similar to financial participation, it has been clearly illustrated in this and previous deliverables that three specific drivers fall under this category. These include “transparent communication”, “effective formal participation” and “effective informal participation”. Each of these are analysed individually below:

iv) Transparent communication

Transparent communication concerns the activities and actions taken by wind project developers and other responsible stakeholders in ensuring the provision of readily available, objective and reliable information about the wind energy projects (i.e. implications, benefits, costs). It is one of the most commonly present drivers for social acceptance (8/10 cases) – as well as being one of the significant drivers for social acceptance in the case studies (highly significant in 5/10 cases). In the Thuringia case, the availability and provision of such detailed and objective information on wind farms formed the central and most notable basis of the measure. In Gran Canaria, this was argued to be the most significant driver.

What seemed to be a reliable indicator of how significant the driver was in the case was the extent and ways in which such detailed and objective information would be disseminated. For instance, educatory methods were used in the Birkenes, Gran Canaria and Som Energia cases – whereby those responsible for carrying out the measure sought to educate young people (and indirectly their families) about the benefits of wind energy. In Gran Canaria, the developers and local authority used existing educatory institutions to do so, whereby schools were provided with a multitude of materials, such as posters and promoting/facilitating school research projects, in order to allow young children to research and engage further with the wind farms. Often non-conventional or innovative methods were used for this purpose. In Birkenes, this was done through the provision of a venue and trained personnel in the proximity of a wind farm to host school children and give them classes. Similarly, Som Energia organises an annual summer school, whereby young and old people are given the opportunity to learn about sustainable energies. These educatory methods have been a highly significant and effective driver for social acceptance.

Additionally, more general public dissemination activities have been exploited to disseminate information about wind energy projects. In Kisiliece, informational meetings were hosted by the municipality to clearly broke down and explained information to local residents. Moreover, in the Gran Canaria case, specific promotional information for the radio and television were created and sponsored. Moreover, in Som Energia, the cooperative proactively engaged with other co-operatives and progressive organisations to further disseminate their work. They also shared their experiences and expertise in universities, as well as participating in public discussions and debates.

On a final point, it must be stressed that the cases demonstrated that such transparent communication is particularly successful when achieved from the very beginning of the project's processes. This was particularly emphasised in the Polish case and the Vidzeme case. The former drew light on the fact that the lack of such proactive and transparent communication can create more significant barriers.

v) Effective formal participation

This driver concerns the opportunity of local communities, citizens and relevant stakeholders to engage, as prescribed specifically by statutory regulation, with the process of wind farm planning procedures. Importantly, the statutory prescription differs between countries. However, similarities do exists. For instance, almost all the WinWind 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 (as has been established in both Italian cases).

Effective formal participation as a driver was present in a large proportion of the cases (7/10), and it was a significant driver in almost all of those cases. This form of such participation came in a number of different forms, such as public consultations and meetings (Schleswig-Holstein), public meetings (Abruzzo, Vidzeme, Fosen), public surveys (Vidzeme) and public hearings (Fosen). It was stressed in a number of cases (Abruzzo, Vidzeme, Fosen, Kisielice) that effective formal participation becomes a highly significant driver for social acceptance when such participation is promoted constantly throughout the whole process of the project proposal and development (planning and implementation).

Another particularly important consideration which was stressed within many of the cases (particularly Abruzzo, Fosen, Vidzeme, Schleswig-Holstein) was that such formal participation should be a "genuine" one rather than simply a sort of alibi consultation. In other words, those who participate must have a chance to influence the decision making. For instance, concerning the design of the project, the participation was highly influential in Abruzzo - whereby changes were made to the technical specifies (layout design to avoid visual impact and reducing acoustic emissions) – and consequently served as a strong driver for social acceptance. In Vidzeme and Fosen, the participation of local communities and their concerns about the siting of relevant wind farms resulted in amendments to the locations of the plans for wind farms. Importantly, such "genuine" participation is equally important for the effective informal participation as a driver for social acceptance, which is discussed in more detail below.

vi) Effective informal participation

This driver is considered as highly similar to effective formal participation; however, it differs in the fact that this type of participation comprises voluntary arrangements going beyond the formal

statutory participation. This has also been one of the most commonly present drivers of social acceptance – existing in 8/10 cases – however its significance has not been as consistently strong in all cases.

In sum, the effective informal participation has come in the form of informal community meetings (Schleswig-Holstein, Thuringia), persistent dialogues and hearings with the opposition and concerned groups (Fosen), discussions and information sessions for affected stakeholders (Kisielece), and workshops/conferences with stakeholders to set the direction and tone of the projects (Som Energia). As noted above, such like formal participation, for informal participation to be an effective and significant driver, it needs to be "genuine". It is also necessary for such participation to be constant and throughout the project's proposal and development (planning and implementation).

**Neutral or positive impact on the environment**

The category of drivers under neutral impact on environment also comprises three different drivers. These include a neutral or positive impact on: "landscape", "biodiversity/wildlife" and "GHG emissions". Each of these is individually analysed below:

i) Neutral or positive impact on landscape

This driver concerns activities undertaken to protect the local landscape, both its physical and socio-cultural value, from the potential negative impact caused by wind farm developments. Although it has only been present as a driver for social acceptance in 4/10 of the cases, in each of the cases, this has been a significant or highly significant driver for social acceptance.

The most common activity to promote a neutral or positive impact on the landscape (as seen in, Abruzzo and Sardinia) was focused on efforts to reduce acoustic emissions of wind turbines. This is explained by the fact that there is a significant amount of technological innovation readily available to be used in this regard. Similarly, another common activity to minimise the impact on the landscape has been the repowering of wind farms (Schleswig-Holstein: Ellhöft and Abruzzo), whereby the installation of newer, more efficient and less environmentally intrusive wind turbine components on existing wind turbine instalments has served as a successful driver for social acceptance.

Additional activities in this regard have included the development of outdoor recreational spaces (e.g. walking and cycling paths) in the proximity of the wind turbines (Schleswig-Holstein: Ellhöft). However, it seems that such activities which serve to compensate in another form the damage to the landscape of the wind turbines is a less successful driver for social acceptance than those mentioned above, which serve to minimise the impact on the landscape of the wind turbines.

ii) Neutral or positive impact on biodiversity/wildlife

This driver concerns activities undertaken to protect the local wildlife and biodiversity, both its physical and socio-cultural value, from the potential negative impact caused by wind farm developments. This has also been present in 4/10 of cases, acting as a fairly significant driver for social acceptance.

The primary concern in the cases (Schleswig-Holstein, Abruzzo, Sardinia, Vidzeme) for biodiversity and wildlife has been the negative effects of the wind farms on avifauna. Consequently, activities to reduce these negative effects have been drivers for social acceptance. General and commonly used activities such as the use of anti-reflexive coatings to reduce the impact of glint and glare (Abruzzo) and reductions in the density of wind farms to minimise collisions (Sardinia) have served as significant drivers for social acceptance. However, more detailed and site-specific approaches seemed to be even more successful drivers for social acceptance. A key illustration of this is the Vidzeme case, whereby an assessment instrument was used to map local risks and to specifically identify the least damaging territories in the region for wind energy development. In Schleswig-Holstein (Grenzstrom Vindtved) it was shown that locally implemented measures compensating for the intrusion of landscape and nature can also help to increase local acceptance.

iii) Neutral or positive impact on GHG emissions

This driver concerns the way in the contribution of wind energy and wind farms to reducing and neutralising GHG emissions has served as a way of promoting the social acceptance of wind energy. It has been one of the least present (3/10 cases) and least significant drivers for social acceptance (constituting only 4/161 total drivers). This perhaps lends support to the argument that to build local acceptance of wind energy, it is more important that activities and drivers are concerned primarily with local issues and concerns, rather than concerning globalised discourse, which is often too detached and irrelevant for citizens.

**Governance**

Governance and regulatory framework refer 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. Thus, the specific policy and regulatory is considered as an “enabling factor”, rather than a “driver” for social acceptance, thereby being discussed in more detail in the section below on transferability. Rather, what is more appropriately considered as a driver for social acceptance is political leadership and commitment.

i) Political leadership and commitment

Political leadership and commitment refer to the positive role played, and influence achieved by, elected local leaders, as well the local political commitments and motivations, in achieving social acceptance of wind energy. Inherent in this driver's definition is a differentiation between two levels. The more general level whereby there is political commitment of regional/local government to develop legislation, programmes and plans aiming to raise social acceptance. On the other hand, the community level which involves the practical/facilitating role played by the local political leaders, who serve as mediators and visionaries. This broader driver has been present and significant in 6/10 of cases.

With regards to the more general level, this was particularly important as a driver in the Thuringia and Vidzeme cases. In both of these cases, the political commitments set the foundations and provided impetus for the activities and actions which followed (Thuringia: decision to set up the service unit for wind energy, Thuringian climate change law; North Vidzeme Landscape Ecological Plan). Both served as significant drivers for social acceptance.

On the other hand, the community level was most relevant in Abruzzo, Sardinia, Kisielice and Schleswig Holstein (particularly Neuenkirchen). In all these three cases, the local leader and authority played a mediator role, whereby they gathered together opponents and proponents of wind energy together to engage in constructive dialogue. In addition, the reason why in Kisielece the local leader, the mayor, was considered to have served as a stronger driver for social acceptance (compared to Abruzzo and Sardinia) was the fact that the mayor was the instrumental figure in finding ways in which to finance, execute and internationally exhibit the wind energy projects.

**Trust**

i) Credibility and trustworthiness of key actors

This driver relates to the trust of citizens and local communities in key actors and processes of the planning and permitting process. It has been a fairly common as a driver for social acceptance, present in 6/10 of the cases and in 5/10 being a significant driver.

Trust has been achieved as a driver for social acceptance in a number of different ways. Although in general, the procedural participation of the local community and citizens has been strongly linked to (and perhaps to some extent caused) trust, trust has been particularly effective as a driver for social acceptance in certain instances. In these instances, it seems that some form of specific proactive commitments from the side of the developer and/or the responsible local authority is necessary to fully achieve the trust of the local community. These specific forms of proactive commitments varied in the case studies. For instance, in the Schleswig Holstein, the

Neuenkirchen municipality invested a symbolic amount of 20,000 EUR of its own funds into the community wind farm project, to demonstrate its commitment and trustworthiness of the project. In Thuringia, the service unit was proactively established by the regional government and capability was demonstrated to the public to provide objective and high-quality information about wind energy in the region. In Abruzzo, a voluntary code of conduct made agreed upon by developers, which set out the key considerations and principles to be respected, served as a reassurance to the local community that many of their concerns would not be ignored.

**Market**

The market category refers to the share of wind energy and other renewables and energy demand (e.g. export/import of electricity, security of supply, energy mix). This has also been one of the least commonly present drivers (in only 4/10 cases) and in three of these cases (Schleswig-Holstein, Fosen and Kisielice) its role has been a rather insignificant one. This lends more support to the argument made concerning GHG emissions that to build local acceptance of wind energy, it is more important that activities and drivers are focused primarily on local issues and worries, rather than concerning globalised discourses.

i) Security of supply

Security of supply refers to the way which wind energy may contribute to securing the supply of an important resource such as water or energy. The argument that local discourses and benefits are more likely to serve as significant and effective driver for social acceptance is demonstrated in the Gran Canaria case. In this case, wind energy would not only provide a significant level of renewably sourced energy, but it also fundamentally provides a much higher (and therefore sufficient) supply of energy locally, in an area with scarce local energy resources. Consequently, the dramatically positive change in the supply of energy in the locality caused by the existence of wind energy represented a highly significant driver of social acceptance. But naturally, it is not so common that any such situation would exist for wind energy could provide such a significant contribution to the energy supply of a community.

**Individual characteristics**

i) High level of identification with wind turbines

This driver reflects on how individuals and local communities feel ownership and closely identify with the wind farms. It has only been present in 3/10 of the cases – being highly significant in two (Schleswig-Holstein and Gran Canaria) and significant in one (Som Energia). Fundamentally, what determines the significance of this driver is the extent to which individuals and local communities do indeed have some form of financial ownership over the wind farms. For instance, in the Schleswig-Holstein, individuals and the municipalities have invested fairly substantial

amounts of money into the community wind farms (in the case of Neuenkirchen with minimum shares of 500 EUR), particularly compared to those in Som Energia (100 EUR), helping to explain the higher significance of the driver in achieving social acceptance. An alternative explanation is the fact that the community wind farm buys electricity from wind farms which are located in the direct vicinity of the local community, whereas in Som Energia, this is not necessarily the case. Additionally, as noted above, the fact that wind energy has provided Gran Canaria with a secure supply of energy has meant that local communities have become highly dependent on this energy (for personal and economic activities), thus boosting the role of this driver in achieving social acceptance.

## 6.5 Overview of lessons learnt on the successful removal of barriers to social acceptance

The present section directly builds upon the synthesis and comparative analysis carried out in the previous subsections to develop a specific and targeted list of lessons learnt for the effective removal of barriers and building of the social acceptance of wind energy. Fundamentally, the purpose of this exercise is to provide recommendations and facilitate the transfer of the best practice cases to other regions and contexts.

More specifically, the lessons learnt are differentiated between those for policy (i.e. local, regional and national authorities) and those for developers. This distinction is made due to the fact that, although there is often an overlap in the recommended activities for both parties, it is better to specifically prescribe how these actors (who differ in the roles, motives and nature) can practically support the achievement of a greater social acceptance. Indeed, these recommendations are directly based on the outcomes, successes and failures of the 10 in-depth best practice cases. The lessons learned concern how the individual drivers can be successfully brought into effect in order to more effectively overcome barriers to social acceptance. It must be noted that although lessons have been identified about most drivers, this is not necessarily the case for every single driver.

**Lessons for policy**

- *Positive impact on local economy*
  The case studies have clearly demonstrated that the creation of local jobs is one of the most effective ways (ahead of improvements to local infrastructure) of brought into effect this driver of social acceptance. Emphasis must be placed on the *locality* of the employment creation. Consequently, the lesson for policy is to create a criterion for the acceptance of planning proposals, that the developers ought to demonstrate that in their project, a maximum possible amount of local employment has been created. In addition, the benefit of effective schemes to retain value for the local community should not be

underestimated. The prospect of financing local societal projects with a percentage of finances generated, also via taxation, from wind energy development is attractive.

- *Active financial participation of citizens*
  Policy should provide a favourable regulatory framework and financial incentives for community power projects, including community wind projects and renewable energy co-operatives. For instance, local/regional authorities should buy energy from these groups, through investment and tax relief, reduced loans, preferential treatment in auctions, or seed money for preliminary assessments, investigations and preparatory works for community power projects. In particular, local governments are key to facilitate the creations of co-operative/participatory solutions by acting as informer, mediator and financial stakeholder. An effective enabling multi-level framework allowing local governments more capacity to support this process is of utmost importance.

- *Passive financial participation of citizens*
  Two important lessons can be extracted here for policy. Firstly, there is a need for policy makers to clearly and broadly emphasize that citizens and communities can passively profit from wind energy development. Secondly, allowing the local community and citizens to contribute towards the determination of how exactly they benefit passively from the wind farm developments (e.g. a participatory budget) can enhance social acceptance. On additional note, it can be useful to establish regulatory and policy frameworks enabling passive financial participation (e.g. special charges/local taxes benefitting host communities, special electricity tariffs, providing the possibility to municipalities to act as active shareholders etc.)

- *Transparent communication*
  Policy should facilitate the early provision and dissemination of transparent and objective information. This should be done from the very beginning of the project. The central lesson is that the enthusiasm of well-informed citizens is likely to have a highly positive spill-over effect on other segments of society. Policy should facilitate the provision of clear and non-jargon information from wind energy developers. Such information and dissemination should be required from the developers as a condition for obtaining permits for development.

- *Effective formal participation of citizens*
  It is imperative that policy promotes “genuine” and “systematic” participation of citizens and local communities in planning and permitting/authorization processes. However, instead of just providing clear information on the benefits of wind energy, transparent communication extends to the planning process as well. This applies to both regional planning bodies as well local governments. Citizens must be informed in a timely manner

regarding the siting procedure and their opportunities voicing any concerns. This means that the contributions of local communities and citizens should be capable to change and actually to influence decisions made by the relevant authority in all project stages, thus also requiring to foresee and to accommodate for the financial and human resources necessary to enable these processes. Policy should fully exploit the possibilities provided by European legislation (EIA Directive) to enable formal public participation.

- *Effective informal participation of citizens*
  There are various forms of enabling informal participation of citizens. The most appropriate form may depend on the local context and practical dynamics as well as the availability of financial and human resources to carry out informal dialogues which are not part of the formal statutory process. Informal processes are important because they provide the opportunity to continuous voluntary dialogue between concerned citizens, public bodies and developers. Thus, they should be carried out frequently throughout a projects development. In light of successful past informal participatory experiences, and knowledge of its citizens, the relevant authority ought to support the identification of the most appropriate form of informal participation of citizens. Additionally, as noted above, such participation ought to be “systematic” and “genuine”.

- *Impact on landscape*
  The cases have proven that measures which minimise the visual impact on the landscape are more successful at driving social acceptance than those which compensate for the impact. Thus, policy must set up frameworks which either encourage developers, or favour developers, who minimise impact on the landscape – as opposed to those who propose to carry out alternative compensatory activities in the broader landscape. Assessment instruments should be used to map local risks and to specify the least damaging territories in the region for wind energy development.

- *Impact on wildlife/biodiversity*
  Public administrations and authorities should not only implement European minimum standards referring to environmental impact assessments (EIA) for wind farms, but it should consider to go further and require more stringent requirements. Additionally, policy should better inform the public about existing environmental assessment and compensation requirements and criteria which developers already have to fulfil in order to obtain authorisation of the wind energy plants/farms. Moreover, policy should fully exploit the possibilities for formal public consultations provided in EIA legislation. Finally, policy should consider to require an EIA not only for wind farms of a certain size, but for single wind turbines.

- *Political commitment/ governance*

Mayors, local champions, but also dedicated service units as agents of change, mediators and visionaries for socially-inclusive wind energy deployment. They have an important role in gathering together opponents and proponents of wind energy to engage in constructive dialogue. Having a local leader push for a project has proven to be instrumental for overcoming potential set-backs and securing investment.

Planning for wind energy projects should be embedded in the long-term political planning and strategy of the local authority and/or regional planning body. By doing so, not only are projects clearly linked to a political commitment, integrated planning in relation to other sectors is also made possible.

- *Trust and credibility*
  Local municipalities should proactively engage with, and invest some of their own resources into, wind energy developments as a way of leading by example and demonstrating confidence in particular project. This aspect relates to how "genuine" formal or informal participation procedures are being carried out. Good participation does go a long way towards establishing credibility of the planning and developing stakeholders and promotes trust between all involved parties.

**Lessons for developers**

- *Positive impact on local economy*
  Given that local jobs significantly drive social acceptance, developers should – as far as is practically viable – ensure that as many *local* (direct and indirect) jobs as possible are created in the wind energy developments.

- *Active financial participation of citizens*
  The cases selected have shown that the broader the level of active financial participation, the more significant this driver is for achieving social acceptance. Thus, in order to ensure more citizens can participate, developers should lower and make more affordable the costs of citizens' participation in the developments. It is also recommended to actively cooperate with the local government to set up and inform citizens about financial participation formats.

- *Passive financial participation of citizens*
  In order for the local communities to become aware of the way in which they passively benefit from the wind farms, developers – who have the best technical and financial understanding of their projects – must strongly disseminate to the relevant authority and the local community information on the precise benefits.

- *Transparent communication*

Building on the above, developers must also provide comprehensive, clear and objective information about both the benefits and costs of their projects. This must be disseminated effectively too, both during the planning and implementation stages. The case studies have shown that there is not just one method which is appropriate to do so (e.g. schools, external education centres, tv/radio, conferences etc.)

- *Effective formal participation of citizens*
  It is crucial that the development proactively and meaningfully engages with the local community in all steps of the formal participatory process. This means being responsive to local concerns and making compromises to their project to appease local concerns.

- *Effective informal participation of citizens*
  The developer must work closely with the relevant authority to uncover and carry out the most effective means of informal participation of citizens. In doing so, they must also show the willingness to listen, compromise and make clear and enforceable commitments.

- *Impact on landscape*
  Many technologically feasible measures (e.g. repowering and visual intrusion reductions, etc.) already exist in the market, and thereby should be used to minimise the impact of wind turbines to the local landscape. These ought to be fully utilised, as minimal damage is what local communities largely prefer over the provision of compensatory measures.

- *Impact on wildlife/biodiversity*
  Similar to above, many feasible technological and operational measures exist in the market to reduce the impact of wind turbines to wildlife/biodiversity (e.g. anti-flexible coatings, acoustic emissions, siting, reductions in density, temporary shutdowns to protect birds/bats etc.). Not only should these generally applicable technologies and methods be used, but complementarily, in-depth site-specific analysis and responsive measures should also be exploited.

- *Trust*
  Clear, voluntary and proactive commitments from the developer are key for achieving the trust of local communities (e.g. voluntary codes of conduct).

The following subsections explore more specifically why and how the best practice cases can be transferred to other regions and contexts.

## 6.6 Transferability: Analysis and looking ahead WP5 & WP6

As highlighted in Section 1 of this deliverable, a central mechanism investigated by the WinWind project to understand, analyse and address social acceptance of wind energy is the identification, analysis and transfer of successful measures from other contexts or similar situations to the WESR. In other words, the WinWind project takes inspiration from a number of *existing* measures within the WinWind project countries that show how potential and real barriers to the market uptake of wind energy can be resolved, with the objective of *transferring* and implementing these successful measures in other regions.

The present section is devoted to setting the practical foundations of the transfer of the best practice cases into the WESR regions, which is developed in WP5. Each of the case summaries in Section 6.1 already devoted small section discussing the extent to which the measures can be transferred. This section will first give a brief overview of what can be concluded as the main case-unique enabling factors for the measures to succeed and achieve social acceptance, which are important considerations for those who may in the future wish to transfer each of the individual cases. This will be followed by a synthesis and comparative analysis how, generally speaking, the transferability of the cases to other regions can be facilitated. It is important to restate the fact that in the proceeding deliverable (D4.2), one of the key bases on which the 10 case studies were selected was the strength and potential for transferability.

In terms of practical relevance to the forthcoming activities of the WinWind project, this will be particularly relevant for WP5 and WP6. The learning laboratories under WP5 serve to transfer and validate the best practice cases in the WESR. This will be done through the detailed consideration of the best practice case and through partnering key figures of a certain best practice with key figures from the WESR region. The central objective being to provide general guidance on how to adapt and implement the best practice measures for improving social acceptance into the target WESR region. Furthermore, WP6 has the overall objective of facilitating policy learning with the ultimate goal of highlighting ways for enhancing social acceptance beyond the target regions. Thus, specific lessons will be learnt from the cross-case analysis of the case studies, as well as the practical experiences of the other activities and engagements of the WinWind project.

**Key enabling factors**

The present subsection provides for important considerations for the future transfer of each of the cases. For each of these, the key factor, relating to the framework conditions, which has enabled the success of the measure in that particular context has been identified. In practice, it is important that efforts for the future transfer of these cases are aware of the existence or non-existence of a similar form of the factor, either to encourage the transfer of the case or to consider of how to compensate for the absence of such an enabling factor.

*1) Community Wind Farms in Schleswig-Holstein*

The key enabling factor for this case study is the long and strong history of energy communities and energy democracy (particularly in North Western Germany). In Germany, approximately half of installed renewables capacity is already under community ownership. Additionally, it is important to consider the long-term financial support for RES (feed in tariffs/premiums) and comparatively low market risks which enabled also small players including farmers and citizens to financially engage in community projects and which helped to attract financing through banks.

*2) Service Unit & Quality Label*

In this case the key enabling factor was the Thuringian government setting a clear target for the region to become energy independent. This is reinforced by the fact that the funding and work of the service unit strongly depends on financial support of the federal state government.

*3) Abruzzo Repowering*

Italy is to date one of the only EU countries that has enacted national incentives for repowering and lifetime extensions. The key enabling factor was the willingness of the industry to engage in self-commitment by means of the voluntary code of conduct for repowering (the Charter which guided the activities and priorities of the developer).

*4) Sardinia Tax Cuts and Landscape Commitments*

The key enabling factor for this case study is the small size of the municipality. This allowed for a connection and a closer proximity between citizens and the local administration to determine the participatory budget.

*5) Proactive Landscape Planning North Vidzeme*

While the LEP provided the backbone for the highly participatory process, the key enabling factor was the willingness between the national/regional and local-level authorities to discuss the siting of wind turbines in biosphere reserve zones in the first place.

*6) Local House Birkenes*

The key enabling factor was the willingness by the municipality, incentivized by local businesses' interest, to make an agreement with the developer and to receive monetary compensation to build the Innovation House.

*7) Fosen Community Dialogue*

The key enabling factor for the highly participatory process was the financial and human resource capacity of the national regulator to hold 35 meetings in the first place. Many countries involve the public in consultations during the licensing process and/or spatial planning processes, however not in all cases is funding available.

*8) Kisielice Municipality*

Key enabling factor was the availability of external funding. Despite the temporary collapse of funding stream, the engagement of the mayor was made possible by his capacity to look for international funds and the availability of external funds in the first place. Additionally, the small population of the municipality equally allowed for effective direct communication to take place.

9) *Gran Canaria Wind and Water*

In this best practice, the previous shortage of fresh water on this part of the island was a distinctive aspect. Therefore, the need for prospect of having a fresh water supply from a desalination plant was a key enabling factor for the deployment of wind parks.

*10) Som Energia Energy Cooperative*

The key enabling factor for this best practice was the need for energy cooperatives in Spain, who have strong claim in providing an alternative to oligopolistic power of the conventional big companies. Another factor is that in Spain energy cooperatives make use of Guarantee-of-Origin Certificates which allow them to sell energy consumed by its members as RE, even though it may be produced outside the cooperative by other producers.

**Overall considerations for the transfer of best-practice cases**

Although the previous section has demonstrated that some key factors have existed in the cases to specifically enable the achievement of social acceptance, there are some general and universal factors which can also strongly contribute towards social acceptance. Thus, the present section will present a number of general findings from the case studies on the overall lessons learned about the transferability of measures to promote social acceptance. Although there is much overlap between each of them, they will be individually explained to highlight their importance. Collectively, these form the basis for transferring any of the measures to other contexts.

**1) Committed leadership**

In order to successfully transfer either of any of the best practice cases, strong leadership and continuous commitment are going to be a central condition. This will have to come from the political decision-makers, relevant local authority and/or the developer. The reason for this is that the initiative for the transfer of a best practice case for achieving social acceptance is highly unlikely to come from within the local community. Thus, those who are to benefit from or to be strongly concerned by the development ought to take ownership and responsibility to consider comprehensively the relevant issues: namely learning about the best practice case, as well as knowing their local situation very well.

**2) Continuous commitment**

Social acceptance is not something which is achieved overnight. It requires patience to understand the barriers and to set up the necessary procedures and platforms for overcoming the barriers. The overcoming of barriers to social acceptability is also not achieved indefinitely, each of the measures which have achieved social acceptance requires continuous consideration and effort to maintain social acceptance.

**3) Clear communication of the measure as a best practice**

Regardless of the case, it is necessary that those who are seeking to transfer a best practice measure into their local situation communicate the implications and the merits of their intended activities. One of the most basic purposes of a best-practice case study is to demonstrate a certain measure being successfully achieved in practice. It is therefore entirely logical that the achievements and merits of the best practice case study in another location are exhibited and disseminated to the local community in which case is sought to be transferred to.

**4) Best practice selection should be based on local context and characteristics**

It has been clearly demonstrated in this deliverable that the achievement of social acceptance differs according to, and is highly dependent on, the local context. In other words, the political, economic, social and technical characteristics of the concerned place. These essentially constitute the drivers and barriers of any particular place. In light of these multiple variables, it is recommended that the starting point for the determination of what type of measure could be most effectively transferred into a target region ought to consider its similarities (or differences) with the context and characteristics of the best practice cases. Following the activities of different cases which possess many similar starting conditions can increase the likeliness, although not guarantee, the success of a measure in driving social acceptance – given the basic fact that it has already been successful in a different (although similar) case.

# 7 Conclusion

The present deliverable, as well as the whole Work Package 4, have provided a both broad and deep variety of insights into existing measures – across all of the WinWind project countries – about how to effectively ensure social acceptance, particularly community acceptance or to overcome barriers to social acceptance of wind energy. The cases chosen for and analysed in this deliverable have proven to be those which have most effectively overcome such barriers, whilst at the same time showing stronger potential to being transferred to other contexts and regions. Such transfer potential is crucial and forms the basis of the next two Work Packages (WP5 & and WP6) – which seek to stimulate the transfer of actions/activities taken in the WESR striving to replicate the strong levels of social acceptance in the best practice cases and draw lessons for policy.

Perhaps the key take away point is that, although social acceptance – both its barriers and drivers – in a particular place may to some extent vary, there are often common ways that can lead to it. In other words, particularities of each case deserve specific attention, however a certain combination of actions (which act as drivers) and the following of certain principles are likely to collectively lead to social acceptance in similar situations where similar sorts of barriers exists. This of course is the basis for the expectation that the best practice measures can indeed be transferred to other regions and contexts.

# 8 Ethics / Privacy

Comprehensive and consistent steps were taken throughout all the events and activities mentioned in this report to ensure due regard to privacy and ethical issues. In particular, the consortium has given careful consideration and attention to the provisions set out in the Deliverables 8.2 and 8.3. These deliverables contain guidelines and actions to be followed by the consortium when dealing with stakeholders, participants and other relevant members of the public who may be invited to engage with the WinWind project.

For the preparation of the good practice case studies (Task 4.3, WP 4), the partners have carried out in-depth interviews. The aim of the in-depth interviews was twofold: first, to collect in a structured way qualitative information about wind energy developments, development plans, social acceptance, factors that affect local acceptance, and incentives and barriers towards them; second, to identify particular best-practice cases that display transferable features. Task 4.3 has been finalised (i.e. all interviews have already been carried out).

The Consortium has been committed to get the informed consent of the interviewees and respondents of the questionnaires before using the information collected via interviews or surveys. Informed consent has been acquired in each of these cases. 'Informed consent' means that the interviewees were aware of all possible uses that may be made of the interview. They received correct information about the purpose of the project and of the interview and the procedures that the researcher adopts.

The lead staff of WindWind have conducted their interviews and focus groups in compliance with the scientific ethical standards applicable in their home country, including those for research abroad.

Prior to the interview or focus group, information about the project, the purpose of the interview/focus group and the right to refuse to answer questions, to restrict parts or all of the interview was provided to the interviewees or participants of focus groups. Respondents were informed and were asked for their consent, following the ‘Informed Consent´ procedure in force in each Consortium’s member country.

The informed consent procedure applied in telephone interviews were similar to the informed consent procedure applied in face-to-face interviews and focus groups except the application of the principles of written informed consent. While respondents in face-to-face situations signed the informed consent forms, interviewees consulted via phone declared their consent verbally.

