European Commission

Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify)

Interim report

Written by eclareon, Öko-Institute, WindEurope and SolarPower Europe
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eclareon Öko-Institut e.V. Institut für angewandte Ökologie Institute for Applied Ecology SolarPower Europe Wind EUROPE

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Contact: Vera Kissler

E-mail: Vera.KISSLER@ec.europa.eu

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B-1049 Brussels

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Authors: Jurga Tallat-Kelpšaitė (eclareon), Robert Brückmann (eclareon), Jörn Banasiak (eclareon), Sunna Kokkonen (eclareon), John Szabo (eclareon), Dierk Bauknecht (Öko-Institute), Dominik Seebach (Öko-Institute), Moritz Vogel (Öko-Institute), Sabina Potestio (WindEurope), Naomi Chevillard (SolarPower Europe)

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Acronyms

Acronym	Full name
AESA	Agencia Estatal de Seguridad Aérea – Spanish Aviation Safety Agency
APREN	Associação Portuguesa de Energias Renováveis – Portuguese Renewable Energy Association
AT	Austria
BE	Belgium
BG	Bulgaria
BSH	Bundesamt für Seeschifffahrt und Hydrographie - German Maritime Agency
CHP	Combined heat and power
CO2	Carbon dioxide
CY	Cyprus
CZ	Czech Republic
DE	Germany
DGAC	La Direction générale de l'Aviation civile - French Civil Aviation Authority
DGEG	Direção-Geral de Energia e Geologia - Portuguese Directorate-General of Energy and Geology
DHS	District heating system
DK	Denmark
DKK	Danish krone
DREAL	Direction régionale de l'Environnement, de l'Aménagement et du Logement - French Regional Directorate for the Environment, Planning and Housing
DSO	Distribution system operator
ECJ	European Court of Justice
EDF	Electricité de France
EE	Estonia
EEA	European Economic Area
EED	Energy Efficiency Directive
EGEC	European Geothermal Energy Council
EIA	Environmental impact assessment
EIS	Environmental impact statement
ERO	Polish Energy Regulatory Office
ES	Spain
EU	European Union
EUR	Euro
FEP	Flächenentwicklungsplan - Area development plan
FI	Finland
FR	France
GIS	Geoinformation system(s)
GR	Greece
GSHP	Ground source heat pump
HR	Croatia
HU	Hungary
IE	Ireland

IEMD	Internal Electricity Market Directive
INES	Information system on Sensitive Spaces in Environmental Impact Assessments
IT	Italy
IWEA	Irish Wind Energy Association
LCA	Life Cycle Assessment
LT	Lithuania
LU	Luxembourg
LV	Latvia
Mio	Million
MS	Member State
MT	Malta
NACE	Nomenclature statistique des activités économiques dans la Communauté européenne - Statistical Classification of Economic Activities in the European Community
NECP	National Energy and Climate Plan
NIMBY	Not in my backyard
NGO	Non-governmental organisation
NL	The Netherlands
NVE	Norges vassdrags- og energidirektorat - Norwegian Water Resources and Energy Directorate
OSS	One Stop Shop
PI	Performance indicator
PL	Poland
PPA	Power purchase agreement
PT	Portugal
PV	Photovoltaic
RED	Renewable Energy Directive
RED II	(recast) Renewable Energy Directive
RES	Renewable energy sources
RES-E	Electricity generated from renewable energy sources
RO	Romania
SE	Sweden
SEIA	Strategic environmental impact assessment
SHIP	systems for industrial processes
SI	Slovenia
SK	Slovakia
SSTES	Seasonal solar thermal storage
TSO	Transmission system operator
UNEF	Unión Española Fotovoltaica (Spanish Photovoltaic Union)
UTES	Underground thermal energy storage
WEA	Wind Energy Ireland
WFD	Water Framework Directive

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Executive summary

Introduction

EU Member States have introduced ambitious targets for the deployment of renewable energy installations. They have chosen to rely on wind and PV to meet these targets in the power sector, both of which have seen growth in most countries. However, most Member States did not constantly deploy renewable energy technologies but rather in a back-and-forth manner in the past ten years leading a number of markets to underperform compared to their potential.

The main reason for the underperformance of renewables were non-technical barriers, such as the lack of business cases, weak support schemes, market entry barriers, administrative obstacles and grid related issues. In the past years, administrative (and grid) obstacles have become an increasingly important and pressing matter. Already today, administrative and grid issues make up about 46% of all identified barriers and this is expected to rise in the future. For some technologies, such as wind power and PV, a trend is emerging where administrative barriers become even more crucial than policy barriers related to support schemes. Business cases are less dependent on support schemes, as the production costs of the technologies decline and corporate off-takers enter the market by signing corporate power purchase agreements (PPAs). As these market shifts occur, other barriers such as administrative barriers become more visible and relevant. For this reason, the findings and recommendations below are of particular importance.

Identified obstacles

The Consortium structures the obstacles it identified in the European-wide mapping research as follows:

Process related barriers

The most common barriers related to the administrative process for renewable energy projects are bureaucratic burdens, non-transparent processes, a lack of legal coherence as well as an incomplete and vague framework and guidelines that lead to different interpretations of existing legislation by the competent authorities.

In some countries, the lack of adequate spatial planning is a particularly severe issue. This can manifest either because spatial plans do not designate land for renewable energy projects and therefore developers need to change for what the land can be used, which takes a substantial amount of time and extends the duration of the entire project. The other key issue is when authorities use zoning to prohibit the deployment of certain technologies, such as wind power. Distance restrictions are a particularly severe barrier which make the deployment of wind power almost impossible in certain regions. Finally, if the responsible authorities design spatial plans insufficiently, stakeholders who intend to prevent the planned projects can impede them by legally contesting the overlying spatial plans.

Another wide-spread barrier is a lack of experienced staff. The problem is either that there are not enough public clerks to process applications and/or the staff in question lacks the necessary experience or technical skills to execute these tacks. The latter is a larger problem in regions that implemented less renewable energy projects.

A further issue is that most EU countries have not digitalised permitting; therefore, applications still require a lot of paperwork.

The lack of simplified procedures for repowering is another obstacle mostly in the case of onshore wind and hydropower projects. Repowering these technologies, even with minor changes, is subject to the same extensive approval procedures as developing new installations in almost all Member States.

Conflicting public goods

Conflicting public goods are the second main obstacle for the deployment of renewable installations. This is particularly the case for wind power, geothermal power and hydropower as well as solar PV.

The most prominent conflicting public good related issues are conflicting environmental regulations (biodiversity and protection of endangered species and protection of water bodies), land use conflicts and military/ air defence issues. Military/ air defence issues are relevant for wind power projects, but are mainly an issue in North-Eastern Europe. In the case of hydropower and geothermal, problems stem from conflicts with the Water Framework Directive. Moreover, these conflicts can ensue with environmental groups and individual actors but also with public authorities at different levels.

Industry stakeholders generally acknowledge the value of the above-mentioned public goods. Their criticism is directed at the processes which balance public goods. This is also the starting point for the recommendations of the Consortium, as described below.

Third-party issues

Third-party issues refer to barriers that are related to the lack of support from policy decision makers or ostentatious opposition from public or private institutions, or public itself. The latter's resistance is frequently directed at specific renewable energy projects, but in certain regions or Member States this can target renewable deployment in general.

The motivation for such opposition varies on a broad scale. By and large, one can identify three motives for resistance: (i) individual (and often well-founded) opposition by particularly affected groups of people (for example neighbours or environmental groups with a specific concern), (ii) commercially interested groups whose protests are mainly related to financial gains, (iii) organised groups of protesters who oppose certain technologies or renewable energies in general. These groups are usually quite small, but disproportionally loud and can therefore, to some extent, steer public opinion.

Third-party issues can lead to conflicts in court as well. In such cases, overloaded judicial structures can aggravate these barriers, especially since art. 16 (7) RED II does not take into account the delays due to judicial proceedings when instituting specific deadlines for administrative processes.

Grid Issues

Issues related to grid connections and operation procedures are less prevalent than administrative issues. Still, they can have a severe impact and halt overall renewable energy deployment in some Member States (e.g. there is a grid moratorium in Slovakia).

The main grid connection issues very often result from inadequate grid capacities, which prompt discussions and negotiations over how one can connect to the grid and at what cost. These lead to project delays.

Another challenge to renewable energy deployment stems from conflicts with distribution and transmission grid operators over the interpretation of technical regulations, the access to data or the distribution of connection costs.

The solar thermal industry is also confronted with certain obstacles when it seeks to connect installations to district heating networks. These barriers are primarily due to unclear regulations on how to connect, leaving the operators of district heating systems room for interpretation and discretion. Another issue for heat based renewable sources is that the heat they produce cannot be transported over longer distances. Therefore, they are less flexible in terms of where they can connect to the grid, making connection issues even more pressing.

Best practice recommendations

Based on the desktop research and intense discussions with stakeholders to map the Europe-wide processes and obstacles impeding the diffusion of renewables, the Consortium developed a set of recommendations based on best practices. These are broadly applicable to address major administrative barriers, underpinning effective and efficient RES installation permitting. This set of recommendations is also considered appropriate to provide guidance and support for Member States when implementing requirements stipulated by arts. 15, 16 and 17 RED II.

We group recommendations into the following six categories:[1]

- Administrative communication and processes,
- Guidance and best practice,
- Central provision of information,
- Participation and acceptance measures,
- Eased procedures,
- Clarified priority for RES in administrative processes,
- IT infrastructure.

Furthermore, research underpins additional technology-specific best practice recommendations.

An overview of the given recommendations is provided in Figure 0-1 and in Figure 0-2.

The individual recommendations are further outlined below.

1 Many of the best practice recommendations are not designed to address a single barrier type described above, but can help overcome several. Therefore, best practice recommendations do not necessarily follow the grouping outlined above.

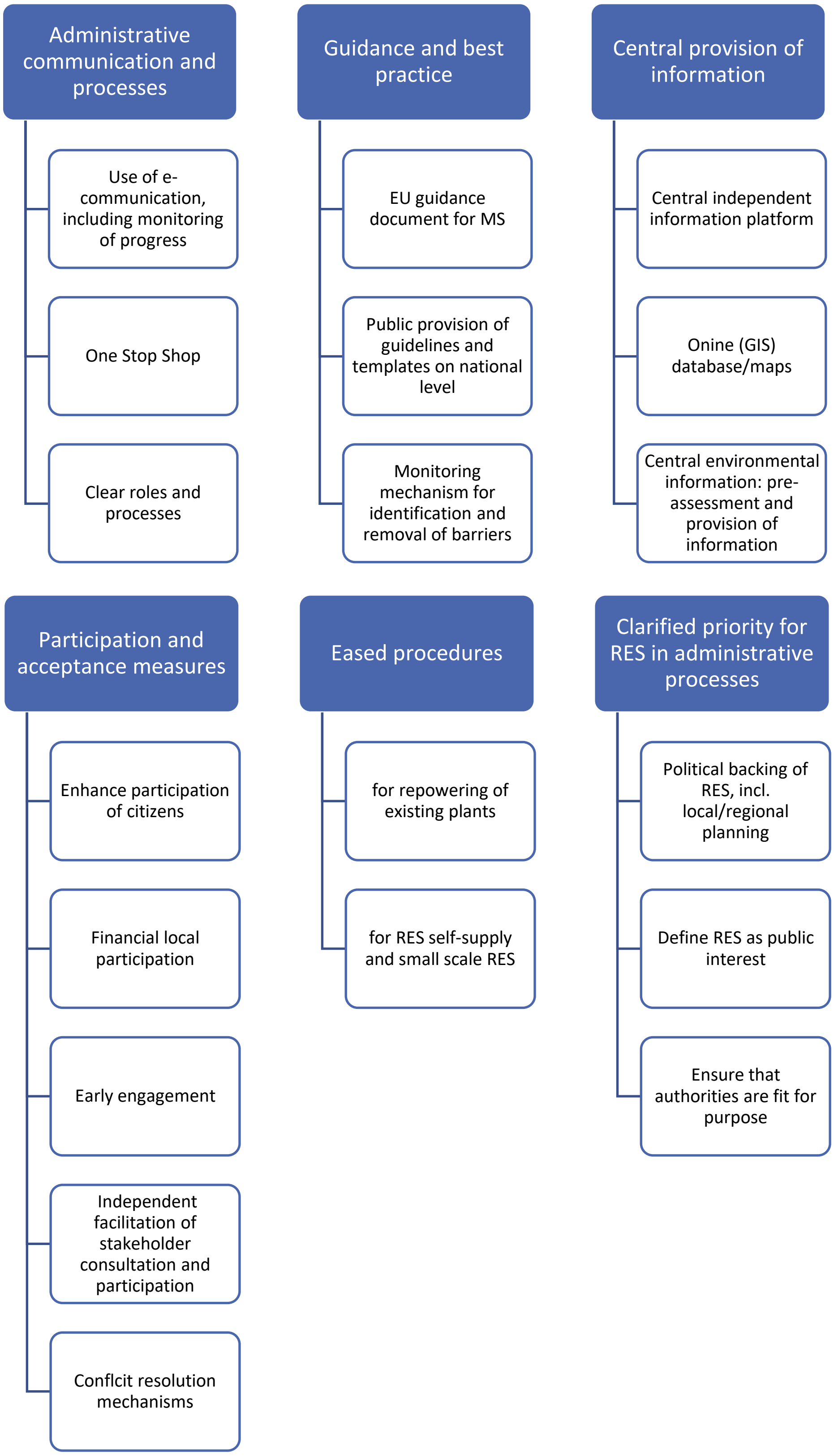


*Figure **0-1**: Overview of best practice and further recommendations to enhance permission procedures*

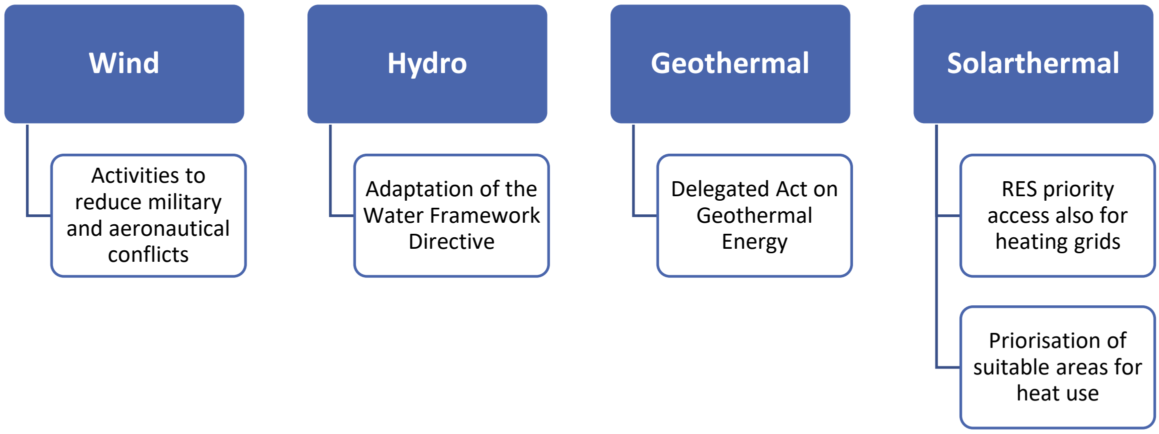


*Figure **0-2**: Overview of additional technology-specific best practice and further recommendations to enhance permission procedures*

Administrative communication and processes

Use of e-communication, including a mechanism for monitoring project progress: Digitalisation eases procedures for applicants and authorities alike. Officials can sort, store and review digital documents easily, and share them between the parties involved. This would allow applicants to see in what stage their application currently is. This accelerates the permitting process and provides transparency.

