WinWind
Increasing the acceptance of Wind Energy

FACTSHEET #1

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Challenges to Socially Inclusive Deployment of Wind Energy

The latest report of the Intergovernmental Panel on Climate Change (IPCC) outlines, that limiting global warming to 1.5°C above pre-industrial levels would require a rapid and broad transition across sectors to a sustainable, low-emission energy system.

Renewable Energy Sources (RES) have a large role to play in making this shift happen - a worldwide scenario in line with the Paris Agreement objectives would call for RES to supply 70-85% of electricity by 2050. In the European Union, the Commission, the Parliament and the Council reached a political agreement in June 2018, which advances the previous target of 27%, to a new binding renewable energy target for the EU for 2030 of 32%, with a clause for an upwards revision by 2023.

While the potential of wind energy in contributing to these goals has yet to be sufficiently tapped, lack of social acceptance remains one of the most critical barriers to wind energy development. Social, environmental and economic impacts perceived by local communities can be strongly influenced by how people are involved and heard through the planning, permitting and implementation process of new wind energy projects, and by whether or not the local community has the opportunity to benefit from them financially.


Image: WinWind Project

From challenges to solutions

Raising the social acceptance of RES is key to deliver on the energy transition. This is especially true for wind energy, as wind turbines, in light of their size and perceived impacts, often lead to strong local opposition, and at a large scale, to under-deployment of wind energy.

The WinWind project focuses its analysis on Wind Energy Scarce Regions (WESR) - regions with wind energy penetration levels that are considerably lower than EU average. Specifically, using Saxony and Thuringia in Germany, Lazio and Abruzzo in Italy, Latvia, Norway, the Warmian-Masurian Province in Poland and the Balearic Islands in Spain to assess key conditions affecting social acceptance of wind energy.

WinWind has identified key challenges in three interrelated dimensions of sustainable development: environmental (planet), economic (prosperity) and social (people).

These barriers require integrated approaches, able to include community participation at every step - from planning to implementation, as well as the development of flexible solutions, based on communities' needs and specificities to ensure social acceptance of wind energy, and accelarate its uptake in the market.

Authors

ICLEI Local Governments for Sustainability

Giorgia Rambelli and Arthur Hinsch

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Local Environmental Challenges

Wind energy development often requires large areas of land, and entails visible changes to the landscape. While the local acceptance of new wind turbines is very context-specific, in general an impact on the aesthetic quality of a landscape and its perceived value or heritage can trigger resistance in the communities involved.

- Regional planning, and provision of restrictions on land use are included in most regional regulations, which also identify nature conservation or other protected areas that cannot be used for wind energy production. Protected landscapes, and natural heritage areas are often defined, as well as regulations identifying limitations and distances between settlements and wind turbines. By sharing this information, and consulting communities possible conflicts can be reduced.

Concerns about impacts on wildlife also play a role in shaping the social acceptance of wind energy. Wind turbines are often claimed to have a significant impact on animals from birds and bats to grazing reindeers. While mortality rates in wildlife are proven to be considerably higher in relation to fossil fuel plants and road traffic, than in relation to any RES technology, lack of knowledge can still impact on acceptance of wind energy technologies.

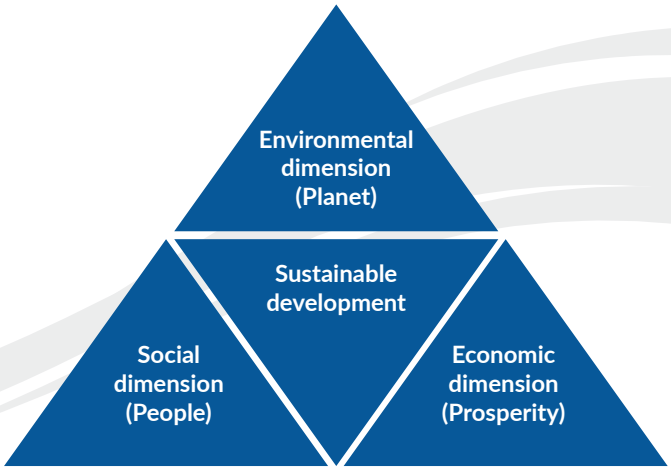
- Wind energy developments, as any other construction project, need to adhere and respond to the local environmental conditions and standards. Specific requirements regarding construction of the wind turbines should be included in areas and regions with good wind energy potential.

WinWind region (year)	People /km²	Number of installed wind turbines	Installed electrical capacity (MW)
Saxony (2017)	221	891	1,199
Thuringia (2017)	133	834	1,295
Lazio (2016)	342	46	52.5
Abruzzo (2016)	121	121	232
Latvia (2017)	30		77
Norway (2017)	14	468	1,188
The Warmian-Masurian province (2017)	59	43	354.3
The Balearic Islands (2016)	220	4	3.68

Wind power installations in the WinWind target regions vs population density

New wind plants, in addition might require new infrastructures, such as new roads, which, in turn, can result in fragmentation of grazing land, and create discontent among farmers, and land owners.

- Wind energy projects should be subjected to an Environmental Impact Assessment (EIA). Even where procedures and thresholds might differ, EIA should nonetheless remain conditional to the results of a pre-assessment on the impacts of each wind project. Consultation of all key stakeholders should always be included as a standard criterion for the development of new projects.



Impacts of wind energy and sustainable development

Local Economic Challenges

One of the key challenges for the uptake of wind power concerns the impact on the local economy, and the question of who will share the economic benefits.