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### WinWind Project Outputs

WinWind Deliverable 2.1 (2018) Technical and socio-economic conditions; http://winwind-project.eu/fileadmin/user_upload/Resources/Deliverables/Del2.1_final.pdf

WinWind Deliveable 2.3 (2018) Taxonomy of barriers for social acceptance; http://winwind-project.eu/fileadmin/user_upload/Resources/Deliverables/Del_2.3_final.pdf

WinWind Deliverable 4.1 (2018) Methodological framework for best practice case studies; http://winwindproject.eu/fileadmin/user_upload/Resources/Deliverables/D4.1_method.framework_best_practice.pdf

WinWind Deliverable 4.2 (2018) Best/good practice portfolio; http://winwind-project.eu/resources/outputs/

# 10 Annexes

## 10.1 Annex 1: Template for data collection of case studies

### 1. Author of case-study and organisation

### 2. Title of measure, administrative level and type of measure

*Please, specify the type of region where the measure took place (target region, model region, other region in WinWind country, third country).*

*This applies only to policy measures. Please, specify the level of government/administration (National/federal state/regional/local)?*

*Please, specify if it is a measure adopted by industry stakeholders (corporate measure) or by government/other public actors (policy measure).*

*Please try to further specify the type of measure (e.g. capacity building, institution building, regulative measures (i.e. "command and control measure"), financial incentive, planning measure, information/advise, voluntary self-commitments).*

### 3. Motivation/rationale behind the measures

*Describe the background leading to this measure. How did social acceptance have a role in motivating this? Was this a direct or rather indirect effect?*

### 4. Detailed description of the measure and time frame (Key)

*What were the key functioning mechanisms and how was/is social* acceptance *of wind energy being influenced?*

*Please, briefly describe when the measure has been implemented, whether the measure has been successfully concluded or is still ongoing?*

### 5. Contextual factors including policies/programmes

*What contextual (e.g. social, political, cultural) factors have/had a role in shaping the development of this measure/initiative?*

### 6. Target group of the measure

*Please, briefly describe the key target group(s) of the measure.*

## 7. Key actors and stakeholders (including actor mappings)

*Please, briefly describe the key actors responsible for implementing the measures and make a brief stakeholder mapping.*

*E.g. Include: Types of implementing actors; significance and specific roles of implementing actors; relationships between implementing actors; relationships between target group and implementing actors.*

## 8. Methodology / Procedures

*What methodology or procedures led to a successful outcome finally to the best practice? Was the process a participatory process?*

## 9. Social acceptance barrier(s) addressed (Key)

*Please, specify the social acceptance barriers which are addressed by the measure.*

## 10. Drivers and success factors (Key)

*Please, describe in detail key strengths of the measure – essential for the further transfer.*

*What shapes the considered measure social acceptance?*

- *Procedural justice? (fair, transparent and participative decision making)*
- *Distributive justice (fair distribution of benefits and costs)*
- *Trust (trust in processes and key actors including information and intentions of key actors)*

## 11. Effectiveness (Key)

*To what extent does the measure contribute to enhance social acceptance/to address and overcome social acceptance barriers?*

## 12. Innovativeness

*To what extent is the measure itself innovative or does encourage innovative practices?*

## 13. Feasibility (including cost efficiency)

*To what extent can the measure be implemented (in administrative sense) in a smooth and cost-efficient way?*

## 14. Transferability (Key)

*Please, indicate the extent to which the measure as a whole or in part can be transferred. Afterwards briefly describe if any transfer initiatives/measures are taking place. Try to assess the transfer potential and under which conditions the measure might be transferable to other regions/countries and contexts.*

*To what extent and under what conditions can the measure be transferred as a whole or in part to other regions of the same country or regions in other countries and has a high replicability, particularly in wind energy scarce regions?*

## 15. Other social/sustainability drivers e.g employment issues, gender issues, sustainability issues

*What impact did the measures have on the quantity and/or quality of employment (locally, regionally, nationally)?*

## 16. Lessons learnt

*Address a reflection on how to replicate these proposed practices in other contexts. The final question concerns the possibilities of extending the best practice to other contexts by analysing the prerequisites and conditions for replication of the practice and upscaling on a larger scale (national, regional, international).*

## 17. Relevant graphs, illustrations and photographs

## 10.2 Annex 2: In-depth best practice case studies

1) Community Wind Farms in Schleswig-Holstein ***(Schleswig-Holstein* - Germany*)***
2) Service Unit Wind Energy & Quality Label in Thuringia ***(Thuringia - Germany)***
3) Abruzzo Repowering ***(Abruzzo – Italy)***
4) Sardinia Tax Cuts and Landscape Commitments **(*Sardinia- Italy*)**
5) Proactive Landscape Planning North Vidzeme ***(North Vidzeme - Latvia)***
6) Local Innovation House Birkenes ***(Birkenes- Norway)***
7) Fosen Community Dialogue ***(Fosen - Norway)***
8) Kisielice Municipality ***(Kisielice - Poland)***
9) Gran Canaria Wind and Water **(*Gran Canaria – Spain)***
10) Som Energia Energy Cooperative ***(Som Energia - Spain)***

## 10.2.1 Case Study 1

### Community wind farms and local benefit sharing: Examples from Northern Friesland and Dithmarschen (Germany)

**Author:** Michael Krug

**Organisation:** Freie Universität Berlin, Environmental Policy Research Centre

## Summary

The following case study provides insights from three community wind farms[3] in the administrative districts of Northern Friesland (*Ellhöft*, *Grenzland Vindtved*) and Dithmarschen (*Neuenkirchen*) in Schleswig-Holstein, two pioneering regions in Germany regarding the deployment of wind energy. The three showcases represent different types of community wind farms but illustrate that a high level of project ownership and collective benefits can help to promote local acceptance and support for wind energy projects.

The cases have been selected as they enjoyed a high level of acceptance and support from the very beginning (*Ellhöft*, *Grenzstrom Vindtved*) or because the level of local acceptance increased despite initial opposition (*Neuenkirchen*). The cases show many parallels and illustrate how policy and corporate measures can effectively contribute to ensure/enhance community acceptance. These measures include, inter alia, informal procedural participation and direct financial participation of citizens, land lease pool models for land owners, community benefits via civic associations/foundations, and revenues from local business taxes.[4] The model character of the three showcases has been acknowledged in several publications/guidelines.[5]

## Methodology used to gather data for the case study

The case study explores three showcases of community ownership in wind energy. Data collection for the present case study is based on desk research, in particular by examining policy and planning documents, community wind farm websites, annual reports of the operating companies, minutes of municipal council sessions, websites of opponents of wind farms, and finally press articles. The data for the community wind farm in *Neuenkirchen* draws partly on the interim findings of an ongoing national research project which analyses the role of nature conservation rationales for local acceptance of renewable energy projects[6]. In the context of that project, the author of this case study conducted 13 semi-structured expert interviews in March and April 2018, partly in collaboration.

[3] Community energy means the economic and operational participation and/or ownership by citizens or members of a defined community in a renewable energy project (IRENA 2018).
[4] The operation of wind turbines is subject to local business taxes (*Gewerbesteuer*). Since 2009, the standard allocation formula for business tax revenues from wind energy projects envisages that at least 70 % of the revenues are transferred to the municipality where the project is sited, with the remainder to be paid to the municipality where the operating company is registered. The municipalities can agree with the operating company on higher ratios in favour of the municipality hosting the project. In the case of community wind farms, usually the operating company is registered where the project is located. This means that the hosting municipality receives 100% of the tax revenues.
[5] cf. AEE 2011, Deutsche WindGuard 2009, BBE 2018, BWE 2018.
[6] The interdisciplinary project with the acronym AcceptEE (*Akzeptanzfördernde Faktoren Erneuerbarer Energien*) is coordinated by Martin Luther University Halle-Wittenberg and funded by the Germany Nature Protection Authority from May 2017 to April 2019.

## Motivation and rationale behind the measure

In all three cases, the main motivation was to avoid the involvement of external investors and to make sure that the entire community would benefit from the wind farm, not only the land owners and founding shareholders. The wind farms should contribute towards raising local purchasing power and local added value through local profits and income, tax revenues, employment and additional benefits sharing mechanisms (e.g. benefits in kind, civic non-profit associations or local foundations supporting social welfare projects in the community).

## Detailed description of the measure and time frame

**Community wind farm in *Ellhöft* (Northern Friesland)**

The idea of a community wind farm in the community of *Ellhöft,* with 130 inhabitants close to the Danish border, was developed by municipal councillors and local farmers in 1994. The guiding principle was that every citizen and land owner should have the possibility to become member of the company operating the wind farm. Furthermore, the company should be registered in the municipality in order to fully benefit from the business tax revenues. The company was set up as a limited partnership, with a limited liability company as general partner (*GmbH & Co. KG*).

The wind farm officially began operation in June 2000. It consists of 6 x 1.3 MW turbines (*Bonus*) with a hub height of 68 m, a rotor diameter of 62 m and a total height of 99 m. The total investment cost reached almost 17 million DM (approx. 8.69 million EUR).

7.6 hectares in the neighbouring village were acquired as compensation areas to offset the negative impact on nature and landscape. In 2015, local business tax payments amounted approximately to 324,000 EUR (Sorge 2016). Acceptance of the wind farm is also related to the sophisticated land lease and profit distribution model according to which also those land owners benefit from land lease payments, on whose land no turbines were installed. For financing, a local bank was involved. In general, mostly companies from the region were contracted.

The operators of the plant supported the development of a new recreation area in the community, as well as a hiking, riding and bicycle path. The company also supported the development of a local broadband network. Every household obtained a connection worth 1,200 EUR free of charge (Sorge 2016). The initiating shareholders of the wind farm have developed a number of further projects in the region including the cross-border project *Grenzstrom Vindtvedt* (see below).

The managers of the plant are highly committed to link the *Energiewende* with a sustainable mobility transition based on electric battery vehicles and vehicles with fuel cell drive. They recently launched a sector coupling project which envisages the establishment of an electrolysis facility and hydrogen gas station to be commissioned in 2019. The electric power for the generation of

hydrogen comes directly from one of the four existing turbines of the wind farm. It is planned to purchase 7 fuel cell vehicles in the beginning of 2019.[7]

**Cross-border wind farm *Grenzstrom Vindtvedt* (Northern Friesland)**

The project was one of the first repowering projects in Germany. The initiators were partly the same as in the case of *Ellhöft*. In 2001 the company *Grenzstrom Vindtwedt* was founded by local farmers and other stakeholders. The key rationale was to create a profitable clean energy investment that generates stable business tax revenues and brings back added value to the region. In 2003, plans to develop a repowering project were born. Between 2007-2009 the project was implemented. Although 32 older wind turbines which had been installed between 1983 and 1989 were replaced by seven new ones, the installed capacity increased from 4.8 MW to 27.2 MW. The wind farm is located north of the municipalities of *Ellhöft* and *Westre* at the German/Danish border and consist of two parts: Four 2.3 MW *Siemens* turbines in *Ellhöft*a and three 6.1 MW *REpower* offshore test turbines in the community of *Westre*.

The total investment cost equalled 35 million EUR, whereas the shareholders provided equity in the amount of 8 million EUR. The wind farm is operated by *Grenzstrom Vindtved GmbH & Co. KG* which has 220 partners. Among the limited partners are the owners of the dismantled turbines, residents of *Ellhöft* and *Westre,* and 32 citizens of *Lydersholm* (Denmark). The founders are acting as managing directors. In practice, they do not hold more than 3% of the shares.

No investor could purchase more than 5% of the shares, in order to avoid individual investors gaining control or having too much influence over the community. All limited partners are participating on more or less equal terms, except for the owners of those wind turbines which were dismantled. They own significantly higher shares, reflecting the residual value of their dismantled plants. The local residents were actively involved in the planning of the wind farm. A planning board, advisory board and supervisory board were established where local citizens do participate.

The two-tier land lease payment model can be regarded as one of the success factors (Deutsche Wind Guard 2009). This includes a basic amount and a bonus amount depending on the profitability of the wind farm. 50% of the total land lease payments are allocated to the land owners on whose land the turbines are installed, 50% are distributed among those land owners whose land is used for other purposes of the wind farm (road transport, other infrastructure).

[7] https://windpark-ellhoeft.de/aktuell/

The project initiators and the municipal decision makers implemented a rather active information disclosure policy during the planning phase, including informational events and visits to other wind farms in the region.

The company pays approximately 10,000 EUR per MW of installed capacity local business tax, which means annual tax revenues of 270,000 EUR for each of the two hosting municipalities. In addition, a tax allocation agreement was reached to compensate for the tax losses following the dismantlement of the existing wind turbines (B.E.N.T.U.S.S./Grenzstrom Vindtved 2017).

Furthermore, the company provides in kind benefits to local environmental and social associations and initiatives. The company managers created a foundation to support social purposes and energy-saving measures including PV based street lighting at bus stops and school routes. The operators of the wind farm also invested in the development of a local broadband network. Furthermore, an agreement was reached with the nature protection authority that payments compensating for the negative impact on landscape should be spent for local nature protection measures in the community, e.g. through natural/extensive use of arable land. In order to manage those compensation areas, the wind farm operators founded a local nature protection association.

Consequently, the company pursues a local contracting strategy, not only for the construction of the wind farm, but also for maintenance and other services. The company has shares in companies which aim to develop electric mobility or power to gas units in the region. The three managers of the wind farm are among the initiators of a voluntary label for “fair wind farm developers” in Schleswig-Holstein. They also developed a scorecard for managers of community wind farms to self-assess their business activities. The operating company is actually the first wind farm operator which has published an audited Common Good Balance Sheet.[8]

**Community wind farm in *Neuenkirchen* (*Dithmarschen*)**

Compared to many other municipalities in the administrative district of Dithmarschen including its neighbouring municipalities, *Neuenkirchen* with approximately 1,000 inhabitants was a laggard in terms of wind energy deployment. One of the reasons is that the former mayor had a rather critical attitude towards wind energy, although there were plans by local farmers and landowners to develop a community wind farm. After the local elections in 2008, the political constellations changed. The new mayor and the municipal council supported the idea of a community wind farm in order to strengthen local value creation and development. In 2009, the municipal council

[8] The social movement for an “Economy for the Common Good” (*Gemeinwohlökonomie*) advocates an alternative economic model. The common good balance sheet can be regarded as a voluntary sustainability reporting standard and shows the extent to which companies and other institutions comply to values like human dignity, solidarity, justice, ecological sustainability and democracy. The balance sheet measures some 20 common good indicators. So far, about 400 companies have published their Common Good Balance Sheet or are ECG-members.

decided to propose to the regional planning authorities to designate wind energy suitable areas on the territory of *Neuenkirchen*. However, a local citizens' initiative group was founded opposing the wind farm project. The initiative successfully led to a local referendum, in which a narrow majority of voters rejected the council decision. The opponents were rather active and successfully influenced the opinion-forming process within the community. Their main arguments referred to the negative visual impact and landscape intrusion caused by the wind turbines, the increasing "encirclement" of the community due to the high density of wind turbines in its vicinity, acoustic emissions, aviation lighting and too low setback distances.

However, in 2011, after a legal interim period of 2 years, the mayor together with the municipal council initiated a second referendum about the notification of four suitability zones on the territory of the municipality. The outcome of this second referendum was positive and the municipal council proposed to the planning authorities to include four wind energy suitable areas in *Neuenkirchen* in the regional plan. Three of the four proposed suitable areas were finally approved by the state spatial planning authorities, and in December 2012, the corresponding regional plan came into force. A key argument brought forward by the advocates of the wind farm was that the community wind farm would help to increase local business tax revenues thus enabling the community to realise urgent infrastructure projects. Furthermore, the proposal to share the financial benefits of the wind farm with the local community via a non-profit civic association, a better communication of the benefits of the wind farm and the Fukushima Daiichi Accident of 11 March 2011 might help explaining the positive outcome of the second referendum.

After the positive local referendum in 2011 and the final approval of three (of the four proposed) suitable areas in the regional plan, the community wind farm with 12 x 3.2 MW wind turbines (*Senvion*) was constructed. The total investment cost amounted to 56.5 million EUR. It was envisaged to cover 20% of the total investment cost by equity capital which means that 11 million EUR of equity had to be raised. Local citizens and land owners registered in *Neuenkirchen* had the possibility to buy shares and participate directly as partners with limited liability. In order to ensure broad participation of the citizens, minimum deposits were kept rather low (500 EUR). The maximum deposit per investor was set at 150,000 EUR and it was decided that no investor should possess more than 25% of the voting rights. The facilities are operated by *Bürgerwindpark Neuenkirchen UG & Co. KG*[9]. The two initiating land owners act as the managing directors of the company. Furthermore, they provide debt capital (210,000 EUR). Six further founding partners are involved as limited partners.

By 22 July 2014, a total of 145 citizens had been finally registered as limited partners. The municipality also obtained shares at a symbolic amount of 20,000 EUR, which was the maximum

[9] UG is an acronym for *Unternehmensgesellschaft*, a modification of the private limited company.

legally allowed, to show its commitment to the project and the trustworthiness of the initiators. The land owners receive a financial compensation for the use of their land amounting to 5% of the annual remuneration for the electricity fed into the grid. This amount is distributed according to a specific allocation formula: 20% are allocated to the land owners on whose land the turbines are installed, 70% are distributed among all land owners in the suitable zone, and 10% to the owners of land used for road transport and other infrastructure measures.

The founding shareholders performed a transparent information policy about the progress of the project which was acknowledged for its model character (BWE 2018, p.33). The interviews performed in the AcceptEE research project (cf. chapter 2) revealed that the mayor played a key role as a facilitator and mediator of the planning process.

In 2017, the annual net profit of the company reached 5.1 million EUR. Local business tax payments amounted to 0.64 million EUR. In order to make sure that also those community members would benefit who did not participate directly as shareholders, the mayor and the management of the wind farm reached an agreement that 1% of the company's annual remuneration for electricity produced would flow to a non-profit civic association (*Bürgerverein Neuenkirchen e.V*). The association also receives donations from other local organizations. The bulk of revenues is allocated to community organizations, associations and social purposes (e.g. purchase of community bus, PC equipment for school, construction of a multi-functional community building, church renovation etc.).

## Context

### Community wind energy in Schleswig-Holstein

The federal state of Schleswig-Holstein is located between the North Sea and the Baltic Sea, and it borders with Denmark in the north. It can be regarded as one of the pioneering regions in Europe with regards to wind energy. In the region in 2015, 12,150 people were employed in the wind energy sector.[10] Community ownership of wind farms has a long tradition, particularly in Northern Friesland and the island of Fehmarn, and has made an essential contribution to strengthen social acceptance of wind energy.

The owners are usually residents either of the community in which the wind farm is located or of neighbouring communities. Usually the initiators seek to avoid the involvement of large, external investors and large shares of individual shareholders. In this way, local land owners benefit from land lease payments, individual residents benefit from the returns on their investment and the community benefits from local business tax revenues and other community benefits. All residents

[10] https://www.wind-energie.de/verband/lvs/schleswig-holstein/

are usually involved in the planning process from the beginning. Key driving forces which facilitated the emergence of community wind energy in Northern Friesland and other regions in Schleswig-Holstein were:

- High wind potential;
- Anti-nuclear resentments and early attempts of pioneering farmers to become energy autonomous based on renewable energy ("wind farmers", wind millers");
- Private initiative and enthusiasm of local farmers to develop wind energy;
- Structural weakness of the coastal regions and rural depopulation (wind energy as an opportunity for income diversification);
- Inspiration from early community wind projects in neighbouring Denmark implemented in the late 1970s and early 1980s;
- Favourable national policy frameworks and comparatively low market risks for wind energy projects (e.g. up to 2017 feed-in tariff system guaranteeing a minimum purchase price from electricity from RES for 20 years);
- High political commitment and continuous policy support for wind energy and community wind farms by all state governments of Schleswig-Holstein (e.g. advise, guidance, capacity building, networking and financial support for community wind energy)[11];
- Early technology and industry development and emergence of a domestic wind turbine manufacturing base with several of today's global players having roots or subsidiaries in the region (e.g. *Senvion*, *Vestas*);
- Regional planning units in the district administrations recommending and supporting community wind farms (e.g. district of Dithmarschen);
- Municipal support for community wind farms;
- Socio-cultural factors.

**Northern Friesland and Dithmarschen – pioneering regions of wind energy in Germany**

Northern Friesland is the northernmost administrative district (*Landkreis*) in Germany bordering with Denmark in the north and to the North Sea in the west. The landscape consists mainly of islands, outlands, wetlands and polders. In 2018, 846 wind turbines were in operation or before operation. In 2010, approximately 90% of the wind power plants were owned by local citizens (windcomm 2012). Many of the wind farms were developed by bottom up, grassroots initiatives. Minimum shares are usually low to enable as many residents as possible to benefit as

[11] One of the key networking and business development activities supported by the state government of Schleswig-Holstein and the district of Northern Friesland was the creation of a network agency for wind energy *windcomm.* The agency published guidelines for community wind farms. In 2018, the state government launched a community energy fund providing seed money for community energy projects.

shareholders. Usually, persons living in the immediate vicinity of the wind farm enjoy privileged treatment. Often, the municipalities are involved as initiators/shareholders. Because of their organic origins, these projects have become a cultural asset within the community. Owned by local shareholders, the whole community feels responsible for and identifies with the wind farm (IEA Wind Task 28 2013, p.24). In many cases, the community wind farms are accompanied by complementary benefit sharing measures, e.g. in kind benefits, community foundations/trusts etc.

Community wind energy has also been developed in the administrative district of Dithmarschen in the south of Northern Friesland, although to a lesser extent. Commercial wind farm operation in Germany began in Dithmarschen in 1987, when Germany's first wind farm was opened in *Kaiser-Wilhelm-Koog*. Like Northern Friesland, Dithmarschen has one of Germany's highest wind energy densities in terms of installed capacity per square kilometre. Today, 838 wind turbines are installed in the administrative district with a capacity of 1,808 MW (Kreis Dithmarschen 2018), mostly in marshland. Presently, 3.26% of the administrative district's total area has been reserved for wind energy. The second draft regional plan envisages to increase this ratio to 4.35%. In Dithmarschen, the share of community owned wind farms is considerably lower than in Northern Friesland and many wind farms are owned by conventional developers or external investors with no or limited local ties. However, also here we can find examples of successful community-owned, bottom-up initiatives. For many years, the district administration of Dithmarschen supported the idea of community wind farms.

Both districts, Northern Friesland and Dithmarschen with its vast marsh areas just a few meters above sea level are directly threatened by rising sea levels. Both regions can be characterised as rural peripheral regions with comparatively low population densities and a large number of small municipalities. Traditionally, agriculture forms the economic backbone of this region. However, recently, tourism and the wind industry became leading economic sectors.


*The administrative district of Schleswig Holstein (Wikipedia: 2019)*

**Participatory designation of wind energy suitable areas in spatial planning**

In 1994, the district of Northern Friesland started zoning of wind energy and the first wind maps were designed (Chezel & Nadaï 2018, p.10). Schleswig-Holstein was the first federal state in Germany to introduce wind energy zoning on the state level (i.e. designation of suitable/priority areas for wind energy in regional plans) in 1998. Formally, it is the task of the state spatial planning authority of Schleswig-Holstein to develop and update the regional plans for each of the five planning regions. This includes the designation of suitable/priority zones for wind energy. However, the formal planning process is accompanied by various informal elements. Before 2015, the districts were asked to develop "informal wind energy concepts" with own proposals for suitable areas reflecting the views of all municipalities. These informal concepts provided the basis for the formal planning and final designation of wind energy suitable areas. Hence, in practice, the municipalities could make proposals for the designation of wind energy suitable areas on their territories, but they could also reject proposals by the districts or the state planning authority. A number of municipalities, like *Neuenkirchen*, held even local referendums about whether to notify to the district administration wind energy suitable zones on their territories or not. The results of local referendums or council decisions were usually taken into account by the planning authority which was responsible for the final approval of the regional plans. However, in 2015, the Higher Administrative Court of Schleswig-Holstein rejected this practice. Since then, the designation of suitable/priority areas has to be based on a purely objective criterion. The political will of a municipality is no more than a decision criterion of its own. The new, more technocratic planning approach reduces the scope of the municipalities to influence the siting of wind farms on their territory which has been heavily criticized by many stakeholders.

## Key actors and stakeholders

In all three analysed cases, the following actors and stakeholders played a key role:

- Regional planning authorities and state level spatial planning authorities (responsibility for designation of wind energy suitable zones in regional plans);
- District administrations (responsibility for the development of informal wind energy concepts, support to drafting regional plans designating wind energy suitable areas; the administrative district's nature protection authority is involved both in spatial planning and permitting of the wind turbines);
- Permitting authorities: State Office for Agriculture, Environment and Rural Areas (*Landesamt für Landwirtschaft, Umwelt und ländliche Räume, LLUR)* (responsibility for permitting of the wind turbines);
- Local farmers and land owners (usually direct beneficiaries of the wind farm as investors/shareholders/limited partners and/or via land lease payments);
- Mayor (key decision-maker, facilitator, mediator, driver, partly shareholder);

- Municipal councils (key decision-makers, proposals for wind energy suitable areas, participation in the planning and permitting process, decisions about shareholding; most municipal councillors as shareholders of the community wind farm);
- Local investors and founders of community wind farm;
- Wind farm operating company (comprising of management company and limited partnership company);
- Citizens and land owners in their role as limited partners/shareholders;
- Project planners and developers (technical project planning);
- Companies/partners for the sales of the electricity;
- Local businesses, SMEs, construction works, service providers.

In *Neuenkirchen* a local citizens' initiative was founded opposing the community wind farm. Furthermore, after the commissioning of the wind farm, a civic non-profit association was set up which disburses 1% of the community wind farm's annual profits. In the case of *Ellhöft* a local bank was involved for securing debt capital. In the case of the community wind farm *Grenzstrom Vindtved,* the wind farm operators founded a local nature protection association which manages the compensation areas and compensation payments paid by the company and other wind farms operating companies. Similar to *Neuenkirchen*, the company managers set up a local foundation to promote social purposes and energy-saving measures.

Additionally, the three analysed cases reveal partly similar, partly different acceptance building measures addressing several target groups.

**Local residents, general public**

The wind farm owners were pro-actively informed about the implementation of the wind farms through the respective project's website. In addition, there were several informal information events for the public (in the case of *Grenzstrom Vindtved* additional *s*ite visits to other plants were organized). Local residents, land owners and the municipality were invited to obtain shares and participate directly as limited partners. This was accompanied by informal information events. In some cases, there were material in kind benefits for local residents (e.g. broadband connections in *Ellhöft*).

**Land owners**

In all three cases, land lease pooling models were developed addressing the land owners affected directly or indirectly by the construction of the community wind farms. These models aimed to achieve a fair distribution of the revenues from land lease payments, as well as to avoid envy and conflicts among land owners. Land owners could also participate directly as limited partners.

**Community, associations, non-profit organisations**

In *Ellhöft* the owners of the wind farm provided in kind benefits to local environmental and social associations. In the case of *Grenzstrom Vindtved,* the company managers set up a foundation supporting social purposes and energy-saving measures. In *Neuenkirchen,* 1% of the company's annual remuneration for the electricity produced flow to a new non-profit civic association. The bulk of the association's revenues is allocated to community organizations, associations and social services.

**Nature protection organizations**

In the case of *Grenzstrom Vindtland,* an agreement was reached with the nature conservation authority that payments compensating for the negative impact on landscape should be spent for nature protection measures in the community. In order to manage those compensation measures, the wind farm operators founded a local nature conservation association.

**Local/regional companies, SMEs, banks, planners etc.**

In all three cases, local construction companies were at least partly involved in the construction works. The operators of the farms *Ellhöft* and particularly *Grenzstrom Vindtland* pursued a consequent local contracting strategy, not only for the construction of the wind farm, but, also for planning, financing, maintenance etc.

## Social acceptance barriers and drivers

In two of the three analysed community wind farm cases (*Ellhöft*, *Grenzstrom Vindtved*) community acceptance and support was already high from the very beginning of the planning process and there were only very few (mainly political) acceptance barriers to overcome. The high level of existing local acceptance was explained by the following factors:

- Involvement of residents from the very beginning;
- Direct financial participation of residents;
- Perceived fairness of the distribution of benefits and risks;
- Economic value creation on a local level;
- Fair allocation of land lease payments via a pooling model;
- Trust in the initiators;
- Municipality's role as leader by example;
- Benefit sharing;
- Business tax revenues;
- Increase in local income and purchase power.

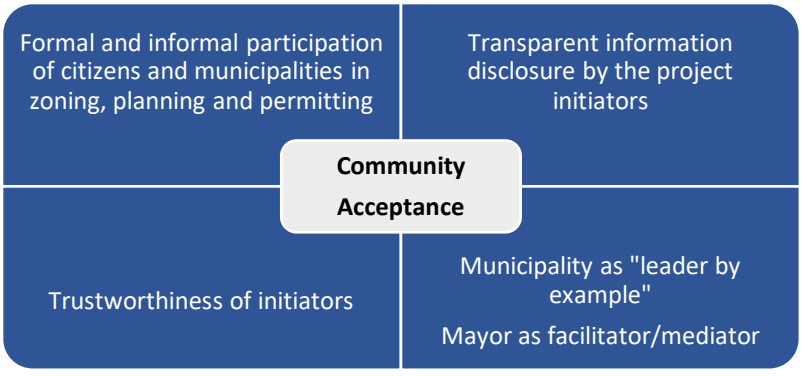
Only in the case of *Neuenkirchen* did the initiators of the community wind farm face strong opposition, at least in the beginning. A group of local citizens initiated a local referendum in which the majority of voters rejected a municipal council decision supporting the designation of wind energy suitable zones on the territory of the municipality. Their main arguments referred to the negative visual impact and landscape intrusion caused by wind turbines, the increasing "encirclement" of the community by wind turbines, acoustic emissions, aviation lighting during night times, and too low setback distances from detached buildings. However, in a second referendum, which was initiated by the mayor two years later, the majority voted in favour of the designation. One of the key arguments by the proponents of the wind farm was that revenues from local business taxes would enable the municipality to implement local infrastructure investments.

**Drivers for social acceptance**

The present cases illustrate a number of common drivers ensuring/increasing community acceptance. These driving factors can be structured according to their contributions to building procedural justice and trust, as well as distributional justice.

*Procedural justice and trust*

Prior to 2015, designation of wind energy suitable areas in regional plans was fairly participatory as citizens and municipalities had the chance to genuinely influence the designation of such areas on their territories. In all three cases, there were informal procedural participation elements accompanying the formal planning and permitting procedures. There was also a relatively open and transparent information policy implemented by the initiators. In all cases the municipal decision makers were committed to the project and acted as leaders by example. Trustworthiness of the initiators and key decision-makers can be regarded as another driver. Particularly in *Neuenkirche*n, where opposition was rather pronounced, the mayor played an important role as a facilitator/mediator balancing the interests of the project initiators/community.




*Factors driving procedural justice and trust*

*Distributional justice*

Community ownership, i.e. the active and direct financial participation of the local residents, is at the core of all three cases analysed. This includes the direct involvement of the municipalities themselves as shareholders. In all three cases, in order to avoid conflicts and envy among the land owners, the initiators decided to develop a land lease pooling model (*Flächenpoolmodell*). This also allowed those land owners whose land was not envisaged for turbine installations to benefit from land lease payments. Local business tax revenues were certainly another key driver. Passive financial participation of the community via benefit sharing measures helped to increase local acceptance as well as did local/regional contracting. Additionally, in order to make sure that also those community members would benefit who did not participate directly as shareholders, the mayor and the management of the wind farm reached an agreement that 1% of the company's annual remuneration for the electricity produced would flow to a non-profit civic association (*Bürgerverein Neuenkirchen e.V*)


*Factors driving distributional justice*

There are certainly also differences between the three cases regarding the relative importance of each of those drivers. But economic rationales (local profits, local business tax revenues, local value creation, increase of local purchase power) played a key role in all cases.

In the case of *Grenzstrom Vindtved***,** information policy involving the local citizens, site visits to other wind farms and the special land lease pooling model have been characterised as particularly

successful (Deutsche WindGuard 2009). In the case of *Ellhöft* and *Grenzstrom Vindtved* the managers of the community wind park initiated local compensation measures for the compensation of negative impacts on nature and landscape. In the case of *Grenzstrom Vindtved,* the wind farm operators even founded a local nature protection association for the management of compensation activities. These local compensation measures contribute to secure local acceptance as the revenues from compensation payments are used locally for concrete and visible nature protection measures. In *Neuenkirchen* the new mayor supported the idea of a community wind farm and initiated a second local referendum. He also supported the active financial participation of the residents and the introduction of additional benefit sharing measures through a new civic association. He played a pro-active role and succeeded to reach a balance between the interests of the founding shareholders/investors and the community.

In the case of the cross-border wind farm *Grenzstrom Vindtved* the considerable reduction of the overall number of turbines in the region due to repowering helped to mitigate the overall impact on the landscape and to raise the political acceptance of the project.

## Effectiveness

In all three cases similar measures were taken by different actors to raise community acceptance including measures supporting formal and informal procedural participation of the citizens, active and passive financial participation, land lease pool models for land owners, benefit sharing via in kind benefits, civic associations or community foundations. All these measures turned out to be effective in ensuring resp. increasing local acceptance. However, it is difficult to assess for the different cases which were the most important resp. most effective measures.

## Innovativeness

The wind farm in *Ellhöft* was among the first community wind farms which have been implemented in Germany. In the meantime, community wind farms are rather common in many regions of Germany, although in practice the models vary from purely community led and community owned wind farms to investor-driven wind farms initiated by a professional, commercial developer and/or investors where citizens have the possibility to buy shares in the wind farm or single turbines. Also land lease pooling schemes are increasingly employed in Germany. The same applies for benefit-sharing instruments as in-kind benefits or the creation of civic non-profit associations and community foundations/trusts. Hence, innovativeness of the core measures assessed in this case study can be regarded modest on a national scale, but higher on a European scale.