One Stop Shop / consolidation into one single application process: Applicants can contact a One Stop Shop (OSS) to obtain all permissions for their project. That OSS can either provide permissions or act as a contact point to facilitate the entire process, as defined in art. 16 (1) RED II. Depending on technology and size, the OSS can be either technology-specific and/or have limited regional competences. In any case, it should be clear for a project developer to know which OSS it must approach. OSS should be introduced as an option for applicants, allowing them alternatively to directly contact individual authorities. This way applicants can benefit from their own experience and personal contacts.

Clear roles and processes: Project developers, responsible authorities and other stakeholders can only provide permits smoothly, if procedures and respective responsibilities are clearly defined and transparent to all parties involved. Amongst others, the definition of the process should include a clear sequential description of the application process, individual responsibilities, an overview of required documentation, and clearly defined deadlines for each step.

Guidance and best practice

EU guidance document on implementation of relevant regulation provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD: Member States have to interpret and further specify the different requirements which are imposed by both the recast Renewable Energy Directive (RED II) and the IEMD (Internal Electricity Market Directive) to provide an appropriate regulatory framework for RES deployment. Additional EU-wide guidance can support Member States to find regulatory solutions which fit their specific needs. This also enhances the harmonisation of rules and regulations, reducing the barriers developers face when undertaking projects in other EU countries.

Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders: Guidelines for authorities and stakeholders act as a helping hand when it comes to the realisation of renewable projects. They inform and describe the RES-E permitting process and thus increase expertise and knowledge amongst all parties involved. Stakeholders can follow a clear cook-book recipe and have direct access to the standard ingredients (templates for all application documents etc.) they have to use during project permitting.

Cooperative monitoring mechanism for the identification and removal of regulatory barriers: Authorities, project developers and other stakeholder should cooperate in a formalised process to identify regulatory barriers for RES installations and develop appropriate solutions. This can be systematically supported by IT infrastructure which processes and monitors applications. Structured monitoring helps identify typical patterns and those steps which are lengthy or ineffective. A structured analysis of the performance of permission procedures should be enhanced by EU-wide reporting obligations. This would focus on the efficiency and effectiveness of RES permitting processes in Member States.

Central provision of information

Central independent information platform on regulation, processes, projects, participation: A central independent information platform on the installation of new RES plants could be an appropriate and reliable source of information for all parties involved in the planning and permitting of new plants. The proposed information platform could target all parties involved, including authorities, project developers and external stakeholders. Thus, it would ensure that all of those involved have access to the same references and have the same expectations on the process.

Online (GIS) database / maps including administrative restrictions and other relevant parameters: A key element of good practice recommendations is the introduction of an online database which can ideally be accessed as a set of GIS maps. These would easily allow project developers to assess how suitable specific areas and sites are for their project and what restrictions they have to anticipate. The maps should include information on administrative restrictions, existing environmental assessments and data, aviation and military interests and grid availability. The introduction of such a GIS map would allow planners to focus on promising areas. This would lead to higher efficiency of planning procedures and accordingly lower cost of RES deployment. Authorities are relieved as their applicants are better prepared, and they do not have to deal with requests relating to restricted areas.

Environmental preassessment by authorities / centralisation and publication of environmental data and assessments: Authorities can undertake environmental scoping and gather information on possible environmental impacts. Existing information would be widely shared. By doing so, they can advise planners where a negative environmental impact is probable, impeding the realisation of a project, and where this would not be an issue.

Participation and acceptance measures

<u>Financial participation of affected municipalities</u>: Support and acceptance by the local population and administration can be enhanced by ensuring that they benefit economically from new RES plants. This can be achieved by allowing municipalities to financially benefit from projects, e.g. in the form of a payment per kWh from the RES producer. Income should be bound to specific public policy measures that benefits citizens as well, like social services (e.g. kindergarten, health services) or infrastructure (e.g. streets or public transportation).

<u>Early engagement in local information, dissemination, and discussion</u>. Citizens and other stakeholders' acceptance of projects plays a vital role in renewable expansion. The acceptability of projects can be increased with the right participatory approach. On a general level, such activities should inform the public on the relevance of renewable energy in fighting climate change and related threats. With respect to specific projects, participation

has to begin with the launch of a project and allow stakeholders to influence its concept rather than just confronting them with final plans and decisions.

Project independent moderator for stakeholder participation and problem resolution: Independent moderators facilitate communication between local communities and project planners. They help solve disputes during the planning and realisation of RES projects. This way, planners can realise projects with less regional opposition and allow developers to avoid lawsuits. Moderators must be neutral towards parties and familiar with the regional circumstances. This way they are accepted by planners and local communities alike.

Eased procedures

Eased procedures for the repowering of existing power plants: New permissions and assessments should only be mandated to address possible new impacts of repowering projects. Authorities must take the existing impact of an old installation as a baseline in the case of an environmental assessment. This can be the case when they consider the protection of species, for instance. Furthermore, when defining requirements on compensation measures an authority expects for the negative effects an installation has on a landscape, the authority should include those that the developer has already provided for the existing installation.

Refurbishments should be allowed within specific capacity limits without the project developer having to obtain further permissions. That is, if the installation's impact on the environment is not expected to substantially change. The expected ecological impacts of changes and therefore the applicability of simplified procedures can be subject to an assessment by local authorities (or at least authorities which are familiar with the local context).

Eased procedures for RES self-supply and small-scale RES: Easing and simplifying procedures for projects is a simple approach to speed up permitting. It helps planners and authorities alike and increases the speed at which projects are realised. By simply reducing the number of necessary permits for projects, developers need to prepare less documents. Authorities on the other hand receive less applications and can therefore use their resources to permit large and important projects. Eased procedures for RES self-supply and small-scale RES streamline the necessary checks and balances between project planners and authorities. This can be implemented due to the limited impact these installations are to have on the environment and energy systems.

Clarified priority for RES in administrative processes

Political backing of RES: Integrated planning system from national to local: A general planning strategy can enhance local and regional involvement. Such a strategy includes breaking down national targets to the regional and local levels. Measures should be implemented to legally ensure the availability of sufficient land area for a target-compliant RES development (e.g. x% of national area is allocated to wind power). This could feature regional targets, but would leave decisions about specific locations in the hands of local actors.

Define RES as public interest: The permission to develop RES projects depends on how their environmental benefit relates to any potential negative impact stemming from their installation and operation. In order to clarify the high value of renewables in fighting climate change on the global level, renewables should be legally defined as a matter of public interest. Ideally, this status could be regulated by EU legislation rather than only on the level of Member States.

Ensure that responsible authorities are fit for purpose: Authorities should be put in a position that they can make robust decisions on applications within the required deadlines or even faster. Key measures include that a sufficient number of staff should be assigned to deal with applications. Furthermore, responsible staff have to be trained to have a sufficient level of expertise to evaluate permissions. This can be supported by central, possibly national, departments, for instance. These would be staffed with experts that can assist their regional or local colleagues on specific issues.

IT infrastructure

Optimised processes require adequate IT infrastructure. RED II contains a number of requirements that necessitate this. Some of these issues have already been addressed above, but are presented here in a structured way, focusing specifically on IT infrastructure.

1. **Provide information to applicants**

IT infrastructure should support applicants' access to requisite information. This entails establishing necessary repositories of data where necessary information is collected and made available. This should cover a range of issues that are all accessible through a single platform. This way IT infrastructure supports the development of single contact points.

2. **Facilitate information flow from applicants to authorities**

Besides channelling information from authorities to applicants, IT infrastructure should also facilitate information flow in the other direction. Most importantly, developers should be able to submit application documents digitally, but such a platform could enable further communication from the applicant.

The two-way communication between applicants and authorities (requirements to both provide information to the applicant and to facilitate the information flow from applicants to authorities) should be combined in one central platform. This should ensure that all information is in one place for a project at hand.

IT infrastructure should be the basis for a single contact point, but should not become a black box for applicants.

3. **Optimal processes within authorities**

Finally, IT infrastructure should not only support interaction between authorities and applicants, but also contribute to the effective and efficient processing of applications within the authorities.

Some of the above-mentioned features can increase internal efficiency and therefore IT solutions should be designed to support these objectives. First, the central platform can also be used as knowledge management system for the involved authorities. Second, a tracking system can make the process transparent for both applicants and those experts working within authorities.

Additional technology specific recommendations

Wind

<u>The European Commission should initiate best practice guidelines for Member States on measures to reduce conflicts with military and aeronautical interests</u>: These include investments into additional high technology infrastructure, including additional radars or high-performance radars, or the support of radars compatible with wind turbines. Operational improvements can also be made by governments, by introducing measures that provide the military with the ability to remotely control wind power plants. With respect to the permission procedure, stakeholders have also proposed that it would be helpful if the military would not either accept or refuse projects, but could make its decision conditional and request changes, if the circumstances allow for this.

The Consortium also recommends that a cross-border cooperation between Member States should be enhanced for offshore wind. This can be achieved by establishing appropriate administration structures (like a joint One Stop Shop) per sea basin.

Small hydropower

Adaptation of the Water Framework Directive: There should be a better alignment of the renewable energy and environmental goals in RED II and the Water Framework Directive, so that it becomes clear to which extent Member States can consider hydropower projects to be of overriding public interest as defined in the WFD. This would provide an anchor as to whether responsible authorities can grant them licenses.

Geothermal

A Delegated Act for Geothermal Licenses and Permits: A Delegated Act regulating the provision of geothermal licenses and permits is strongly proposed to streamline the various facets of permitting. For this purpose, art. 15 RED II should be amended. Stakeholders have requested that such a Delegated Act outline harmonised rules on licensing and permitting geothermal projects.

RES priority access and feed-in for heating grids: It is recommended that, similarly to RES electricity installations, RES heat installations should also be provided with a priority access for a grid connection and the feed-in of energy. The general priority for RES heat could be supplemented by an obligation to increase RES shares when developers expand district heating systems.

Priority of suitable areas for heat use: RES heat production can be increased by pre-assessing suitable areas for RES heat and granting it priority to access district heating systems. This is especially important in urban areas and when installations are near district heating pipelines. Such pre-assessments and clear priorities would facilitate negotiations on land-use rights, and the land usable by project developers would increase.

1. Introduction

This is the first interim report under the contract ENER/C1/2019-479/SI2.831723 “Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify)” (hereafter – the Assignment). It was prepared for DG ENER of the European Commission by eclareon in cooperation with the Oeko-Institute, WindEurope and SolarPower Europe.

1.1. Objectives

The EU is committed to moving away from a fossil fuel-based energy system and ensuring a clean, competitive, and reliable energy supply for European citizens and businesses. The European Union’s long-term commitment to achieve climate-neutrality and reduce greenhouse gas emissions by 80–95% compared to 1990 levels until 2050, as supported by the President of the European Commission Ursula Von der Leyen and translated into Climate Law, has important implications for the current energy system. The Commission shows the nature of these changes in its *Roadmap for moving to a competitive low-carbon economy in 2050*[2].

The 2030 EU target to meet 32% of its final energy consumption from renewable sources is based on each Member State having to meet its individual targets to allow the EU to meet its legally binding overall target. They are obliged to provide detailed roadmaps describing how they will meet their targets. These are provided through the National Energy and Climate Plans (NECPs) required and defined by Regulation 2018/1999 on the Governance of the Energy Union and Climate Action[3]. NECPs contain sectoral targets, the technology mix Member States intend to use to meet demand, as well as the measures taken and regulatory frameworks introduced to facilitate the realisation of the Member State-specific renewable energy target.

The European Commission’s 2020 Renewable Energy Progress Report[4] shows that a large share of the relevant measures in the Directive 2009/28/EC on the promotion of the use of energy from renewable sources (RED)[5] have been successfully implemented in the EU Member States, but there are still a number of obstacles that hinder further deployment of renewable energy sources and thus jeopardise the EU’s ability to achieve its 2030 renewable energy target of 32%. The *REveal* database[6] illustrates that almost 25% of all existing barriers are connected to administrative and grid connection processes. Such barriers appear in all EU markets. Their overwhelming majority (83%) affect renewable energy installations in the power sector, 13% in the heat sector, and only 4% in the transport sector.

Wind power and solar installations are the technologies which are by far the most affected by administrative barriers (see Figure 1-1). 44% of all barriers related to administrative and grid connection processes exclusively impact wind onshore (the majority) and wind offshore projects. Another 23% of these barriers only affect PV, biomass installations (including

2 COM(2011) 112 of 8 March 2011.

3 REGULATION (EU) 2018/1999 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the Governance of the Energy Union and Climate Action.

4 https://ec.europa.eu/energy/sites/ener/files/renewable_energy_progress_report_com_2020_952.pdf.

5 https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028.

6 https://www.renewables-networking.eu/reporting.

biogas) are affected by 18%, while other technologies (hydropower, ocean energy, biofuels, geothermal, electric vehicle and solar-thermal) by less than 5%.