Many communities across Europe have turned in favour of wind power development as an opportunity for modernization of the local economy, and as a source of new employment opportunities. Wind farms can for example be perceived as a vehicle for reversing a declining local economy.

While municipal ownership of wind parks is perceived largely as beneficial for the community, often municipalities lack the skills or capacity to support the establishment of energy communities.

In addition, mechanisms for participating both in the decision-making, and in the economic and social returns can strongly impact on local acceptance.

- The provision of regulatory and capacity-building support to local authorities in regards to facilitate the establishment of local energy communities and community-led initiatives is included in the new EU Renewable Energy Directive.

- The presence of a benefit-sharing mechanism effectively enabling the local community to benefit from profits generated by a wind park (e.g. local community fund) can effectively foster social acceptance.

Individual economic benefits and returns remain one of the most successful drivers for acceptance, and should not be underestimated. These need to be taken into account especially where a negative impact of wind turbines on housing prices and real estate value is perceived, either prior to or after the construction.

- Direct citizen participation should start from the local and regional spatial planning process and designation of zones for wind turbines, and continue at every stage of the official permitting process.

- Fostering community ownership gives individuals a direct means to profit from the revenues generated by electricity sold into the grid. By enabling or supporting the set-up of structures such as energy cooperatives, the interest of local communities in accepting wind energy can be increased drastically.

Many communities have understandable concerns about the visual impacts of wind turbines. Specifically, in areas were tourism forms the backbone of the local economy the challenge lies in either situating turbines in less touristic areas, or in communicating and showing that wind turbines are, at large, perceived more positively compared to other industrial facilities and demonstrating that an increase in wind turbines can also support the development of new forms of tourism.

- By sharing economic benefits, the perceived negative impacts can be reduced, with local businesses looking at the wind park as an economic opportunity rather than a burden.

Creating an enabling framework for effective participation of citizens in energy cooperatives or similar community–led initiatives can provide a viable strategy to fully tap the potential, both in terms of local acceptance to RES and in leveraging local investments.

- Through locally owned community-led projects the revenues are largely retained and reinvested in the local economy, generating a virtuous cycle.

- National and regional support schemes for renewable energy should include, and take into account the specific conditions of local energy communities in order to guarantee them a fair access to the benefits.

The aim is to ensure to all citizens the possibility to become active consumers (i.e. prosumers) in the energy transition, in accordance with the provision of the new Renewable Energy Directive (RED).

The RED clearly identifies the role of energy communities and citizens through the provisions laid down in Article 22, requiring Member States to ensure the development of enabling regulatory frameworks at national level. These include the removal of unjustified regulatory barriers to community energy, the need to minimise barriers to cross border communities, and the establishment of closer cooperation between Distribution System Operators, and energy communities.

Local Societal Challenges

Wind energy can be perceived as highly disruptive on the local territory, threatening the heritage and affecting the social fabric of the community.

As with the introduction of any new technology, concerns have been raised that wind energy development could adversely affect human health and well-being. While the measurable impact on health is always context-depended, overall studies have shown little correlation between an increase in wind turbines and an increase in reports on negative health effects.

- The perceived negative impact with regards to noise, shadow-flicker, ice-throw and electromagnetic-fields can be reduced by supporting communities in experiencing first-hand wind power plants, and by getting familiar with the technology. Creating or visiting demo sites developed by public national or local authorities can provide the necessary response to these concerns.


Image: Dreamstime / Ivan Kruk

Additionally, wind energy development is directly linked to the issue of cultural heritage, and to what extend a new wind park does infringe upon a landscape or to cultural and historical sites in its proximity. The interest of local communities and minorities especially, and the traditional use, or relation with a given geographic area must also be considered.

- A more integrated assessment of cultural heritage, nature and landscape within environmental impact assessments should be conducted to reduce back-lashes.
- All key stakeholders should be included in the process, including minorities and more vulnerable parts of the society which may be affected.
- The public should be engaged in consultations already through the planning phase to limit opposition. They can support the proper assessment of how wind power installations can be best integrated into the landscape without threatening the aesthetic and the recreational value of the natural and cultural environment.

In addition, in some cases wind turbines have become associated with political and economic corruption, partly resulting in the decision by regional and local officials to stop installation of wind power.

- The degree of local ownership is a significant factor. The sharing of benefits should address concerns beyond the economic aspect, to include societal concerns such as corruption.

From solutions to opportunities

Socially-inclusive approaches to the implementation of wind energy represent a key driver to enhance a sustainable market uptake of wind energy.

They provide the opportunity for different stakeholders to jointly develop mutually beneficial and satisfactory solutions. Whether such stakeholder participation takes place in a formal or informal manner, a continuous dialogue between policy-makers, developers and the local community is essential.

Removing barriers to social acceptance requires an integrated effort across all levels of government and across sectors.

- providing stable, favourable regulations able to guarantee community participation, sharing of economic benefits and ownership of wind energy projects;
- sharing knowledge and debunking false myths about perceived environmental impacts of wind energy by engaging the community;
- making social inclusion a key criterion to assess the viability of a wind energy project.

Reference & more information on the sources:

Linnerud, K., S. Aakre, M. D. Leiren (2018a) Technical and socio-economic conditions. A literature review of social acceptance of wind energy development, and an overview of the technical, socio-economic and regulatory starting conditions in the wind energy scarce target regions. Deliverable 2.1 of the Winwind project.

Project Partners

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