Nevertheless, the cases under investigation showed other highly innovative elements. The operating company in *Ellhöft* is one of the pioneers in Germany with regards to the use of Power Purchase Agreements for a direct supply of private customers. It is also a pioneer with regards to the development of power to gas facilities and the use of hydrogen from wind power. In many

regards, the cross-border wind farm *Grenzstrom Vindtved* can be considered a frontrunner: the project was one of the first repowering projects in Germany. Furthermore, the operating company is the first company in the renewable energy industry which has published an audited Common Good Balance Sheet. The managers are also among the initiators of a label for fair wind energy developers in Schleswig-Holstein which was officially launched in 2018. Furthermore, they helped to develop criteria and a scorecard for community wind energy companies to self-assess their business activities. The wind farm owners were among the first in Germany to set up a community foundation disbursing a certain share of wind farm revenues for social purposes and energy saving measures. Furthermore, the managers in co-operation with the nature protection authorities founded a local nature protection association for the management of local compensation areas.

## Transferability

Besides Denmark, Northern Friesland can be regarded a pioneer regarding community wind farms. Community ownership of wind farms has successfully developed in many other regions of Germany, but also in several other European countries, although with different design (e.g. Austria, Belgium, Denmark, France, Ireland, Sweden, UK, The Netherlands). Hence, in general, transferability of the concept “community wind farm” as such can be regarded as good. However, the grassroots approach in Northern Friesland, its organic evolution since the 1980s, and the specific participation and fairness mechanisms can likely not be transferred directly (cf. Chezel & Nadaï 2018, p.14). Transferability depends very much on the context, legal framework, institutional settings, the actors, their interests, strategies, commitment, resources, and interactions with other actors. The showcases illustrate a number of accompanying measures which contribute to secure/enhance local acceptance which might be more easily transferable like lease pooling models or benefit sharing mechanisms like donations, in kind benefits, non-profit associations or foundations. Such benefit sharing mechanisms can be particularly appropriate where direct financial participation of citizens is difficult, e.g. due to financial constraints or reluctance to invest. Another easily transferable trust building measure is the voluntary development and publication of an audited Common Good Balance Sheet by the companies operating wind farms (cf. example of *Grenzstrom Vindtved*).

The three showcases presented here reveal a high level of political and administrative feasibility. However, the implementation of community wind farms can be relatively challenging due to higher transaction costs for collective decision-making, the administration of a large membership and the limited financial capabilities of small, community based actors. Planning and implementation of wind energy projects is capital intensive and requires a relatively high amount of risk capital for pre-financing various planning and permitting expenditures (e.g. expert assessments for species protection). This means that often community wind farm initiators face a financial gap in the planning phase of the wind farm which needs to be overcome. Depending on the legal status of the company, the acquisition of equity capital through the citizens as limited partners may require

the publication of a sales prospectus (which was the case in *Neuenkirchen*) which incurs additional cost. The transition from a feed-in tariff system to an auctioning system in Germany in 2017 increased the financing risks for small actors.

## Other social/sustainability drivers

Construction of the wind turbines in *Ellhöft* and *Westre* helped to create more jobs in the region. A service station was established by *Siemens* in Northern Friesland. An engineering firm has set up a branch to the maintenance of substations in the neighbouring village. Another engineering company could expand its department for the technical operations management of wind turbines.

With the voluntary preparation of a Common Good Balance Sheet the initiators of the wind farm aimed to examine to what extent the establishment of a community wind farm positively affects the development of a region.

## Conclusion

Compared to conventional wind power projects owned by commercial developers, community wind farms have usually a greater impact in terms of local and regional economic benefits. This is related to several factors: local income and profits, local business tax revenues, local purchase power. These effects increase through in-kind benefits or other benefits sharing mechanisms. If regional/local companies are contracted for planning, construction/assembly, financing, maintenance and repair, or marketing, community wind farms also help to secure jobs and increase local/regional added value generation.

The cases illustrate that community wind farms can help to strengthen community identity and provide a vehicle to secure or enhance local acceptance. However, a pre-condition is that the initiators of the project are perceived as credible and trustworthy. Here the municipality itself can act as a leader by example in supporting the project and as a shareholder. Direct financial participation is not a panacea and in order to be successful as an acceptance promoting measure, this measure needs to be accepted itself. Direct financial participation has always to consider the context, affordability and attitudes of the local residents. Community wind energy can take various legal and organisational forms with different possibilities of citizens to participate and influence decision-making. The specific design of financial participation measures can influence local acceptance. Relevant parameters include size of minimum shares, share allocation mechanisms, maximum shares of individual shareholders, internal decision-making processes and existence of control/advisory boards etc.

In order to raise acceptability of those who are not willing or able to invest in the facilities, complementary benefit sharing mechanisms can help to enhance community acceptance. However, community benefits provided by developers on a discretionary basis are always

ambiguous and bear the risk that they can be perceived as bribery. Thus, if not properly designed, and if credibility and trustworthiness of key actors is low, these measures might even jeopardize community acceptance.

The showcases illustrate how fairly perceived distribution of benefits and risks among different stakeholders within the hosting community can secure or enhance community acceptance.

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## 10.2.2 Case Study 2

### Service Unit Wind Energy and Quality Label for Project Developers in Thuringia (Germany)

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## Summary

In 2015, a Wind Energy Service Unit was set up in Thuringia by the state's Energy and GreenTech Agency (ThEGA). This introduction of this policy measure was inspired by the example of a similar Service Unit established in 2011 in the administrative district of Steinfurt (federal state of North-Rhine-Westphalia). The objective of the Service Unit is to support the broader energy policy, as well as the specific formulated targets, of the Thuringian government. Its establishment was motivated by the political will to restore trust in the wind energy project by promoting fair and more transparent planning and decision-making procedures. The Service Unit in Thuringia provides free, comprehensive and neutral advisory and technical assistance services for citizens, municipalities and developers. In addition, in 2016, the Service Unit started to award a quality label certificate for wind energy project developers committing themselves to adhere to certain standards concerning quality, transparency and participation. Hence, this measure constitutes a voluntary agreement between the Service Unit and project developers.

The case is relevant as a best practice case as the concerned measures are effective in improving trust in wind energy projects, as well promoting distributional and procedural justice, all of which are important drivers of social acceptance of wind energy. Importantly, the measures also show a high degree of transferability. Finally, the measures help to bring together developers and communities/citizens and improve the active and passive financial participation of citizens and communities in wind energy projects.


*The Fair Wind Energy label*

## Methodology

The main methods for gathering data for the present case study were desk research and semi-structured interviews. In terms of desk research, one of the major sources of data and facts was the website of the Federal State of Thuringia and of the Service Unit which provides details on how the Service Unit works. In addition, information from the website of the district of Steinfurt has been analysed, due to the fact that this case served as a model for Thuringia. As for the interviews, these were held with mayors, project developers and representatives of the service unit. FUB. Six were carried out in total. One was with the head of the Service Unit Wind Energy in Thuringia – Mrs. Ramona Rothe, another with chair of the renewable energy network in Thuringia ThEEN e.V, who works together with the Service Unit in the "Task Force Wind". In addition, two interviews were carried out with mayors and two interviews with project developers, of which one is a citizen energy cooperative. Both mayors[12] had already cooperated with the Service Unit and therefore could provide insights into the effectiveness of the Service Unit regarding information, advice and empowerment of communities towards wind energy development. The perspective of project developers who deploy the label[13] is also important to estimate how the label influences their work in terms of distributive and procedural fairness.

Furthermore, the discussions in the German country desk, where representatives of both Service Units regularly participate, gave specific insights into the case. The first of the WinWind Thematic Workshops in Germany was specifically dedicated to the work and transferability of the Service Unit and the quality label in Thuringia (WinWind 2018a) to other regions. Therefore, insights and details about these measures were provided by a variety of stakeholders, such as representatives of the Service Unit of Steinfurt, the German Wind Energy Association (BWE), renewable energy networks, regional planning authorities, project developers, etc.

## Detailed description of the measure

The motivation for the implementation of these measures can be attributed to a variety of factors. One reason includes addressing the imbalances of wind energy costs and benefits, caused mainly by the fact that it is largely external companies that are operating in Thuringia. Consequently, the financial benefits do not stay in the region. Another reason, arguably the central one, was the formulation of a new energy strategy and the recently adopted (end of 2018) climate law (ThüKliG[14]). The Thuringian government is striving for the region to be energy independent. This

[12] References in the text will be made this way: Interview with mayor 1 = M1; Interview with mayor 2 = M2
[13] References in the text will be made this way: Interview with developer 1 _ D1; Interview with developer 2 = D2
[14] For more information (German only) see:
https://www.thueringen.de/th8/tmuen/aktuell/neues/103314/index.aspx
https://www.thueringen.de/th8/tmuen/aktuell/presse/108256/index.aspx

objective stems from the fact that the federal state needs to import more than half of its electricity demand from other federal states (see Wesselak 2013; Sell 2015). To improve the ecological balance of its energy supply, the Thuringian state government strives for an ambitious increase in renewable energies. Until 2040, the government seeks to meet Thuringia's total energy demand with a mix of renewable energy sources and to reduce the greenhouse gas emissions by 80-95% until 2050 compared to 1990 (thueringen.de 2018). Also, the state government formulated the goal to increase the area on which wind energy plants are built from 0.3% to 1% of the total state territory. It is therefore the task of the Service Unit, mandated by the Thuringian Government, to support this goal. For that reason, affected stakeholders (e.g. municipalities, land owners, etc.) and especially citizens shall be informed and advised in a neutral way. Such information will be about legal and planning issues, as well as about citizen opportunities for financial and procedural participation in wind energy projects, with the view empowering citizens to participate in the energy transition. This is expected to increase the social acceptance of wind energy projects in Thuringia.

Another important motivation for the development of the Service Unit was explained by the head of the Service Unit as the historical lack of competences and long-term decision-making processes at the municipal level. It was stated that some local communities and their mayors tended to react too late after new wind energy priority areas have been designated. Mayors in rural areas mostly work on a voluntary basis. Their situations are characterised by having numerous tasks but limited competences. The Service Unit tries to help by providing more direct and better information to these actors, thus "bringing the communities back into action". This is with view of promoting wind energy developments that fit local needs better, enabling a sharing of the benefits with the affected communities (Interview Rothe 2019).

Furthermore, it is important to also acknowledge the cooperation of Thuringia with the forerunner of the Service Unit, established in another federal state (Kreis Steinfurt 2015). In the administrative district of Steinfurt, which is sited in North Rhine-Westphalia, the first Service Unit that also works with guidelines[15] for wind energy was established in 2012. This Service Unit provided comprehensive, independent, and free advisory services for citizens, municipalities and project developers to improve the procedural and financial participation of citizens and to support a balanced and environmentally sound expansion of wind energy.[16]

The label, which serves as a guideline for project developers on how to communicate and engage (financially and procedurally) with affected stakeholders, was instigated following the finding that

[15] The Steinfurt guidelines have a stronger focus on supporting citizen or community owned wind-farms. For further information (German only) see: http://www.nlf-buergerwind.de/gemeinschaftsprojekt-buergerwind/buergerwindpark-leitlinien-im-kreis-steinfurt/

[16] For further information (German only) see: http://www.nlf-buergerwind.de/gemeinschaftsprojekt-buergerwind/buergerwindpark-leitlinien-im-kreis-steinfurt/

only 10 % of the companies operating renewable energy plants in Thuringia are local companies (based in Thuringia). Hence, profits and taxes revenues often do not stay within the municipalities and communities. Furthermore, landowners are often not local ones, rather the land is owned by non-residents. Therefore, regional value creation of wind energy in the region has so far been limited. In addition, there were highly opaque and questionable practices used by developers for securing land for wind energy development (M2, D2). Another related problem was the knowledge gap between professional wind energy developers on the one hand, and municipal decision-makers and citizens on the other. The label was introduced, in parallel to the comprehensive support and advisory services provided by the Service Unit, to address and overcome existing barriers concerning planning procedures. These include the participation and uneven distribution of costs and benefits (hence strengthening procedural and distributional justice); attempts to increase the credibility of planners / developers; and to build trust among actors. It should also help to create a level playing field between developers and municipalities who often face time, informational and staff constraints.

More specifically, the Service Unit in Thuringia provides comprehensive, neutral and free of charge advisory and technical assistance services for citizens, municipalities, developers and in parts local enterprises. These include in general:

- Initial consultation on the possibilities for municipalities to act
- Advice for elected politicians and local city counsellors
- Consulting services for land and forest owners on land lease arrangements
- Information about community/citizen participation models
- Organisation of regional stakeholder dialogues
- Initiation and support for interest groups/associations of land owners
- Support in case of local conflicts, moderation and mediation
- Issuance of a quality label for project developers “Fair wind energy developer” (see ThEGA 2019)

For each of the key stakeholders, the Service Unit developed strategies to enter into a dialogue and to bring together different actors, especially citizens and municipalities with developers. Once a week, the Service Unit hosts a special citizens’ day, during which citizens can ask questions related to wind energy and where they can make use of advisory services.

Thuringia is a federal state where the designation of wind energy priority areas in the regional plans is carried out by the that regional state, particularly at the regional level. In light of this, the informal work and dialogue in the affected regions is important and necessary to gain social acceptance. Particularly when a new regional plan is launched, the Service Unit informs the affected municipalities in a pro-active at an early point in the process. This helps to avoid or mitigate conflicts from the very beginning and to find constructive solutions. They also contact municipalities that have a critical position or are against wind energy projects, to offer them

possibilities for cooperation (Interview Rothe; M1). The fact that the Unit works free of charge is especially important for citizens looking for information. The perception of neutral and free information reduces barriers and increases acceptance (Interview Rothe 2019).

Conflicts are solved in a constructive way. The Service Unit helps to start processes through which the municipalities can promote the added value creation in their area resulting from wind energy installations. For example, the Service Unit helps to identify and negotiate suitable compensation measures together with municipalities and developers. It also helps to establish local foundations and connects land owners to bundle their interests (Interview Rothe 2019). The Service Unit also provides professional support for local politicians and local councils regarding the planning, permitting and construction phases. It does so in a special legal advisory format, “Law and Municipalities” (Interview Rothe 2019), that is perceived as very helpful by the interviewed mayors to increase competences and gain legal backing (M1, M2).

The label is the main additional instrument to intensify the dialogue with developers and to interlink developers and municipalities. The label makes the work between developers and the Service Unit very “constructive” (Interview Rothe 2019; see also D1) and increases the opportunities to promote added value at the local level by involving the municipalities in project planning. Thus, the label helps to increase trust as it promotes indirectly distributive and procedural fairness and helps to identify conflicts at an early stage.

Regarding the quality label for being a “fair wind energy developer”, the criteria/guidelines to obtain the label include:

1. Involvement of all interest groups in the vicinity of a planned wind farm during the entire planning phase

2. Transparent handling of project-related information on-site, provision of assistance and informational services

3. Fair participation of all persons affected and residents, including those not directly benefiting as land owners

4. Involvement of regional energy supply companies and financing institutions

5. Development of direct financial participation opportunities for citizens, enterprises and municipalities in Thuringia.[17]

In sum, the measure includes a policy mix of different approaches like institution building, targeted advisory, information, dialogue and support measures as well as accompanying measures.


*The 4 regional planning communities in Thuringia (TLS 2019)*

## Key actors and stakeholders

The Service Unit Wind Energy has been set up by the federal state government of Thuringia under the Thuringian Energy and GreenTech Agency (ThEGA). Funding is provided from the Thuringian Ministry of Environment, Energy and Nature Protection and the European Regional Development Fund. ThEGA is a state-owned institution in charge of the coordination and consultation of energy

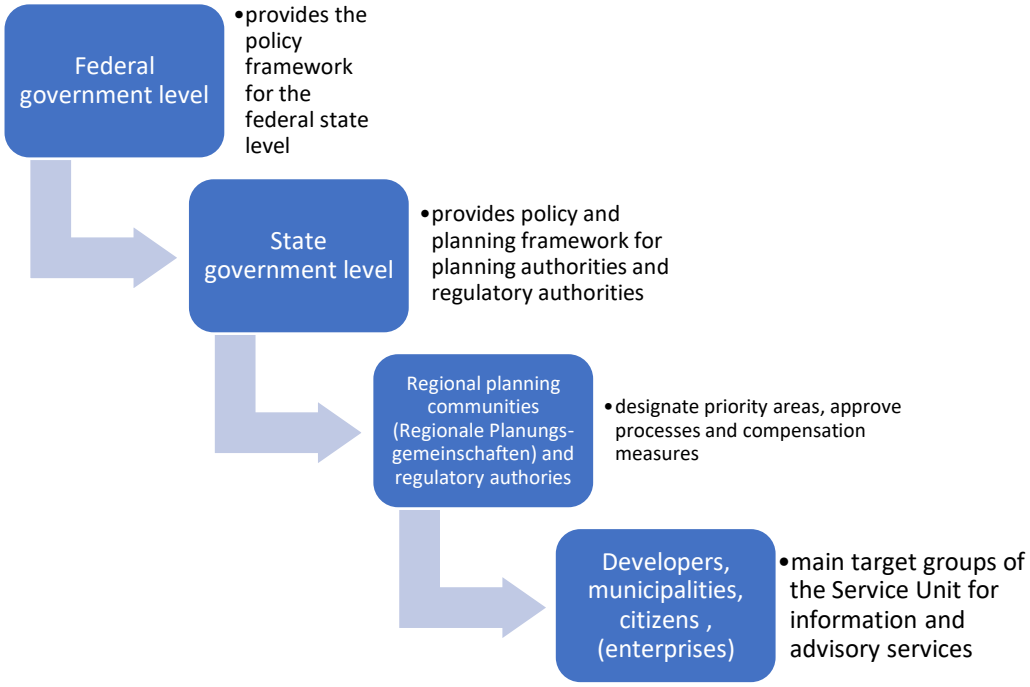
[17] See “Guidelines for fair wind energy in Thuringia”: https://www.thega.de/wind-gewinnt/service-fuer-unternehmen/leitlinien/

and climate protection projects for public authorities, enterprises, municipalities and citizens. Overall, the state government is one of the most important stakeholders. Funding and work of the Service Unit strongly depend on the support of the federal state government.

Additionally, the Service Unit is not only strongly connected with the Ministry of Environment but also has strong links with the Ministries of Infrastructure and Agriculture (Interview Rothe 2019; M1). Next to those political actors, the Service Unit works also with NGOs and social actors. There is an intensive cooperation with the Thuringian Renewable Energies Network (ThEEN e.V.) and the regional association of the German Wind Energy Association (BWE). This is a very fruitful cooperation. The main goal of ThEEN e.V. is "driving the energy transition both within and from Thuringia" and sharing the expertise of the networks' members. The network includes 70 members mainly from science and the renewable energy industry and focuses on different renewable energies as well as different sectors within the field of energy efficiency, sector coupling or energy storage.[18] In co-operation with BWE and the Service Unit, ThEEN founded the "Task Force Wind", which is a network of different stakeholders (ThEEN, Service Unit, BWE, politicians, developers, environmental NGOs, etc.) that bundles interests and resources to promote wind energy. The "Task Force" is organised by ThEEN, the Service Unit and the BWE and comprises several measures to work with developers, citizens and politicians, i.a. dialogue circles, a wind campaign to reduce information deficits, further education and information bus tours for mayors, permitting authorities, and representatives of the press, social media, brochures, etc. (Interview Liebe 2019).

Key actors, according to the head of the Service Unit, are also the municipalities and citizens as well as citizen energy cooperatives, with whom they have a strong exchange as well as the label partners, i.e. project developers who received the label for fair wind energy. With them the Service Unit discusses possible participation concepts for citizens and municipalities. Next to that, a continuous exchange and networking activities with the state regulatory authorities and the planning units of the 4 regional planning communities is carried out to understand regional conditions and planning developments. The dialogue with the Thuringian State Administration Office is also important (Interview Liebe 2019).

[18] see: https://www.theen-ev.de/en/theen.html




*Main actors in the wind energy development process (based on the interview with Mrs. Rothe 2019).*

The Service Unit aims to reach a wide spectrum of stakeholders. It can be said that the important target groups are citizens, municipalities, policy makers, project planners and developers and in parts Thuringian enterprises that would like to use renewable energies to cover their energy demand. However, arguably the key target group for the label are project planners and developers active in Thuringia.

## Social acceptance barriers and drivers

Barriers

Many of the barriers for social acceptance have already been touched upon above. These namely include the fact that only 10 % of the companies operating renewable energy plants are local companies based in Thuringia. Additionally, in many municipalities, local added value creation from wind energy has therefore been limited so far. External developers are often mistrusted among local communities and citizens. This is aggravated when those developers use non-transparent land acquisition practices when securing areas for their developments, causing perceptions of unfair financial distribution and conflicts in the local community.

Smaller municipalities often face time, informational and staff constraints and are overburdened with the complex planning and permitting procedures. Similarly, there is a knowledge gap between professional wind energy developers on the one hand and municipal decision-makers and citizens on the other. As the WinWind thematic workshops have indicated, this a lack understanding of the

complex planning and permitting processes. This particularly concerns individual citizens and smaller municipalities. Similarly, the designation of priority areas is often perceived as a technocratic top down process where the opportunities for municipalities to effectively influence siting of wind farms are very limited. Often, they feel badly informed and feel that their concerns and objections are not sufficiently considered. This lack of "genuine" participation causes much discontent (Di Nucci / Krug 2018a).

Drivers

Consequently, the Service Unit was created to overcome such burdens and complexities with its pro-active approach towards contacting municipalities, its free advisory service and willingness to bring different interest groups together. In sum, the Thuringian model is based on a comprehensive, integrated approach addressing those barriers and promoting procedural/distributional "fairness" by

- Provision of neutral, transparent information
- Ensuring a level playing field between developers and local communities/citizens
- Building trust among municipalities, citizens and developers

## Engagement of local communities in the planning processes

- Promoting active and passive financial participation of communities/citizens to achieve a more balanced distribution of benefits from wind energy
- Avoiding or mitigating local conflicts
- Strengthening local value creation

The label can be regarded as an integral part of a comprehensive bundle of measures promoting local acceptance. It is an integrated approach seeking to promote procedural and distributional justice and trust-building. It contributes to increasing transparency of planning processes, credibility of developers, procedural and financial participation of citizens and local communities, to achieve a more balanced distribution of costs and benefits of wind power, and to support local value creation. Moreover, the Service Unit enjoys a high credibility among all stakeholders. It is perceived as neutral but also as a competent and strong in its position towards the wind energy development in Thuringia (M1, M2, D1, D2). Compared to other more prescriptive and regulatory approaches (e.g. a mandatory obligation for developers in the federal state of Mecklenburg-Vorpommern to involve citizens/communities financially), this voluntary measure is also accepted and supported by the industry. Actors in other regions/federal states started initiatives to adopt/transfer the "Thuringian model". Hence, the label has started to set certain standards regarding procedural and financial participation of citizens in wind energy projects.

One important success factor is the continuous commitment of the federal state government. Without the support and the "good will" of the state government, the Service Unit is not able to work effectively. Additionally, visibility to the target groups has been paramount. A broad network, a plausible name, etc. have been important success factors. For that reason, the connection with a state based or regional energy agency have been important especially to profit from an existing network from the very beginning and to be perceived as neutral or trustworthy (WinWind 2018a).

In terms of local value creation, in Thuringia, a positive trend towards employment can be observed in the wind energy sector. In 2018, Thuringia had approximately 3,000 jobs in this sector (compared to 2014: 2,710). (Ulrich/Lehr 2018). Mrs. Rothe predicts that this positive trend will hold on. But she also notes, that this trend is less an achievement of the Service Unit, but rather of the state government and the goals it formulated. The aim that 1% of the state territory shall be used for wind energy plants (today 0.3%) provides a positive signal for developers. In terms of new jobs, the Service Unit seems to have an indirect influence only (Interview Rothe 2019). Nevertheless, some interviewees expect a positive trend for the job market, if a decentral wind energy development is supported and they like to credit the Service Unit with this positive job market development as well (M1). Additionally, the Service Unit assists land owners to establish local communities of interest ("Eigentümerinteressengemeinschaften") and contributes to unlocking the potential of additional value creation for municipalities. This is because land owners are quite positive towards sharing a certain share of their land rent income with the region. The Service Unit is utilising such potentials and helps the municipalities and land owner interest groups to find suitable projects to invest e.g. 5% of the rent, e.g. the creation of a special purpose foundation.

## Effectiveness

So far, no comprehensive evaluation or impact analysis illustrating the effectiveness of the label or the Service Unit in terms of securing/enhancing social acceptance has been carried out. Nevertheless, there are several factors that led to a successful outcome of the Service Unit and the label. Reportedly, the transparency of wind energy planning processes has increased, measures to raise local added value generation have been initiated and several pilot projects have been successfully launched. Furthermore, it has become almost impossible for project developers to do business in Thuringia without having the label for fair wind energy (Notroff 2017; M1). The label provides clear orientation for other initiatives. Since 2015 the ThEGA labelled 50 developers and planers as fair.[19] From 2015 to 2018, 102 communities and 180 companies or other organisations in Thuringia have been consulted by ThEGA. There were 143 citizen requests. Such

[19] https://www.foederal-erneuerbar.de/tl_files/aee/Praesentationen/FE-Fachtagung_2016/Sell%20-%20Faire%20Windenergie%20Thueringen.pdf

citizen requests mostly address issues like land lease or land use agreements, whether the developer is a label partner and other questions regarding present developers or information on how to establish a community of interest (“Eigentümerinteressengemeinschaft”). Citizens do not generally ask how to invest money in wind-farms (Notroff 2018; Interview Rothe 2019).

It is difficult to assess already the effectiveness of the label in terms of raising trust among municipalities and citizens key factors for local acceptance, because the label is still young. But especially the interviewed mayors attested that a developer with the label has a better image in the community than a developer without label (M1 and M2). Also, the developers perceive an advantage compared to non-labelled companies (D1 and D2). Most interviewees see first evidence that the label increase transparency and trust. In addition, it helps to build up additional network structures and exchange between stakeholders (Interview Rothe 2019).

However, the interviewed developers (of which one is a citizen energy cooperative) criticised the label. This is because firstly it is not strict enough, as it is implemented on a voluntary basis and there are no resources to sufficiently monitor if its guidelines are met by each developer. Secondly, it is perceived as too basic and low-level, if nearly every project developer in Thuringia is being certified as is the situation right now. There is a danger of inflationary awarding of partners in combination with lacking consequences when label standards are violated (no financial sanctions, etc.) (FA Wind 2017; D1 and D2). An interviewee criticised the insufficient monitoring of the label (based on honesty of the developers) and lack of sanctions (D2). Lastly, both developers interviewed are in favour of reformulating the guidelines and make them more ambitious or to implement a ranking in labelling developers (e.g. gold, silver and bronze developers). Moreover, in order to maintain trust, a systematic evaluation needs to be provided.

## Innovativeness

The model of the measures in Thuringia have been clearly inspired by the Service Unit which was established in the administrative district of Steinfurt (federal state of North-Rhine-Westphalia). However, what is particularly innovative is that the unit in Thuringia is the first one in Germany that has been established at the federal state level. In addition, the label for fair wind energy developed by the unit is the first of its kind in Germany. It is the first labelling scheme in Germany addressing planning and participation policies of wind project developers in Germany. Also, the label has been inspired by the guidelines for community wind energy developed in the district of Steinfurt. This district was the first unit in Germany that formulated guidelines towards a fair procedural and distributive participation of affected stakeholders (especially citizens), although the guidelines were formulated for citizen owned wind-farms.

## Transferability

The transfer potential can be regarded as high. The Service Unit is asked for advice also by actors from other federal states too. There have been transfer initiatives in other regions of Germany aiming to follow the example of Thuringia by transferring/adapting the concept of a Service Unit in combination with a labelling scheme for developers (e.g. Saxony-Anhalt, Brandenburg, Saxony, Hesse).[20] Furthermore, the Thuringian model itself is an example of a successful transfer of the Service Unit in Steinfurt. This demonstrates the feasibility of the transfer from the district level to the federal state level. However, the heads of both the Thuringian and the Steinfurt Service Unit emphasize, that the design of a unit cannot be transferred without adaptation or rather without taking into account regional characteristics. Every federal state or region has its own specific characteristics and challenges, e.g. geographical conditions, financial strength of the region, planning policy, density of wind energy infrastructure, history/culture of energy cooperatives and citizen/community ownership, conflict potentials between different actors, etc. (WinWind 2018a, Interview Rothe 2019).

The label in Thuringia and its corresponding guidelines have been inspired by the guidelines for community wind energy in the district of Steinfurt (North-Rhine-Westphalia) as well. This fact demonstrates the high transferability of this measure, all the more, as stakeholders in the federal state of Schleswig-Holstein also have recently launched a similar, market-based labelling/certification scheme under private law, which is closely oriented towards the Thuringian model. It is called “Faire Windparkplaner in Schleswig-Holstein” (“Fair Wind Farm Developers in Schleswig-Holstein”)[21]. But this label differs from the label in Thuringia as the label in Schleswig-Holstein is privately organised and applicants have to pay for it. For those reasons this label faces certain scepticism (see Di Nucci / Krug 2018b, p.18). In addition, there is no frequent evaluation of all label partners in Schleswig-Holstein towards the guidelines but random sampling evaluation of developers per year. Mrs. Rothe points out that a label is only constructive, when there is a continuous evaluation of all partners.

There is no common understanding of the interview partners whether a national label would make sense, in order to avoid the plethora of 16 different federal state level labels. Instead, most of them are in favour of general frameworks and rules on the national level, that guarantee financial and procedural participation of citizens and municipalities as a standard in all federal states. But such general guidelines need to be accommodated to the challenges and problems of each state. Regarding the Service Unit, all interview partners agree, that the national level would be too distant

[20] Also, the new government coalition in Schleswig-Holstein decided to introduce an independent clearing house/office (Clearingstelle) for wind energy with the aim to prevent conflicts, mediate in conflict situations and to advise citizens and municipalities.
[21] http://fairewindenergie-sh.de/

from the municipalities and citizens. The federal state level is evaluated as the highest possible political level for its operation. One interview partner also suggested to establish regional offices to overcome distances between Unit and municipalities (D2).

The guidelines and labels on a federal state level should always be combined with a Service Unit as most of the interview partners value it as an important tool to implement the guidelines. The transferability of a label can be increased by a Service Unit that is designed towards the special recommendations of the federal state.

In terms of feasibility, currently, the Service Unit has a staff of 3.5 full time employed persons. Funding is partly provided by the federal state government and partly by the European Regional Development Fund. The establishment of a Service Unit needs strong and continuous policy commitment and support, organisational efforts, qualified and committed staff, time and funding. This can nevertheless be “cost-efficient”, if the unit helps to strengthen acceptance, contributes to increase local value generation, and helps to avoid time-and resource consuming lawsuits. But the high personal costs lead in consequence also to a dependency on the budget and therefore on a dependency on the political constellation and situation (FA Wind 2017).

## Conclusion

The main goal of the Service Unit is to establish a strong network between the main actors, especially municipalities/citizens and project developers, and to increase trust as well as to enhance distributive and procedural fairness towards the wind energy development in Thuringia.

The Service Unit works in a pro-active way. It contacts affected municipalities as early as possible and provides advisory services free of charge. This is important to endow municipalities with competence and possibility to act as soon as possible, and in this way to influence wind energy projects.

The label can be regarded as an integral part of a comprehensive bundle of measures promoting local acceptance. It is an integrated approach seeking to promote procedural and distributional justice and trust-building. It contributes to increase transparency of planning processes, credibility of developers, procedural and financial participation of citizens and local communities. But dangers of inflationary awarding or lacking resources of evaluating the label partners need to be critically reflected.

What becomes obvious is that the transfer potential depends on the general conditions of each country and each region. There are specific determining political, planning, social, economic and ecologic factors that need to be taken into account when setting up a Service Unit or similar institutions and a label that fit the specific requirements and needs of the considered region.

Overall, the thematic workshops as well as the interviews emphasised the added value of a Service Unit on the federal state level as well as the need for binding guidelines for a fair wind energy development.