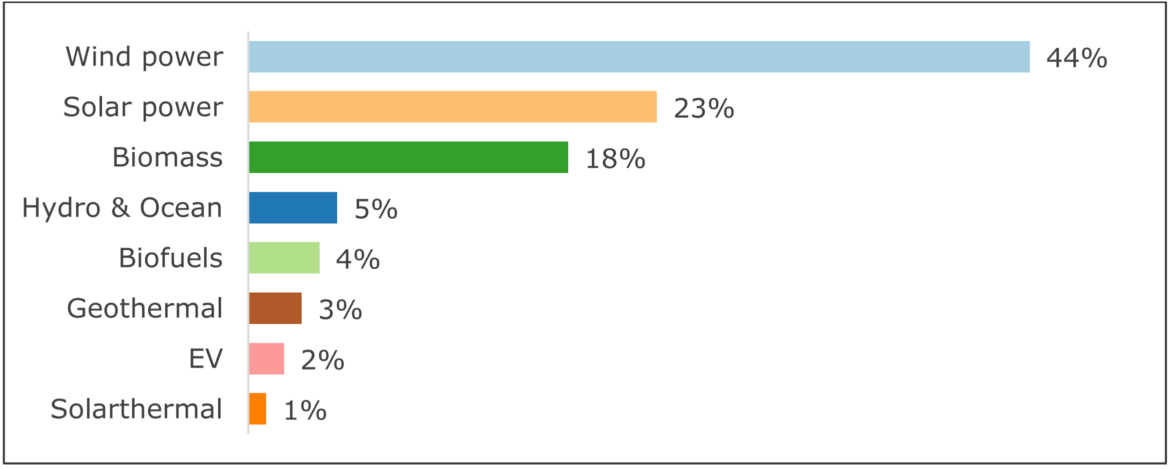


*Figure **1-1**: Overview of an impact of administrative barriers on RES technologies, based on REveal database*

With Directive 2018/2001 on the promotion of the use of energy from renewable energy (RED II)[7], the European Commission established a new framework to meet the 2030 renewable energy target. It has complemented this with the other elements of the *Clean Energy for All Europeans package*[8]. In particular, arts. 15, 16, and 17 instruct Member States to simplify and accelerate the administrative and grid connection procedures for renewable energy projects. In addition, Regulation 2018/1999 requires Member States to "limit administrative complexity for all relevant stakeholders" (art. 3 par. 3 Regulation 2018/1999).

The aim of this report is to provide insights on the most important obstacles impeding the diffusion of renewable energy technologies in the permitting and grid connection procedures. It also discusses best practice examples deployed by Member States as well as Iceland and Norway, and general best-practice recommendations which can be promoted with regard to permitting new and repowered renewable energy installations and connecting them to the grid. Finally, it is outlines how Member States can establish optimised processes and supporting IT infrastructure that are compliant with the relevant requirements as imposed by RED II.

1.2. Short overview of methodology

The objective of this study is to establish an understanding of how the approval procedures for renewable energy installations can be improved. To this end, the Consortium extensively mapped the permitting and grid connection procedures of relevant renewable energy technologies in target countries (i.e. the 27 EU Member States, Norway, and Iceland). The mapping provides insights on the most important steps and related permits in the process of executing a renewable energy project. It also identifies the most significant obstacles when requesting approvals from competent authorities or a connection to the grid from the grid operators.

The research encompassed the key steps necessary to develop renewable energy projects, including, but not limited to, site selection, the issue of the electricity production license, pre-

7 DIRECTIVE (EU) 2018/2001 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 11 December 2018 on the promotion of the use of energy from renewable sources (recast)

8 https://ec.europa.eu/energy/topics/energy-strategy/clean-energy-all-europeans_en

application process, administrative authorisation process, approval of the grid connection, as well as corporate legal-fiscal processes and other relevant process steps.

The procedures and obstacles for this study were mapped for onshore and offshore wind, rooftop and ground-mounted photovoltaic, hydropower, solar thermal, and geothermal (including heat pumps). The technologies analysed were selected based on the country-specific targets in the NECPs for 2030 and the growth potential of the individual renewable energy technologies by 2030. Researchers identified the most pertinent technologies based on these sources and then traced the barriers hindering their deployment.

Alongside identifying obstacles, the Consortium identified practices in the administrative and grid connection procedures in target countries that can be considered best practices. These were analysed in more detail in Task 2 of the Assignment (see section 4) in order to understand which lessons learnt can be applied to other Member States, process steps or technologies in order to make this a basis for further policy development.

Prior to conducting the mapping, the Consortium developed draft performance indicators (PIs). These performance indicators were intended to help identifying countries in which permitting procedures are obviously comparable efficient and effective, so that the respective regulation could be further analysed and used as reference for best-practice.

The Consortium used a four-step process to collect data: (1) desktop research, (2) expert interviews, (3) an online survey, and (4) stakeholder workshops. These streams of data were used to inform country reviews. The desktop research covered the analysis of primary and secondary sources including relevant legislation, official government documents, websites and press releases, media articles, other expert sources and, to a certain extent, academic literature. The project team also conducted interviews with the national stakeholders in all EU Member States, Norway, and Iceland. Interviewees included experts affiliated with national ministries, authorisation bodies, renewable energy associations, project developers, as well as environmental and aviation organisations. Expert interviews were the key source of information for the identification of obstacles and good practices in permitting procedures, but these were informed and contextualised by foregone desktop research.

The data on the performance indicators, collected through expert interviews, was supplemented by information gathered via the online survey targeting national stakeholders. As a final step, stakeholders discussed and validated preliminary results of the mapping task in workshops. Discussions in the sectoral workshops also provided additional insights regarding the issues that stakeholders face in the permitting and grid connection procedures for renewable energy installations, as well as good practices in administrative procedures in the target countries.

Based on the desktop research and expert interviews the Consortium produced 29 comprehensive National Reports, annexed to this report (Annex 1).

Best practice for permitting procedures was, as an initial step, gathered based on a literature research. For this, relevant studies and other publications from different European countries were evaluated. Additional information was gathered through the online survey and the stakeholder interviews. The data collected this way was the basis for a best practice long list, which contained every identified best practice approach.

We evaluated the longlist in order to choose best practice options which are considered to be broadly transferrable and applicable and considered to have the biggest potential to speed up permitting. The short list that was developed this way was used as basis for stakeholder workshops with representatives of the key renewable energy technologies addressed in this project. These workshops showed the need for a highly interactive format in order to stimulate feedback on the short list, and to trigger input on additional general and technology specific best practice, which were discussed, validated, and rated.

In order to develop a general outline for optimised processes and supporting IT infrastructures that are compliant with RED II, the discussed best-practice recommendations have also been analysed in order to assess their applicability with a view to specific RED II requirements. Thus, they should be helpful in order to provide broad support for an efficient implementation of RED II requirements.

Furthermore, the relevance of the identified best practice recommendations for the different process steps has been assessed and described. This should support Member States to either generally implement best practice recommendations as appropriate for the whole process, but also to focus on individual process steps if it becomes obvious that permission procedures face particular barriers in these process steps.

Based on best practice and further literature research, an outline for the deployment of a supporting IT infrastructure has been elaborated.

1.3. Structure of this report

This report follows mostly the task structure of the Assignment of the European Commission (see Figure 1-2).

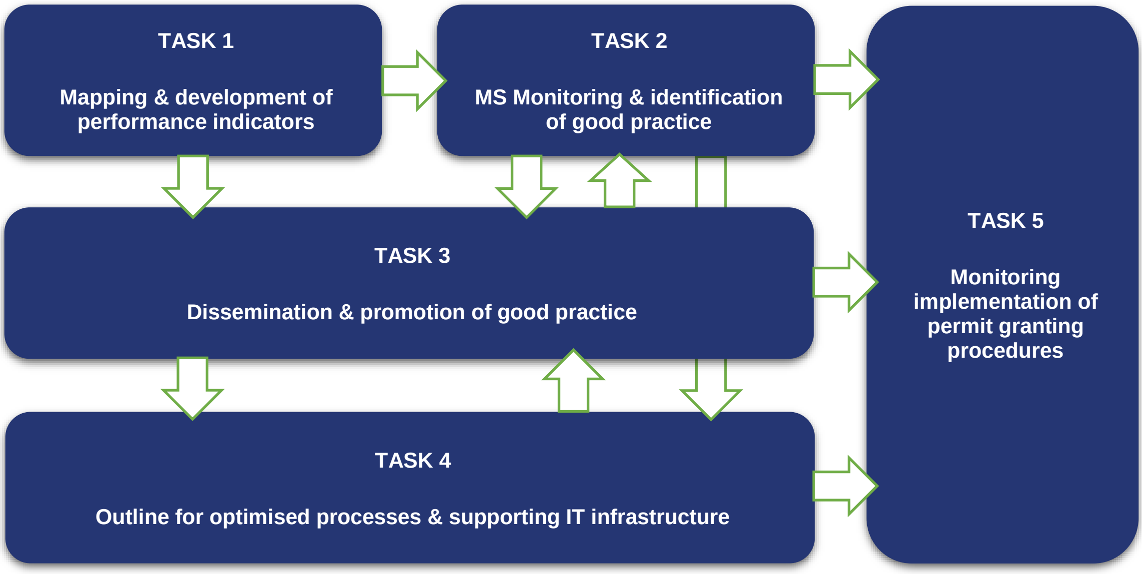


*Figure **1-2**: Task structure of the RES Simplify project (Source: RES Simplify)*

The subsequent sections present the key results of Tasks 1, 2 and 4 of the Assignment:

- **Section 2** describes the findings of the mapping of permit granting and grid connection procedures and development of performance indicators (Task 1),
- **Section 3** presents the results of the monitoring of the Member States on the basis of the performance indicators (Task 2),
- **Section 4** describes the results of the identification of good practice (Task 2),
- **Section 5** presents the outlined optimised process and supporting IT infrastructure (Task 4),
- **Section 6** describes the next steps in the RES Simplify project.

Detailed country-specific information can be found in 29 National Reports (Annex 1).

2. The mapping of permit granting and grid connection procedures and the development of performance indicators

2.1. Objectives

The main objectives of Task 1 of the Commission's Assignment included: (1) the preparation of a methodology for the mapping of administrative and permitting procedures for relevant renewable energy technologies in EU Member States, Norway and Iceland; (2) establishing a stakeholder network for the mapping and the subsequent dissemination in Task 3; (3) mapping the permitting procedures; and (4) the development of performance indicators (PIs).

2.2. Methodology

2.2.1. Research and drafting the National Reports

As regards the practical undertaking of the mapping of permit granting procedures and development of performance indicators, Figure 2-1 briefly summarises the methodology the Consortium used to ensure high quality results in all target countries for the mapping of permit granting procedures and the development of performance indicators.

Step 1: Preparation

Final definition of research scope

Development of a research methodology & outline of draft PIs

Pilot research & training of eclareon's country experts

PI refinement

Step 2: Mapping

Research management

Desktop research to collect & validate existing information

Activate national research network & stakeholder interviews

Drafting national reports & PI finalisation

Step 3: Revision

Experienced team members review results

Second internal review of results by the Consortium

Feedback & review of results by external national experts

*Figure **2-1**: Methodology for the research (Source: RES Simplify)*

2.2.1.1. Scope of examined processes

The mapping covered the entire permit granting procedures for renewable energy projects in the 27 EU Member States and two EEA countries (Norway and Iceland). Based on its experience, the Consortium distinguished between the following process steps that are essential for developing renewable energy projects:

- Site selection, i.e. the acquisition of the project site (by purchasing or leasing it) and any steps necessary to make it legally suitable to host an installation (e.g. initiate changes with regard to local development plans and zoning, possibly including Strategic Environmental Impact Assessments (SEIA) etc.).

- Electricity production license obtainment, i.e. the necessary processes to obtain a license to produce electricity. Note that different countries have a different name for this license, such as electricity production license, electricity generation license or exploitation authorisation.
- Pre-application, i.e. the process before submitting an application for a permit to the competent authority, during which the authority provides advice on how the developer should apply successfully.
- Administrative authorisation, i.e. all processes that pertain to the developer obtaining a license to construct a renewable energy installation, (e.g. a building permit, an environmental permission including an Environmental Impact Assessment (EIA) or a technology-specific permission, for example, a water use permit for hydro-power plants or a radar permit for wind power plants).
- Grid connection permit, i.e. the formal process to obtain the permission to connect the installation to the electricity grid as well as additional processes necessary to realise a grid connection.
- Corporate legal-fiscal, i.e. all necessary processes to incorporate (if this is legally required), become a member of a certain association, to become liable for taxation, or to become exempted from taxation – such requirements are particular burdensome for smaller and decentralised installations.
- Other relevant, country specific processes that do not fit into the categories listed above.

2.2.1.2. Geographic and technology scope

The mapping focused on 29 target countries: the 27 EU Member States and the two EEA countries (Iceland and Norway).

To narrow the scope of data that researchers collected during the mapping task, the scope of the technologies examined was limited to the two to four most relevant renewable energy technologies in each EU Member State. For Norway and Iceland, the permitting procedures were mapped for only one key renewable energy technology – hydropower in Norway and geothermal in Iceland.

The target countries' relevant technologies were selected from the following categories:

- wind onshore and offshore;
- photovoltaic (rooftop and ground mounted);
- concentrated solar power (CSP);
- hydropower (small and industrial);
- solar thermal;
- geothermal technologies and heat pumps;
- biogas;
- biomass based heat and powerplants.

Some of these technologies are prevalent in almost all countries, such as wind power or photovoltaics (PV), while others are only deployed in few, such as geothermal or hydropower.

The Consortium selected relevant technologies based on the NECPs of target countries. Researchers assessed which technologies are essential for countries to achieve their national targets, and they excluded the technologies that are not affected by the administrative and permitting issues at the beginning of the research already. NECPs were examined in relation to the national technology mix and renewable energy targets for 2030 (see Figure 2-2) to identify which technologies will play the greatest role in the country's energy mix by 2030 and which technologies have the greatest growth potential by the end of this decade.