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## 10.2.3 Case Study 3

### Wind Repowering in Abruzzo (Italy)

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**Organisations**: ENEA and Ecoazioni

## Summary

Repowering of wind farms is the process of replacing old and less productive wind turbines with new features, but in the exact same location as the previous one. The central objectives of such measures are to both increase the energy production and reduce the environmental and visual impact of the installations. This therefore represents a notable best-practice case for promoting the social acceptance of wind energy in Abruzzo. Importantly, further benefits for local community are also generated, such increased local jobs and better infrastructure, leading to further enhancements of social acceptance of wind energy.

The present case study illustrates how the above-mentioned factors, as well as a constant consultation and dialogue between local authorities, citizens and developers maintained throughout all the project phases, lead to strong social acceptance for the repowering of wind farms in Abruzzo, Italy.

The present case study explains the background and motivation for the establishment of repowering in Abruzzo. It also outlines the specific features and important actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

In gathering data for this case study, two methods have been used. Firstly, during a WinWind thematic workshop meeting held in Abruzzo, this repowering project was presented as case study. Different stakeholders coming from public authorities (Abruzzo Region), the private sector developers (E2i), environmental and non-profit associations (Ambiente e/è Vita Abruzzo) discussed the importance of repowering as a notable solution for improving the social acceptance in a territory with a high presence of obsolete plants. The outcomes and findings of these discussions are used in this case study.

Secondly, in order to expand the information for the case study, targeted interviews were conducted by conference calls. These were specifically carried out for public authorities (Iris Flacco, Laura Antosa and Stefania De Amicis from the Abruzzo Region's Energy Department) and wind farm developers (Stefano Lodi Rizzini and Roberto Venafro from E2i Energie Speciali).

## Detailed description of the measure

The regulatory framework (Ministerial Decree on the promotion of RES published in 2016) allows operators to decide whether to keep wind turbines in operation or to dismantle them completely. The latter could be if they are not efficient from the technological point of view, nor useful from the point of view of energy generation and pricing. Although the legislative framework still entails

incentives for developing new RES plants, it is possible to carry out operations on existing wind farms that allow reducing considerably in the area the number of wind turbine generations (WTGs). Thus, increasing the installed power and raising the "green" energy production.

Considering the relatively obsoleteness of the existing wind farms in Italy, of which about 2,000 MW have exceeded 10 years, the anticipation of the renewal of the existing wind farm is certainly an opportunity to be exploited. Usually, repowering of wind farms occurs when such installations are built around 12-20 years old. Such facilities wind farms are equipped with less efficient turbines with weaker facilities to consider environmental protection.

This has been the situation in Abruzzo, where the first wind farms were built in 2000. Since 2013, the old turbines in Abruzzo, which were producing 0.6-0.7 MW, have each been substituted by new WTG of 2-4 MW. The new turbines tend to be larger and installed at greater heights, allowing for more capacity per turbine. Indeed, these wind farms have great potential for repowering because they are located in sites with high wind speeds and are already tested. Additionally, they may use existing infrastructures for connecting to the national electricity network as they are already a consolidated industrial presence on the territories.

*Illustration of wind farm repowering in English at Wind Farm Sanden (Wikipedia: 2017)*

This repowering process began when E2i carried out a detailed preliminary technical study on select sites with no environmental restrictions. According to the Abruzzo Region Guideline for wind energy, the wind farms must respect a buffer of 150m from archaeological sites and 500m from residential areas (Regione Abruzzo: 2016). Following the satisfaction of these criteria, a consultation and dialogue began with local authorities. This intensified during the final project phases (authorisation and realisation).

In sum, the repowering of existing wind farms has been conducted to reduce the environmental impact of the wind farms. The careful selection of advanced wind technologies with the use of

powerful turbines allowed the developers to reduce the number of WTG, whilst bringing the benefit of additional energy generation to the territory.

Finally, in understanding the motivation, coordination and activities of the developer E2i, it is useful to consider the existence and compliance with a voluntary self-commitment of the industry: the “Carta del rinnovamento eolico sostenibile” (Charter of sustainable wind energy renovation). This agreement is followed by both private and public entities such as wind operators (E2i, Enel Green Power, ERG Renew, Falck Renewables and IVPC Group), the Italian National Association of Municipaliy (ANCI) and the environmental no profit association Legambiente (E2i Energie: 2015). This Charter is based on the following principles and operational criteria:

**Maximising the natural wind source in sites already exploited** - Technological innovation is the guiding criterion for designing the renewal of wind farms and the replacement of wind farms existing wind turbines with others. The new ones are to be more efficient and with high standards of quality, safety and environmental compatibility, as well as more effective and more flexible in terms of performance. Ensuring greater efficiency in the use of the "soil", whilst at the same time also increasing the production of energy, will produce a double benefit for the environment of that territory. Particular attention must be paid to reliable evaluations of the productivitey of the plants.

**Maximising land use and pre-existent infrastructures -** The replacement of existing wind turbines with new generation ones leads to the redefinition of the spaces and the occupied territory. The existence of potentially reusable national power grid infrastructures, such as the existing road infrastructure, leads to lower costs for the system and entails less invasiveness in the territory. Particular attention must be paid in layout design and minimisation of the paths and maintenance of access roads to the site through the realisation of works in line with the ambiguous and urbanistic canons of the area.

**Maintaining the dialogue with the Institutions and local communities -** The renewal of the existing park is an opportunity for the territory of which the plant has now become an integral part. Through the dialogue with the institutions, barriers can be overcome, thanks to previous experiences of all stakeholders.

**Containment and mitigation of environmental impact in all process phases** - The renewal of an existing wind farm means the "redesign" of a plant that, over time, has become an integral part of the landscape itself. Additionally, thanks to this "relationship" acquired with the territory, is possible to minimise the impacts and achieve solutions such as:

1. The adoption of design solutions that better allow the insertion of the new layout in the landscape, even reducing at the minimum the new buildings and the accessory structures thus favouring the perception of the wind farm as unit;
2. Neutral colour solutions and anti-reflective paints for wind towers;

3. The construction of any new power lines following as much as possible the layout of the existing cables in operation;
4. The identification, during the dismantling of the existing plants, of "best practices" and operational standards for the disassembly of components and the reuse of recyclable parts and the excavated material (for the benefit of a greater degree site stability), to minimize the amount of material to be sent to landfill and restore the area;
5. The identification, during the re-naturalization of the pitches, of "best practices" and operating standards, that guarantee the correct reconversion of the disjointed areas in relation to the context. This is thanks to the principles of naturalistic engineering and make it possible to start an environmental recovery plan with interventions that favour the spontaneous recovery of local vegetation;
6. The consolidation of study and monitoring activities already carried out on the territory to preserve biodiversity near the plants, defining reporting processes and information exchange with the territory;
7. Monitoring, prevention and management of hydrogeological risk, possibly through implementation of containment works to the advantage of the productive slots and the territory.

## Key actors and stakeholders

The target groups of the measure are the local citizens and municipalities, for whom the environmental impact is minimised, their participation is gathered, and will essentially indirectly benefit from the measure.

The key actors involved have been the following:

- E2i Energie Speciali S.r.l., wind farm installer.
- Abruzzo Region, territorial Institution responsible for giving permission. Iris Flacco, Head of Service of Energy Policy, Air Quality, National Environmental Information System, Abruzzo Region.
- Municipalities of Schiavi d'Abruzzo (CH), Castglione Messer Marino (CH), Roccaspinalveti (CH), local administrations.
- Luciano Piluso, Mayor of Schiavi D'Abruzzo
- Franco Paglione, Mayor of Roccaspinalveti
- Emilio Di Lizia, Former Mayor of Castiglione Messer Marino

## Social acceptance barriers and drivers

**Barriers**

Starting from the planning phase, E2i in collaboration with the local administration faced a number of social barriers. These related to:

1) Concern about the damage to the land, local environment and the visual impact caused by the wind farms.
2) A lack of trust in the key actors and processes.
3) Scepticism about the added value and community benefit of such wind farms.

**Drivers**

A number of aspects of the repowering project were designed to address the concerns and barriers listed above, resulting in an improvement of the social acceptance.

*Reducing the environmental and visual impact*

This concern was certainly the most important among the local community and as a consequence, various measures and actions were taken to overcome the barriers:

- Particular attention was paid to the layout design, avoiding visual impact and reducing acoustic emission;
- The use of anti-reflective coatings reduced the impact from glint and glare on birds;
- To maintain or reduce the land use, the same area was utilised (no exploitation of new territories);
- The “forest effect” of wind farms was reduced by improvements of landscape.

All in all, an increased sense of sustainability was attached to the repowered wind farm, as the visual impact of new farms was minimised and use of wind resources and generation of sustainable energy was maximised.

*Promotion of procedural justice*

The repowering in Abruzzo was a highly participatory process carried out by E2i. The local administrations and community’s involvement were highly encouraged through public meetings from the planning stage throughout until the actual implementation. Part of the success of engaging with the local community was the fact that the local administrations played a crucial role by acting as the interface towards the local communities, ensuring a constant and informed dialogue with citizens.

A result of the public debate was that some proposals were made about the possibility of making some changes to the project, so that it considers other more appropriate technologies for the selected site of intervention, for the purpose of reducing the visual impact. As a consequence of

this process, a strong degree of trust has been created among between the developer (E2i) and both the local community and the local authority.

*Local added value*

In promoting social acceptance, the repowering also partially improved social acceptance by creating local added value to the local economy. These came in two forms:

- Employment created in the local areas to carry out the repowering process.
- Restoration of the road network and grid connection (for the purpose of repowering) increasing the accessibility of the area.

*Wind Farm Monte Prezza to be repowered in Abruzzo (Regione Abrruzo 2016)*

## Effectiveness

The measure has been highly effective in achieving social acceptance in Abruzzo. However, the lasting effectiveness of social acceptance of this initiative depends on continuous knowledge and information about the site's electricity production, as well as the direct and indirect environmental and economic benefits that the initiative has brought and continues to bring to the territory. Furthermore, it is necessary to maintain and consolidate the existing relationship and synergies, so that the developed industrial and skills assets, specialisation and employment of works, are safeguarded and continue to benefit the local community.

## Innovativeness

Repowering of wind farms is a technology invented in the late 1980s in California. Since the early 1990s, it has gradually become more commonly used in northern European states such as

Germany and Denmark. However, in southern European states, particularly in Italy, repowering is still a highly innovative method.

## Transferability

The extent to which repowering can be transferred to other places will depend on a number of factors. To begin with, it is necessary to include the age of the existing wind farms and to determine whether the life of the existing wind farm is appropriate for intervention and repowering (as mentioned above, normally between 12-20 years old). Normally, the expected repowering ought to generate approximately 50% more energy.

Additionally, it is important to consider other contextual factors such the favourability of existing regulations and local decision makers, funding availability, the approaches/strategies of relevant investors and developers and the strength resources. Indeed, repowering could strongly contribute to reaching the EUs decarbonisation targets with no exploitation of new territories matching the interest of citizens and administrations.

## Conclusion

The present case study has illustrated how the repowering of wind farms can serve as a highly successful and effective means of promoting a socially accepted use of wind energy. Not only has the measure led to a substantial increase in the wind energy generation in a region with significant wind capacity, but it has done so whilst minimising the environmental impact. This has been the key driver for social acceptance, although not the only one. A highly participatory approach promoted by the developer E2i and the local administration, combined with the additional benefit of local value creation, has cemented the social acceptance in of wind energy in the region. It is fair to say that repowering could strongly contribute to reaching the EU's decarbonisation targets, with no exploitation of new territories and yet matching the interest of citizens and administrations.

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## 10.2.4 Case Study 4

### Tax Cuts and Landscape Commitments in Sardinia (Italy)

**Authors:** Elena de Luca (ENEA), Tania Guiffrida (ENEA), Massimo Bastiani (ECOAZIONI) and Virna Venerucci (ECOAZIONI)

**Organisation:** ENEA & ECOAZIONI

## Summary

According to a millenary tradition, Sardinia is the Land of Wind. Sardinia hosts the first wind farm built in Italy (Alta Nurra Sassari, 1984). The present case study concerns the wind farm of Sa Turrina Manna, in the municipality of Tula. Today, this is an example of “peaceful coexistence” between wind farms and local communities.

The case namely concerns the extension of the wind farm. Although the establishment of the farm faced almost no barriers of social acceptance, the second expansionary stage it was faced with two major obstacles. These came in the form of demands for a more equal distribution of financial benefits of the farm, as well as demands to minimise the environmental and visual impact of the extension. Through a participatory and constructive approach, the developer, local authority and the local community came together and highly successfully overcame the barriers at hand. These namely came through contributions by the developer to the municipal budget, as well as listening to and acting upon the environmental and landscape concerns of the local population.

The present case study will explain background and motivation this measure, outline its specific features and important actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

In gathering data for the present case study, two methods were primarily used. The first involved desk research and navigation through the online reports, archives and websites about the measure. The second method involved semi-structured telephone interviews with some key figures involved with designing and managing the initiative, such as the mayor of the municipality of Tula and the municipal responsible for energy and environment.

## Background and motivation


*A map of the Sardinia Islands and of The municipality of Tula (Ilsol240re: 2012)*

The municipality of Tula is located about 170 kilometres north of Cagliari and about 35 kilometres east of Sassari. Tula is a small town with 1,600 inhabitants on the northern borders of Campo di Ozieri.

The Sa Turrina Manna wind farm began construction in 2003, on land in between the municipalities of Tula and Erula, the province of Sassari (Sardinia, Italy). However, the wind farm mainly sits on the land of the municipality of Tula. On the initial wind farm, there was a total of 28 turbines and an overall nominal power of 23.800 KW. In 2009, another 40 turbines were added, accumulating to a total number of 68 turbines and bringing the total capacity to 83,8 MW. At full capacity, the wind farm produces some 126 million kWh, enough to meet the energy needs of some 46,000 households, a little under half the population of a city the size of Sassari (126,000), a town in Sardinia.

It is north-western part of the municipal territory, characterised by the calcareous plateau of “Su Sassu” and also by the picturesque landscape of Lake Coghinas, that hosts the wind farm of Sa Turrina Manna. Sa Turrina Manna is the biggest wind farm owned by ENEL Greenpower and it is located on a hillside at 700m above the sea level. ENEL Greenpower is the sole investor and owner of the farm. The ENEL Group is a multinational energy company and one of the world’s leading integrated electricity and gas operators that manage approximately 43 GW generated across the world. This power comes from wind farms, hydroelectric, geothermal, solar and biomass power plants.

Sa Turrina Manna was one of the first wind farms built in Sardinia, in the early 2000s. It was done at a time when the opposition against wind energy was much less significant than today. The less significant opposition was because of the fact that because Tula's inhabitants at that time had no preconceptions or knowledge about the wind power or its implications. Thereby, the proposal for the installation of a wind farm gathered little contestation or indeed commentary. The wind farm

plans were realised at the beginning of 2002. This was particularly thanks to the positive determination of the local administration, mayor and municipal council who worked in coordination with the Region Sardinia. The latter considered the installations of wind turbines an opportunity to enhance the territory, particular given the positive effects it could have on the population in terms of social services, public works and tax cuts.

## Detailed description of the measure

The wind farm of Sa Turrina, according to data provided by ENEL Greenpower, produces approximately 126 million kilowatt-hours a year. This is enough to cover the needs of about 46,000 families. This generation replaces and prevents the emission of 94,000 tons of carbon dioxide (CO2) and the consumption of about 47,000 tons of oil equivalent per year. On top of this, a number of details are important to highlight about the process and outcome of the development of the wind farm:

### A) Planning issues

As noted above, the development of the wind farm occurred in two stages:

1. First phase development 2002-2004 (when the first 28 turbines were built)
2. Second phase development 2008-2010 (when the subsequent 40 turbines were built)

The building of the first wind turbines in 2003 involved a number of official meetings between Region Sardinia (responsible for the administrative procedure and environmental impact assessment – EIA), ENEL (the developer) and the local administrations (Municipalities of Tula and Erula, territorially concerned by the initiative). Other actors such as non-profit associations and citizens were involved afterwards. Additional stakeholder meetings were held in a second phase in 2008, when the wind farm was enlarged. During this period, other local actors were also involved in the meetings. These particularly included environmental associations and citizen representatives.

### B) Financial issues

A number of budget considerations and implications have arisen as a result of the wind farm, namely for the for the municipality of Tula. Firstly, it has been agreed that 2% of the gross income achieved each year, from the energy produced and fed into the network, would be given to the municipality. In return, the developer would receive a concession, in the form of the rights to surface for the wind farm's land. As a result of this income for the municipality coming from the wind farms, a number of policy measures and issues have directly benefited. There have been more than 20 types of local social interventions, with a total of €400,000 additional income per year, 12% of the municipalities annual budget.

### C) Environmental impact

In order to address issues concerning the procedural obligations under EIA for wind farms, the Sardinia Region has published a report that contains all the necessary information updates to keep stakeholders and the public informed and aware about the activities and implications of the wind farms. Having accurate and high-quality EIA reports and public databases are essential for evaluating the potential impact the wind farm. Such information helps to identify and mitigate negative environmental consequences, supporting the obvious need for green power. The environmental impact assessment EIA for the Tula plant, as provided by the Regione Sardinia, has provided a deep analysis of several aspects.

### D) Recreation and education

The wind farm is regularly visited by school groups and is an opportunity to raise awareness on environmental and energy issues among the new generations. Local schools organise visits dedicated to increasing the knowledge of renewable energies and the park is accessible to the public by a newly built path that passes through the area. There are some resting and picnic areas, as well as playgrounds for children.

*Path and areas equipped with playgrounds for children and for picnic (Alghereco: 2017)*

## Key actors and stakeholders

*"Knowledge of stakeholders and their values allows space to develop a strategy that solves potential problems before they emerge"* (IEA Wind Task 28, August 2010).

In the case of Tula, the main municipality concerned with the wind park, a number of different important actors and stakeholders were identified that were connected to *both* construction phases in the implementation of the plant:

- ENEL Greenpower - An Italian multinational renewable-energy corporation
- Region Sardinia.
- Municipalities of Tula and Erula.

In the first phase (2002-2004), these were there only three key actors. Other stakeholders were not highly relevant at this stage and the decisions were taken between the above-mentioned actors.

During the Second phase 2008-2010, when the enlargement of the plant was proposed, public opinion on the issue developed and became rather widespread and detailed. This was due to the increased local exposure and experience with the first wind farm. Thus, during this stage, the role of other additional stakeholders became much more important. Individuals were important because they were interested in knowing what benefits would derive to the local community. Environmental associations, particularly Legambiente, played an important role in promoting environmental and landscape concerns. Schools also played an important role in connecting stakeholders and providing a platform to showcase the information about the proposals.

## Social acceptance barriers and drivers

### Barriers

This measure has served to overcome two locally understood obstacles for the installation of wind energy in the region:

1) **Lack of distribution of financial benefits:** During the development of the first stage of the development of the wind farm, due to the lack of engagement and concern of the local community, there was no pressure on the developer and municipality to maximise the financial benefits stemming from wind energy generation. However, during the second stage, the awareness among the local population of the fact that such financial benefits could and perhaps should be extended to them became a strong condition to enhance social acceptance extending the wind farm.

2) **Environmental impact:** During the first phase of the project (2002-2004), there was a lack of information and experience of wind energy and its environmental implications, therefore there was little opposition. However, in the second phase (2008-2010), increasingly regional awareness led to greater concern and opposition to the wind farm expansion based on the environmental and visual impact of the farms. This opposition was mobilised

by the environmental NGO Legambiente, who were namely concerned about the visual impact and noise pollution of the proposed wind farm.

**Drivers**

**Distributional justice and regional co-benefits**

This measure relates to the extent to which there is a distribution of the economic and financial benefits (either directly/indirectly) of a wind farm within the local community. The present initiative served to confer both direct and indirect economic benefits in numerous ways, namely through local value creation:

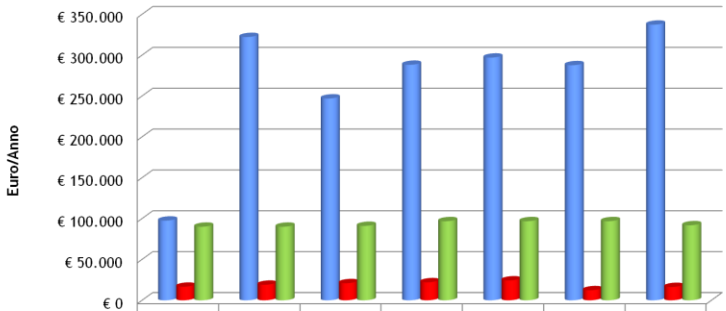
- Indirect distribution of benefits (employment of workers)

The realisation of the plant has led to the recruitment of local workers by ENEL. These are for the management and maintenance of the wind farm. Since the years years of production, ENEL has set up an operating office in the municipality of Tula. This is with the commitment to keep it them running throughout the period of operation, thereby creating 10 stable jobs.

- Direct distribution of benefits (income of the municipality);

As noted above, 2% of gross revenue achieved annually for every Kwh (Kilowatt hour) produced and fed to the network is given to the local municipality. There have been more than 20 types of local social interventions, with a total of € 400,000 used with these resources. A very broad range of individuals and families have directly benefited from this income and this has consequently been a key driver of social acceptance in the region. Central to this was the participatory nature of the budget determination, whereby the local community directly contributed towards the decision making on what the new income would be used for. Examples of these were:

- Education: contributions were made to students of all levels, the provision of scholarships within schools, funding the organisation of environmental and sports education courses and support for families to combat early school leaving.
- Support to families: incentives for encouraging the increases in the birth rate to prevent depopulation of the local community.
- Housing taxation: in 2012, there was an abolition of the tax on the first home (€ 50,000)
- Waste taxation: support of € 50 per family for paying the cost.
- Public facilities: the establishment of new public paths, the renovation of sports facilities.
- Promoting energy efficiency: there has been widespread renovations in school buildings.




| | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|
| Production | € 97.512 | € 322.19 | € 246.96 | € 288.17 | € 296.99 | € 287.69 | € 337.28 |
| Rents 1° Park | € 16.583 | € 19.026 | € 20.924 | € 22.050 | € 24.317 | € 12.300 | € 16.290 |
| Rents 2° Park | € 90.000 | € 90.000 | € 91.000 | € 96.792 | € 96.792 | € 96.792 | € 91.792 |

*Description of municipality income by the Wind farm in 2010 (Comunirinnobaili:2016)*

**Environmental and landscape safeguards**

The extension work of Sa Turrina Manna was completed in less than a year. In doing so, due consideration was given to the landscape and the natural context of the area, as well as of its existing activities. To begin with, unlike during the first development of the farm, an EIA was necessarily carried out by the regional authorities of Sardinia. These made a number of recommendations to be duly complied with by the developers:

- Provide accurate definitions of the plants internal roads and structures through involving the local inhabitants. These will help to identify and build recreational areas close to the wind farm (sport, music, hiking etc.)
- Provide visual impact in lay-out definition: the environmental impact assessment procedure foresees the implementation of models that allow the evaluation of the visual impact via engineering drawings and renderings.
- Underground paths for power cables.
- Specific attention to the maintenance of wind farm through operational periods.

In reducing the environmental and landscape impact of the proposed extension of the wind farm, participatory approach was further utilised whereby a number of meetings were also organised directly by the Municipality of Tula. These to both set out the broader environmental strategy of the municipality, as well as to coordinate the planning issues concerning the extension of the wind farm. During these discussions, the municipality and developer clearly emphasised the need for wind energy as a way of promoting better air quality and contributing to climate combatting. However, the concerns of the local community were also expressed, namely concerning the implications of the wind farms in terms of sound and visual impact, as well as on avifauna. As a consequence of these expressed concerns, the following outcomes and concession were made in order to satisfy the local concerns:

- Reductions in the number and density of the wind farms to minimise the impact on avifauna.
- Reduced noise pollution through appropriate technologies (regarding the variation of the acoustic field a campaign of surveys in the proximity of sensitive receivers) have been carried out. After the completion of the intervention, noise at 200 meters produced a sound of 50-54 decibels equal to the noise of a hair dryer.

Regarding the alleged disfigurement of the landscape Tula's inhabitants have shown a greater acceptance of the towers compared to a landfill or a waste incinerator, or disused and dismantled factories that unfortunately exist in the landscape of Sardinia.

*Minimisation of the visual impact and landscape integration (Legambiente: 2015)*

## Effectiveness

The measures implemented in Tula, namely during the second development period, have been highly effective in reaching their goals. These have namely concerned:

- Local community information and education;
- Involvement of local communities in the decision making (on both the budget and in the planning process)
- Creation of a collaborative relationship between Enel Greenpower, Sardinian Region and the public administration of Tula.

As a result of the success of this wind farm and its promotion of social acceptance, the municipality of Tula has participated and been commended by a number of EU initiatives:

- In 2013, the municipality received the EMAS (Eco-Management and Audit Scheme, Certification), in line with the EC Regulation 1221 2009. The EMAS is a voluntary

environmental management tool for companies and other organisations to evaluate, report and improve their environmental performance. Organisations implement an Environmental Management System (EMS), whereby they set up procedures to assess and improve their environmental performance. If they follow the demanding guidelines of the EMAS regulation, they can become EMAS-registered.

- Furthermore, the municipalities have also been involved with the EU Covenant of Mayors for Climate & Energy. This brings together thousands of local governments voluntarily committed to implementing EU climate and energy objectives. The Covenant of Mayors was launched in 2008 in Europe, with the ambition to gather local governments voluntarily committed to achieving and exceeding the EU climate and energy targets. Additionally, the municipality of Tula presented their SEAP (Sustainable Energy Action Plan) in January 2013 and completed the online SEAP in October 2013.
- Finally, the community of Tula, together with Ozieri and Erula, have been selected by Region Sardinia for the Smart City project developed within the Sardinia CO2 zero Program (a regional program).

## Innovativeness

The present measure is in some regards innovative, particularly in its national context. The fact that a wind energy developer contributes financially to the budget of a local municipality is not in itself innovative. This has happened before both in Italy and across Europe. However, what is innovative is the fact that the local community, in the present case, were directly involved, in a participatory process, determining exactly how the new revenue ought to be allocated and pent. Additionally, it is important to note that the environmental NGO Legambiente promotes environmental quality and supports renewable energies in the Italian territories. It recognises the innovativeness of the measures, in many editions of its annual report “Rapporto comuni rinnovabili” 2014. Indeed, Legambiente mentioned the Municipality of Tula in the section Best Practices in the wind energy sector.

## Transferability

The experience of Tula has a high level of transferability because it highlights and deals successfully with three aspects common to many other European contexts:

- Information management to address oppositions to wind energy.
- Promoting the participation and financial benefit of local communities for wind farms.
- The coexistence of wind energy and natural landscape through minimising impact

Tula's experience has shown some important aspects for the purpose of transferability. Firstly, the need for the community to take informed choices (the local community must be informed and be able to interact with the choices from the initial phases). Thus, Tula's experience shows that an

active involvement of the stakeholders is more important than single consultation or information activity.

The feasibility of this experience lies in the availability, above all, of the responsible parties (Region, Municipalities and ENEL) to open a common path without prejudice to other positions. It is certainly financially feasible for other wind energy developers to also allocate a small share of the income to the local municipality which their installations affect.

However, such a participatory approach, whereby local citizens contribute towards determining the specific budget and the spending of the income from the wind farm, is only practically viable in small municipalities such as Tula where there is closer proximity between the citizens and local administration.

## Conclusion

The case of Tula has shown how the civil debate between the different levels of government of the region, local administrations and the proponent company of the Wind Farm must be always conducted at a preliminary stage, starting by the choice of the location of the plant itself. Today, the local citizens generally do not consider their landscape compromised following the construction of the wind farm. Local citizens must be also fully informed and benefit from the income form the wind farm.

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## 10.2.5 Case Study 5

### Pro-active Landscape Ecological Planning Method for Wind Energy Areas in the Northern Vidzeme Biosphere Reserve (Latvia)

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## Summary

The present case study reflects on a planning measure undertaken at the national level in a WESR region of Latvia, North Vidzeme. The measure concerns wind energy zoning in a specific region – North Vidzeme Biosphere Reserve (NVBR). This area is significant in the sense that it is one of high national and international biodiversity and culture heritage, as well as also being an a zone suitable for wind energy given its wind speeds. The measure demonstrates the method for planning unconventional landscape elements, such as wind turbines, in protected landscapes, while maintaining the values of the biosphere reserve. Within the Landscape Ecological Plan (LEP), those biosphere reserve zones were defined as where single wind turbines and their groups may be located. These were enabled by agreements among stakeholders on zoning. The stated wind energy areas had been established at the national level by the Cabinet of Ministers Regulation No.353 (2008).

In sum, this is a case which demonstrates that the performance of planning at regional level, based on the LEP methodology, may allow wind energy developments which do not compromise the values of biodiversity, nature and culture heritage of the region. The case study will explain the background and motivation for wind area zoning within the NVBR, outline its specific features and important actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries. Taking into account the time which had passed since the development of the plan and the definition of wind energy areas, the transferability is discussed in line with the novel approaches for avifauna risk territories identification.

It is however important to underline that the described practice relates to only one of pre-conditions necessary for wind energy deployment, namely, spatial planning. For such deployment, other pre-conditions for the wind energy deployment must be fulfilled as well. As these other pre-conditions are not in place (e.g. the significant changes in national regulation regarding setback distances). Thus, despite the significant interest from a range of wind energy developers after the areas have been approved on the wind energy zones map, so far wind parks have not been constructed in the NVBR area. Therefore, the effectiveness of the measure in improving the social acceptance of wind energy can be regarded as somewhat theoretical. Nevertheless, the participatory process during the definition of wind energy zones map justifies the belief that the future performance of the planning practice will contribute to better social acceptance in the NVBR area.

## Methodology

In gathering data, the basic method was desk research by navigating through the relevant websites, particularly the website of the Latvian Nature Conservation Agency. Additionally, the text of the NVBR LEP had been rigorously analysed. To identify the measures which had provided the participatory process, the events section of the website of the Ministry of Environmental

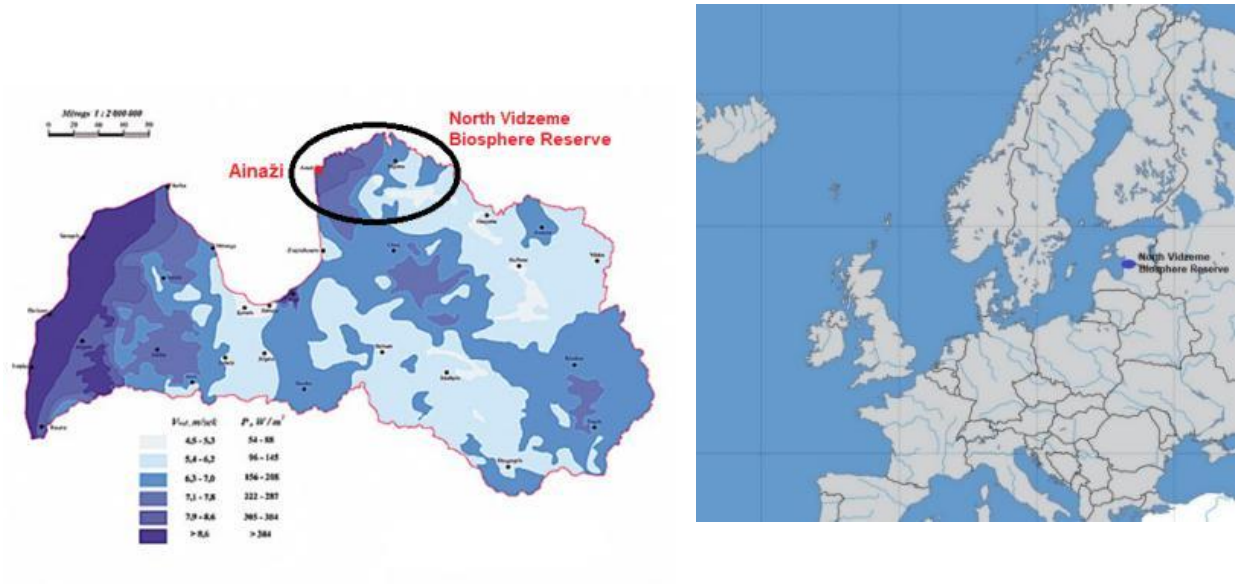
Protection and Regional Development of Latvia was navigated. To demonstrate the process of legal adoption of wind energy areas within the NVBR, the official web-site of Latvia's legislative documents (likumi.lv) was utilised and the relevant Cabinet of Ministers Regulations had been analysed. Importantly, the sub-site of the particular legislative document contains not only the consolidated text of the regulation, but it also provides relevant information and explains many contextual issues. Such information concerned the situation and problems existing in that time when the regulation had been developed; explanations of the background and aim of the provisions included in the regulation; financial and non-financial impacts; the involvement of experts and public participation in the process of drafting the regulation. Finally, to provide additional information, general searches were carried out of websites by applying relevant key-words.

Once the desk research was completed, several semi-structured interviews were held with personnel from the NVBR administration, who had specifically worked on public involvement and participation issues in the time when LEP had been developed. Further interviews were also carried out with the representatives from the Latvia Ornithological Society, as well as with the two experts who participated in the LEP development.

## Background and motivation

The total area of the on-land NVBR is 458 thousand hectares, the landscape protection zone occupies 35% of this total - 160 thousand hectares. The NVBR is the only specially protected nature area of this type in Latvia, also included in the UNESCO Man and the Biosphere programme. The Law on "The North Vidzeme Biosphere Reserve" stipulates that the main tasks of the biosphere reserve is to provide for the preservation of the territory's landscape, ecosystem, species and biodiversity, as well as to facilitate sustainable social and economic development of the territory. The biosphere reserve area is divided into functional zones – the landscape protection zone and the neutral zone. The territory of the NVBR relates to two regional planning areas in Latvia: the Riga planning region and the Vidzeme planning region.

In general, the key motivation was to introduce new planning practices to be applied before the elaboration of detailed nature protection plans for specially protected nature territories in Latvia. The European Landscape Convention requirements had to be implemented in Latvia. On the other hand, the NVBR occupies a wide area in which socio-economic development has taken place and the necessity to open the area for new economic activities was evident. As a result of these considerations, it was decided collectively by the Ministry of Environmental Protection and the administration of the NVBR to implement a planning instrument, grounded both in research (LEP method) and in public acceptance (reaching the agreement among stakeholders). The already existing experiences of several biosphere reserves in Europe had served as an example.




*The North Vidzeme Biosphere Reserve placement and Latvia's average annual wind speed.*
*(Wind energy Latvia: 2018)*

In relation to wind energy, the key motivation of this practice was to carry out wind energy area zoning, in anticipation of the interest for developing wind energy. This took into account that the North Vidzeme sub-region is one of the most promising areas in Latvia for the establishment of wind plants (the NVBR area is the place in which large-scale wind energy had started in Latvia, namely, the Ainazi wind park – with 2 turbines, each 0.6 MW capacity - had been installed in 1995). Based on these outcomes, the objective was to adopt a piece of national regulation for the development of wind energy in the territory of the NVBR.

## Detailed description of the measure

**NVBR Landscape Ecological Plan**

One of the solutions already practiced in many countries to take an integrated and balanced view of all the territorial values – nature, culture and historical legacy, social and economic development - is the LEP. In Latvia, LEP is still perceived as a novel approach. The LEP developed for the NVBR area is the first LEP experience in Latvia. The aim of NVBR LEP is to ensure the sustainable development of the territory, through fulfilling the following functions:

- Ensuring the preservation of nature values and environment quality;
- Promoting the construction of unconventional landscape elements, also such as wind turbines, to the present landscape, while preserving the biological and cultural heritage values of the NVBR;
- Providing inhabitants with income, maintaining their habitat and traditional land management, while increasing their employment, particularly in tourism.

The LEP for the NVBR area takes into account, on the one hand, the geological formation of the site, climatic conditions, species distribution areas and migration routes, heritage etc. On the other hand, it takes into account the economic activity of people, road infrastructure, agricultural activity, demographic data. During the LEP development, experts made an inventory and had assessed the territory's landscape structure and the factors affecting it. Thus, the LEP represents the NVBR landscape desirable in future. Internationally and nationally significant biodiversity areas (cores zones and buffer zones) were marked. The most biologically valuable landscapes and the historically & culturally valuable landscapes were both singled out. LEP scale is 1:50000.

**Wind park areas**

At the local level, wind energy zoning is regulated by the municipal regulation on the use and building of the territory, which shall not be contrary to the national legislation. As the provisions of wind energy set the distances in the national general regulation for the planning, use and building of the territory had been adopted later in 2013. There was the need to establish particular regional level planning which would ensure that the potential wind energy area zoning at the local level planning would not compromise the aims of the NVBR.

As a result, the framework conditions for the development of wind energy in such a unique territory as the biosphere reserve had been established. Wind energy development is not permitted in environmental and culturally valuable areas, thus minimising major social objections based on the negative impact wind energy has on biodiversity and the visual form of landscape.

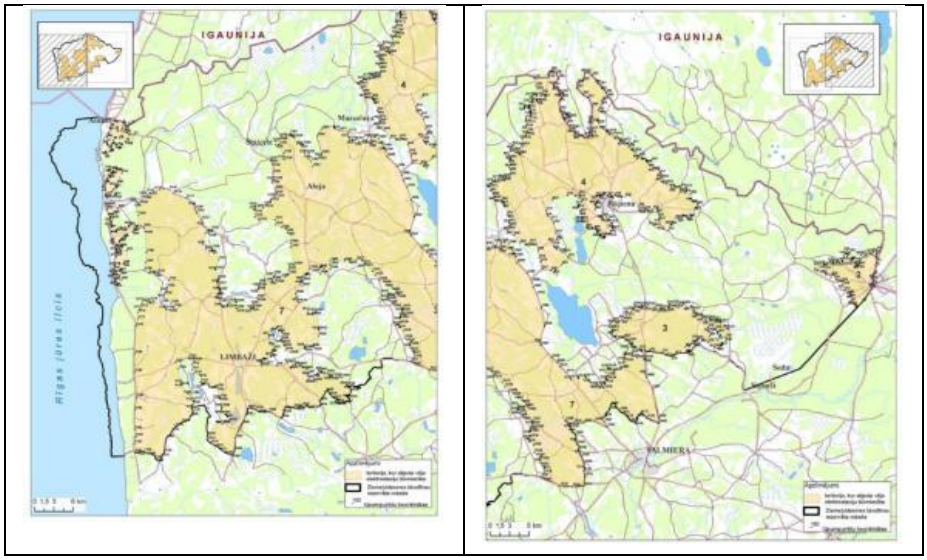
Nevertheless, critical remarks were noted during the interviews regarding the completed wind energy areas zoning. These specifically related to:

- During the time of the LEP developments, the capacity of the wind turbines were significantly smaller and the interest for wind energy development was mainly anticipated in the territories near to the coast. Thus, the main effort was put to identify suitable areas for wind energy technologies close to the coast and to a lesser extent, the LEP method was applied to identify wind energy suitable areas in inland. Taking into account the fast technological development of wind turbine sizes, today, the inland territories would be more suitable for wind plants;
- The final map of wind energy areas (Figure 2) was made by summing the wind energy areas close to the coast, identified within LEP and the neutral zone of the NVBR. Although being in principle a logical approach in principle, the suitability of neutral zones was not enough analysed in detail,
- When developing the LEAP, the most amount of effort was put to avoid negative effects on Natura 2000 areas, thus the bird migration factors were considered in a lesser extent.

Importantly, the consistent use of the LEP method for wind energy area zoning allows equal consideration of biodiversity (specifically birds), landscape heritage and economic development issues. It avoids prioritising one of the issues if this complex approach is decided from the beginning of the planning.

**Legal approval of wind energy development areas and technical requirements for wind turbines placement**

The LEP for the NVBR was approved in 2008. Just after the completion of the LEP, on December 9, 2008, the Cabinet of Ministers (CM) Regulation No.353 on "Individual Regulations on the Use and Protection of the NVBR" was amended. This included the provisions regarding wind energy development in the NVBR, as well as the cartographic attachment of permitted areas for wind energy had been included as the Annex. On 11 May 2011, the new CM Regulation No 303 with the same title came into force and is still applicable. In the areas which were marked as permitted for wind energy technologies, it is allowed to install wind turbines without height limitations which meet the following conditions: (i) they can be deployed upon receipt of a written permit from the Latvian Nature Conservation Agency, (ii) wind turbines shall be arranged in groups where the number of wind turbines does not exceed 20 - as far as possible minimising the distance between adjacent wind turbines and the distance between the wind turbines groups shall not be less than two kilometres. It should be noted that the planning of wind park locations within the permitted zones shall comply with the regulatory requirements that determine the minimum setback distances in CM Regulation No 240 (30.04.2013) on ‘‘General Regulations for the Planning, Use and Building of the Territory“). Additionally, the procedure for planning the wind park shall comply with the Law on Environmental Impact Assessment and related regulations.




| | |
|---|---|
| ——— | Border of the North Vidzeme Biosphere Reserve |
| | Territories, in which wind parks are allowed |

*Territories allowed for wind park placement within the North Vidzeme Biosphere Reserve (Windenergy Latvia: 2018)*

## Key actors and stakeholders

In sum, the target groups of this measure include:

- The whole society (in general);
- Wind energy developers;
- Landowners whose land is in the territory of the biosphere reserve;
- Local society and local municipalities.

In this case, the society as a whole may be seen as a key target group. It is in the interest of the broader public that wind parks should be located in a way that does not threaten the values of NVBR. In 2009, just after the approval of wind energy areas in the NVBR, at least seven wind energy developing companies received licences and had contacted the local municipalities and the administration of the NVBR to present the wind turbines/parks construction intentions. Additionally, landowners whose land is in the territory of the biosphere reserve are a directly affected group which may benefit from the wind turbines installed on their land. Local society and local municipalities may be seen as an indirect target group due to the concern for a fair distributions of the potential gains from the wind parks, although this has not been directly taken further.

The LEP for the NVBR was developed by the consortium - Ltd. “Estonian, Latvian & Lithuanian Environment” in collaboration with the University of Latvia - as the component for a larger project “Conservation of Biological Diversity in the NVBR” under the UNESCO programme “Man and the Biosphere”, which was the financial supporter.

The beneficiary of the LEP is the Ministry of Environmental Protection and Regional Development and its supervised nature protection administration institutions (Administration of NVBR, from 01.07.2009 joined to national Nature Conservation Agency).

Representatives of local governments, state authorities, foresters, local businesses, farmers, various NGOs had contributed actively providing effective participatory process.

## Social acceptance barriers and drivers

The barriers for achieving social acceptance in region were rather broad and related to the impact on the environment, the socio-cultural values attached to the land, the ineffective regulatory framework and the trust in key actors. In sum, these have been largely been overcome by a combination of two factors:

(1) The establishment of a criteria to define wind energy areas
(2) A participatory process on information and a consultancy approach. All stakeholders, that could be affected by the wind park, will be systematically involved using the public discussion.

The subsections below elaborate on the identified barriers and explain how the two factors mentioned above have contributed towards driving the social acceptance for wind energy.

**Impact on Environment**

The application of the LEP method made it possible for the stakeholders to agree on a criteria for defining areas permitted for the deployment of wind energy (and vice versa, on criteria in which areas wind energy development should not be permitted and why). Thus, the negative impact on environment is minimised by the fact that the LEP does not include the deployment of on-shore wind plants on direct coastal areas, important biological diversity centres and corridors, mosaic landscapes with special requirements for landscape protection, landscape areas containing valuable cultural heritage sites and landscape areas of high visual quality.

The avifauna related risk assessment, together with the visual form of landscapes, has proved their effectiveness as instruments for facilitating social acceptance related to environmental factors. To reduce the potential risks created by wind parks to welfare of birds and bats, there is a need to use an assessment instrument for mapping the risks and identifying the risk territories.

The absence of such risk mapping, which essentially means a lack of adequate unbiased information, is one of the causes leading to the conflict between the wind energy developers and the public and/or NGOs engaged in environment protection. The LEP for NVBR is one of the first contributions to such risk assessment in Latvia. It has to be noted that the stated wind energy areas are a result of a compromise among the experts involved in the development of LEP. Even today, ornithology research provides new methods for birds risk mapping (which should be taken into account when transferring the measure), and this was a reasonable compromise for that time and for that given territory.

**Socio-cultural values**

The socio-cultural values and the sense of place are taken into account in the measure. This is both by the fact that the LEP does not include the deployment of wind plants near valuable heritage sites and landscape areas of high visual quality, as well as by considering local people's lifestyles in terms of the territory development perspective.

These are achieved by the participatory processes during the LEP elaboration, which has contributed to the inclusion of local society interests. A possibility was given, by applying different methods, for a local society to actively express opinions about the desired development of the territory. These included public discussions and a public survey among the inhabitants residing in the NVBR area about what should be considered as a Latvian landscape. It was important to raise the questions among local inhabitants about whether they want to have territory suitable for production, whether this will be in line with their lifestyle as well as whether they want changes. Informational consultations with stakeholders have allowed them to bring their knowledge within the LEP.

**Procedural justice**

Achieving a fair, transparent and participative decision making, in other words -trust in processes and key actors – has been achieved in several participatory phases. In sum, those were:

1. During elaboration of the LEP
2. During adoption of national, Cabinet of Ministers Regulation
3. Permanent (regular) participatory in the form of Consultative Board of the NVBR

These are elaborated below.

*Participatory process during elaboration of the LEP*

The LEP developers have attached a lot of importance to the opinions of local people and land and forest owners/managers. There were many discussions and surveys held, both about future intentions and plans of the stakeholders, as well as about the desired landscape of the public.

Widely attended workshops and public consultations were also held, in which there was participation by representatives of local governments, state authorities, foresters, local businesses, farmers, various NGOs etc. The principal opinion voiced during the discussions was that an integrated vision about a territory is a significant pre-condition for sustainable regional development and that the LEP aggregates the data that were previously fragmented.

*Participatory process during adoption of national regulation*

In accordance with the legal requirements of the procedure on governmental regulations development, the draft versions of the "Individual Regulations on the Use and Protection of the NVBR" were placed on the website of the Ministry of Environmental Protection and Regional Development. This was done to gather comments and proposals.

*Permanent (regular) participatory in the form of Consultative Board of the NVBR*

To ensure the permanent (regular) participation of stakeholders, the NVBR Consultative Board was established for engagement of local governments and other interested parties, as well as to support the coordination of NVBR activity. The functions, tasks and rights of the Consultative Board are set out by the relevant Cabinet of Ministers Regulations. The Board consists of representatives of the Riga and Vidzeme planning regions, municipalities whose administrative territories are part of the NVBR, the Ministry of Environmental Protection and Regional Development, the regional departments of such relevant state administration institutions as Latvian State Forest Service, state SC “Latvia’s Forests”, state Rural Support Service, national Cultural Heritage Authority, range of non-profit and non-governmental organisations interested in the development of the NVBR, regional (Vidzeme) university and the UNESCO programme "Man and the Biosphere" .

**Factors related to governance and regulatory framework**

By adopting the Cabinet of Ministers Regulation on wind energy areas in the NVBR, a regulatory framework has been established and accepted by all levels: national, regional and municipal. Importantly, on 4 January 2011, the draft regulations were sent to the 10 municipalities within the territory of the NVBR. Opinions were received from 8 municipalities, which approved the draft regulation without objections. Training for planners was organised by the LEP developers at different levels about the basic principles of the LEP development, as well as its importance in

territory development planning and decision making. Importantly, prior to the development of the LEP, the placement of wind plants was not permitted in the landscape protection zone of the NVBR, thus the measure opened new potential areas suitable for wind energy.

## Effectiveness

The effectiveness of the measure highly depends on the extent of public participation during the wind energy zoning elaboration procedures. The mapping methods are not by themselves the solution. An important pre-condition is discussions within local community on the benefits and potential conflicts concerning wind energy in early planning stage, even during the beginning the delivery of the wind energy project. The local government should take active and systematic part in the dialogue and discussions. It should also establish the forum for discussion and promote and disseminate the discussion. These efforts will result in a well-informed local community. The map of areas permitted for wind energy developments might be a highly useful tool in such a discussion.

On the contrary, the wind energy zoning without a participatory process would have a negative impact on social acceptance. It is fundamental that the local authority who has authorised the zones for wind energy development communicates and informs the local community of their decision, as well as explaining such a decision. Given that local communities are not actively following the documents and decisions on these matters, even if a developer has the formal permission to install wind energy in a zone, the surprise and lack of awareness of the local communities about such a process may cause barriers to social acceptance. Thus, the role of local authority must be to establish and maintain an open and active dissemination of their decisions relating to wind energy zones.

There is no specific assessment available in the NVBR area on the effectiveness of the wind energy zoning on improving social acceptance. Such an assessment could be carried out only during development and implementation of a specific wind park project. Due to a number of reasons, such as the radical change in national regulation on setback distances for wind parks and turbines (adopted in 2013), wind parks have not yet been placed in the North Vidzeme region. Thus, the effectiveness of the measure is in theory, rather than practice. However, the participatory process provided during the development of wind energy zones map justifies the belief that the performance of the planning practices will contribute towards better social acceptance in the NVBR area during future discussions on wind energy development projects.

## Innovativeness

In general, the LEP is increasingly becoming a popular approach and can be considered as generally known among experts as well as planners in Latvia. At the same time, this practice is still innovative in Latvia from the point of its practical application. In other regions of Latvia, for

example the Kurzeme region, which has highly important natural and cultural values, as well as strong wind resources for wind turbines installation, the LEP approach has not been implemented yet at a region-wide level - so there has been no definition of the suitable location areas for wind parks based on this practice.

## Transferability

There are no clear barriers for the transferability of the LEP approach. It is important to note that the transferability relates to the main principles and approaches, not to the specific features of the practice and the way these features were implemented in the NVBR.

The important factors determining and enabling transferability are availability of data, expert staff availability, feasibility in the administrative sense and availability of financial resources. For instance, it could be assumed that the costs for the wind energy areas zoning for the coastal part of Kurzeme region would amount to around 100,000 EUR. Of this, half would be allocated for birds (and bats) risk mapping and the other half for landscape mapping. Additionally, should there be a lack of available data, the costs would be higher, given that the existence of previous research data may decrease the costs.

The set of areas in the maps are to be considered as national importance territories under the national spatial planning framework. The approach may particularly prove its effectiveness if there is a national decision on planning requires that a certain percentage of land use within the state/regions should be allocated for the establishment of wind parks by a certain time. In this context, the approach is directly related to the accomplishment of national renewable energy goals and takes into account the national priorities of the energy sector’s development, as far as it coincides with the interests of nature, species and heritage protection.

Feasibility in the administrative sense refers to the existence of national or regional administrative structures/institutions of adequate capacity to lead the wind energy areas zoning. This would be at the national or regional level and is achieved through horizontal cooperation between ministries of environmental protection, regional development, economics and energy, as well as vertical cooperation among involved states and municipal governance institutions.

The elaboration of wind energy maps shall be based on the novel analysis methods. The development shall be done in two principal directions:

1. Local citizens lifestyles and landscapes (both culture heritage and aesthetic values)
2. Birds risk assessment

In the cartographic mapping, 2 areas shall be established which provide clear spatial planning signals for potential investors:

(1) Mapping of areas in which wind energy plants might be placed.
(2) Clear identification and mapping of areas in which wind energy development must not take place.

Thus, there is a clear need at the national level for adopted tools which should be efficient and facilitate more effective/easier national level supervision of wind energy developments. Additionally, they should provide for a clearly defined investment environment for wind energy developers.

**Birds Risk Assessment: Concept of the Latvia Ornithological Society (LOS)**

To avoid conflict situations, a crucial factor is the public availability of professional planning tools. These can be applied already in the preliminary phase of the wind energy project development, namely, before the detailed evaluation on avifauna by birds' experts is performed for the planned site of the project. Thus, the adequate identification of the suitable area for the project can be performed at the very beginning phase. The concept proposed by LOS includes the development of the set of following tools which shall be publicly available:

1. **Birds Risk Map** due to wind energy development by identifying **areas of the high risk collision**
2. **Guidance document (Guidelines)** for the evaluation of wind energy (both single wind turbines and wind parks) impact on birds
3. **Methodology for the calculation of collision risk of birds with turbine,** based on use of mathematical modelling.

**Birds Risk Map** shall be the digital scalable vector-data layer which shall be put on the base-map within the data management system of the national Nature Conservation Agency. Also, after adaptation, this shall be available for use within GPS reception equipment, tablet PC and other information systems. Based on the field studies and the data obtained from other sources regarding the species' habitats, the cartographic material regarding the important sites for birds should be prepared. This should be done based on the component parts of the landscape which are important for birds. The regions that are important for birds shall be defined taking into account scientific knowledge on habitats area and species necessities. The modelled areas, prepared for particular species, should be overlaid. If necessary, Ecological niche factor analysis or Maximum Entropy Modelling for the analysis of species habitats should be applied. The LOS has made similar research for the region of Kurzeme in 2013, however, the risk maps prepared in that time were not mathematically modelled meaning a significant improvement is necessary.

**The Guidance document** for the evaluation of wind energy impact was developed in Latvia in 2013 and now shall be updated taking into account the newest ornithology research results and guidelines.

## Additional components

It is necessary to underline a range of other important factors which contributed to the success of the application of the LEP method:

- The Interdisciplinary Team/Science Approach: Qualified researchers, including representatives of academia (University of Latvia) - geologists, biologists, professionals on culture and heritage issues, landscape designers, economists, map-makers - had been collectively involved in the development of LEP
- The use of the data of previous researches carried out in NVBR territory
- The Historical approach - LEP data about the North Vidzeme landscape were obtained from the archives dating back to the First Latvian Republic (1920-1940), as well as the archives of the Russian Empire. Thus, comparisons of the aforementioned data leads to identifying long-term development trends that might not be assessed from the point of view of a single individual's life-span.

## Conclusion

This case study has shown that Landscape Ecological Planning can be considered as best practice case for the promotion of the social acceptance of wind energy by not compromising other values, such as cultural and environmental ones, of the region. It has successfully involved a wide variety of stakeholders, particularly local people and communities. The model has also been shown to have good transferability, thus further justifying the argument of it as a best-practice case.

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## 10.2.6 Case Study 6

### Local Innovation House in Birkenes (Norway)

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**Organisation:** CICERO

## Summary

In the Norwegian municipality of Birkenes, the national regulator has given *E.ON Vind Norway* a permit to develop 21 wind turbines. Before the permit was given, the developer offered to build a local maintenance and educational house, labelled the 'innovation house' in Birkenes. The innovation house is a corporate measure that is supposed to be built from local timber and serve as a local educational centre, promoting understanding and social acceptance of wind energy. It was one element of an agreement between the developer E.ON Vind Norway and the local authorities. This agreement tipped the political majority in the municipality in favour of wind power development in Birkenes, yet only marginally. The fact that the local council supported the wind project has probably made it politically easier for the Ministry of Petroleum and Energy to decide to give the developer the permit, when the regulator's decision to do so resulted in several complaints.

The construction of the innovation house increases the potential activities to be undertaken by existing local businesses, for example, to build using local wood and local labour. In the Norwegian context, the idea to use the products and expertise of local companies' (in particular timber and fiber glass) to build the innovation house, wind towers and turbines is innovative. This has had a positive effect on the perception of local businesses on the wind power project. The local businesses were also the most important actors in persuading politicians to initiate negotiations with the developer. However, the innovation house itself has not been decisive for increasing social acceptance. The most important contents in the agreement with E.ON, that made more politicians vote in favour of the project, were the mitigating and compensatory measures. The local society remains split on the issue.

In the following, we present the background and motivation for introducing the innovation house in Birkenes, outline its specific features and important actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

In developing this case study, both written and oral data were gathered to gain insights into the relation between the local innovation house and social acceptance in Birkenes. Written sources, which have provided important background information, include the contract between the developer and the municipality, policy papers and newspapers. Oral information includes opinions from two local representatives from Birkenes at a panel discussion held in Arendal, Norway, 14 August 2018. During this event, the need for wind energy in Norway was discussed as well as the local conflict in Birkenes. The two representatives were the Birkenes' mayor, Anders Christiansen,

who is in favour of developing wind power in Birkenes, and the local opposition group *Motvind's* board member Anne Gerd Sunne Væting. In addition, one semi-structured, anonymous interview was carried out in November 2018 with one politician in the municipality, who is in favour of the wind power project.

## Background and motivation

### Understanding the broader context of wind energy in Norway

As a starting point, important background information for this case study includes national policies and the local political context in Birkenes. The Norwegian Energy White Paper from 2016 states that the "government will facilitate for profitable production of renewable energy in Norway" to "make use of renewable energy resources in a way that creates the most values for society, at the lowest possible cost" (Ministry of Petroleum and Energy 2016a, p. 8, own translation). The White Paper does not include a particular target for wind energy in Norway.

Since 2012, Norway has been in a common market for renewable electricity certificates with Sweden. This is designed to achieve an increase in annual renewable-electricity production capacity at the lowest cost to society, as well as to provide incentives for producers to respond to market developments. Until 2020, Sweden and Norway are expected to increase their renewable energy share in the electricity generation to 28.4 TWh. In Norway, to be entitled to sell such certificates, a renewable energy power plant must be completed by 31 December 2021. After this date, the support instrument for renewables will be phased out. One consequence of the phase-out is that the Norwegian regulator has received a lot of applications from investors, who want to develop projects before the support ends. To receive support, the projects have to be commissioned by 31 December 2021.

In general, the tax burden for wind power are lower than for hydro power. This fact contributes to make Norwegian citizens more in favour of hydropower than wind power (i.e. they experience that there are larger local benefits from hydropower than wind). In addition, hydro power plants are typically owned by local and regional authorities, while foreign investors, who are satisfied with lower margins than the Norwegian investors, tend to invest in wind power.

The public debate is characterised by two contrasting views. Promoters of wind power argue that wind power development can help mitigate climate change, while creating optimism and new jobs in rural areas. In contrast, opponents highlight that wind power harms nature and biodiversity, and destroys the identification and attachment of people to a particular place, without contributing towards mitigating climate change. The latter is because Norwegian electricity generation is already fully renewable. These issues have also been raised in Birkenes.

**Wind energy in Birkenes**

Birkenes is a municipality in Southern Norway, however it is it is not within the Norwegian target or model region in the WinWind project. The municipality is 674 km$^2$, with a population of 5,178 (2017). The administrative centre in the municipality is Birkeland, where half of the population lives. While certain villages within the municipality are experiencing depopulation, the municipality's population as a whole has increased by 17.4% over the last decade.

The map below illustrates the three areas – Storehei, Oddeheia and Bjelkeberg – where the wind plants are planned to be located. Storehei is located 10 km north of the city centre Birkeland, Oddeheia is 4 km east of Storehei, and Bjelkeberg is approximately 700 m southwest of Oddeheia.

*E.ON Vind Norway* is planning to build 21 wind turbines, with a capacity of up to 85 MW, in total in these three areas *(see map of local area below: NVE 2012).*

Although having originally rejected E.ON's plans to develop wind power in Birkenes, the municipality later went into negotiations with E.ON. Based on these negotiations, the municipality and E.ON made an agreement. The intention of the contract that the parties agreed to, is 'to facilitate for cooperation, involvement, and consider local societal interests that Birkenes is responsible for. [This is] during planning, construction and operation of *Vindkraftverket* [the wind power plant] and, through this, ensure predictability and positive ripple effects of the wind power plant for both the developer and local society' (Birkenes 2017, p. 2, own translation, italics added). To reduce possible negative effects of the construction and operation of the wind power plants for local interests, the agreement intends to ensure reasonable and relevant mitigation measures. The innovation house is one measure highlighted in this contract.


The purpose of the innovation house is to increase knowledge and interest in renewable energy among youths in the municipality (Birkenes 2017, p. 6). The motivation behind this idea is to involve local residents in the wind power park project, contribute to education about renewable

energy and climate mitigation. Direct community involvement, not only during the permitting process, but also in the operating phase of the project, is expected to increase local acceptance of wind power.

## Detailed description of the measure

As mentioned, the innovation house is part of an agreement between the municipality of Birkenes and *E.ON Vind Norway*. The intention of the contract is to regulate the relationship between these two partners, in the case that the wind plant will indeed be realised. This agreement is voluntary in the sense that the developer is not required by law to sign such a contract with the municipality, but it is considered wise to have a good relationship with the local authorities, as they are important consultative bodies during the process of concession (i.e. the agreement was signed before the concession was given). Accordingly, the innovation house is a corporate measure (i.e. adopted by industry actors) to be financed by the project developer E.ON.

The key functioning mechanisms of the innovation house is to provide for an operational office for the wind power plant and educate the public in general, particularly local students, about wind energy. Indeed, an operational office close to the wind power plant will be a necessity. This operational office will employ between four to six persons. The agreement between the project developer, E.ON, and the municipality states that E.ON is 'prepared to guarantee' the construction of an innovation house in Birkenes municipality (Birkenes 2017, p. 6). E.ON is 'positive' towards building this house in wood (ibid). Local timber may be used (ibid). The operation house will include rooms for meetings, conferences and innovation. Based on a rough cost estimate carried out by E.ON, the investment cost will be maximum 20 million NOK (2 million euros). E.ON is prepared to discuss where in the municipality this house should be built. Within the wind plant's operational office/innovation house, E.ON will create a local educational centre for wind power directed towards the public, particularly for school classes. E.ON will cover the costs for this educational centre, including the facilities, continuous operation, information about wind power and guided tours in the area of the wind plant (ibid).

One of the functions of the innovation house is to increase the interest in renewable energy, in particular, among youths in the municipality. The agreement states that, on request from the municipality, E.ON will make its expertise available, provide information and be present when teaching activities and conferences take place for pupils. Within "reasonability', these services should be provided free of charge to the municipality (ibid). E.ON's educational contribution may include classroom teaching, participation in school topic days, providing places for students during school working days and guided tours at the power plant. E.ON and the municipality will make further agreements about such specific activities. If necessary, the county (which is responsible for secondary schools) will be included in such agreements.

## Key actors and stakeholders

The wind project developer, *E.ON Vind Norway,* the branch of E.ON Vind Norway, wants to invest in wind power in Birkenes. It is part of the E.ON Group, which is the world's largest privately owned energy group, with its headquarter in Germany. E.ON Vind, which is based in Malmö, Sweden, is a subsidiary that develops E.ON's wind power activities in Scandinavia. It has targeted the local authorities in Birkenes to get support for its project, as noted in the above sections.

In addition to the local authority, there are in particular two target groups that the innovation house seeks to address. First, local businesses, such as the trade industry (e.g. timber and fibre glass businesses), have been important in promoting the project, arguing that the wind power plant has potential benefits for the local community (Birkenesavisa 2017a). In the interview carried out, it was argued that a group of local businesses played a key role in persuading the politicians to support wind power. This is further elaborated in the sections below. Second, the general public/local residents are also a target group. The innovation house aims to engage and inform local residents about wind energy and, in particular, to educate students and pupils about renewable energy.

One important actor that opposes the wind power project is a local movement, *Motvind*, which has played a crucial role in protesting against the proposed project in Birkenes. *Motvind* was established at a public meeting in 2013 by its founders as a direct consequence of E.ON.'s plans to develop wind power in Birkenes.

## Social acceptance barrier and drivers

When E.ON's plans to develop wind power in Birkenes was made public, the developer was met by considerable resistance. The concession that the regulator gave to the developer was complained against, twice, and ended up being a political decision. The timeline is as follows:

In 2011 E.ON started planning to develop a wind power plant in Birkenes (E.ON 2013). The regulator arranged a first public meeting about the project in the following year. In April 2013, E.ON. submitted the application for concession for Storehei, Oddeheia og Bjelkeberget to the regulator, and the regulator arranged for a public meeting a couple of months later. In the same time period, *E.ON Vind* invited the citizens to an 'open house' discussion on the topic. *Motvind*, which has been a particularly important movement protesting against deployment of wind power in Birkenes, was founded at one of these public meeting in 2013. It was established to protest against E.ON.'s plans to develop wind power in Birkenes.

According to the interview carried out, the most controversial topic was **noise** from the wind turbines. The administration in the municipality advised against the wind power project and the majority of local politicians objected to E.ON.'s plans: 15 voted against and 6 in favour

(Birkenesavisa 2014). However, in December 2013, the regulator still gave E.ON the permit to develop Storehei wind power park. This decision was appealed by several stakeholders and as a consequence, the case was sent to Ministry of Petroleum and Energy, which eventually rejected the project plans in Spring 2016. The main reasons for the Ministry's rejection were due to the wind power plant's negative effects on biological diversity and landscape (Ministry of Petroleum and Energy 2016b).