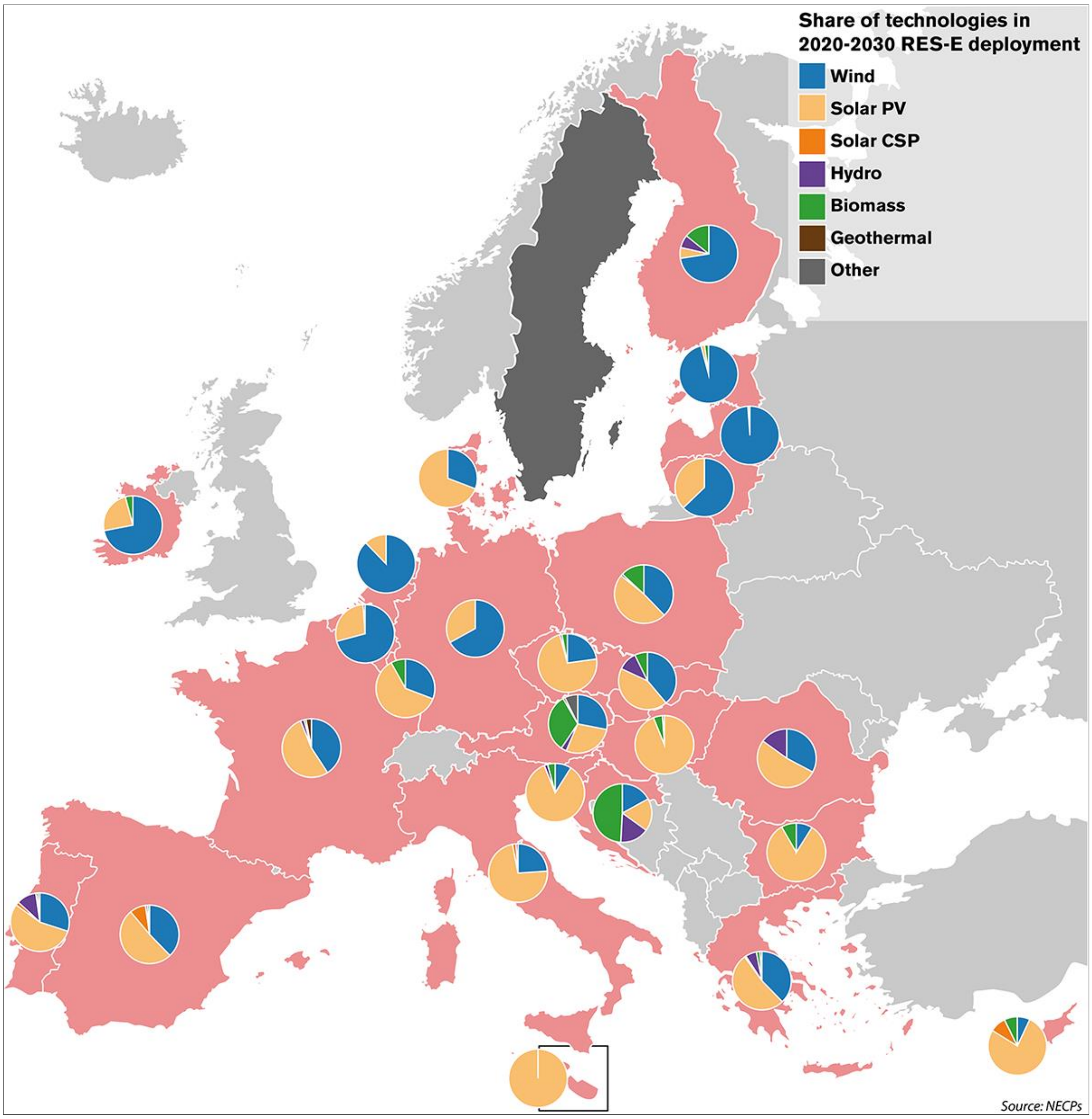


*Figure **2-2**: Share of technologies in 2020–2030 RES-E deployment, based on NECPs*

Table 2-1 below demonstrates which technologies were mapped in the target countries.

*Table **2-1**: Technologies covered for the mapping of permitting procedures in the 27 EU Member States, Iceland and Norway (Source: RES Simplify)*

	AT	BE	BG	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IS	IT	LI	LT	LU	LV	MT	NL	NO	PL	PT	RO	SE	SI	SK
Wind Onshore	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓
Wind Offshore		✓				✓	✓								✓								✓		✓			✓		
PV ground-mounted	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓		✓			✓	✓		✓	✓	✓		✓	✓
PV rooftop	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓			✓		✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
Biomass								✓						✓					✓		✓									✓
Hydro	✓											✓																	✓	
Geothermal										✓																		✓		
Ambient heat										✓																				

2.2.1.3. Research and validation of preliminary results

Researchers gathered country-specific data in several steps: (1) desktop research, (2) expert interviews, (3) online survey and (4) sectoral stakeholder workshops.

As a first step, the Consortium conducted desktop research. The country-based review drew upon a range of primary and secondary sources including relevant legislation, official government documents, websites and press releases, media articles, expert sources and, to some extent, academic literature. The most important source of information to map permitting and grid connection procedures in the target countries were legal sources, including laws, ordinances and legal guidelines. In particular, national documents (national and regional level) which transposed EU acts were examined by the research team. Another important data source were handbooks and guidelines that describe how of renewable energy projects can be developed in target countries.

In addition to the desktop research, the Consortium conducted numerous interviews with national stakeholders in all target countries including national ministries, authorisation bodies, renewable energy associations, project developers as well as environmental and aviation associations or organisations. Expert interviews were the key source of information to identify key obstacles and good practices. They also provided the quantitative data for performance indicators (e.g. process duration, approval rates, etc.).

For the collection of country-specific quantitative data on the performance indicators, the Consortium launched an online survey targeting the representatives of wind and solar power sectors. These representatives also circulated the survey among European associations and project developers. The goal was to gather data from stakeholders that are in direct contact with permitting authorities and in this way gain an insight into the situation developers face on the ground.

To validate the qualitative and quantitative data collected through desktop research, expert interviews and the online survey, the Consortium organised stakeholder workshops with representatives of wind and solar power, hydropower, solar thermal and geothermal energy sectors.[9] These workshops provided an additional source of information, especially with regard to prevailing barriers and good practices in the permitting and grid connection procedures.

2.2.1.4. Drafting the National Reports

Based on the validated research results, the Consortium drafted 29 National Reports that describe country-specific results. National Reports describe permitting and grid connection processes, identified obstacles and good practices, as well as other pertinent findings (Annex 1).

9 No stakeholder workshop was organised with the biomass industry, as permitting and grid connection issues are not relevant for the biomass sector, according to the Bioenergy Europe.

The National Reports structure national findings along the procedural steps distinguished by the Consortium. This conveys our findings in a sequential and thereby comprehensible manner. In addition, the reports contain a traffic light assessment indicating how severely individual process steps are affected by the barriers detected during the mapping. This is based on the Consortium's assessment based on the expert interviews and desktop research. The National Reports also discuss the use of IT in administrative and permitting processes as well as the complaint procedures of permits requested and pending procedural decisions. Finally, the reports provide information on the existence of certain specific features to ease administrative and permitting procedures (e.g. One Stop Shop) or national contact point, implementation of “two plus one”[10] or “one plus one” rules[11], pre-application consultation, measures to streamline litigation by third parties, etc.) and quantitative data on the predefined performance indicators for Task 2 of the Assignment.

2.2.2. Performance indicators

The performance indicators are developed based on a three-step methodology:

2.2.2.1. Development of a preliminary set of performance indicators

Performance indicators of RES Simplify were defined to indicate in which countries the permitting of renewable electricity (RES-E) is functioning well. They are the basis for the evaluation of permitting best practices. We assume that Member States with high rates of renewable deployment have well-designed administrative and permitting processes. Understanding how these processes are designed and how they can be transferred to other Member States is a part of Task 2, described in section 3.

The defined indicators cover the performance of processes and they gather information on the specificities of a process. This means that indicators not only yield information on how well processes function, but they also capture the reason for their success. Therefore, information researchers gathered on well-functioning processes also provides insights on best practices.

The basis for the definition of indicators were the tender specifications and a further screening of relevant documents.

Indicators cover the efficiency and effectiveness of procedures. Efficiency covers the speed of a process. During efficient processes, authorities can take decisions quickly, and processes take little time to be finished.

Effectiveness describes how well authorities come to a clear decision. The goal of a permitting process should be to provide project developers with concrete answers. This can be positive and suggest that a project is legally permitted. This allows for developers to proceed with their project and litigation can only emerge as an issue if parties involved were negligent. Authorities can also take a negative decision and reject the developer's request for a permit. This may occur, if documents are insufficient or show that the project should not be realised. Without “black or white” decisions, developers face uncertainty. It becomes unclear if they can realise or if they need to adjust their initial plans.

10 According to Art. 16 (4) RED II, the permit-granting process for power plants shall not exceed two years, including all relevant procedures of competent authorities. Due to extraordinary circumstances, this two-year period may be extended by up to one year.

11 According to Art. 16 (5) RED II, the permit-granting process shall not exceed one year for installations with an electrical capacity of less than 150 kW. Due to extraordinary circumstances, this one-year period may be extended by up to one year. In addition, the length of repowering procedure of existing renewable energy plants shall not exceed one year. Also here, this one-year period can be extended due to extraordinary circumstances, e.g. on grounds of overriding safety reasons where the repowering project impacts substantially on the grid or the original capacity, size or performance of the installation (Art. 16 (6) RED II).

The following Table 2-2 gives a structured overview over the performance indicators that were defined to analyse efficiency and effectiveness of permitting procedures.

*Table **2-2**: Overview of performance indicators for RES-E permitting procedures (Source: RES Simplify)*

	Project Developers	Stakeholders
Effectiveness	**Project approval rates & legal challenges** *How high or low are project approval rates?* *How high is the % of projects that are legally challenged?* **Yearly installed renewable capacities** *What share of the yearly necessary capacity expansion has been reached in preceding years?*	**Stakeholder interests** *Are Stakeholders taken into account when projects are permitted?*
Efficiency	**Deadlines and total process duration** *Do deadlines exist in the overall process or individual process steps?* *How long does the overall process and/or individual steps take?* **Costs of administrative procedures** *What are the costs for developers to deal with administrative procedures?* **Transparency of administrative and grid connection procedures and the resources of authorities** *Are processes understandable? Do planners know the state of their application?* **One Stop Shop** *What is the number of authorities and grid operators that must be contacted?*	**Stakeholder interests** *Can stakeholders participate without any barriers?*

Alongside effectiveness and efficiency, the Consortium defined indicators gauging stakeholder participation, since this can also have a significant impact on renewable deployment. Stakeholder participation is linked to the increased acceptability of renewable energy projects. Opportunities for their participation, therefore, can help support renewable deployment as litigation occurs less frequently.

These indicators describe permitting procedures. They indicate efficiency and provide information on whether facilitative institutions (e.g. a One Stop Shop) is present in target countries. Beyond the evaluation of single indicators, their combination is also possible. This provides an overview of the overall process and can give an idea of possible effects due to the shape of the process.

2.3. Key findings

2.3.1. Onshore wind

2.3.1.1. Introduction

Research on onshore wind was the most expansive of all technologies since it covered almost all EU Member States. Wind power can be deployed in nearly all regions of the EU, since countries have adequate resources (i.e. wind) to support the technology and it is an economically competitive source of energy as well. As a consequence, all NECPs (aside from Hungary and Malta) foresee a robust growth in wind power, both in onshore and offshore, particularly in Member States such as Latvia, Estonia, the Netherlands, Ireland, Finland, Belgium and Germany. Figure 2-3 provides an overview of the planned installed capacities across the whole EU, which underlines the ambitious deployment plans of governments.

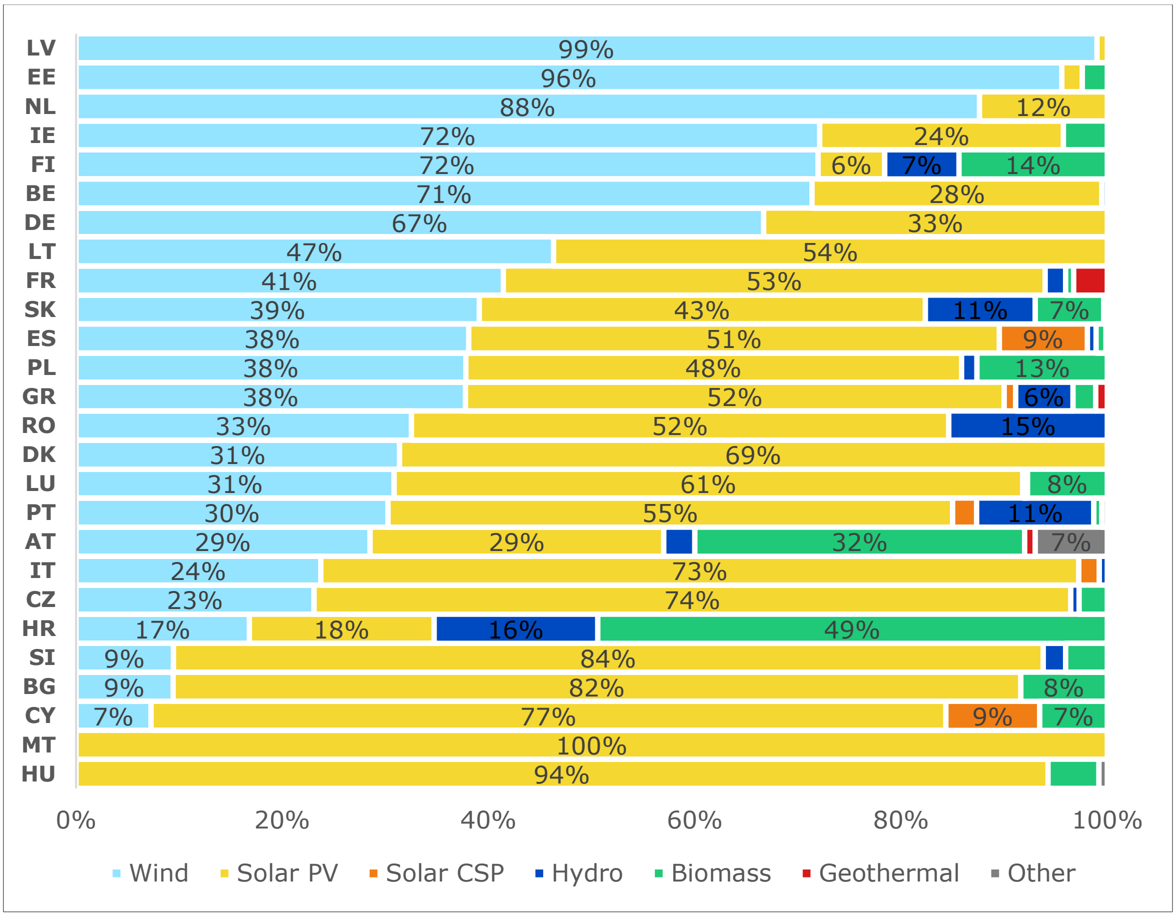


*Figure **2-3**: National targets for wind power development (Source: NECP)*

This positive outlook stands in contrast to historic deployment. Figure 2-4 illustrates the development of newly installed capacities from the past ten years. These figures demonstrate that EU-wide deployment of new wind power capacities was somewhat unstable and particularly weak since 2017, especially in the case of onshore wind.

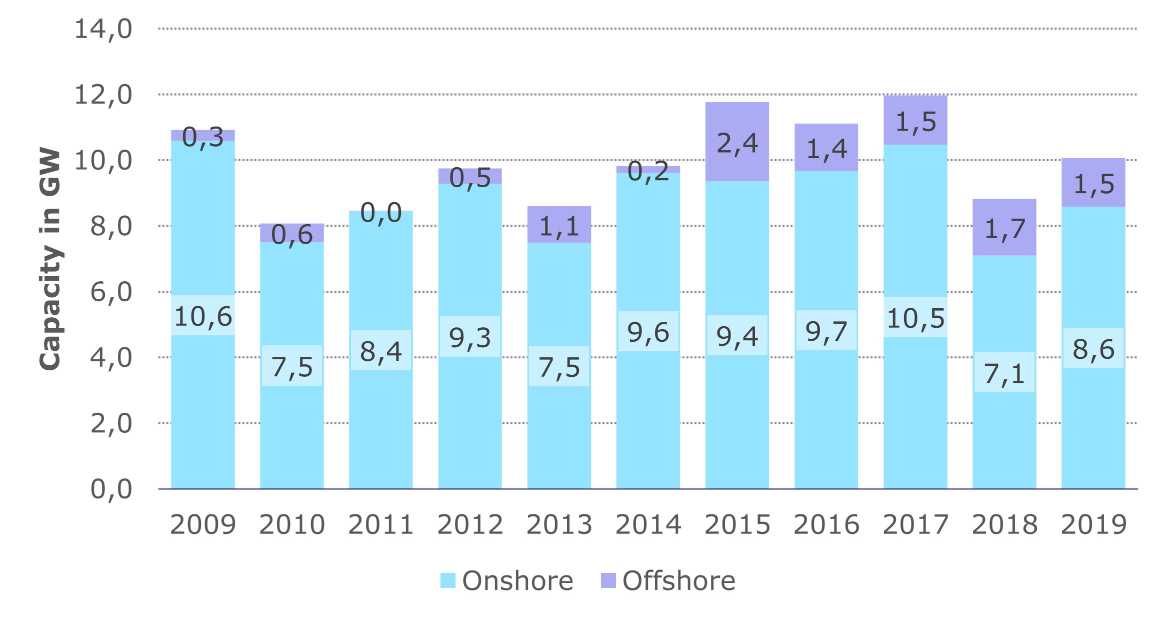


*Figure **2-4**: Development of wind power capacities 2009-2019 (Source: EurObserv'ER & eclareon)*

What is more, the deployment of wind power in the past ten years was concentrated in a few countries. Figure 2-5 illustrates the geographical distribution of wind power deployment across the EU. It shows that more than 75% of all new wind power capacities were installed in merely six Member States and 32% of total growth took place in Germany. This stark concentration of deployment limited to a few markets can only be explained to a limited degree with economic strength, power demand, or the size of the respective Member States. In a sense it is puzzling that Member States with the highest targets for wind power (Latvia, Estonia, the Netherlands, and Ireland) have shown the lowest deployment in the past ten years. Thus, they need to substantially boost deployment.

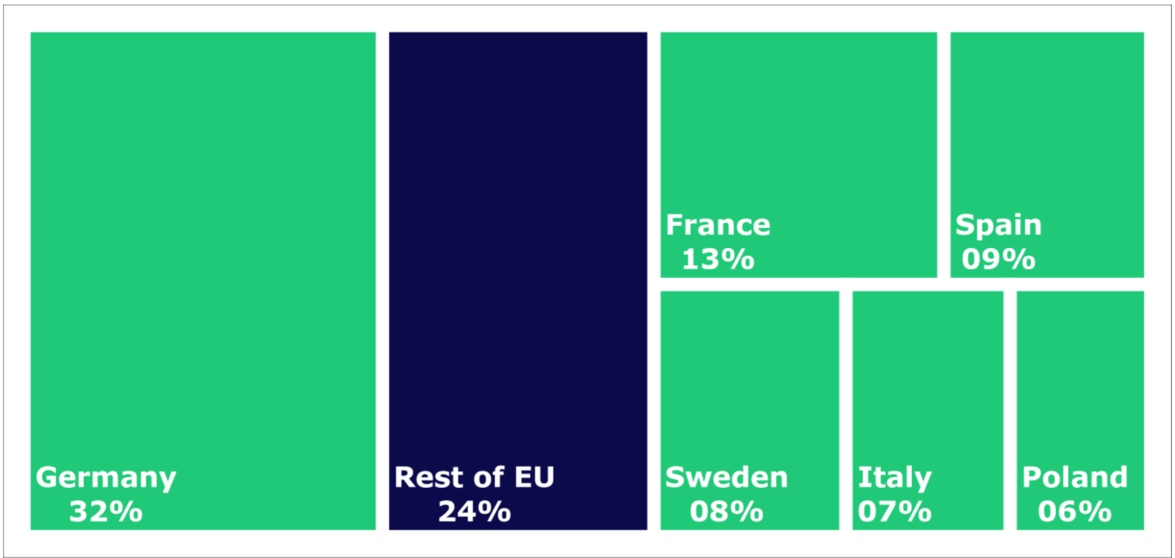


*Figure **2-5**: Installed wind capacities across EU MS 2009-2019 (Source: EurObserv'ER & eclareon)*

These results are somewhat surprising, considering that the prices for wind power have gone down significantly in most Member States due to a strong decrease of financing and installations costs. The recent deployment figures in markets like Sweden and Finland also show that strong investments in wind power are possible even if the existing support schemes are insufficient to stimulate diffusion or there is simply no scheme in place because of new investment opportunities through power purchase agreements (PPAs). Past research indicates that administrative and grid issues play an increasing role as roadblocks for wind power deployment. The *REveal* database, a comprehensive database of more than 1000 barriers to renewable power deployment, shows that almost half of the identified barriers are connected to administrative or grid issues, as Figure 2-6 below summarises. It is essential to better understand what kind of administrative and grid barriers occur and under which conditions in order to support the continued diffusion of wind power.

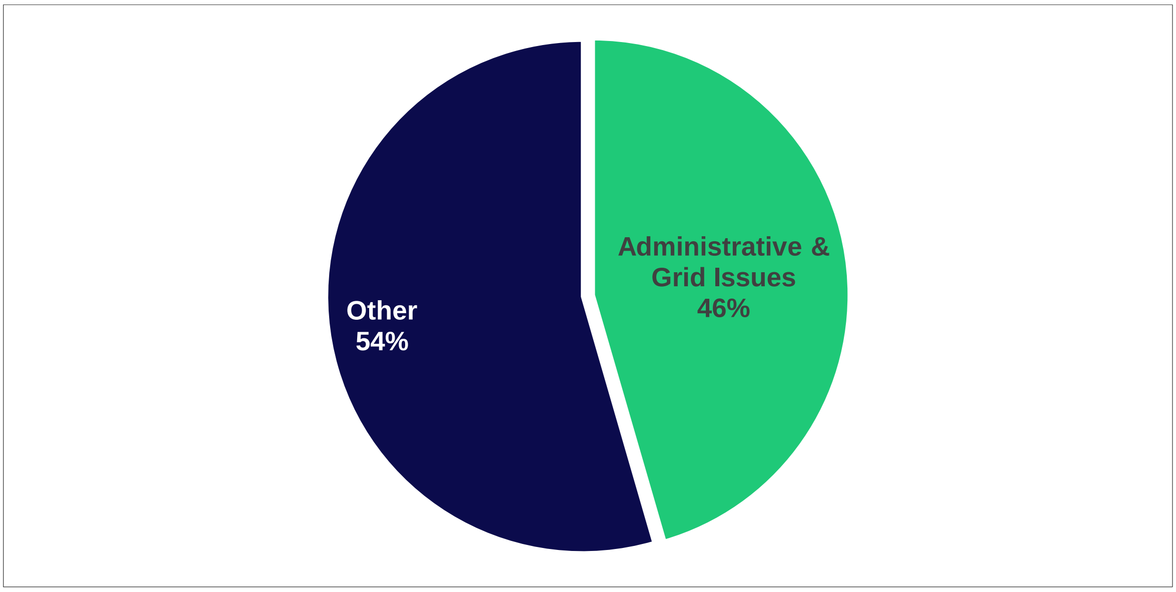


*Figure **2-6**: Overview of share of administrative & grid issues (Source: REveal database)*

2.3.1.2. Overview of the key process steps

Figure 2-7 provides a breakdown and assessment of relevant process steps investors must tackle in Member States to realise wind power projects. These do not provide a detailed description of the actual steps necessary to technically realise and implement individual wind power projects in the respective Member States[12]. Instead, it matches the severity of barriers based on our research to indicate which project phases are considered particularly problematic in which Member State. At such general level, the processes investors must execute to complete a project are quite similar in Member States. Researchers identified seven main processes: site selection, electricity production license, application preparation process, administrative authorisation, grid connection permit, corporate legal-fiscal, and other. Of these, site selection, administrative authorisation, and obtaining a grid connection permit are required in all Member States; electricity production licensing is necessary almost everywhere; corporate legal-fiscal steps are required in about half of all Member States; lastly, application preparation processes and other steps are only required in a few Member States.

12 Belgium is represented twice in this overview since regional difference between Flanders (BE1) and Wallonia (BE2) were so large that the two regions had to be treated as two different markets.

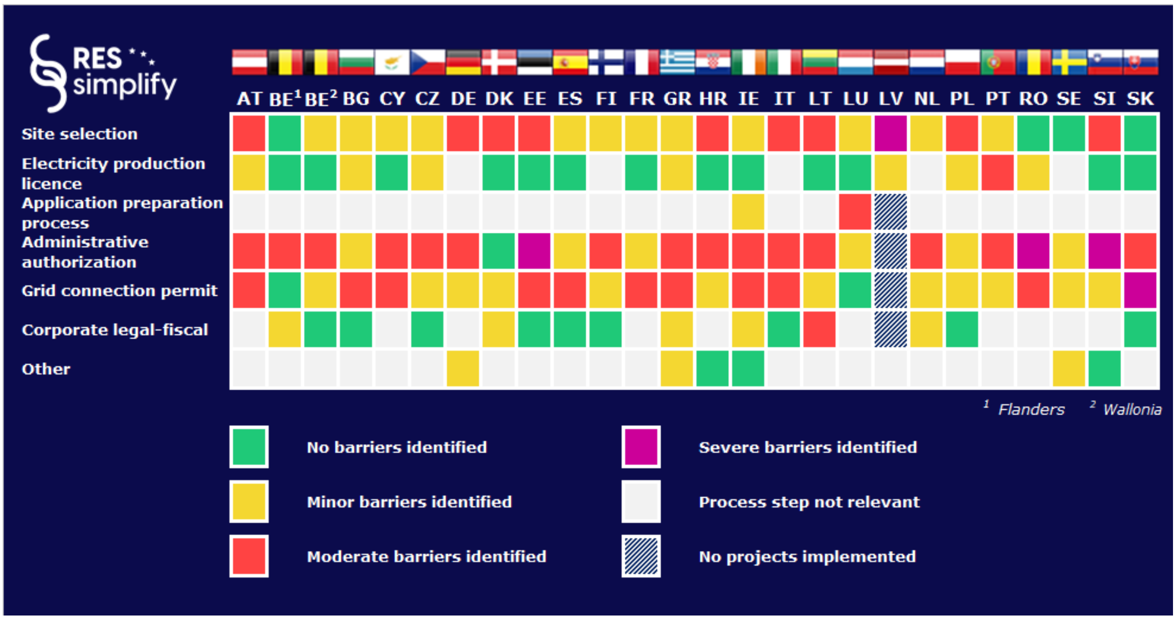


*Figure **2-7**: Traffic light assessment of project implementation process steps for onshore wind (Source: RES Simplify)*

The colour code distinguishes between

- Member States that were not covered in the research because there are no wind power projects and thus no experience from project developers (black),
- Process steps that do not exist in a Member State (white),
- Process steps that do not contain any barriers (green),
- Process steps where project developers merely face minor barriers (yellow),
- Process steps that bring about moderate barriers (red),
- Process steps, that cannot be concluded successfully because they contain such severe barriers (purple) and
- Project steps that could not be concluded because severe barriers in earlier process steps made the project impossible (shaded black and white).

The overview of the Member States reveals that the most problematic step is administrative authorisation: There was only one Member State, Denmark, where no barriers were identified that were connected to administrative procedures. In more than half of all Member States, moderate or even severe barriers were found. In Estonia, Romania and Slovenia, the administrative barriers are so severe that project development is effectively blocked. In Estonia and Slovenia, these severe barriers are due to a mix of lengthy procedures and public protests against wind power projects. In Romania, administrative authorisation is effectively rendered impossible because of complex procedures without a timeline, lack of communication by the authorities and different application of the laws in communities.

The second most problematic process step is grid connection. As with administrative authorisations, there are at least some barriers in almost all Member States but overall, these barriers are less severe. The main exception is Slovakia where an existing grid moratorium effectively bans any deployment of wind power (and other renewable power) projects.

Another relevant (and problematic) step is site selection. Barriers were identified in fewer Member States in contrast to administrative and grid barriers. Still, in a third of the Member States moderate barriers or severe barriers occur. In Latvia, for instance, municipalities effectively prevent zoning of wind power projects, which renders further process steps impossible and thereby impedes the diffusion of the technology. In other Member States, issues of site selection typically link to the lack of available sites, in most cases because of conflicting public goods that will be discussed below.

2.3.1.3. Key barriers per process step

Across all Member States, almost 350 barriers were identified that hinder onshore wind deployment. These barriers can be categorised in four groups:

- process-related issues,
- conflicting public goods,
- third party issues and
- grid issues.

The separation into these four groups is very often not entirely clear because there are interdependencies between them. Still, this grouping will allow for a better understanding of barrier characteristics, identification of good and best practices, as well as allow for the formulation of tangible and effective recommendations.

2.3.1.3.1. Process related issues

"Process-related issues" encompasses barriers that are mainly caused by the way in which administrative and grid processes are executed. The following map provides an overview, which barriers are present in which Member States.