However, despite the initial success of the opponents, E.ON. did not give up its plans to develop wind power in Birkenes. The rejection gave an incentive for E.ON to come back with a smaller project (i.e. less wind turbines) and to also provide compensatory measures. In contrast to the former round, where the local opposition group *Motvind* was prominent, in the second round of discussions, local businesses were more vocally in favour of the wind power project. As the municipal administration was primarily shown to be negative towards the wind project, the case was put on the agenda again by some politicians. In this regard, having been somewhat persuaded by local businesses that the wind power project would provide for local opportunities, the municipality went into negotiations with E.ON and agreed on a contract in 2017. According to the interview, some of the mitigating measures that are included in the agreement between E.ON and the municipality were introduced as a consequence of *Motvind*'s arguments and opposition. These are particularly related noise concerns.

However, not all the politicians in the Presidency of the Municipal Council agreed to the contract: the agreement was adopted with six votes in favour and three against (Birkenesavisa 2017c). When the Municipal Council casted its vote about whether the municipality should say yes or no to the deployment of wind energy in the area, 11 politicians voted in favour (including the Mayor), ten against (NRK 2017). The content in the agreement with *E.ON Vind Norway* tipped the position in the Municipal Council in favour of wind power.

In December 2017, the regulator granted E.ON. a permit to develop its wind power project in Birkenes (NVE no date). 10 complaints, related to untouched nature, red-listed birds and bats, noise, protected waterways, shadow cast and visual effects were submitted to the Ministry of Petroleum and Energy. However, this time, the Ministry decided to give E.ON the permit (Ministry of Petroleum and Energy 2018). This happened in December 2018.

In light of the complaints, there is a number of key acceptance barriers against wind energy in Birkenes (Birkenes motvind, 2013), which are here categorised in line with the different forms identified in the Windwind project.

**Summary of Acceptance Barriers**

Socio cultural factors:

- **Identity and cultural attachment**: Birkenes is characterised by many forests and hills. The group argues that this scenery is important to the local community's quality of life.
- **Outdoor life and recreational activities**: The destruction of untouched nature, and the removal of the silence that usually follows in untouched nature areas, e.g. shadow flickering and noise nuisance. Another negative impact is reduced enjoyment of hunting activity, and there is lack of knowledge about the impact on salmon fishing.

Environmental impact:

- **Industrial intervention of untouched nature**: The land disturbance is seen as a threat to the area's untouched nature and biological diversity (e.g. red-listed birds and bats).
- **Efficiency**: There is an oversupply of electricity in Norway. The power will be exported, increase domestic electricity prices and does not have certain climate mitigation effects.

Trust in key actors and planning process

- **Process**: *Motvind* opines that E.ON has used "underhand means", arguing that the company has contacted landowners directly and held "secret" meetings.

**Acceptance Drivers**

Environmental impact:

Environmental impact is relevant in terms of effects on greenhouse gas emissions. If (local) timber will be used and glass fibre produced, using renewable energy rather than fossil fuels (i.e. made in Norway and not for example China), the foot print of the construction phase will decrease.

Impact on economy (distributional justice):

This issue is important as the innovation house is expected to have a positive effect on the local economy, if the developer and its subcontractors make use of products and services from local businesses. Similarly, such effects are highlighted in terms of distributional justice, as the local society will not only bear the burdens but also gain certain benefits.

A network of local businesses in Birkenes met once a month to discuss such opportunities, and also met with turbine suppliers like Siemens to discuss opportunities like building wind turbine towers in wood. According to the interview, these would decrease the footprint of the infrastructure, and produce fibre glass locally based on renewable energy. In Birkenes there is a factory

(Aanesland factories) that uses local timber to build a range of products. There is also a local fibre glass business (3B Fibreglass). The operation of the wind park is expected to provide four to six working places and E.ON is expected to open up opportunities for apprentices. Local businesses may benefit during the construction phase, depending on whether and to what extent E.ON chooses to actually make use of local entrepreneurs and local materials (i.e. timber and glass fibre) when infrastructure and wind turbines are being built. Such benefit will also depends on where the workers will live and be catered for during the construction phase. There is no mentioning of gender equality in the contract.

In particular, investors and local citizens in the village *Engelandstunet* have been engaged in the discussion about where to locate the innovation house. This is a disputed topic. They are hoping that E.ON might contribute with further/additional investments, also in their own recreational project, aiming to create an eco-village consisting of accommodations, cafes, shops and offices to attract people to move to and settle in the village, which experiences stagnation (Birkenes kommune 2017; Birkenesavisa 2018d). One issue is whether E.ON would agree to make two houses: one office that faces Engelandstunet and one storage that could be closer to the village's sports facilities related to an idea of constructing a skiing tunnel where there will be possibilities to go cross-country skiing all year round (Fædrelandsvennen 2018). This will be next to the illuminated skiing trail in Engesland. Other alternatives are locations closer to where most of the citizens live.

Individual characteristics (factors relating to the planning and permitting processes)

This is relevant in terms of discourses on wind energy and attitudes. The motivation behind the innovation house is to involve local residents in the wind power park project, as well as to contribute to education about renewable energy and climate mitigation. Direct community involvement, not only during the permitting process, but also in the operating phase of the project, is expected to increase local acceptance of wind power.

By engaging citizens in the operation of the wind power plant and providing new opportunities, the innovation house is expected to strengthen the view that wind power development can help mitigate climate change, whilst also creating optimism and new jobs in rural areas. The educational activities will provide information about the relation between renewable energy and climate change. Employment, apprentices and the use of local timber are expected to create new opportunities and growth in Birkenes, which is a rural area. Hence, it is expected that the innovation house together with other measures, will contribute to increasing local acceptance of wind power in Birkenes.

## Effectiveness

While the innovation house and the other mitigating and compensatory measures have been important for tipping the majority of the municipal council to vote in favour of the proposed project, it is uncertain to what extent the measure has affected local acceptance in the population as a whole. There is still considerable resistance, in particular from *Motvind*. This highlights that wind power is still considered to be harmful for nature and biodiversity, and destroys self-identity and place attachment, without giving climate change mitigation effects, particularly as Norwegian electricity generation is already fully renewable.

Moreover, project developers' financing of other local facilities to enable their own wind energy developments is sometimes perceived as a form of bribery. The day before the municipal council of Birkenes decided about the wind energy development, a group of landowners were offering 3.5 million NOK (350,000 EUR) in mitigating measures to the municipality. *Motvind* claims that this affected the local council in such a degree that the decision should be considered illegitimate (Lillesand-Posten 2018a). The fact that the municipality initially opposed the development contributes to this perception. The newspaper *Aftenposten* has mapped how such agreements often are presented immediately before local decision makers take a decision on a development project (Aftenposten 2016).

Opponents also argue that the content and the process of negotiating the voluntary agreement is 'dubious', which may affect the level of trust. The opponents are of the opinion that the voluntary agreement has many vague formulations and commitments, and that E.ON is not really committed to any other principles other than promoting its own income (Birkenesavisa 2017b). The lawyer who revised the agreement on behalf of the municipality argues that to be 'prepared to agree' (as the contract states that E.ON is prepared to agree) is not necessarily a binding commitment (Birkenesavisa 2017b). In line with this, according to the interview, opponents argue that 'the agreement is not worth the paper it is written on'. In contrast, supporters of the wind power plant argue that it would be foolish of E.ON not to comply with its proposed commitments, as it is going to stay in the area for 25 years (i.e. concession period) and would not want to create further opposition against its activities.

The innovation house as a separate measure on its own has not been particularly effective in Birkenes but has been important as part of a larger package (i.e. the contract between the municipality and the developer). The innovation house would probably be more effective as a measure, if the developer had committed itself to give use local timber, when building the house. It would also have been more effective, if the developer had committed itself to build two separate houses so that the educational part could be placed where people live and the operational part in the wind park. The fact that the innovation house has been particularly wanted by investors in one village in Birkenes, which experiences depopulation and stagnation, suggests that as a measure it may spur higher social acceptance in such areas than in other areas.

## Innovativeness

An innovation house in itself is not particularly innovative, as this is promoted by wind developers in many different municipalities in Norway. However, in a Norwegian context and in Birkenes, the ideas to use local companies' products and expertise to build the innovation house, wind towers and turbines are innovative. The local businesses have promoted possibilities for using local resources and factories, exploring whether the wind turbine towers could be built, using local timber or glass fibre, as mentioned above. The first modern wind turbine built on a tower of wood was built in Hannover, Germany, in 2012, but in Norway this is an innovative idea.

## Transferability

The measure can be transferred to other regions, but it would be useful to adapt it to local contexts, depending on what local businesses and resources exist. For example, one aspect that has been important for certain local businesses and the local authorities in Birkenes has been the positive attitude towards using local timber, as logging is one important source of employment in the municipality. This may be of less relevance in areas where logging is not an established industry.

In Birkenes, the location of the innovation house has been disputed, as different villages want to host the innovation house. It has been particularly attractive in one village, which experiences stagnation, as it gives the hope that an innovation house could make it more attractive for people to settle. This could be relevant for other areas experiencing depopulation.

The transferability of the innovation house is high, as it is not considered as being too resource demanding for a developer to build a house and attend for some educational purposes. Such an offer from the developer to the municipality does not seem to be unusual in Norway.

## Conclusion

This case study shows that the innovation house has characteristics that makes wind power more popular among certain interests in the municipality. Key activities related to education and some working opportunities for the operation of the plant are considered positive and something that may attract also others to settle nearby, given that it is not placed within the wind park itself. The potential for increased activities among existing local businesses, for example by building the innovation house in local wood, has had a positive effect on such businesses' view on the wind power project. However, the innovation house itself has not been decisive. The most important content in the agreement with E.ON that tipped the position in the Municipal Council in favour of the project were the mitigating and compensatory measures. It should also be mentioned that this majority was only marginal. Local society remains split on the issue. What the developer decides to do, whether it chooses to comply with what it says that it is "positive" to do, but which is not binding (i.e. the formulations in the contract are weak), will be decisive for social acceptability.

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## 10.2.7 Case Study 7

### Continuous developer and community dialogue in Fosen (Norway)

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## Summary

In Fosen, south-western Norway, several wind energy projects are currently under construction. In this case study, insight will be provided on the dialogue process surrounding four energy projects which will consist of more than 200 wind turbines, with a total production of around 2.7 TWh annually when completed in 2021. In terms of social acceptance, the Fosen wind energy case is interesting because the dialogue has been extensive. The national regulator arranged for 35 meetings between the developers and the local community. These dialogue meetings were primarily a policy measure that provided information from the regulator and developer to the population and vice versa. The meetings have contributed towards creating trust in the national regulator who decides whether to give a permitting license after mapping out the advantages and disadvantages of wind power projects. These were part of the concession process, but in contrast to other concession processes, which focus on one particular project, the four projects were coordinated and discussed in the same process.

The dialogue has helped to increase social acceptance in Fosen, but deep conflict remains. While a majority seems to support the development, certain groups are particularly adversely affected. Norway has recently been asked by the United Nations Committee on the Elimination of Racial Discrimination to suspend the ongoing development in Fosen in order to study the impact on indigenous herders' livelihood. Additionally, the Sami reindeer herder district of Fosen, which consists of two groups, are currently in court taking action against the developer. While the dialogue process has been important in facilitating social acceptance, economic benefits and opportunities for local businesses have been more important drivers of acceptance.

In this case study, the background and motivation for introducing the dialogue process in Fosen will be presented, then an outline of its specific features and important actors, before proceeding with an analysis of acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

Written and oral data were gathered to gain insights into the relation between the dialogue process and social acceptance in Fosen. Written sources include policy papers, reports and newspapers. Oral information includes opinions from 11 local representatives (two people from the reindeer herder district, three from two different energy companies, one representing the County Governor, one from the County administration, one from Friends of the Earth and three from the national regulator), who attended a national stakeholder desk event at Stokkøya (in Fosen), Norway, 11 October 2018, where local acceptance of wind energy development was discussed. The participants were invited to freely elaborate on topics related to local acceptance, including distributional and procedural justice. In addition, five semi-structured, anonymous interviews with six persons have been carried out. Four of these were in October 2018 in Åfjord (with two

politicians, one in the municipal administration, two in the tourism, catering and services industry) and one in November 2018 in Oslo, with a representative from the regulator, who has detailed insights into the consultations.

## Background and motivation

### Understanding the broader context of wind energy in Norway

As important background information for this case study, it is necessary to consider relevant national laws and the local context. To begin with, the 1990 Energy Act sets out the primary rules for allowing investors to establish and operate wind energy projects (i.e. concessions) and prescribes centralised proceedings when it comes to making decisions about wind energy development. The legislation and management practices on wind energy developments involve a significant degree of centralisation of decision-making powers to the Ministry of Petroleum and Energy (OED) and the Water Resources and Energy Directorate (NVE). Over time, the legislation on wind energy developments has become more detailed, but much discretion is still left to management practices, especially under the Energy Act (Fauchwald 2018).

The 2009 Planning and Building Act states that energy measures are not subject to legal proceedings by the traditional planning authorities. However, municipalities, counties, the Sami Parliament of Norway (the representative body of people of Sami heritage in Norway) and state agencies have the right to object to the submitted applications. Unless an objection is either withdrawn by the party or taken into account by NVE, the final decision on the application must ultimately be made by OED. Private individuals and organisations do not have the same right to object; but they should be included in traditional hearings and may claim compensation. Chapter 14 of the 2009 Act points out that plans and development measures that have significant consequences for the environment and local society must be carefully assessed. The assessment should be presented in the form of an impact assessment related to an application, and it is necessary to carry out consultations with private individuals and organisations (Ruud, Wold and Aas 2016). The relationship between concession decisions under the Energy Act and planning decisions under the Planning and Building Act remains somewhat unclear (Fauchwald 2018).

**Wind energy in Fosen**

Fosen Map (NVE: 2018)

The model region Fosen is a peninsula with one of the best potentials for developing wind in Europe. Fosen serves as a model region for, and is located in, the larger target region mid-Norway. Six municipalities (Bjugn, Indre Fosen, Osen, Roan, Ørland and Åfjord) are located on the Fosen peninsula.

In 2004, NVE received messages about plans to develop wind energy in Roan, Sørmarkfjellet and Kvenndalsfjellet. In 2006, NVE received a message from Statkraft about plans for four additional wind energy projects in the Fosen region, among them at Storheia. Storheia is a mountain situated within Sami cultural area. During the preparation of Statkraft's message to NVE, meetings were held between Statkraft and Åfjord municipality and Sør-Trøndelag county municipality, with affected landowners and the reindeer herding districts (Statkraft 2006: 19). With positive feedback from local authorities, the plan continued, while the remaining three parks that Statkraft had included in the initial message were cancelled (NVE 2007a). In 2008, NVE received the application for concession for Storheia wind park. The evaluation of the application was carried out together with other wind energy projects in Fosen.

On 7 June 2010, NVE announced that the four projects had been given a concession, noting that they were in line with the goals set out by the County of Sør-Trøndelag in its regional wind power plan and local authorities supported the projects. The municipal council in Åfjord was split on the issue but a majority was in favour (Fosna-folket 2008a). The municipal councils in Bjugn and Roan were largely in favour (Fosna-folket 2008b; Fosna-folket 2008c; NVE 2010a). However, the municipal councils in Osen and Flatanger voted no to the Sørmarkfjellet project and submitted a complaint to OED (NVE 2011).

As a result, there are several wind parks under different stages of construction in the Fosen region. The map shows the areas where construction is completed (dark green), areas where parks are being constructed (light green), and areas where parks have been given concession and construction is anticipated (blue). The focus of this case study is on four projects which were coordinated and discussed together during the concession process: 1) Storheia, to be completed in 2019, is located in the two municipalities Åfjord (3242 inhabitants) and Bjugn (4711 inhabitants). The park will have 80 turbines, producing 1000 GWh/year; 2) Kvenndalsfjellet in Åfjord municipality, set to have 27 turbines producing 405 GWh/year upon completion in 2020; 3) Roan in Roan municipality (986 inhabitants), with 71 turbines producing 900 GWh/year; and 4) Sørmarkfjellet in Osen municipality (997 inhabitants) and the neighbouring Flatanger municipality (not located in Fosen), set to have 31 turbines producing 440 GWh/year upon completion in 2021.

The history of wind energy in Fosen dates back to the late 1990s, when the Norwegian aluminium and renewable energy company Hydro made an agreement with the municipality of Åfjord to build a wind energy plant at Harbaksfjellet. According to two of the anonymous interviewees, there was no opposition and "the concession was given smoothly". According to one of these interviewees, at that time, "wind power was an industry that nobody knew. Wind power was something new in Norway". However, it was difficult to finance the development, and the project was therefore halted. In the early 2000s, wind energy properly entered the national agenda, and the Harbaksfjellet project is now one of several projects currently under construction in Fosen.

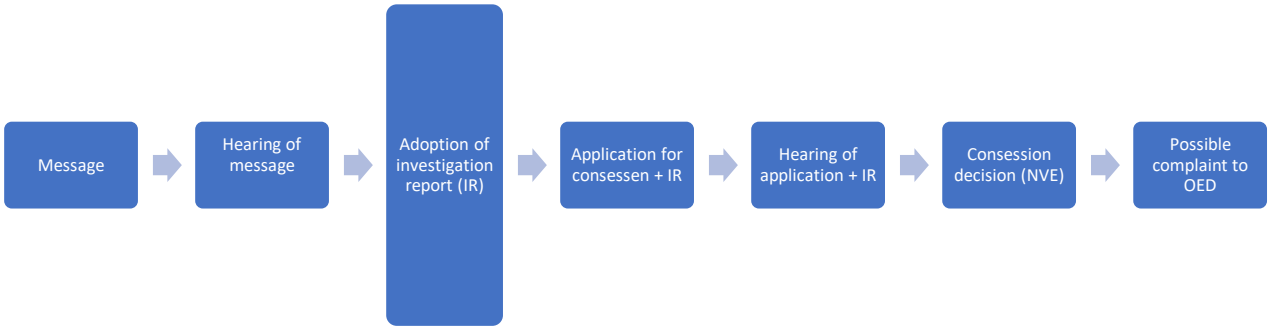
In 2008, the County of Sør-Trøndelag created a wind energy plan, which facilitates wind power development with a total installed outcome of about 1000 MW by 2025. The plan identifies Fosen as an area suitable for wind energy development. An increasing number of developers notified the regulator of their intention to develop wind energy in Fosen. In line with the ordinary procedures for concessions, the regulator initiated meetings to encourage dialogue between the project developers and affected parties. Given the large number of projects that were notified in the same area (i.e. in municipalities in Fosen and the neighbouring Namdalen region), the regulator decided to merge the dialogues on the four abovementioned projects and to consider them together.

The motivation behind the extensive opportunities for dialogue when wind energy projects are being planned is to involve local residents in the process, as well as to gain insights about local context and issues that should be paid attention to in the planning of the projects. Hence, the dialogue process is expected to increase local acceptance of wind energy projects. The dialogue is important for the legitimacy of the process. The regulator carries out inspections and listens to what inhabitants say. The aim is to balance advantages and disadvantages and to create trust that the regulator takes the population's views and knowledge seriously and tries to balance the pros and cons related to wind energy development.

Although the permitting procedure is organised and carried out by national actors, the direction and content of the projects are heavily influenced by the local authorities. As the planning authority, the municipality's decision to support a project influences whether a developer gets the necessary permit. Informants argue that only in very few cases has the regulator decided to give a permit against the will of the municipal council. In Fosen, the local public authorities have, to a large extent, been important drivers of the establishment of wind energy development in the region. With one notable exception (see section 6), the Fosen wind energy projects have been supported by a majority in the municipal councils in affected municipalities. The councils expected the wind projects to have positive economic impacts for the municipality in terms of tax income and employment. The fact that the siting areas were pointed out as relevant areas by the County of Sør-Trøndelag in its wind power plan also played an important role for the regulator when granting the concession (NVE 2010a, b, c; NVE 2011; NVE 2012).

## Detailed description of the measure

The dialogue process Fosen has been part of the ordinary concession process in Norway, which consists of the following steps (see Figure 2 below): First, the developer gives a notification of a planned project. The notification is supposed to provide information to all affected parties. It should include a programme for investigating topics that, in the opinion of the developer, should be assessed further through an impact assessment. The aim of the notification is to provide a provisional assessment of the possible impacts on the surroundings. NVE recommends that the developer distributes a brochure with a short version of the notification to all households and landowners in the area. Secondly, NVE initiates a hearing among the relevant municipalities, counties, county governors and relevant state agencies based on the notification. Usually NVE organises a local public meeting during the period of the hearing. Thirdly, based on the statements, investigation proposals and its own assessments, NVE determines a programme for an impact assessment. Fourth, the developer submits an application for concession together with an impact assessment. Fifth, NVE initiates a hearing of the application and the impact assessment and announces the hearing in local newspapers. NVE organises meetings with local authorities and also open public meetings about the application. NVE may request additional assessments. Finally, if NVE is of the opinion that the all relevant aspects are satisfactorily addressed, it makes a decision or a recommendation to OED.




*Ordinary Concession Process in Norway*

The dialogue process surrounding wind energy project concessions are regulated by the national Energy Act and the Planning and Building Act. As such, the dialogue process is a policy measure, as it has been adopted by the public administration, the national regulator. It is an informative and advisory measure. It is informative in the sense that the dialogue is supposed to increase the understanding of the wind energy project among the population, while the population's feedback is supposed to advise the regulator and developer about what aspects need to be considered in impact assessments. In Fosen, the local authorities have encouraged the developers to actively engage with the local community.

The Fosen wind energy case is interesting because the dialogue has been particularly extensive in terms of how many meetings have been held. The regulator arranged 35 meetings between the developers and the public. These were part of the concession process, but in contrast to other concession processes, several projects were coordinated and discussed together. A coordinated process where projects located in the same region are considered together arguably allows for a more informed discussion of the overall impacts of wind energy development for the region in question. In fact, in their response to the hearing of the Roan wind park concession, the Sami Parliament of Norway and the reindeer herder groups in Fosen both requested that the Fosen projects be considered together to get a better idea the overall impacts, before they could evaluate which projects should be granted concessions, and the conditions under which they should be granted (NVE 2010a). However, one politician that we interviewed found the coordination and process overwhelming. It was argued that it contributed to slowing down the process as "the pile of documents was one meter high […] already at the level of notification. We found it very frustrating. [The neighbouring municipality] slowed down the process, because it was their business [i.e. the wind park was to be placed in their municipality] but we had to see it in context [with the wind parks to be located in our municipality]."

In addition to the policy measures, with much weight on procedural design and community engagement, the Fosen wind energy process has also included corporate measures. These include financial compensation of affected landowners and investments in local infrastructure (e.g. roads and ports).

## Key actors and stakeholders

The keys actors that are involved in the dialogue process include:

- Project developers
- The regulator
- The municipalities (Åfjord, Bjugn, Roan, Osen)
- Residents
- Interest groups (local, regional and national)
- The County (regional level)
- The State County Governor (national authority at the regional level)

In 2015, the Roan, Kvenndalsfjellet and Storheia projects were transferred to Fosen Vind DA. Fosen Vind DA is a consortium of the Norwegian state-owned hydropower company Statkraft, the regional power company TrønderEnergi, and the Swiss multinational financial company Credit Suisse. Statkraft accounts for 52.1 % of the ownership and is responsible for the development. TrønderEnergi owns 7.9 % and Credit Suisse owns 40.0 % of the joint venture. The Sørmarkfjellet project is also partly owned by a national company (the regional power company TrønderEnergi

accounts for 30% of the ownership) and partly by a foreign investor (Stadtwerke München owns 70%). For all four projects, the Norwegian state-owned enterprise Statnett is responsible for constructing the power grid that the wind parks will be connected to.

At the national level, NVE and OED have had decision-making powers. The content of their decision was much influenced by local and regional government as well as the opinions of stakeholders. Local authorities, spearheaded by the mayor Vibeke Stjern, have to a large degree emphasized wind energy's ripple effects for local economy and business.

At the regional level, the County (Sør-Trøndelag) has both promoted the projects and also objected to them. As mentioned above, the regional plan for Sør-Trøndelag county facilitates for wind energy constructions with a total installed effect of about 1000 MW by 2025. At the same time, the County has stressed that wind energy development should take place in the areas with the lowest amount of conflict, and that the need for energy be balanced against the need to protect the environment, tourism and local community (NVE 2010c).

Interest groups that have played a role include two local reindeer husbandry groups, the south and north group in the Sami reindeer herder district of Fosen. The reindeer husbandry groups use an extensive part of the Fosen peninsula for reindeer grazing. Their strong opposition towards the siting decision has constituted a tough social acceptance barrier of the projects.

The Storheia wind park is located in an area used by the south group for winter grazing, covering about 20% of that area. On 10 December 2018, the United Nations Committee on the Elimination of Racial Discrimination asked Norway to suspend the Storheia project in Fosen in order to further examine a complaint lodged by the Sami Council on behalf of the reindeer herders in Fosen (Reuters 2018). According to the complaint, the Storheia project could disturb reindeer herding in the area, posing a threat to the Sami culture. The request was denied by OED (OED 2018). The south group of the Sami herding district in Fosen has taken the developer of Storheia project to court, and a decision is expected in September 2019. The local Sami opposition has been supported by the Sami Parliament of Norway (on 23 February 2016, a majority voted in favour of a decision stating that the construction in Storheia requires the consent of the Fosen reindeer herders), by the regional interest group *Naturvernforbundet* and by the national *Norges Naturvernforbund* (Friends of the Earth Norway).

In 2008, opponents of the wind energy development projects in Fosen established the organisation *Vern Fosenhalvøya* ('Protect Fosen'). According to two informants (Interview 1 and 2), members are not necessarily residents in Fosen (i.e. national rather than local opposition). The organisation has submitted written complaints regarding the concessions granted to develop wind energy in Fosen, arguing that there is significant local opposition toward the projects, and that this opposition had not been taken into consideration in the process leading up to the granting of the concessions. Regarding this particular complaint, in their final conclusion regarding the concessions, OED noted

that the municipal councils – who are elected by the local residents – have all voted in favour of the projects.

Other interest groups and actors that have played a role include the regional Trondheim turistforening (tourism), the national Natur og Ungdom (environment), the local Fosen Naturvernforening (environment), the national Norsk Ornitologisk Forening (birds), and affected landowners. These actors have all submitted complaints during the concession process related to one or more of the projects in the Fosen region.

## Social acceptance barriers and drivers

**Summary of Acceptance Barriers**

The following points highlight key acceptance barriers against wind power in Fosen:

Socio cultural factors: Cultural identities, place attachment

- **Identity and cultural attachment**: Fosen is characterised by fjords, forests and mountains, and some argue that this scenery is important to the local community's quality of life.
- **Sami culture and identity**: The wind parks are located in an area used by the Sami population for reindeer grazing. There is a concern that the construction will negatively impact reindeer husbandry, which is a vital part of Sami culture and identity.

Environmental impact: Environmental impact of the plants (particularly on biodiversity, avifauna, local environment etc.)

- **Industrial intervention of untouched nature**: The land disturbance is seen as a threat to the area's untouched nature and biological diversity.
- **Impact of the plants on biodiversity and avifauna:** There is a concern that the wind energy projects in Fosen will negatively impact reindeer and certain species of birds.

Visual impact / impact on landscape: Visibility of the plants and impact on landscape

- **Outdoor life and recreational activities:** The destruction of untouched nature, and the removal of the silence that usually follows in untouched nature areas, e.g. shadow flickering and noise nuisance. Negative impact on recreation and tourism. Negative impact on fishing and hunting opportunities.

Trust in key actors and planning process: Credibility of and trust in key actors in the planning/ permitting process

- **Process:** Some environmental organizations are of the opinion that the decision makers have considered the preferences of the local authorities more than that of the public opinion during the decision-making process. Others (e.g. Vern Fosenhalvøya) have raised a concern that local residents' objections have not been adequately taken into consideration in the projects. The reindeer herding district does not perceive the authorities' and developers' intentions as 'just'. It is therefore difficult for this interest group to trust the intentions of the developers. The planning of wind energy in Fosen has been going on for a decade and the reindeer husbandry industry has been living under what they label 'uncertain circumstances.

**Summary of Acceptance Drivers**

The following points highlight key acceptance drivers of wind power in Fosen:

- **Procedural justice:** A key strength of the policy measure was its ability to engage the local community in the decision-making and planning. The regulator decided to merge the dialogue process of four projects (Kvenndalsfjellet, Roan, Storheia and Sørmarkfjellet), and to consider the projects in relation to each other. In addition to several rounds of public hearings, NVE arranged about 30 public meetings, and approximately 35 meetings were held with local and regional authorities. The purpose of such meetings is to give the local public an arena for expressing their views and to address which areas should be investigated to decide whether a project is feasible. In general, these meetings are expected to contribute towards creating trust in the national regulator who takes decisions on this topic after mapping out the advantages and disadvantages of wind power projects. In addition, the concession process in Fosen has entailed several opportunities for affected parties to provide feedback, through public hearings of project messages, hearings of applications and accompanying investigation reports, and through opportunities to submit formal complaints to OED. Hearings have been announced in several local newspapers and sent to affected municipalities, regional authorities, local and regional interest groups, as well as affected ministries and directorates at national level. The extensive dialogue process in Fosen has been an important driver of social acceptance, as it succeeded in actively involving affected parties throughout the concession process. As a result, the proposed projects were adapted to local needs and contexts.

- **Impact on economy (distributional justice):** Local authorities, communities, landowners and businesses expected to benefit financially and otherwise from the wind energy projects, and this was an important driver of local acceptance. As a result of the development, local businesses have increased their activities; carrying out a lot of the infrastructure work and accommodating and catering for the many workers in the parks (Fosna-folket 2016a, b, c, d; Adresseavisa 2016; Trønder-Avisa 2016). Power lines have

been strengthened and road improvements have been made. In 2016, Statkraft estimated that around 600 people would be employed during the period with most hectic construction activity in the Fosen Vind DA projects in Fosen (Fosna-folket 2016c). Modernisation, employment opportunities and the increased tax income has been an important driver for the local authorities.

- **Energy demand and security of supply:** When the four projects were proposed, there was a shortage of energy supply in the region, and wind energy development would therefore contribute to meeting existing energy demands and security of supply. The County identified Fosen as an area suitable for wind energy development in the region. Energy supply and energy security has improved as a result of the wind energy development in Fosen. For many, this was an important motivation for supporting the proposed projects. For instance, when Roan's municipal council voted in favour of the Roan project in August 2008, one of the reasons for doing so was that the power plant would contribute to increased power production in mid-Norway (NVE 2010a).

## Effectiveness

Although this measure has been highly resource-demanding, to organise all the meetings, yet several stakeholders argue that it has been effective. There were several meetings with the landowners, the county governor of Sør-Trøndelag, Sør-Trøndelag county municipality and Fosen reindeer districts. During the planning process, there were also contact with the local power companies Sarepta Energi and TrønderEnergi Nett, the governmental agencies Statnett and NVE, the Sami Parliament, the company that operates most of the Norwegian airports Avinor, and the Norwegian Armed Forces. According to the project developer Statkraft, the comments received during the consultation process were taken into consideration both when the selection of a pathway for the new power line was made, in the assessment of mitigating measures, and in the investigation work in general (Statkraft 2008:18).

The feedback and complaints received also resulted in a decision by the national regulator to reduce the initial planning area of Storheia. Storheia is an important reindeer grazing area during winter, which makes the deployment of wind turbines in this area particularly controversial. Reindeer husbandry is important in maintaining the Sami culture, both generally and in Fosen specifically. Beyond the above-mentioned meetings that were part of the formal concession process, NVE organised four separate meetings with the reindeer husbandry groups (NVE 2010c). The husbandry groups opposed the developing of wind energy in Storheia, but according to NVE's official documents they had also expressed satisfaction about the dialogue with NVE (NVE 2010b). Because of the reindeer husbandry's need for grazing areas, NVE decided to reduce the initial planning area by 20%. It was also decided that NVE and the reindeer herding district in cooperation should develop a transportation and environmental plan.

The formal complaints on the concession were taken into account by NVE and OED. For instance, based on the complaints regarding Storheia, NVE recommended that the power line pathway be modified and that further investigations of the environmental impacts of Storheia be conducted (NVE 2011). These recommendations were taken into account by OED, who complied with the relevant complaints in their final decision (OED 2013).

However, some environmental organisations experienced that the national regulator NVE had considered the opinion of local authorities more than that of the local public opinion, during the decision-making process. As a result of the Storheia concession application, several complainants highlighted the large level of local opposition and it was in the complainants' belief that these voices were not taken into consideration when the concession was granted. The complainants sent a list of signatures to OED, as well as referring to debates in local newspapers and online. As municipal decisions must be seen as an expression of the elected institutional bodies, the Ministry responded that the decisions made in the respective municipalities were the most important during the decision-making process (OED 2013: 12).

Also, the reindeer husbandry groups do not experience the procedure as being 'fair'. While adjustments were made to the projects to accommodate local concerns during the concession process, OED received formal complaints from the Sami reindeer district of Fosen against the final concessions given to Roan and Storheia. The Sami Parliament submitted complaints against all four concessions. On 10 December 2018, the United Nations Committee on the Elimination of Racial Discrimination asked Norway to suspend the Storheia project in Fosen in order to further examine a complaint lodged by the Sami Council on behalf of the Sami herding district in Fosen, which has taken the developer of the Storheia project to court.

While the informants support that the extensive dialogue process has been important for creating support for the Fosen project, considerable opposition against the project remains. The case study shows that the feedback provided in the numerous meetings and hearings did result in changes in the number of wind turbines and their locations, adapting local projects to local concerns. However, the most important factor/condition that made the municipal councils vote in favour of wind power development in Fosen has been the expected economic benefits. That is, the expected distributive justice. The mayors that we have spoken with emphasise the fact that the Fosen municipalities are rural municipalities deeply struggling financially. The local authorities expected economic benefits from the wind farms, something which has led to their support of the wind farms. In this regard, the measures for promoting social acceptance can be considered as highly effective. However, in particular among the reindeer husbandry, which has been the most adversely affected, resistance exists. There are pressures on the groups and their interests not only from wind turbines, but also from other types of development (roads, cabins etc). Wind energy development is therefore an additional issue and creates further problems for them. It not only threatens the possibilities of the reindeer husbandry but also the cultural identity of the Sami population.

## Innovativeness

While the dialogue processes are carried out in all wind power projects, the Fosen case is innovative in the sense that it has discussed a number of different wind parks together. Specifically, the concession process surrounding four planned wind parks located in the Fosen region were coordinated and considered together. This does not usually happen, according to one interviewee.

## Transferability

The transfer potential is high, as almost all the countries in the WinWind project involve the public in consultations during the licensing process and/or spatial planning processes. In Italy, the public is not involved in the general concession procedure, unless the regions establish public consultation procedures (see Deliverable 2.1). All project countries, including Norway (which is a member of the European Economic Area), are obliged to adhere to the EU Environmental Impact Assessment Directive. It ensures public participation in the environmental assessment procedures.

Whether the innovative element in discussing several projects together is transferable depends on whether wind developers send several applications focusing on the same area about the same time. One aspect that has been particularly important in Fosen is the fact that all the municipalities in the region where the projects were being planned, were rural municipalities with similar challenges and opportunities. Many of the social acceptance barriers and drivers were therefore similar across the different projects, and this facilitated a coordinated discussion.

## Conclusion

This case study shows that extensive instances and opportunities for dialogue between developers and the local population can contribute to improving social acceptance. However, when specific groups feel that they are not being listened to by decision makers, dialogue can be perceived as an “act for the gallery”. As such, the conflict may even increase, as it has for example, when it comes to the two groups of reindeer herders in the district. In particular one of the herder groups showed great willingness to find compromise solutions. However, as the developer was given permit to build in the area that this group highlighted as the most important one to save from wind development, conflict increased. It highlights that the local community remains divided on the issue.

Moreover, other measures have been more important drivers for social acceptance than the dialogue process itself. Economic benefits such as opportunities for local businesses (e.g. catering and hospitality and local entrepreneurs), new infrastructure (e.g. roads, ports, broad band) and local tax income have been key drivers for local interests in favour of wind energy. However, the

dialogues have contributed to getting a clearer picture of what the population wants, and how their needs can be accommodated.

In general, the project planning and development phase in Fosen has been characterised by good opportunities for dialogue between the affected parties from the onset. This is in line with the motivation of the dialogue process, which has been to engage the community, including residents and decision-makers, in the process of developing and adapting the proposed projects to local needs and contexts, taking into account local concerns and reducing the perceived negative impacts of wind energy development. In some cases in Fosen, the dialogue has resulted in changes being made to the project. However, certain interests (e.g. the reindeer herders) experience that they have been overrun and conflict remains and have partly increased (as exemplified with the court case).

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## 10.2.8 Case Study 8

### Energy self-sufficient municipality of Kisielice (Poland)

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**Organisation:** The Polish National Energy Conservation Agency (KAPE)

## Summary

The small semi-rural municipality of Kisielice, with a population of 6,078 inhabitants, is located in the eastern part of the province of Warmian-Masurian, the Polish WESR region. Despite its small size, it has become very well-known due its investments in renewable energy sources as a means of stimulating local economic development. The municipality of Kisielice was the first energy self-sufficient municipality in Poland, thanks to its utilisation of local renewable energy sources. Kisielice is now considered as a very positive example of renewable energy system (RES) implementation. It has achieved high levels of social acceptance and shows how to successfully and practically implement a complex idea. Achieving this energy self-sufficiency would not have been possible without wind energy, which currently plays a significant role in the local energy mix. Since 2007 (the date of deployment of the first wind farm) up until now, the total capacity of installed wind energy has been 107.7 MW. During these years, the local authorities, especially the mayor of municipality, significantly contributed towards creating mutually beneficial wind energy developments. This was done by creating a platform of trust to enable dialogue and information exchange among all the relevant stakeholders. As a result, the municipality of Kisielice is a highly transparent and positive best-practice case for enhancing social acceptance of wind energy.

*The municipality of Kisielce and its nearby wind warm (Kisielice Warmia: 2018)*

## Methodology

In gathering data for the present case study, two methods were primarily used. Firstly, the majority of the data was gathered by conducting a number of semi-structured interviews with the former mayor of Kisielice municipality – Mr Tomasz Koprowiak. Given that he was the mayor of Kisielice for 24 years, as well as being the concept designer and key executor of the project, his detailed understanding of the measure arguably makes him the most reliable source of information. These

interviews with Mr Koprowiak were carried out by KAPE's staff. Desk research constituted the second key method for gathering data. In particular, data was collected by navigating through the Regional Informational Portal of Warmian – Masurian Province, which consists of specific sections devoted to the municipality of Kisielice. Additionally, much of the information provided during the National Desk Platform kick-off meeting was also used for the purposes of this case study.

## Background and motivation

The genesis of the wind energy developments in the municipality of Kisielice dates back to 1997. The idea of using renewable energy sources of energy came from the mayor – Mr Tomasz Koprowiak, who had been an instrumental change agent in seeking ways to stimulate the municipal economy. Indeed, 72% of the land in municipal area is farmland, reflecting on the agricultural character of the municipality.

Based on the positive experiences of other European countries, the municipality decided to invest in wind energy projects. For this purpose, the municipality rigorously considered various maps on the wind conditions in Poland, prepared by the Polish Institute of Meteorology and Water Management. In light of the favourable wind conditions in the region, the municipality of Kisielice decided to utilise its wind resources and initiated its energy transition. The first activities of local authorities were seen in the decision on the direction of future investments and their preparation for pilot wind energy investment.

For the local authority, there were three motives for this decision which ought to be highlighted:

1. To establish an energy self-sufficient municipality based on the utilisation of renewable energy sources.
2. To increase the income generation of the municipality and stimulate the local economy.
3. To improve the quality of life of the residents by giving them opportunity to benefit from investments in renewables and better quality of local environment.

## Detailed description of the measure

The development and implementation of measures promoting wind farms in the region spanned over many years and incurred various obstacles, as well as drivers. In order to fully comprehend these successes and failures, a detailed description of the measures is necessary. There are divided into a number of steps.

**Step 1: Taking a decision to act and the amendment of local regulation**

To begin with, following the municipality's decision on its WE development direction, the municipal actors, particularly the mayor, began the preparations for building pilot wind turbines owned by the municipality. Beside serving the three goals mentioned above, another important aim of the pilot project was to enhance the social acceptance of wind energy among its inhabitants. This was to develop a good starting point for future wind energy investments and for other RES.

In 1998, the Local Spatial Development Plan[22] was accordingly amended as a first step to enable the pilot municipal wind energy investment. This permitted the construction of wind turbines on agricultural land outside protected landscape areas and the ecological corridor. The new provision on technical infrastructure within the Local Spatial Development Plan stated that:

*"Wind energy devices are allowed on agricultural areas with the following restrictions:*

- *The areas of ecological corridors and ecological lands are excluded;*
- *In the areas of protected landscape and nature-landscape complex, the height of masts must not exceed 12 meters".*

*Within the framework of the spatial development plan, social consultations mainly with community leaders were held on two different levels:*

- *Municipality council;*
- *The smallest rural administrative units in the province."*

**Step 2: Initial preparation phase - search for financing**

In 2001, the municipality began the preparation of a pilot wind turbine owned by the municipality. The most essential task, finding external finance, was carried out by the mayor of Kisielice. As a result, the municipality established a cooperation with the Polish Institute for Renewable Energy. Together, they applied for funding for a research project on wind power and resources measurements. The application was submitted to the American programme EcoLinks. The application was successful and as a results $50,000 from EcoLinks was granted to the Kisielice commune for the project implementation. The project was implemented by the municipality of Kisielice with support from the both the American consulting company AWS Scientific from Alabama, and the European Centre for Renewable Energy (EC BREC/IMBER). Indeed, it was

[22] https://bipkisielice.warmia.mazury.pl/5042/miejscowy-plan-zagospodarowania-przestrzennego-gminy-kisielice.html

calculated that the average annual wind speed at 85 m height is 6.3 m/s and that the total project would cost 60,130 EUR in total. More specifically, the entirety of this was funded by:

- A Grant from EcoLinks of 44,360 EUR;
- The resources of the municipality – 15,780 EUR.

**Step 3: Informational and education activities for local citizens**

The time framework of the research project was between January 2000 and February 2001. Additionally, prior research had shown favourable conditions for wind energy development in the region. Consequently, a series of informational and educational activities addressed towards residents were carried out. These sought to overcome the frequent social resistance to the construction of the wind farms. At that time, wind energy, as well as other RES, were unknown technologies to the residents of the municipality. Thus, the residents were highly cautious of adopting them. The main concerns of the residents were related to the negative impacts on health, well-being and the local environment. In brief, through providing reliable information, presenting experiences of other countries, and informing about local benefits through informational meetings, local residents were positively convinced of the benefits of wind energy. It is also worth mentioning that during the whole preparatory process, public consultations were held in a systematic way. The inhabitants were fully informed, which significantly helped to avoid any objections.

**Step 4: Practical preparation and planning**

Once the research on the wind conditions obtained positive results, the municipality bought land in order to build municipal wind turbine. In the town of Łęgowo, where the land for the pilot investment was purchased, additional meetings with farmers were held to familiarise them with the project and inform them about the land lease agreements and the foreseen locations for the wind turbines. This reinforced social support as farmers were able to recognise an opportunity to also benefit from wind energy development in the area. In order to implement the pilot wind turbine, a series of stages for the investment were set out and completed. They were as follows:

1. *Preparation of a feasibility study for a wind turbine with capacity of 1.5 MW*

   A number of expert opinions were gathered on the impact on the power grid; the

   environmental impact and other arrangements required by law.

2. *Execution of the construction project for the Enron turbine*

   The construction permit was obtained on April 27, 2001. Thus, a number of arrangements and expert opinions were gathered concerning the Impact on the power grid; Environmental impact and other arrangements required by law.

3. *Application to the Distribution System Operator for the technical conditions of connection to the grid*
4. *Elaboration of an expertise on the impact of the investment on the grid and the environment*
5. *An access road project*

**Step 5: Financing**

Afterwards, preparations were made for the construction project and its financial arrangements. The total cost of the pilot municipal wind turbine was estimated at 1,830,000 EUR. The predicted sources of financing were as below:

- A promise given by Ekofundusz to support an amount of 549,000 EUR
- An application to The National Fund for Environmental Protection and Water Management (NFOŚiGW) for a subsidy amounting to 365,000 EUR. A further loan of 853,000 EUR (2001) was also given.
- Municipality's own resources – 63,500 EUR.
- Provision of 138,000 EURO as a loan from the Regional Fund for Environmental Protection and Water Management (WFOŚiGW) in Olsztyn.

Unfortunately, due to the prolonging procedure for the examination of the application by NFOŚiGW, the promise of Ekofundusz expired on 17$^{th}$ of May 2002 and the project temporarily collapsed. However, despite the initial collapse of municipal project, the mayor pushed with widely disseminating information about the municipality's achievements to alternative types of wind energy investors and developers. These were done mainly through seminars, conferences and meetings. Hence, all the activities undertaken during the preparatory phase contributed to the creation of a friendly and stable basis for attracting future investments. In the following years, the municipality of Kisielice gathered much interest among wind developers, which eventually resulted in the construction of the first wind farm in the region. Interestingly, the temporary collapse of the project contributed to an increase in social acceptance and promotion of wind energy in Kisielice region, as galvanised support to ensure its delivery.

**Step 6: Revival and construction of first farm**

In 2003, Iberdrola, a Spanish energy supplier, expressed its interest to invest in wind energy in Kisielice. Soon after, it began the preparation of all the administrative procedures for the construction project of 27 wind turbines. The project, which was valued at EUR 50million, consisted of 27 wind turbines each with a 1.5 MW capacity. There were numerous impacts resulting from the investment:

- The main supply point Kisielice 110/30 kV was built;
- The overhead power line Kisielice – Susz 110 kV (14 km length) was built;

- The main supply point Susz station was modernised;
- A section of regional road has been modernised.

*The first wind farm in Kisielice (PGEEOL: 2018)*

**Step 7: Research on the impact and social acceptance of the farms**

Within the framework of post-implementation monitoring, the developer was obliged to commission some research on the social acceptance of wind energy. An independent, external company conducted a survey on the social acceptance among the residents affected by wind turbines (those living within a radius of 5 km from the turbine). The residents expressed their opinion on several topics concerning:

- Impact on health and well-being;
- Noise and infrasound;
- Perceived benefits of wind energy;
- Visual impact on tourism and local economy;
- Further development activities (the opinion of residents whether it is reasonable to invest more in the wind energy in municipality of Kisielice).

On all of these topics, the responses were positive in 90% of the cases. The residents had recognised the potential benefits rather than becoming too concerned with the negative impacts of wind energy. Thus, only 10% of the residents living near of wind farm expressed their opposition. This strongly positive response was a result of all the efforts aimed at increasing the social awareness created by the mayor and other public actors. Another study on the environmental impact on avifauna was conducted by experts from the local landscape park. The experts

calculated the annual number of bird collisions caused by the wind turbines. According to the mayor, the findings were surprisingly low - only 40 collisions were recorded each year.

**Step 8: Further development of farms in the municipality**

As a consequence of the above-mentioned successes, the next wind farms were implemented in the years 2007-2013. In 2010, 12 turbines, each with capacities of 2 MW, were successfully installed. Another 9 turbines were installed in the years 2012-2013. The grand opening took place on May 2014. According to reports on the annual energy production, provided by the wind energy supplier, the real levels of electricity generation exceeded early assumptions. The annual production of wind energy amounted to around 2,300 – 2,400 MWh/MW, which was a promising result for Polish standards. The third wind farm in the town of nearby town of Jędrychowo was finished in 2013/2014. It consisted of 8 turbines, each with capacities of 3 MW. Currently, there is a total capacity of 107.7 MW of installed of wind turbines in municipality of Kisielice.

## Key actors and stakeholders

The engagement of local community to acquire social acceptance was crucial in order to achieve an ambitious goal – energy self-sufficient municipality. Due to this, the residents became the main target group of the project and played a significant role in its implementation. However, it is necessary to point out that the key designer and driver of the project was the mayor. Through all the years, he was responsible for creating links between stakeholders, connecting different bodies, entities and local communities. These stakeholders included:

- Public authorities on different levels;
- Many investors and developers;
- Funding institutions;
- Research institutes;
- Environmental bodies;
- Scientific units;
- Distribution System Operator

In this light, all of these stakeholders contributed towards the gradual energy transition. Moreover, the municipality of Kisielice is a member of many organisations that bring together entities and institutions from the renewable energy circle. More specifically, the municipality is part of:

- Association of Municipalities Friendly to Renewable Energy - the mayor holds the position of Deputy Chairman,
- Baltic Eco-energy Cluster,
- Warmian - Masurian Energy Agency.

Furthermore, municipality actively cooperates with the Polish Institute for Renewable Energy and Polish Congress for Renewables Energy.

Members of these organisations were important for improving the social acceptance, as they served as a platform for informational; and ideas exchange (in particular Association of Municipalities Friendly to Renewable Energy). These supported the municipality in overcoming many of the barriers and obstacles for social acceptance. Moreover, the advisory institutions, such as Warmian Energy Agency and Institute for Renewable Energy, both helped to achieve a successful implementation of the project.

## Social acceptance barriers and drivers

The energy self-sufficient municipality of Kisielice was categorised as a multi-measure approach. This category contains a combination of different measures, making it difficult to identify a single leading measure to define and explain the initiative. To recap, this best practice case category can be described as an example of a local energy transition process which has had a significantly positive impact on the social acceptance of local community. This enduring process involved many different measures and initiatives.

The key barriers to the social acceptance in the area were identified at the beginning of the concept realisation: Those were:

- *A lack of knowledge on wind energy among the residents*
  Previously, wind energy was an almost entirely unfamiliar and unexperienced technology, both in terms of the impact on the environment and also its potential benefits. Thus, the residents were mainly concerned about their health, well-being and local environment. Although, there were not any organisations acting against wind energy. This meant that any proactive measures addressing social acceptance were not faced with much resistance, thereby allowing them to have more significant positive impacts.

- *Existence of the "Not in My Back Yard" attitude*
  This reaction commonly exists in Polish rural areas, where local communities express their objection to wind energy development in their backyard or immediate surroundings. In many of these instances, the residents understand the reason of an investment and are aware of its positive outcomes but are still against the construction in their neighbourhood.

- *Too many incomprehensible and complex administrative procedures*
  This matter raised many doubts and questions among residents because the path for project implementation was rather unclear, even though it ensured participation of local communities. Thus, despite the existing processes and Environmental Impact Assessment ensuring inclusion of the residents in form of public consultations, the residents were not

fully aware if and how they could be involved. This resulted in them assuming that their opinions were not relevant in the current procedures.

- *No benefits for the local community.*
  The residents were under the impression that wind energy does not bring any positive results or added value for people and local economy.

In sum, the present initiative used the following drivers to overcome the barriers to the social acceptance of wind energy:

- Effective communication strategies;
- Active involvement of the citizens in planning and permitting process;
- Promoting distributional justice and regional co-benefits.

**Effective communication and active involvement of citizens**

The amendment of the Local Spatial Development Plan was consulted with the public mainly through the meetings with community leaders on two different levels:

- Municipality council;
- The smallest rural administrative units in the province;
- Systematic and continuous consultations with the citizens and local leaders.

It is important to mention that all conducted meetings were open for the residents, which could freely take part in them. Indeed, the municipal authorities addressed almost all the concerns of the local community through transparent consultations. As a result of consultations and meetings with the residents, a perception of wind energy changed significantly.

Additionally, much reliable information was delivered to the citizens, who stared to understand more deeply the construction and operation process of wind turbines as well as impacts on health, well-being and environment. It promoted a more positive approach towards wind energy among the local communities; the argument that a lack of knowledge strongly influences negative social perception was seen to be particularly true in the present case. A number of different participations enhancing activities were organised, such as the study visits for community leaders and project presentations open for all the population. The information campaigns particularly contributed to changing citizens perceptions of potential benefits. Consequently, the citizens were informed about potential revenue for the municipality coming from the wind farms and thereby the possibility of financing public utility projects using those resources. Moreover, they were clearly informed about the land lease for the purpose of wind turbine construction, a potential direct or indirect income for many. The procedures, terms and principles of such agreements were also discussed and disseminated.

Furthermore, the information on potential improvements of technical infrastructure resulting from wind park deployment were also presented. This approach helped to obtain perception of fair distribution of costs and benefits by all the residents. In this regard, a vision of better future for local economy and residents was constantly pitched and developed by the mayor of Kisielice, who played a key role in this energy transition and improving social acceptance. He was not only the local leader, but also a mediator between developers and all the residents. His strong political leadership on the local level can be considered as the most significant success factor of this case study. Indeed, the mayor of Kisielice was supported by the commune council in promoting a vision of sustainable and energy self-sufficient commune during many events and meetings devoted to RES.

Crucially, from the very beginning of the pilot project, activities addressing social acceptance were carried out with the objective of ensuring the local community were aware of all the processes and technicalities of wind farms. The social acceptance among the residents was achieved as a result of complex preparatory work and communication before the wind turbines were implemented. After the project temporarily collapsed, many residents even expressed their disappointment in the fact that the turbines were not being built and awaited eagerly in anticipation of positive news about the project. These attitudes reflect on the strength of the social acceptance achieved in the municipality. Local communities were aware of benefits of wind energy and actively took part in all relevant planning stages of the project.

**Benefits for the residents and local stakeholders**

The experiences of Kisielice demonstrate that wind energy can become a driver for local economic development. The municipal strategy led to numerous direct and indirect economic benefits, both for the municipality and its inhabitants. For instance, in 2012 Kisielice raised PLN 2.34 mln in taxes from the wind farms (i.e. 6 per cent of the municipality's total revenue, compared to PLN 1.21 mln in 2008). Farmers – on whose land the wind turbines have been built – are paid on average EUR 5,000 in land lease fees per year for each turbine. Additional easement fees were paid to land owners for providing access to build power lines connecting the turbines to the grid.

The development of renewable energy sources has also led to improvements in local infrastructure. The investors of the wind farms covered the costs of modernisation of some 30 km of municipal roads, 4.5 km of district road and 6.5 km of voivodeship road. Moreover, 12 km of power lines of 110 kV and two Main Supply Points were built as part of local grid adjustments to serve the wind turbines.

Parallel to the developments in wind energy, the municipal authorities evaluated the local potential with regard to other RES, as well as analysing the access to external sources of financing. As a result, a new municipal biomass boiler plant was built in 2004, financed by a grant from Ekofundusz, a loan from the Regional Fund of Environmental Protection and Water Management,

as well as the municipality's own resources. The plant has 2 straw boilers of both 2 MW and 1 MW power which run on cereal straw bought from local farmers. Its construction enabled the periodic closure of a coal boiler of 0.8 MW and two other oil boilers of 1.6 MW, resulting in the reductions of greenhouse gases and air pollutants emissions of 12.22 t/year of $SO_2$; 2.74 t/year of $NO_2$; 14.1 t/year of particulate matter and 2,909.22 t/year of CO2. The taxes paid by the wind farm investors added additional revenue to the municipal budget, which were in turn used to support the implementation of the investments described above.

Thus, the revenues enabled the co-financing facilities with a direct benefit for the local community. The expansion of the district heating grid was achieved in 2007-2008. Furthermore, the modernisation of the combustion process through economiser installation and the straw new boiler plant expansion to 6 MW of total power were carried out during the years 2010-2013. Other sources of financing included grants from the EU. During the whole project, some 250 private and public buildings in Kisielice were connected to the grid. New heat exchanges were installed, and old coal boilers demounted, further contributing to the improvement of air quality. Today, the biomass-fuelled district heating system in Kisielice supplies 85% of the city's buildings and serving more than 90 per cent of the population.

## Effectiveness: awards and appraisal

The municipality of Kisielice can be considered as a leader in Poland in the scope of RES utilisation. The initiative promoted by the municipality and its implementation are highly unique and appraised in Poland and across Europe. From the very beginning, the idea of the project was to create added value for the local economy and residents. Since the implementation of the first wind farms, Kisielice municipality has hosted many meetings devoted to renewable energy sources. The mayor of Kisielice was one of the panellists at both a conference organised by the Ministry of Economy on 27th of November 2013, and the Polish Renewable Energy Congress held on March 31, 2014 in Radom. The municipality also took part in a competition called "Our Municipality Protects Climate", organised by The Polish Institute for Sustainable Development. In the competition, the pilot project received great appraisal for a sustainable utilisation of local resources and promising approach towards energy transition.

Concerning investments and the promotion of renewable energy sources, particularly for wind energy, the municipality of Kisielice has received many awards and distinctions. The most notable ones are the following:

- 2010 - Second place in the national plebiscite: Polish Renewable Energy Champions League for executed investments in the field of renewable energy;
- 2010 - Angel of Ecology Statuette awarded by The Regional Fund for Environmental Protection and Water Management in Olsztyn. Award category: "Renewable energy sources - protection of the atmosphere" in the 11th Ecological Forum;

- 2012 - The jury of the Fair Play Municipality awarded a special ecological distinction for accomplished activities and investments for climate protection;
- 2012 - Award of Man of the Year 2012 for the Mayor of Kisielice for "Promoting Renewable Energy Sources in the category", organised by the Foundation for the Support of Ecology. Białystok,;
- 2012 - Distinction in the "Investment of the Year 2012" category for the management of biomass for heat production. Contest "Energy Titans 2012". Cracow;
- ManagEnergy Award 2014.

The above-mentioned awards and appraisal serve on the outset as evidence that this initiative has been highly successful in its implementation and objectives. After receiving many of these distinguished awards, the residents, proud of their municipality's achievements, also further contributed towards other types of RES investments. Thus, the appraisal of energy transition in Kisielice by external and independent institutions/bodies contributed to the enhanced social acceptance in the municipality.

## Innovativeness

The Kisielice municipality is a great example of an innovative approach towards the local energy transition, while maintaining a high level of social acceptance. More specifically, this case study has showed how to utilise RES at local level, whilst generating numerous benefits for the local economy and the residents. Furthermore, the municipality showed how to implement a significant capacity of wind power by overcoming local objections, giving the residents opportunity to actively participate in the investments.

In 2014, the community of Kisielice won European Commission's ManagEnergy Award, a prize for outstanding local and regional sustainable energy projects. The project called 'The energy self-sufficient Municipality of Kisielice' aimed to reduce emissions, abandone dependence on coal, improve air quality and to ultimately become energy independent. To reach these objectives, the town has decided to deploy wind farms as a major source of energy and other RES facilities.

Awareness-raising among residents was a key component of the project. For two years, the municipality was organising meetings with citizens to convince them of the economic and environmental benefits. After receiving the Award, Mayor Tomasz Koprowiak commented that 'our project is the work of many people for many years. We have a strategy for our community to develop in this way, to become energy self-sufficient. This European Commission's Award confirms that we have taken the right path.'

One of the jury members, Fiona Harvey, emphasised that 'this [project] is a shining example of what people can do when they get together, when they work across a community. We hope that this shining example will encourage other communities in the region, in Poland and across the EU

to take up this challenge and to do what this community has done.'. This illustrious award shows that the presently discussed project and approach should be broadly disseminated and replicated across Europe.


*Tomasz Koprowiak – the mayor of Kisielice commune at the Sustainable Energy Week in 2014 (Manage Energy 2014)*

## Transferability

The project executed in the Kisielice municipality may be replicated in small rural municipalities with a strong agriculture base, with one or two dominant and densely built-up towns or villages and a relatively low mean population density. Such municipalities typically have extensive stretches of farmland further away from inhabited areas.

Effective communication with the main stakeholders has proven to be a central success factor in such projects. Key for this to be a credible success is for the communication to be led in a way that avoids unfulfilled promises.

Moreover, populations between 5,000-10,000 people make it relatively easy to carry out communication campaigns, public consultations and therefore effective communication and engagement. However, the most important success factor is a person/institution responsible for implementation of such an idea. Ideally, it may be a person representing local authorities, who has a power to act, capability of connecting residents and ability of resolving social problems and opposition. It should be a reliable person, who is considered respected and fully committed to a project.

## Conclusion

In sum, the presented case study of Kisielice can truly be considered a best practice for increasing the social acceptance of wind energy in an area in Poland. It illustrated a long and hard fought process including many different aspects and activities, all of which collectively contributed to the success. This demonstrates the critical role and importance of having a political driver of a policy for reaching its objectives. Kisielice presents a complex approach to RES generally, which shows the possibilities of utilisation of locally available resources (straw, solar, wind). It should be pointed out the significant role of the city mayor, to whom the measure owes a significant amount for its success. Taking into account the previously strong absence of local acceptance to wind turbines, the actions such as in Kisielice, although undertaken some while ago, are necessary for wider wind energy deployment.

## 10.2.9 Case Study 9

### Mancomunindad del Suereste Gran Canaria Wind & Water (Spain)

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## Summary

Following a major water and energy crisis in the south-east of island of Gran Canaria, three local authorities joined forces to resolve the issue. In doing so, they created the Mancomunidad del Sureste de Gran Canaria (the Intermunicipal Association of Gran Canaria). The overriding objective was to resolve the water crisis through the desalination of water. However, vast amounts of energy were required to carry out the desalination process. To source this energy, a number of large wind farms have been developed in the local area and more are in the planning stages.

Through the provision of energy for water desalination, which in multiple ways benefited the local society through value creation, the initiative has drastically improved the social acceptance of wind energy in the region. Much of this success is attributed to an effective communication strategy.

The present case study will explain background and motivation for the establishment of Mancomunidad Gran Canaria del Suereste, outline its specific features and the relevant actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

In gathering data for the present case study, two methods were primarily used. The first involved desk research and navigation through the blogs, archives, video documentaries and online commenting the measure. The second method involved two semi-structured interviews with some key figures who designed and manage the initiative. This includes a university professor who designed the initiative (Mr. Roque Calero) and a local administrator who managed and implemented it (Mr Rafael Sánchez). Extracts from interviews previously made by the Spanish Wind Energy Association (AEE) with the mayors and other important stakeholders were also used within this case study. The use of desk research and semi-structured interviews were found to be highly complementary.

## Background and motivation

During the first years after Spain’s transition into a democracy (1980s), the Canary Islands were plagued by a severely ineffective system of governance and public administration. This was in part due to the inexperience of the independence seeking regional administration, combined with the fact that many public utilities such as water were badly managed by private owners. These private owners, in the absence of an effective regulatory system to oversee their activities, had failed to guarantee an adequate access to water.

By the mid 1980s, three neighbouring municipalities in the south-east of the island of Gran Canaria (Agüimes, Ingenio and Santa Lucía) the population was growing considerably while water was becoming an alarmingly scarce resource. During some periods, water would only be available two-times per week. The lack of water had exacerbated existing economic difficulties in the area by restricting available water for agricultural activities. This was particularly detrimental for tomato production, which was a significant aspect of the local economy. The region was soon branded the “triangle of poverty”.

Historically, water in the Island was sourced through wells and reservoirs, but this was insufficient to supply the population and the agriculture (SISC: 2018). Although desalination technologies had been introduced into the Island, the wide scale use of these was restricted by the scarcity and high costs of energy, of which the desalination demands significant amounts of. In light of the clear demand for affordable and reliable sources of energy to promote the desalination of water in the islands, the contextual background for the installation can begin to be understood.


*A map of the Canary Islands (Vinepair: 2018) and the South-Eastern region of the Island of Gran Canaria (Llamara dasen la Noche: 2010)*

## Detailed description of the measure

In order to address and resolve the water and energy crisis, and indeed the quality of the life of the citizens more broadly, the 3 municipalities came together in 1985 to establish the “Mancomunidad del Sureste de Gran Canaria” (MSGC). This became the intermunicipal association of the South East of Gran Canaria. As a result of close cooperation and discussions between the municipalities and engineers from the Universidad de las Palmas, it was decided that wind energy would be the optimal means of achieving the goal providing an affordable, self-sufficient and sustainable energy for the purpose of resolving the water crisis. The engineers from the university had established that there exists significant wind potential, given that the low areas are flat with strong winds, great insolation and scarce rainfall regime, while the interior areas are steep, furrowed by large ravines (AEE: 2018). The MSGC region covers 178 $km^2$ and extends from the sea in a strip of 24 km.