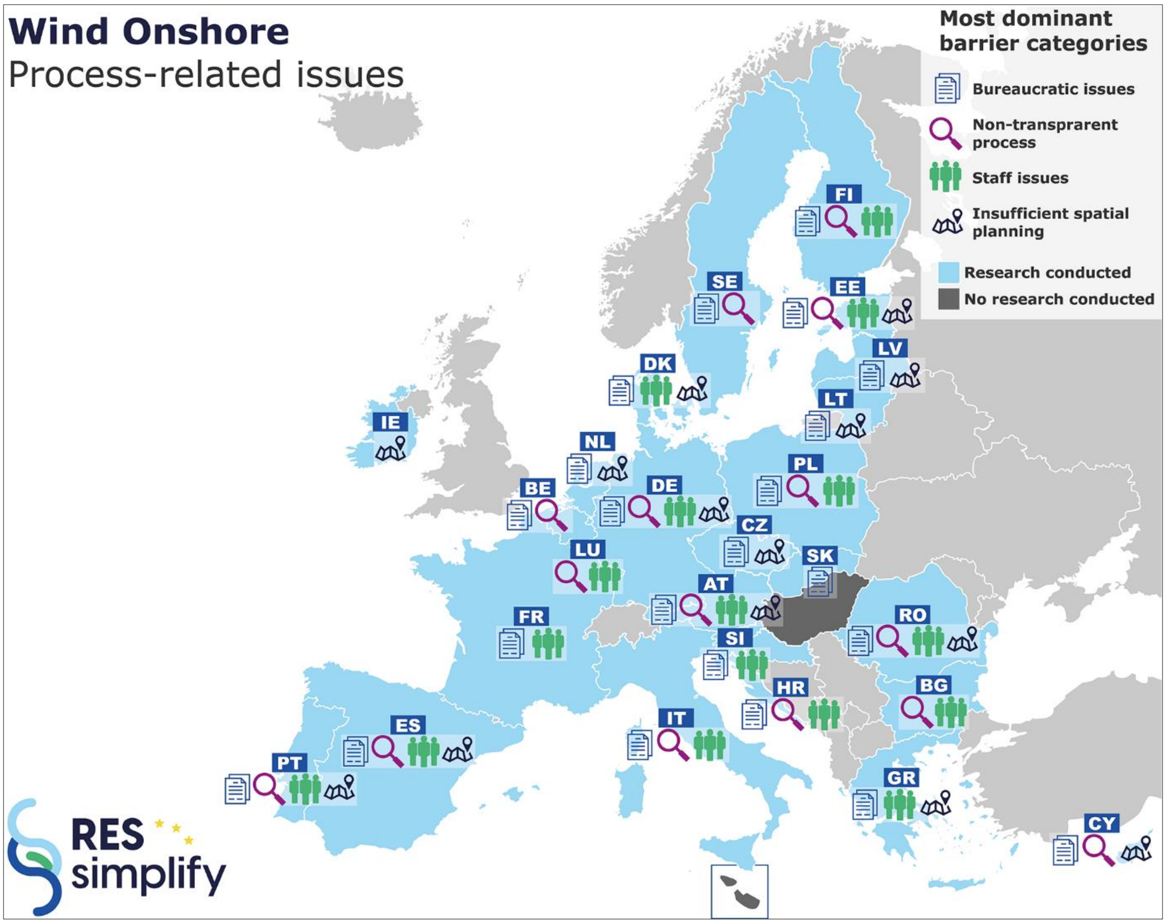


*Figure **2-8**: Overview of process-related issues for onshore wind (Source: RES Simplify)*

They represent the majority of all identified barriers for onshore wind, almost half of them fall under this category. Of these barriers, about a third (58) are connected to barriers related to **bureaucratic issues**, which were identified in 22 out of the 27 Member States (with no particular geographic distribution). Bureaucratic issues have the following structural elements: Lengthy and complex procedures; additional, unexpected, and burdensome requirements (such as expert reports) that must be submitted during the permitting process; a large number of authorities that have to be approached and involved; the lack of communication by authorities; and rules that force project permitting to be restarted due to minor changes of the technical design.

This barrier is not only a problem because the realisation of the wind power projects may take longer than expected, but such delays can prevent project developers from realising entire wind power projects. In some Member States (e.g. Estonia, Finland, Italy, or Sweden), it was reported that administrative procedures take so long that by the time the administrative process is concluded, the project might not be economically viable anymore because the technology has become obsolete. This risk is further aggravated in Member States with auction-based support schemes. In these cases, if a concluded administrative process is a requirement for placing a bid, then developers may miss their chance to participate in tenders. In such cases (in Italy, for example) project developers can miss their chance to establish viable business models.

In Bulgaria or Ireland, further interdependencies with grid connection procedure steps make the process' implications more complex, because the grid connection procedure must be concluded within six months. Project developers are then forced to work sequentially (and not in parallel) and a delay in the administrative process can result in a delayed grid connection process. Such delays increase risks for the project developer and increase the costs of the project.

The second largest identified group of barriers revolve around **non-transparent processes**. This barrier reflects processes with insufficiently documented guidelines, but it also includes issues such as authorities not communicating with each other and demanding documents that cannot be obtained at that stage of the given process (as in Romania). Non-transparent processes can also stem from a power-imbalance between the project developer vis-a-vis the administrative authority or the grid operator. Such imbalances can materialise in decisions by the authority that cannot be retraced or comprehended (e.g. Bulgaria), data that is decisive for the administerial decision which is not revealed by the authority or the grid operator (as in Belgium, Germany), discretion which allows authorities to interpret laws inconsistently without explanation (e.g., Romania) and that prevents project operators to file an appeal when authority decisions are delayed (e.g. in Poland)

The third largest process-related issue is connected to the **staffing problems** of authorities and grid operators. The challenge is either that authorities are understaffed, and their technical experts are overwhelmed leading to delays or that respective staff lacks expertise – the issue can be a combination of both. Staffing issues are predominantly a problem in large Member States, as it was reported in Germany, France, Italy, Spain (where the problem is larger at national level than at regional level), and Poland (both local and central level), and in wealthier Member States, such as Austria, Denmark, Luxemburg, and Sweden.

Lack of expertise is often reported in nascent wind power markets such as Bulgaria, Estonia, Finland, Ireland or Romania. Here, the lack of expertise is often due to inexperience and occurs at the local level or is in relation to complex technical questions (for example environmental conflicts). Considering the demand for experts by the wind power industry and the difference in salaries, it is an additional challenge to keep experienced staff working in the public sector. Staffing issues aggravate other barriers because authorities do not have enough time to structure, align, and coordinate their work allowing for smooth execution of administrative processes.

Insufficient spatial planning is a serious process-related issue that hampers onshore wind deployment. A typical problem is when there is no spatial planning or that existing plans do not sufficiently account for (current) development (as in Cyprus). The opposite and more common problem is that spatial plans are used to restrict or prevent wind power projects (Austria, Czechia, Germany, Greece, until recently also Latvia, the Netherlands and Portugal).

Even if spatial planning processes are used to enable wind power development, problems can occur. Project developers report that the spatial planning process can take too long, as was reported in Austria, Denmark, Finland, Germany. On the other hand, careful preparation of plans is necessary to ensure that spatial plans can be upheld when legally contested. After all, flawed legal bases of spatial plans can create a high level of uncertainty that deters investors, as reported in Romania. An additional problem is that spatial plans that were enacted at regional and local level differ from each other or from national targets. Such disparities further impede processes (Italy, Spain, Ireland). This can also coincide with splintered ownership, since more neighbours and stakeholders have to be involved. This issue was highlighted in Latvia and Slovakia, but this is probably a problem also in other post-soviet states, where land was re-allocated during the transition in the 1990s.

2.3.1.3.2. Conflicting public goods

If process-related issues aggregate barriers that are connected to the “how” of administrative process, the group of conflicting public goods focuses on the “what”. It covers barriers, where wind power projects collide with other (legitimate) public goods. These public goods are in most cases:

- Environmental issues,
- Land use conflicts,
- Aviation and military conflicts.

The following map provides an overview, which barriers are present in which Member States.

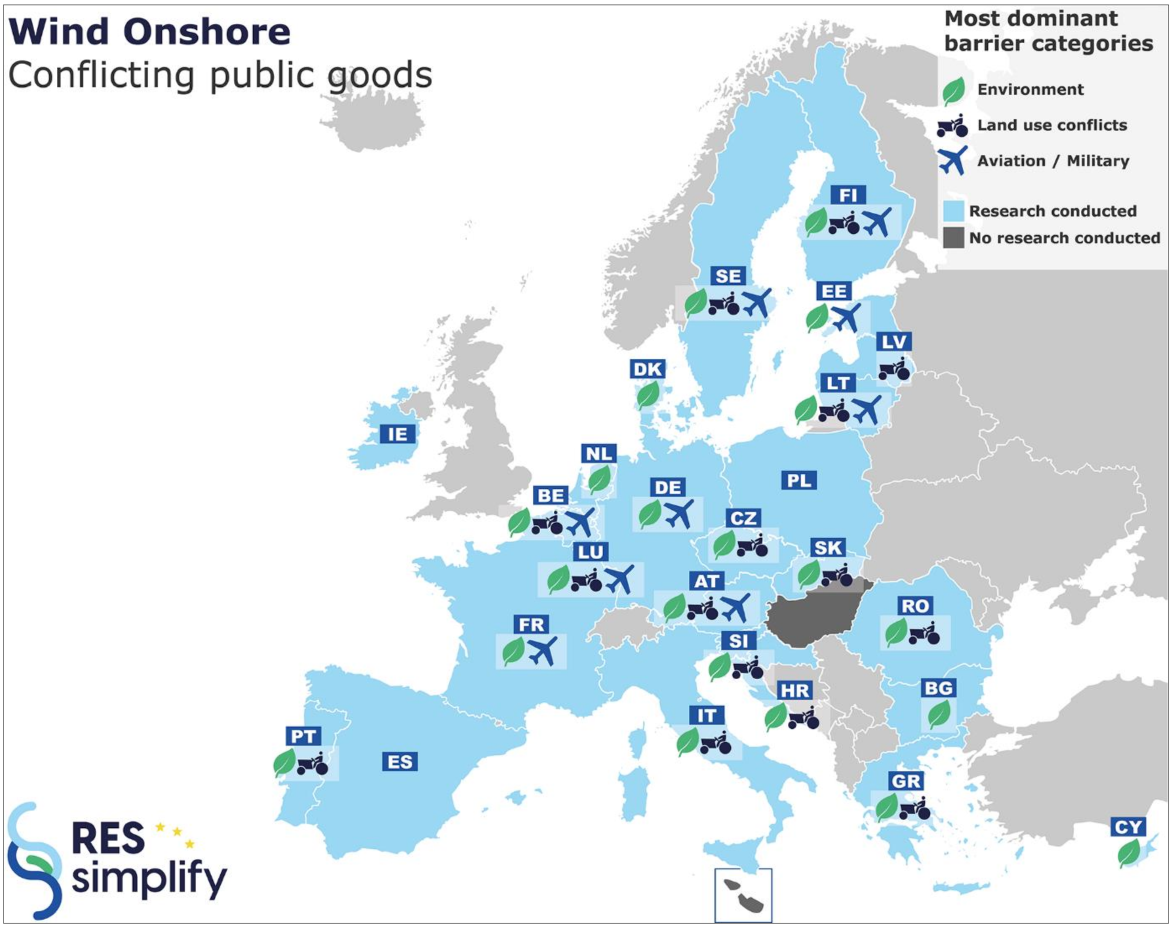


*Figure **2-9**: Overview of issues concerning conflicting public goods for onshore wind (Source: RES Simplify)*

Environmental issues were identified in 23 Member States, which makes this group the second most prevalent after bureaucratic issues. In some Member States, it is also one of the most severe barriers (e.g. Cyprus, Germany, Lithuania, Slovenia, Sweden). Barriers under this group can be the result from conflicts over the protection of a single species (such as the famous red kite in Germany or bats in Austria) or the protection of the environment in general. These conflicts can ensue with environmental groups. However, quite often they take place with or even between different public entities, such as environmental authorities, agencies and ministries.

Another focal point of many conflicts is the EIA that has to be conducted either during the administrative process of an individual project or as a SEA during the preceding planning process. The EIA originates from EU law and deadlines established by RED II shall apply without prejudice to them (art. 16 (7) RED II). Since a complete EIA requires in most cases census involving all seasons, an EIA has become a main reason for extended project realisation periods (in Germany, for example, it adds about two years to the process). However, in some Member States, the EIA is connected with specific national requirements, such as a municipal veto in Sweden, which is the actual impediment. Also, there is a broad consensus among project developers that a balance with environmental goods in general is necessary, as is the need for EIAs in particular. In fact, project developers are often rather concerned about specific details linked to EIAs, for example that EIAs diverge from Member State to Member State or that data from these are not available in publicly available repositories.

Land use conflicts are almost as common as environmental issues (they were identified in 20 Member States), but it seems that they are less severe in most cases. The conflicts are mainly about agriculture land and urban settlements. Although, in certain Member States (like Italy) it is about other issues, specifically tourism. Nevertheless, these conflicts push new wind power projects further out into environmentally protected zones, which aggravates the above-described environmental issues. In other countries (such as Belgium), it has also led to speculation over attractive sites. This caused a substantial increase in land prices with a spill over into agricultural land and consequently damaging the reputation of wind power.

Aviation and military conflicts generally emerge due to the impact of wind power plants on civil and military radar systems, but they have a wider scope, including issues with neighbours because of signal lights on wind power plants. These conflicts are less prevalent than land-use conflicts, for instance, since they are only common in nine to ten Member States. However, in a surprisingly high number of these countries (Estonia, Finland, Germany, and Lithuania), they are considered as one of the most severe barriers to wind power development. In this barrier, the geographical allocation is distinct, since most Member States where this issue was identified are located in the North-East of the EU (thus closer to the border with Russia).

As with environmental issues, the main criticism is not about a priority of aviation or defence interests per se, but rather about the matter being addressed in an adequate manner, such as through investment into modern radar equipment that resolves this issue (Lithuania). A more procedural criticism is that military boards can take decisions that obstruct the operations of a plant at a very late point of a project’s development, when a lot of resources have already been committed, or even after the project has been permitted (Finland, France and Sweden). Experts also noted the lack of harmonised regulation between the Member States in this realm.

2.3.1.3.3. Third-party issues

Third-party issues refer to barriers in which the relationships between project developers and other stakeholders (both public and private) are central (i.e. the “Who”). As with conflicting public goods, these barriers are less widespread than bureaucratic issues, but their impact can be highly severe for individual projects and the industry more broadly.

The following map provides an overview, which barriers are present in which Member States.

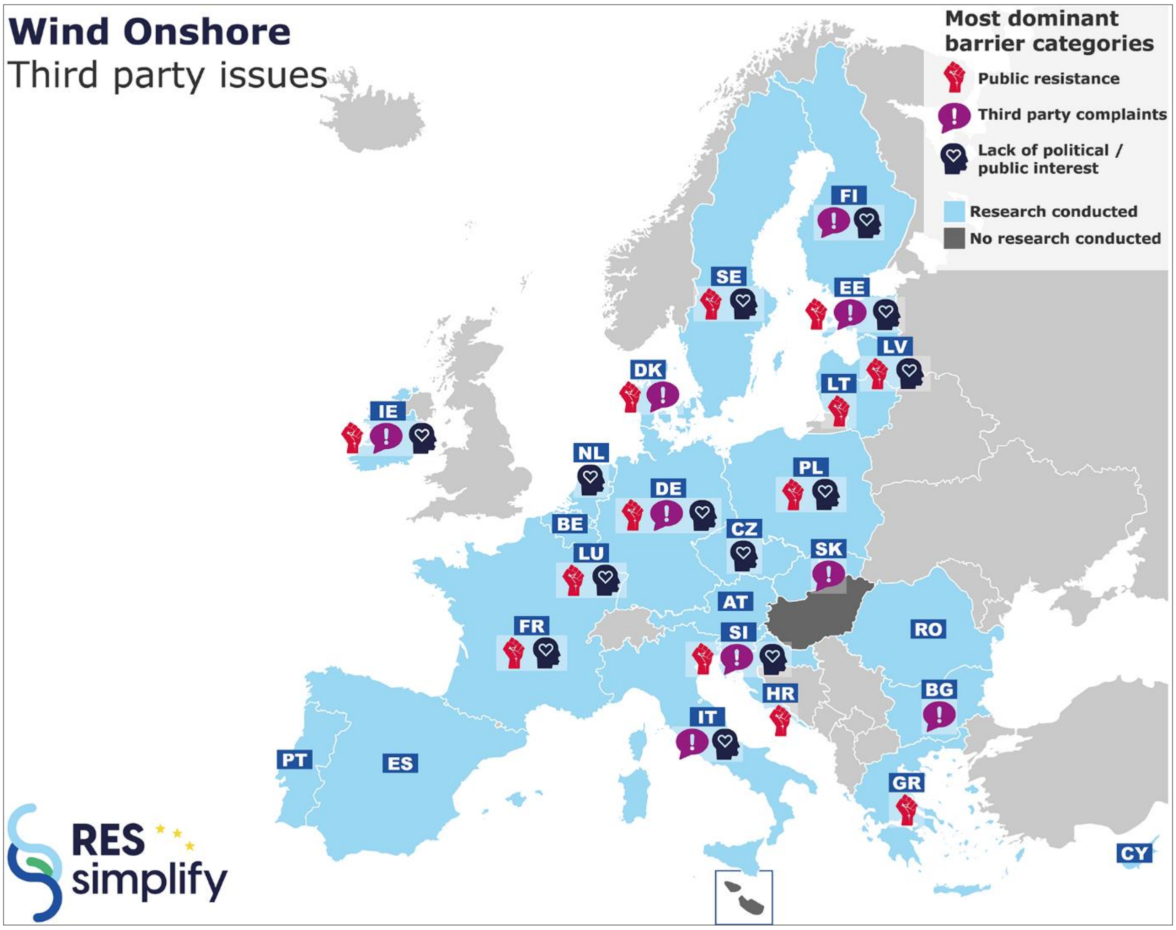


*Figure **2-10**: Overview of third-party issues for wind onshore (Source: RES Simplify)*

The most common barriers in this context are connected to the **lack of political and public interest** in onshore wind projects. Such barriers were identified in 16 EU Member States and describe barriers linked to public institutions being passive and not reforming administrative processes (for example in Czechia, regions in France, Germany, Sweden or Finland – the latter is constrained by the Finnish constitution). Cases have also emerged where public institutions take steps to actively hinder onshore wind projects, for example through preventive planning (see above) or regulations that define the necessary distance between wind power projects and urban dwellings – these may also be dependent on the height of the wind power plants (as in Bavaria and, until recently, in Poland). Such conflicts may occur at national and regional level, but more often they manifest at local level. For this reason, rules that allow municipalities to benefit from wind power projects in their territory creates a particularly important incentive to demolish barriers. Very often, however, there is no political interest to overcome barriers due to public resistance.

Public resistance was identified in twelve EU Member States. There is no clear regional pattern visible. Instead, public resistance is widespread in a number of countries and manifests in the public protests of private stakeholders. The motivation of the protests differs and can encompass protest for very specific reasons (for example environment), a NIMBY ("not in my backyard") attitude, and hostility towards renewable energies in general or wind power in particular. In most cases such protests are organised in a bottom-up manner. However, during the research, cases (for example in Estonia and Germany) came up where the protests were led by organised groups of non-locals. It goes beyond the scope of this research to assess how common such organised protesters are, but it would be very important for a broad understanding to look in more detail at such groups, their impact in terms of prevented installations and strategies to address such protests.

Third-party complaints are connected to the barrier of public resistance (above), but refers to wind onshore projects being legally contested, be it in court or in administrative processes. Such issues were reported in ten Member States (mainly Northern and Western), in four of them (Denmark, Finland, Ireland and Slovenia) they caused barriers that were considered particularly severe. The main reason why these barriers are considered so severe is that they can substantially delay projects, especially since art. 16 (7) RED II applies, which means that extension due to judicial proceedings do not count against the deadlines determined by the RED II. In Finland and Ireland, the impact of third-party complaints is particularly strong because the right to complain is not limited to persons who are actually affected by the wind power plants. This allows individuals to hinder wind power plants throughout the country for a very broad set of reasons, including ideological or even commercial ones. This issue is further aggravated if the court system is overwhelmed, which was reported as a particular challenge in Denmark.

2.3.1.3.4. Grid issues

Grid issues differ from the above-described barriers because they have a specific focus on the process step of grid connection. Most of these barriers are linked to insufficient capacities, but another important barrier is due to communication issues with grid operators. The following map provides an overview, which barriers are present in which Member States.

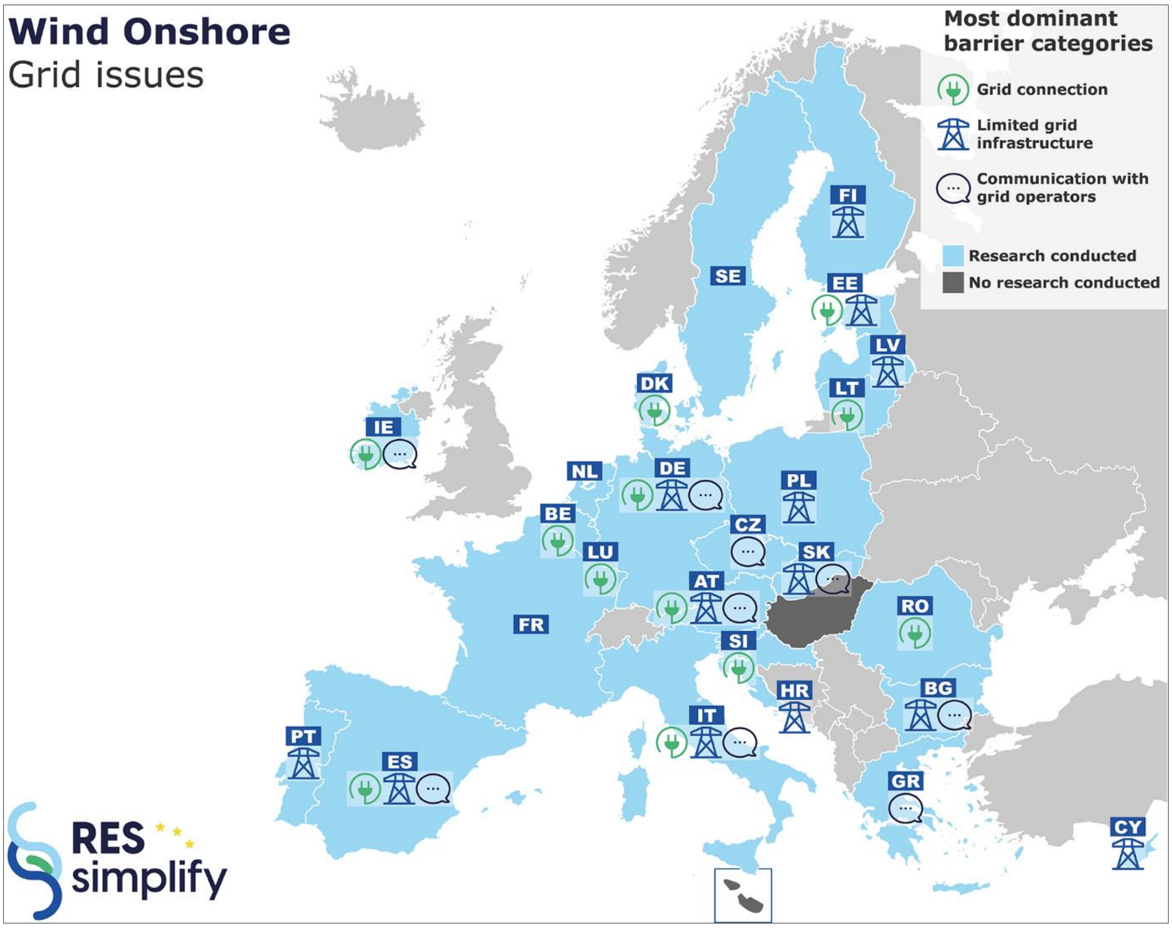


*Figure **2-11**: Overview of process-related issues for wind onshore (Source: RES Simplify)*

The most common barrier (in 13 Member States) concerns issues regarding the **cost of a grid connection**, especially when the connection requires an expansion of the grid. Depending on the legally regulated allocation of costs, wind developers can face huge sums. Other project developers complained about the lack of transparency when costs are calculated (as in Spain), changing rules for calculating tariffs, or prohibitive tariffs negatively impacting projects that are not involved in support schemes (Romania).

Barriers related to **grid infrastructure** were highlighted in 13 Member States. This barrier refers to insufficient grid capacities and the problems that result from it. This barrier seems particularly serious in Spain, where several identified barriers fall under this category. One important reason for lacking capacities is that the planning of the infrastructural development was not launched in time (as in Austria). Another important issue is also speculation: market actors have an incentive to hoard and sell grid connection permits when grid capacities decline. Such behaviour is an unintended consequence of current Spanish government’s decision to accelerate renewable energy deployment. Similar problems of reserved capacities were also reported in Austria, Estonia and Hungary. These issues are well known for at least ten years, but still have to be addressed (RES Integration, 2011). One way of addressing this issue is to introduce a deadline until when the project must be ready for construction. This solution has been introduced in Latvia, however the duration of the period of six months was criticised as being too short.

TSO (transmission system operator)/DSO (distribution system operator) problems include barriers where conflicts occur with the grid operator. Such issues are less common (in nine Member States) but can have detrimental consequences (in four Member States). This is the case in Slovakia, where the distribution grid operators have formulated a grid moratorium for any installations larger than 10 kW, which rendered effectively all deployment impossible. Other barriers in this context are information asymmetry and delayed communication which impeded a number of projects (Greece).

2.3.2. Offshore wind

2.3.2.1. Introduction

Offshore wind power development has significantly increased in the past years, due to plummeting generation costs and ambitious plans in the NECPs. The actual development is still limited to a smaller number of markets, but a number of Member States have announced to focus on its deployment. Still, for the time being, this assessment focuses on those countries where projects have been developed. Figure 2-12 below gives an overview of these Member States and an assessment of relevant process steps.

2.3.2.2. Overview of the key process steps

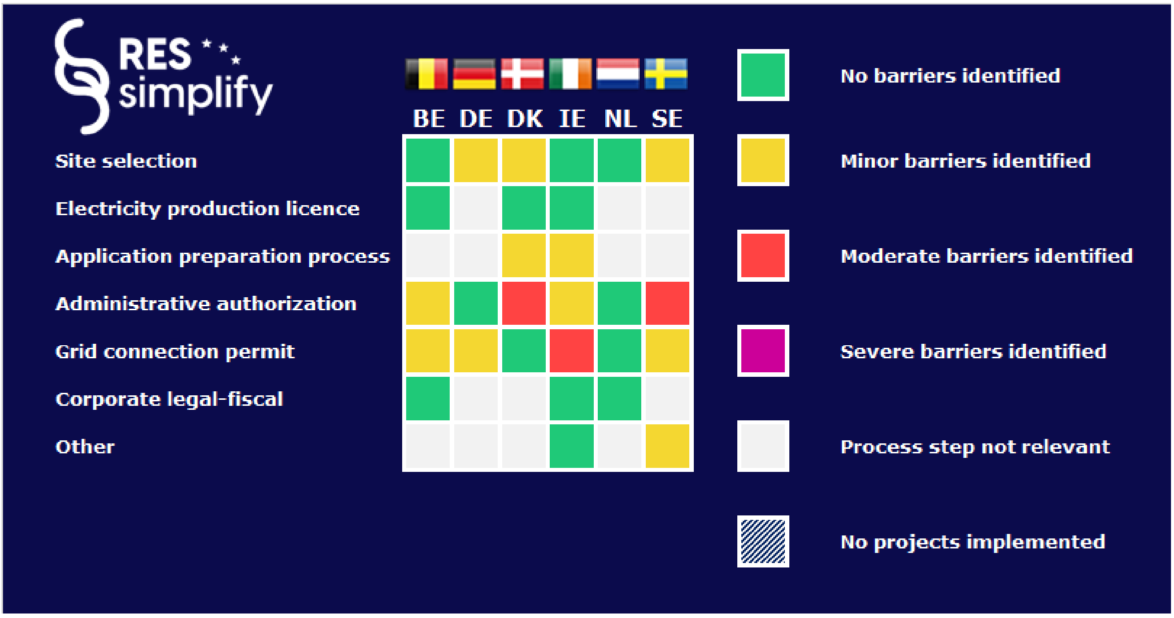


*Figure **2-12**: Traffic light assessment of project implementation process steps for offshore wind (Source: RES Simplify)*

The evaluation of offshore wind processes is much better than those of onshore wind in the same Member States. With the exception of Sweden and, to some extent, Ireland, process steps in most Member States are considered relatively easy and unproblematic. The most striking example is the Netherlands, where no significant barriers were identified across all process steps. But Belgium is similar in the sense that the overall process is administered at federal level and has been evaluated quite positively by project developers. Development in Poland is still in its infancy and thus it is too early to be fully evaluated.