As a result, the MSGC established the 'Global Plan for Sustainable Development of the South East of Gran Canaria'. The central objective was for water in the region to be obtained exclusively through locally generated renewable energy generated. The first wind park (500kW) was installed in 1990 and the energy was used to extract water from wells and galleries. By 1994, there was a desalination 10,000$m^3$/day of salt water to fresh water, to solve the immediate scarcity of water. This was amplified to 25.000$m^3$/day in 1998, all powered by the newly installed wind farms. Currently, the desalination plant is running at 33,000$m^3$/day (OSEAM: 2018).

A 5MW wind farm in the port of Arinaga (belonging to municipality of Agüimes) was the largest in Spain in 2014. The farm still has one of the highest wind penetrations in Spain with about 5,000 hours of penetration in the year 2017. Furthermore, the above-mentioned plan has been updated and foresees 528 MW of additional wind energy power in the future. This will complement the 71MW made though 24 (reasonably small) parks in the MSGC. Recently, the MSGC also has been developing photovoltaics, geothermal, and very minor biomass renewable energies.

*A water desalination plant in Agüimes (Saur: 2018)*

In sum, the energy provided by the wind parks is intended to complete the water cycle. That is, the initial desalination of sea water, the pumping into special deposits, distribution to all the households of the three municipalities, the depuration of grey and sewage water (including making it drinkable) and the distribution of water to secondary treatment parks and other municipal installations and greenhouses. In this regard, Oscar Hernández, Mayor of Agüimes, commented to the AEE in 2018 that the complete cycle of water production, from desalination to reuse, will be obtained by not burning even a single gram of fossil energy. The MSGC will be energy self-sufficient and disconnected from the energy network.

## Key actors and stakeholders

A number of key stakeholders have been identified for this initiative. To begin with, since the inception of MSGC, Rafael Sanchez has been the overall manager and has been responsible for implementing the above-mentioned plan, as well as coordinating the relations between the three municipalities. Professor Roque Calero, from the Engineering Department of the Universidad de Las Palmas de Gran Canaria, led a group of academics and researchers who made the first technical tests and proposals which highlighted the potential for wind energy generation in the region. The mayors of the three muncipalities have also played a significant role in implementing and promoting the initiative. Currently they are Oscar Hernández (Mayor of Agüimes) Dunia González (Mayor of Santa Lucía) and Juan Díaz (Mayor of Ingenio). Furthermore, Antonio Morales, the ex-Major of Agüimes has been a particularly active proponent of the initiative, also in his current position as the President of the Cabildo (the insular administration).

The people living in the three municipalities have also been instrumental to the whole process, given that the initiative primarily serves to meet their needs. These communities previously had some of the lowest levels of income per capita in Spain, many of whom lived in very poor conditions. Few jobs existed in the region for agricultural purposes, due to the difficulties of supplying sufficient water.

## Social acceptance barriers and drivers

The MSGC has served to overcome two specific barriers for social acceptance of wind energy in the local community:

1) A lack of transparency and trust in the motives for such installation.
2) An absence of financial local benefits to local communities and individuals from the wind energy developments in the past.

The two barriers have been considered as strongly inter-connected. According to Rafael Sánchez, the Manager of MSGC, mistrust was the main issue. In other words, people did not trust the process and motives for the establishment of any such farms. Previously, the community was concerned that if external actors would enter the region and extract a public resource, such as wind or the sun, they would do so with solely self-interested motives. Moreover, in the process of extracting any such public resource, not only would there be little or no benefit for the local population, but they may even inflict harm to the local community. This had led to both the community and political rejection of wind farms and gas plants in the past. Furthermore, concerning transparency of any such initiative was effective communication of potential benefits to the local community. Thus, even if any such initiative was to benefit the local populations, in the past it was very difficult to make this group aware of such benefits. The subsections below

elaborate on these barriers and illustrate the measures put forward by the Mancomundidad del Suereste de Gran Canaria to collectively address them.

**Trust in key actors and planning process**

In brief, this barrier concerns situations whereby the local populations are not confident that the motive for the development of wind energy is in good faith, for their benefit, or whereby the decision-making process is not transparent. In order to overcome this barrier, measures have been introduced to address the credibility and trust in key actors, such as decision makers and/or investors.

With regards to the above, Professor Roque Calero, one of the architects of the initiative, explained that a two-stage process which took place. The first was the initial impulse of wind energy, which came through a study plan of the wind potential of the region carried out by Universidad de Las Palmas. This provided credible and usable valuations of the potential for wind energy in the region, as well as explanations of the positive impact which it could have in resolving various economic challenges in the area. The study was presented to a number of key decision makers in the region such as mayors and councillors.

Once a positive consensus about the utility of plans was established among key local decision makers, the second stage was to transfer information and knowledge about the fruits of the initiative to the general public. This stage was arguably the most significant and effective means of promoting the social acceptance of wind energy for this initiative. The Manager of the MSGC explained that enormous amounts of public dissemination work took place to explain the need for wind farm establishment. Central in this message was the fact that “the benefits were for them [the local population]”. Promotional videos were made and broadcasted given that each municipality had a television station. Radio stations both hosted discussions on the issue and frequently played sponsored adverts promoting the initiative. Large posters were designed and exhibited in numerous public places such as bus stops, streets, schools and administrative buildings. Brochures and books were distributed, particularly within schools and huge educational campaigns took place (and continue today) to educate locals from an early age about the need for renewables. A renewable energy worker in the MSGC told the AEE (2018) that “there is really a great awareness among the children, who are taught about the benefits in schools and nurseries from an early age”. As Roque Calero states, “we have done everything to spread this message” and consequently a highly transparent and effective means of communication to the public has been observed.

The above-mentioned thereby refers to a means of communicating the initiative to the public in order to enhance trust. Another central element of the initiative was ensuring that the substance, priorities and actions of the initiative would in practice be beneficial for the local populations. Thus,

it is necessary to explore the financially distributive nature of the initiative, which constitutes the second way in which it has promoted social acceptance of wind energy.

**Distributive justice**

This barrier relates to the perception of the distributive justice of a measure. In other words, the extent to which there is a fair distribution of the economic benefits, as well as the extent to which the local populations do in fact directly and/or indirectly benefit from the installation of wind farms. The present initiative served to confer both direct and indirect economic benefits in numerous ways.

*Indirect financial participation*

To begin with, the most obvious benefit, given the pre-existing water and energy crisis, was the fact that these were now being securely supplied. As noted above, previously people did not have regular and reliable access to water for either personal use or for agricultural purposes. The latter was particularly important for the region due to the fact that tomatoes had historically been one of the largest export crops in the Canary Islands. Wind energy ensured that there was enough water and energy available for these activities. Fundamentally, the installation of wind energy guaranteed this energy and water an affordable price. This was instrumental in promoting social acceptance. On a further point, as a result of the improved welfare of the region, the social welfare budgets of the local authorities (which had increased due to the land rents incurred from the wind farms) could be used for resolving other social issues rather than “water and energy”. With regards to the land rents, the investors would use publicly owned land for the wind farm installations. In return, the municipalities would take ownership of a fairly significant proportion of the installations, often around 25%. Thus, the municipalities and thereby the citizens would benefit from an additional source of income for various social activities in the area.

*Impact on economy*

Moreover, the installation and maintenance of the wind farms has led to considerable amounts of value creation. According to Antonio Morales, the President of the Cabildo de Gran Canaria (the insular government), the MSGC has done much to generate a productive and sustainable economy. This has been achieved through the provision of employment and directly addressing the causes of poverty and deprivation in the region. As explained above, the additional energy and water supply has enabled the revitalisation and growth of the agricultural industry. Additionally, the Mancomunidad’s commitment to wind energy has not only generated electricity, it also generated much employment related to the manufacturing, installation and assembling, and the maintenance of the farms. Currently, it is estimated that 300 jobs exist for the maintenance of the parks and the water desalination plants (AEE, 2018). During the manufacturing and installation phase, it was estimated that 5,000 jobs indirect jobs were created in the Canary Islands (ibid).

Currently, the manufacturing and assembling of a new marine wind turbine prototype with a telescopic tower is being carried out, which is partially financed with European funds from the Horizon 2020 program and involves leading Spanish companies in wind technology. As a result, Duna Gonzales, the Mayor or Santa Lucía, has praised the fact that the farms have brought stable and high-quality jobs to her region.

*Tomato farm in the south-east region of Gran Canaria (TripAdvisor: 2018)*

*Direct financial participation*

Finally, opportunities have been created for individuals, businesses and the local community to have direct financial participation in the wind farms. This has been through the possibility to invest and partly own the wind farms. For instance, for each of the wind farms, opportunities have been created for local entrepreneurs to collectively invest in and own a certain proportion them.

## Effectiveness

At present, the MSGC has successfully developed 71 MW of installed wind power, distributed among 28 wind farms. The latest facilities have productions of more than 4,000 hours per year. The production of wind farms exceeds 50% of MSGC's consumption (AEE: 2018). This vast amount of wind turbines installed and the continuous expansion strongly demonstrates that MSGR has been able to effectively improve the social acceptance of wind energy. Indeed, such rapid and significant expansion would not be possible if there was considerable social rejection.

Furthermore, Professor Roque Calero, one of the architects of the initiative believes that the MSGC has been “totally effective” in improving the social acceptance of wind energy. He states that the fact that previously the region used to be one of the poorest areas in Spain and particular in the island of Gran Canaria. Now, it is more developed, and it is a place where people desire to live (130,000 current inhabitants). He states that the local communities are proud of the fact that they are energy, water and (particularly) food self-sufficient. Rafael Sánchez, the manager of the MSGC, builds on the above by stating that self-sufficiency has given the island an identity of sustainability and independence, something which was been made possible largely by the wind farms. According to him, the residents have an emotional ownership over the farms, and thereby social acceptance has become something which is almost never questioned in discussions about local wind energy. Rather than seeing the wind farm in terms of territorial damage, they are seen as a positive factor which produces economic and environmental opportunities in the region. People understand the critically enabling impact that the wind farms have had in for their livelihoods and standard of living. Ensuring a broad understanding of the enabling role has been one the greatest successes and determinants of the of effectiveness of the initiative.

Furthermore, the Spanish Wind Energy Association (AEE) has given the Mancomunidad the 7th Eolo Prize. This is an award for cases whereby wind energy has had a significantly positive social implication. The initiative won the prize due to it being an excellent example of economic development facilitated by the use of wind energy. Moreover, the MSGC is now one of the largest integrated systems of renewable energy - potable water - agriculture (SISC, 2018).


*The AEE Eolo prize 2018 (Interempresas: 2018)*

However, one aspect of this measure which has not been particularly effective has been the intentions to promote more local individuals and business to have direct financial participation (i.e. invest) in the wind farms. As Professor Roque Calero explains, there is still no adequate legislation to make this distribution. He has supervised a number of PhD thesis’ which look at how to modify current legislation so that citizens could benefit more directly from the large investments, but the

findings have not yet been possible to implement. According to him, currently, only approximately 5% of the farms are owned by local citizens.

## Innovativeness

According to an industrial engineer working on the initiative, the MSGC has certainly served as a reference point and as a good example of taking full advantage of its location and resources to satisfy local needs. This again explains why it won the AEE's 7th Eolo prize. However, it must be stated that the individual elements of the initiative cannot in themselves be seen as innovative. Indeed, the idea of using wind energy to supply water and to promote the use of agriculture is thousands of years old.

Rather, it is the context and processes of the whole measure which can be considered as innovative. To begin with, in the Canary Region, the installation of wind energy for the direct and specific purposes of wind desalination and agricultural facilitation was an entirely new idea. The form of ownership of doing so was also unique for the islands, as the installation was largely realised through mixed public-private investments. Thereby the benefits of the wind energy generation were more significantly beneficial for the public. Furthermore, what can be considered as innovative in a broader understanding is the fact that three very poor regions came together to cooperate in a unique way to resolve this issue.

*A wind farm in Santa Lucía, South-East Gran Canaria (Energynews: 2018)*

## Transferability

Since the initiative was first designed and developed, it has long been intended that the MSGC becomes a benchmark for the sustainable development of other people and especially of those most in need (SICS: 2018). It is hoped to have provide a methodological tool that allows the Plan to be transferred jointly to any other region of the EU or beyond. This is why it has been adopted

as a key case study by the International Seminar of Sustainable Regions, a platform for the exchange of ideas and experiences on the different aspects of sustainable development.

Clearly, in order for this initiative to really transfer potential and to have an equivalent impact somewhere else, there must be a significantly high level of wind energy potential. Thus, two steps have been identified as highly necessary for successful transfer of this initiative. Firstly, according to Rafael Sánchez, there must be a specific need/lack of energy. Indeed, this issue must be apparent and real within the local populations. Secondly, in order to enable the installation of the wind farms, there must be explicit and well communicated benefits for the local populations. In other words, the people must both directly and indirectly be benefited from such installations. As Professor Roque Calero explains, “they [the local populations] must have the information which tells them that the benefit [of the wind farms] is theirs”.

In sum, the transferability of this measure can be considered as reasonably high. This is due to the fact that there are inevitably many regions both nationally and internationally which require a considerable amount of energy for local economic purposes. Generating and using this energy locally can serve as a highly effective means of improving the social acceptance of wind energy.

## Conclusion

Through coordinated efforts, careful and thoughtful planning, courageous decision-making and the integration of environmental aspects, the Mancomunindad del Sureste de Gran Canaria has emerged as a leading region in planning and positioning itself on the path of self-sufficiency in aspects such as water, energy and agriculture. Wind energy has become an integral part of life and maintaining a good quality of life, and the measure serves as an excellent example for regions in other parts of Europe suffering from an energy and resource crisis.

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## 10.2.10 Case Study 10

### Som Energia Energy Cooperative (Spain)

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**Organisation:** Ecorys Spain

## Summary

Som Energia, which in Catalan translates to “we are energy”, is the first and now largest energy cooperative in Spain. With over 50,000 members and an annual production of 50GWh per year of sustainable energy, half of which is sourced from wind energy, Som Energia is a highly notable best-practice case for promoting the social acceptance of consumption and production of wind energy in Spain. It is an ongoing project which began in Catalonia, however has since expanded the scope of its operation to almost all of Spain. Its activities have both directly and indirectly contributed towards the improving the social acceptance of wind energy. The present case study will the explain background and motivation for the establishment of Som Energia, outline its specific features and important actors, before proceeding with an analysis of its acceptance barriers and drivers, innovativeness and transferability to other regions and countries.

## Methodology

In gathering data for the present case study, two methods were primarily used. The first involved desk research, in particular the navigation of Som Energia’s website, blog and archives, which all contained useful statistics and details about the cooperatives activities. Additionally, three stakeholder consolations were carried out with leading figures of Som Energia. These include one of its co-founders, the current vice-president and a member of its day-to-day working team. Two of these consultations came in the form of semi-structured interview conducted by telephone. The third was a written response to the interview-guide used for the other two interviews. Additional desk research and stakeholder consultations were also highly complementary.

## Background and motivation

A cooperative is defined as an “autonomous association of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly owned and democratically-controlled enterprise” (International Cooperative Alliance: 2018). Thus, cooperatives are commonly guided by the principles of self-help, self-responsibility, democracy, equality, equity and solidarity. In the context of energy, unlike investor-owned utilities, an energy cooperative is an enterprise run by, and for the benefit of, their members. Although the fundamental basis of most energy cooperatives is to invest in or provide reliable and fairly priced energy, a rapidly growing feature of energy cooperatives is to promote the production and use of sustainable energy. Such an objective prevailed as the overriding motivation to establish Som Energia.

More specifically, Som Energia was born out of numerous meetings, discussions and collaborations between a group of students and professors at the University of Girona, located in the Spanish autonomous community of Catalonia. Catalonia has a long and strong tradition of promoting cooperatives. However, prior to Som Energia, no energy cooperatives existed in

Catalonia, nor in the rest of Spain (Europress: 2010). It follows that according to Fransesc Pujol, one of the co-founders of Som Energia, three leading concerns related to sustainability guided the formation of Som Energia. They were as follows:

1. **The consensus and acknowledgment that the current energy model based on fossil fuels is unsustainable**: The group believed that more participatory and localised methods must be employed to successfully bring about the energy transition**.**

2. **A complete lack of transparency or choice for the sources of energy consumed in Spain**: Prior to the establishment of Som Enegia, consumers had no way of finding out about, or even choosing which type, of energy they would use consume. This lack of awareness and choice has fueled irresponsible and unsustainable energy use.

3. **The absence of any energy cooperatives in Spain:** The group were inspired by academic collaborations and communications with the stakeholders involved in energy cooperatives across northern Europe, particularly Ecopower in Belgium and Enercoop in France. Thus, the group felt compelled to introduce the idea in Spain. This was particularly support by the fact that Catalonia has a number of strong cooperative movements in other fields.

Below is a depiction on Som Energia's website further illustrates their key objectives.


*The objectives of Som Energia (Som Energia: 2019)*

## Detailed description of the measure

After years of contemplating the idea, efforts to establish the Som Energia initiative intensified in November 2009. Finally, in December 2010, the cooperative was officially launched and established by a group of 340 members in Girona, Catalonia. Initially, the cooperative only provided sustainable energy in the autonomous community of Catalonia. However, today, it is possible to be a member and access energy from Som Energia in every Spanish autonomous community (except Melilla and Cuenta). Moreover, Som Energia is involved in two out of three stages of the energy market: production and marketing/consumption. The figure illustrates their role in the energy market chain:

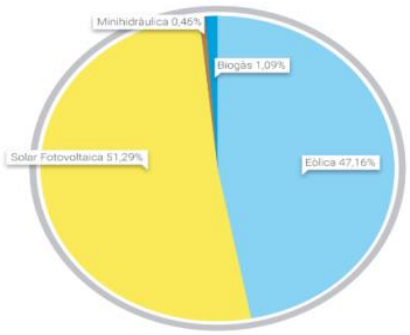

*Som Energia's involvement in energy market chain (Som Energia: 2019)*

### Marketing and Consumption

In order to become a member of Som Energia, a 100 EUR contribution is required. In return for this, Som Energia gives the members a 100% guarantee that the energy that they purchase is sourced from renewable energy production facilities. Som Energia is able to provide this guarantee due to the fact that they sell the energy based on a system which uses certificates of guarantee of origin. The awarding of the certificates, as well as the labelling of a green marketer, is annually awarded by a public institution named the National Commission of Markets and Competition (CNMC). The following subsection elaborates what specific types of energy are sourced by Som Energia and how Som Energia has comes to achieve this label, thereby being able to provide its members with 100% renewable energy.

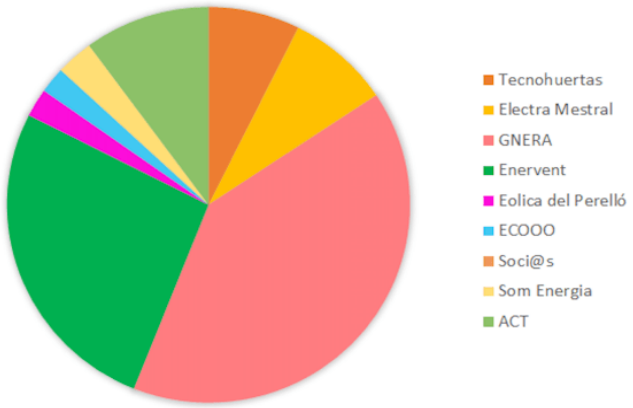
### Production

Som Energia distributes to its members sustainable energy from various sources, the diagram below depicts these. In sum, wind energy (Light Blue - 47.16%) and solar photovoltaic (Yellow - 51.29%) account for an overwhelmingly large the proportion of the total energy distributed. Biogas (1,09%) and mini-hydraulic (0.46%) also account for very small proportions. This means that Som Energia has a highly significant role in promoting the production and use of wind energy, given that almost half the energy it distributes comes from this source.




*Som Energia's sources of sustainable energy (Som Energia Blog: 2017)*

Som Energia is able to source and distribute energy from sustainable sources due to two reasons. Firstly, because they have successfully engaged in numerous long-lasting and strong collaborations with renewable energy producers in Spain, such as Tecnohuertas, ECOOO, Electra Mestral and Enervent. The list of main sustainable energy suppliers is seen in the diagram below.




*Som Energia's suppliers of sustainable energy (Som Energia Blog: 2017)*

However, as can also be seen in the diagram above, Som Energia is also involved in projects which actually produce electrical energy from renewable energy sources. These installations, which include solar PV, wind and biomass, are financed by additional voluntary contributions from its members. In other words, Som Energia encourages and facilitates its members to invest in sustainable energy production facilities. So far, most of these have come in the form of solar PV installations, given this type energy's lower cost of installation. However, Som Energia is in the advanced stages of completing the development of the La Tejeria project, a wind farm in the Navarra. This park, which will be completed at the start of 2019 and will have an estimated annual electricity production of 85,000 kWh/year, providing energy for around 35,000 families per year. Moreover, it is in part funded by Som Energia members in Navarra and the local region where the farm will be installed.

In this regard, according the Albert Banal, the Vice-President of Som Energia, the cooperative is increasingly reaching out to land owners in areas which have particularly high wind energy potentials. These people may not be aware of the potential for wind energy development in their land or may be deterred by administrative hurdles for the installation of wind turbines on their land. Som Enegia has therefore made attempts to better inform these land owners, enable them to surpass and handle the administrative hurdles, and consequently Som Energia will buy their energy at a fair price.


*Som Energia's developments of sustainable energy installations (Som Energia blog: 2018)*

**Transport and Distribution**

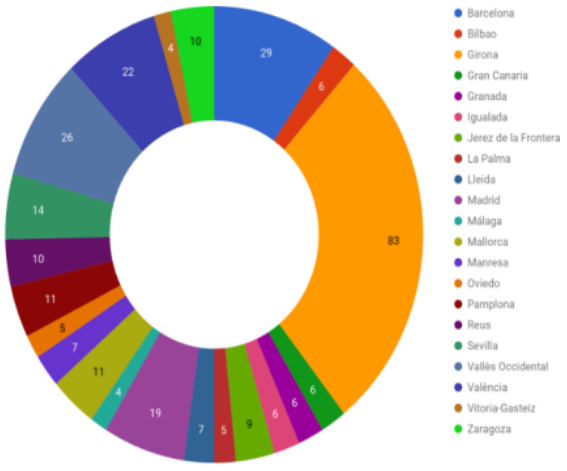
Som Energia does not participate in this stage of the electricity market due to the fact that the transport network of high voltage electricity is owned by a state monopoly (Red Electrica de Espana). Consequently, there is no possibility for them to engage in this stage.

## Key actors and stakeholders

Som Energia, as a non-profit entity, is governed and financed by its members. The target group is very broad given that any individual, consumer, company, producer, investor or public administration can join the cooperative. Naturally, there is a lot of interaction with the Spanish state grid operator, Red Electrica de Espana. Such interaction and communication serve the purpose of ensuring that the wind energy produced for the purpose of supplying its members is able to access the grid, and also to ensure that the members who are expecting fully sustainable energy are indeed receiving such forms of energy.

According to Albert Banal, the Vice-President of Som Energia, a guiding principle of Som Energia is its bottom-up approach. In other words, the key target group is consumers and producers of energy, rather than policy makers. Due to this, Som Energia has established over 30 local groups all across Spain. These groups consist of Som Energia members who collaborate to disseminate information about the cooperative, and more generally sustainable energies, among local communities and with other cooperative and progressive movements.

In terms of decision-making, the annual Som Energia General Assembly invites all of its members to participate in the decision-making of the cooperative on the basis of a one-member-one vote rule. During this event, the Governing Council is democratically elected by the members, and thereby assumes responsibility for implementing the guidelines and actions voted upon during the General Assembly. Furthermore, a Work Team has been established in the headquarters in Girona. This is a group of 47 employees who take charge for the business and operational activity of the cooperative. Moreover, it is important to note that the whole cooperative has a very strong gender balance, illustrated by the fact that the current President of Som Energia is a female. This, as well as its decision-making processes, together demonstrate the grass-roots, egalitarian and democratic core of Som Energia. The diagram below shows the composition of the participants of the 2018 General Assembly, something that also illustrates in which regions Som Energia has the largest number and most active members.





*Som Energia's 2018 AGM (Som Energia: 2018)*

## Social acceptance barriers and drivers

As noted above, Albert Banal, the Vice-President of Som Energia, has explained that a guiding principle of Som Energia is its bottom-up approach. Rather than serving primarily to convince policy makers to promote the use of wind energy, Som Energia aims to engage citizens and communities in the energy transition. By giving citizens and communities the opportunity to both

buy and invest in energy from renewable sources, Som Energia empowers these groups to actually participate and contribute towards the realisation of the energy transition.

*Direct financial participation*

In essence, by providing these groups with an opportunity to both consume and invest in energy sourced from wind, this creates a real connection between the citizens and the means of energy production. Through such exposure, connection and participation, citizens develop an enhanced awareness and interest in these types of energies. As a consequence of this enhanced energy conscience, all the stakeholders contacted for this research unequivocally claimed that citizens and communities engaged with Som Energia had strongly improved the social acceptance of wind and other sustainable energies.

*Transparent communication*

Indeed, the energy and enthusiasm of the members in favour of wind energy has had highly positive spillover effects for promoting further communication and participation among other segments of society. The local groups throughout Spain, which consisted of Som Energia members and volunteers, mobilise and transmit ideas about the importance of sustainable energy use and the energy transition. They do so in many ways such as workshops, an annual summer school, engaging with other cooperatives and progressive movements, and participating in university and/or public debates. Their activities not only encourage people to use wind and sustainable energies, but they also mobilise people to actively participate in planning and political processes in order to drive forward proposals for wind energy installations. Som Energia have also facilitated the establishment of a handful of other energy cooperatives across Spain in Galicia and the Basque Country.

*Trust*

As a consequence of the popularity of Som Energia and indeed sustainable energy use in general, Quim Minano from the Work Team has said that among local politicians, there has been “a popular wave created”. In essence, local governments all around Spain have been taking much more interest in wind and sustainable energies. Many local authorities, particularly in Catalonia, now buy their energy from Som Energia which promotes trust and confidence in the projects. In such area, this has indirectly created favorable conditions for the planning and decision-making on further wind and PV installation. In this regard, it is also worth noting that some small utilities companies in Catalonia have also followed Som Energia’s lead by offering 100% sustainable energy as they realised there is a real demand for such energy, something which Som Energia believe is direct consequence of their work.

*Indirect financial participation*

Furthermore, through enabling groups of citizens to further invest in renewable energies, particularly local people on local projects (such as the Tejeria Wind Farm in Navarra and many other Solar PV projects across Spain), a direct financial benefit of the energy generation is being conferred on the local communities where the wind or PV farms are built. As Quim Minano from the Work Team describes, Som Energia is always trying to involve people in the area of a project by financing and taking profit from such projects. In this light, it has already been mentioned that Som Energia also supports land owners to install wind energy (informing and facilitating their efforts) for subsequent fair-priced purchase of energy by Som Energia. Collectively, these demonstrate how Som Energia also contributes towards improving distributive justice, whereby a fair distribution of costs and benefits of wind energy is promoted.

## Effectiveness

In sum, Som Energia has effectively contributed towards overcoming numerous social acceptance barriers which were particularly high in Spain. Through enabling citizens to financially participate and invest in wind energy, a highly positive perception has been created. The positive perception created has fueled the enthusiasm of many to further contribute towards the cause, something which has led to spillover effects on other social groups, local politicians and even other utilities companies. Som Energia has also contributed towards ensuring a fairer distribution of the benefits of wind energy to local communities and land owners. In sum, given the extent to which Som Energia has improved the social acceptance of wind energy among those it is directly involved with, combined with the fact that such a broad range of stakeholders are influenced by their activities, it can be regarded as a highly effective initiative for improving the social acceptance of wind energy. The very fact that in eight years, it has acquired over 50,000 members, generated 10 million kWh/year and has invested almost 13 million EUR in sustainable energy facilities, collectively serve as solid evidence to support this claim on its effectiveness.

## Innovativeness

In Europe a cooperative, or even an energy cooperative, is not an innovative idea. As mentioned above, energy cooperatives have existed for some years, particularly in northern-Europe. In Spain, different types of cooperatives on topics such as banking, building and food, have existed for many decades, particularly in Catalonia, where there is long and strong tradition of cooperatives. However, in light of the absence of any energy cooperatives in Spain or indeed most Mediterranean countries, the establishment of an energy cooperative can be considered as regionally novel and innovative. Therefore, the methods and activities carried out by the founders of Som Energia to establish Som Energia, both in technical and administrative senses, are one of the most innovative features.

Furthermore, the precise characteristics and functions of Som Energia as an energy cooperative are somewhat different and therefore innovative compared to conventional energy cooperatives

across Europe. As Fransesc Pujol, one of the founders of Som Energia explains, most cooperatives across Europe are focused on the production of (sustainable) energy. Members and participants would join through making an investment in energy production facilities, something which often requires a reasonably significant financial contribution (often thousands of euros). Rather, the primary focus of Som Energia is the commercialisation and marketing of energy, and thereby the membership fee is much cheaper (100 EUR) and more affordable for the public. This approach was developed due to the fact that Spain's GDP per capita is lower than in its northern-European counterparts, where most energy cooperatives exist. Additionally, during Som Energia's inception in 2010, Spain was in the midst of a major economic crisis. Thus, people in Spain could not afford to make considerable investments to join a cooperative. Consequently, Som Energia began with the commercialisation and marketing of energy to make the cooperative more accessible to the public and to generate a demand for sustainable energy in Spain. Only once the cooperative grew in members and financial capacity did Som Energia begin to get more involved in the investment and production of energy.

In sum, Som Energia can be considered as an innovative initiative, both in terms of regional innovation and progression, and also in the type and characteristics of the cooperative itself.

## Transferability

From all the stakeholder consultations carried out for the present research, it was strongly indicated that this type of initiative to promote the social acceptance of wind and sustainable energies has plenty of transfer and replicability potential. The stakeholders support this claim by demonstrating how Som Energia has rapidly expanded from only operating in Catalonia to operation throughout almost the entirety of Spain. This includes the wind energy scare regions (WESRs), although in the Balearic Islands (the Spanish WinWind WESR), they have so far only developed solar PV. Moreover, Som Energia have supported the establishment of other independent energy co-operatives throughout Spain, in Galicia, the Basque Country and Cantabria. Som Energia believe that the idea of a group of members coming to together to buy and sell energy themselves (i.e. the community-led model), can also be replicated in other countries. However, they claim that a crucial driver for this is sharing the same values and priorities as this energy cooperatives. In Catalonia, this existed, and the land was already reasonably industrialised. However, in regions such as Castilla Leon, where social acceptance of this was much lower due, it has been harder. Nevertheless, they claim there is nothing that cannot be resolved by a well explained and clear argument, communication and local engagement strategy.

Furthermore, Fransesc Pujol, one of the founders of Som Energia, explains that the first step for establishing an energy cooperative is to mobilise interested people to create and promote a local group. This group must discuss their intentions and exhibit their ideas to relevant local stakeholders, both formally and informally. The second step would be to gather sufficient finances to invest in the projects and the cooperative. Som Energia claim that, for a cooperative, this is not

a significant hurdle to overcome, given that the model that they propose is low cost and more cost-efficient. This is explained by the fact that they do not have many of the sunk costs which big utility companies have, such as old technologies (cooperatives rely more on the internet and new technologies), offices in expensive capital cities (Som Energia has just one office in the countryside of Girona), and high human resource costs (given that it is non-profit and voluntary). This suggests that energy cooperatives can indeed be implemented in cost-efficient way.

In sum, this type of initiative has shown to be highly transferrable at least within Spain. A key driver for promoting this initiative elsewhere is a shared and common cooperative value, which although may not initially exist, it is something which can be generated through effective engagement with the public. Furthermore, there are some clear steps which ought to be followed for the establishment of a cooperative, and as demonstrated above, it is possible to do in a cost-efficient manner.

## Conclusion

This case study has shown that Som Energia can be considered as an excellent best practice case for the promotion of the social acceptance of wind energy and other renewable energy sources. Not only has it contributed to a considerable increase in the consumption of wind energy, it has also invested in the generation of new wind energy installations. Som Energia has successfully involved a wide variety of stakeholders, particularly citizens and communities, and has empowered these groups to care and participate in the energy transition. The model has also been shown to be highly innovative and transferrable, thus further justifying the argument of considering it as a best-practice case.

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