The structure of process steps is similar to onshore wind and the barriers link to: administrative authorisation, grid connection and site selection. It is hard to tell why the administrative process of offshore projects is considered easier than those onshore. On the one hand, it is actually surprising, considering that offshore is still technically more challenging, while project developers and public authorities have had less time to gather experience. On the other hand, the administrative process for offshore wind was designed from scratch and could benefit from experience with onshore wind.

2.3.2.3. Key barriers

The structure of the description of barriers will follow the structure of onshore wind and cover the following categories:

- process-related issues,
- conflicting public goods,
- third party issues and
- grid issues.

2.3.2.3.1. Process related issues

Process related issues were identified in all examined Member States. They were particularly problematic in Sweden, where researchers identified about a third of all barriers within this category and four of them were particularly severe. Several barriers occurred in Denmark, albeit none of them were particularly severe. Furthermore, fewer and less severe barriers were reported in Germany and Ireland.

As with onshore wind, most process-related issues are connected to **bureaucratic issues**. In Sweden, the main point of hindrance is the large number (around ten) of uncoordinated permits required by authorities. These are similar in the issues with which they deal and require similar assessments but can still result in contradicting decisions. This lack of legal coherence can cause problems both for project developers and investors in terms of cost and completion schedules of projects. This barrier is aggravated by authorities' inexperienced staff, who struggle with executing processes.

The main barrier in Germany is that developers have to complete a large number of comprehensive expert reports. In Denmark, bureaucratic issues usually only occur in Open Door processes, which is a specific type of auction with a stronger initiative for the project developer in contrast to the so-called Government Call for Tenders. In case of the Open Door process their length and the discretion of authorities are the main barriers.

Another barrier that was reported relatively often in Belgium, Germany and Ireland concerns the **lack of a sufficient legal framework.** In Germany, this is only a problem in the case of coastal offshore, which does not fall under the authority and legal framework of the federal scheme, but those of the regions.

2.3.2.3.2. Conflicting public goods

As indicated earlier, conflicting public goods are much less of an issue than in case of onshore wind. The only barriers that were identified (both severe though) are in Sweden and Germany. In Sweden, the municipal veto is integrated in the EIA and is estimated to be responsible for approximately 40% of wind power project rejections. The main barrier in Germany is the limited number of sites because of other competing interests, such as nature conservation, fishing, shipping and military interests.

2.3.2.3.3. Third-party issues

Third-party complaints are a common issue in Sweden, Germany and Denmark. In the case of the latter, they are regarded as particularly severe because appeals can be formulated against many different administrative decisions and processing time at the board of appeals is prolonged.

In Sweden, the main third-party issues are connected to the **lack of political and public interest**. Most barriers are linked to an unwillingness to overcome impediments and improve current processes. Necessary actions could include providing greater flexibility with regards to turbine placing in the so-called "box model" or the introduction of a single contact point that covers both the administrative and the grid connection process. This falls short because of a quite narrow interpretation of the RED II.

2.3.2.3.4. Grid issues

Grid issues are relevant in Sweden and in Ireland, but they constitute a particularly pressing issue in Germany. The main reason for this is that the grid development is feared to become a bottleneck for future offshore deployment. One problem according to the literature is the quasi-monopolistic structure of grid operators in the Baltic Sea and North-Sea area. This causes high connection and grid development costs for project developers and end-consumers. However, due to the limited space at German's coastline it is difficult to allow German wind offshore developers to provide their own grid development. In Ireland, the main issue is grid operators curtailing offshore wind power output, increasing investor risks.

2.3.3. Ground-mounted PV

2.3.3.1. Introduction

Solar PV is one of the most used renewable energy technologies across the EU and its share in the renewable energy mix is expected to drastically increase. Figure 2-13 provides an overview of the additional installed capacities Member States have indicated they would reach in their NECPs over the period 2020-2030. All Member States expect to deploy PV and in 15 out of 27 more than 50% of their planned renewable energy installations are set to be solar PV. Governments favour it across the board, including Southern Member States such as Malta, Bulgaria and Cyprus with ample solar radiation, Member States where wind is not planned to be deployed such as Hungary and Czechia, and even in Northern Member States such as Denmark, Lithuania or Poland.

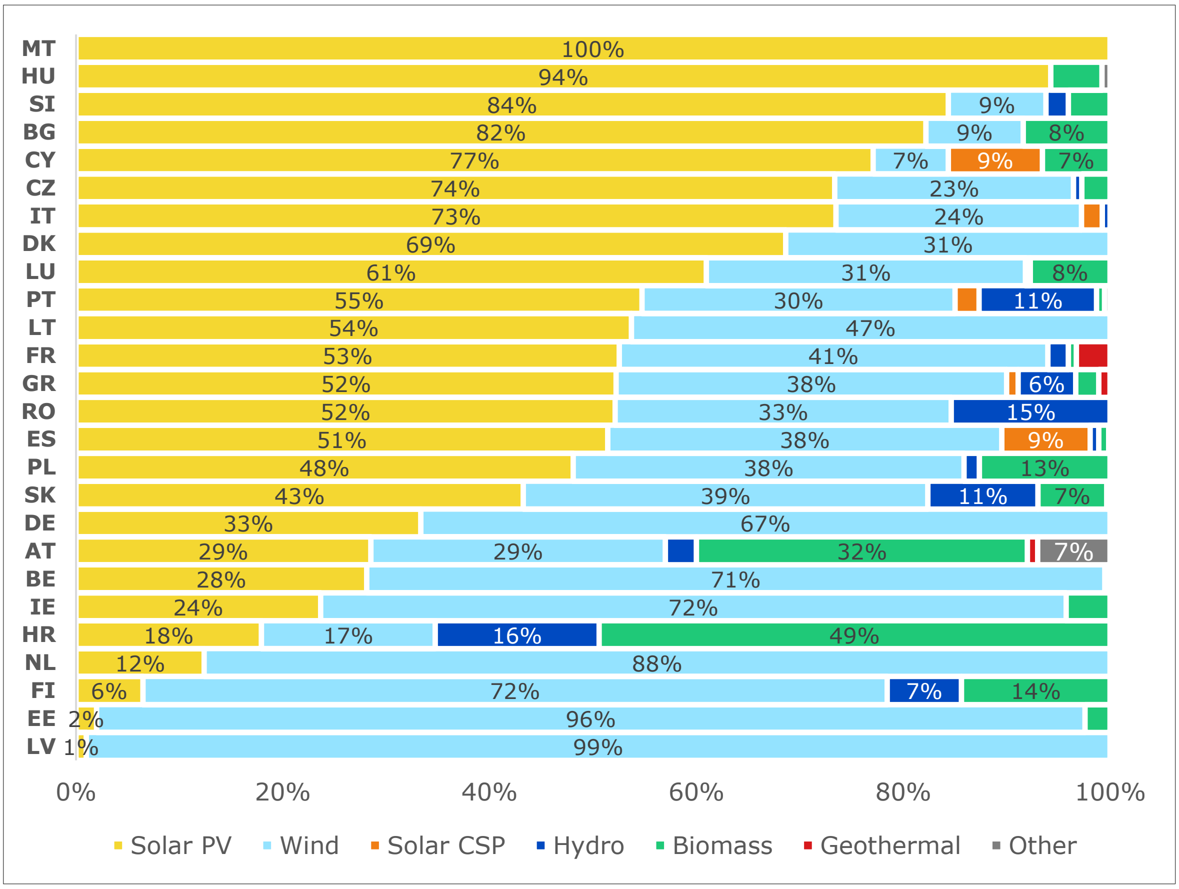


*Figure **2-13**: National targets for solar power development (Source: NECP)*

As is the case with wind onshore, this quite positive outlook stands in contrast to the past ten years of PV development. Figure 2-14, below, depicts installed solar PV capacities in the past 10 years. Following a strong period of growth between 2010-2012, the deployment of PV drastically fell until 2018, when it slowly began to recover.

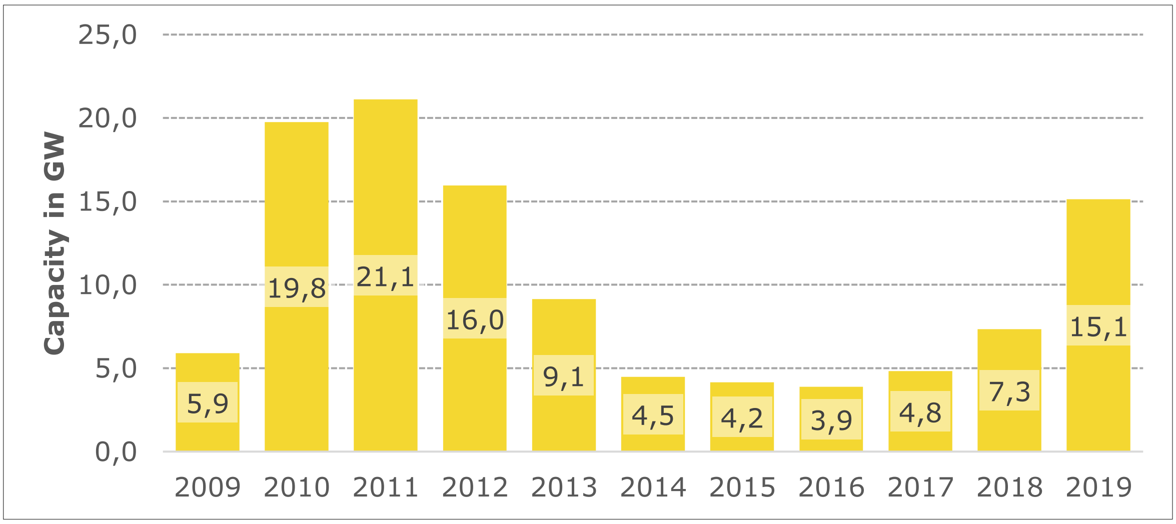


*Figure **2-14**: Development of solar PV capacities 2009-2019 (Source: EurObserv'ER & eclareon)*

This disruption of PV deployment was mainly due to discontinued support schemes, retroactive changes in regulation and other unfavourable turns in policies. Still, recent years have been more supportive of the technology and have brought about its strong rebound. This is partially due to renewed ambitions from some Member States (such as Spain) and a continuous spread of decentralised installations. In addition, continuously declining costs and other market developments have supported new business models that are partially independent of classic support schemes. Administrative and grid access barriers are the key obstacles for PV in general, but especially in the case of projects that do not rely on support schemes.

2.3.3.2. Overview of the key process steps

The six process steps discussed above apply to ground-mounted PV as well.

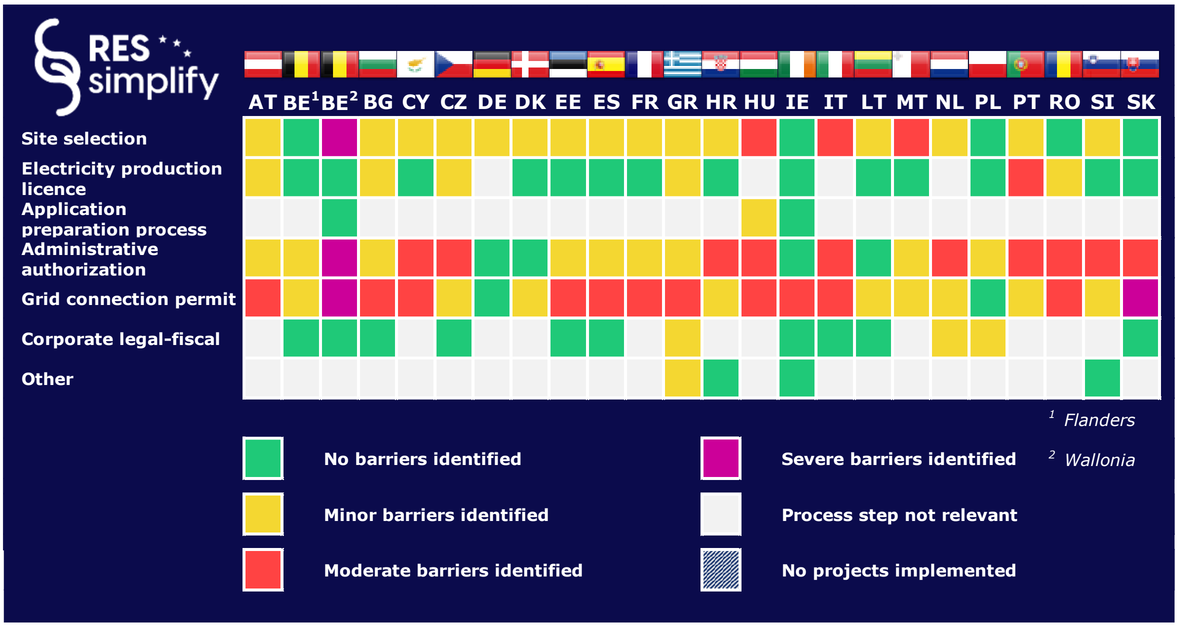


*Figure **2-15**: Traffic light assessment of project implementation process steps for ground-mounted PV (Source: RES Simplify)*

The traffic light assessment of the Member States highlights that for ground-mounted PV, the most difficult steps are obtaining administrative authorisation and a grid connection permit. Only Ireland and Latvia report administrative authorisation as a non-issue. Researchers found minor issues in Belgium (Flanders), Denmark and Croatia, amongst others. Moderate barriers were reported in numerous Member States, mainly in Central or Southern Europe.

The situation is the direst in Slovakia with regards to a grid connection permit. Here, there is a *de facto* moratorium for new, larger RES installations, including ground-mounted PV. Moderate barriers are encountered across Member States from Austria to Italy and Hungary to Greece. Sometimes, the difficulties originate from a combination of barriers. This is the case in Hungary, for instance, where developers face potentially high grid connection costs, inexperienced and/or inflexible DSOs, a nearly saturated grid and slow grid development.

Minor barriers are encountered in almost all Member States regarding site selection. Ground-mounted PV is competing with other forms of land use in areas with a high population density. This was mentioned as one of the main reasons Flanders, Belgium saw close to no development in ground-mounted PV. Meanwhile, ground-mounted PV often clashes with the interests of the agricultural sector in Austria and Greece.

Some barriers are also reported in connection to corporate legal-fiscal and electricity production licenses in some Member States. These two process steps are not relevant in roughly half of the Member States.

2.3.3.3. Key barriers

Similarly to the previous sections on onshore and offshore wind, this section on the most significant barriers ground-mounted PV faces is divided into four sections based on the barrier type (process-related, conflicting public goods, third party issues, and grid issues).

2.3.3.3.1. Process related issues

Parallel to onshore wind, the majority of encountered barriers are classified under process related issues. The following map provides an overview, which barriers are present in which Member States.

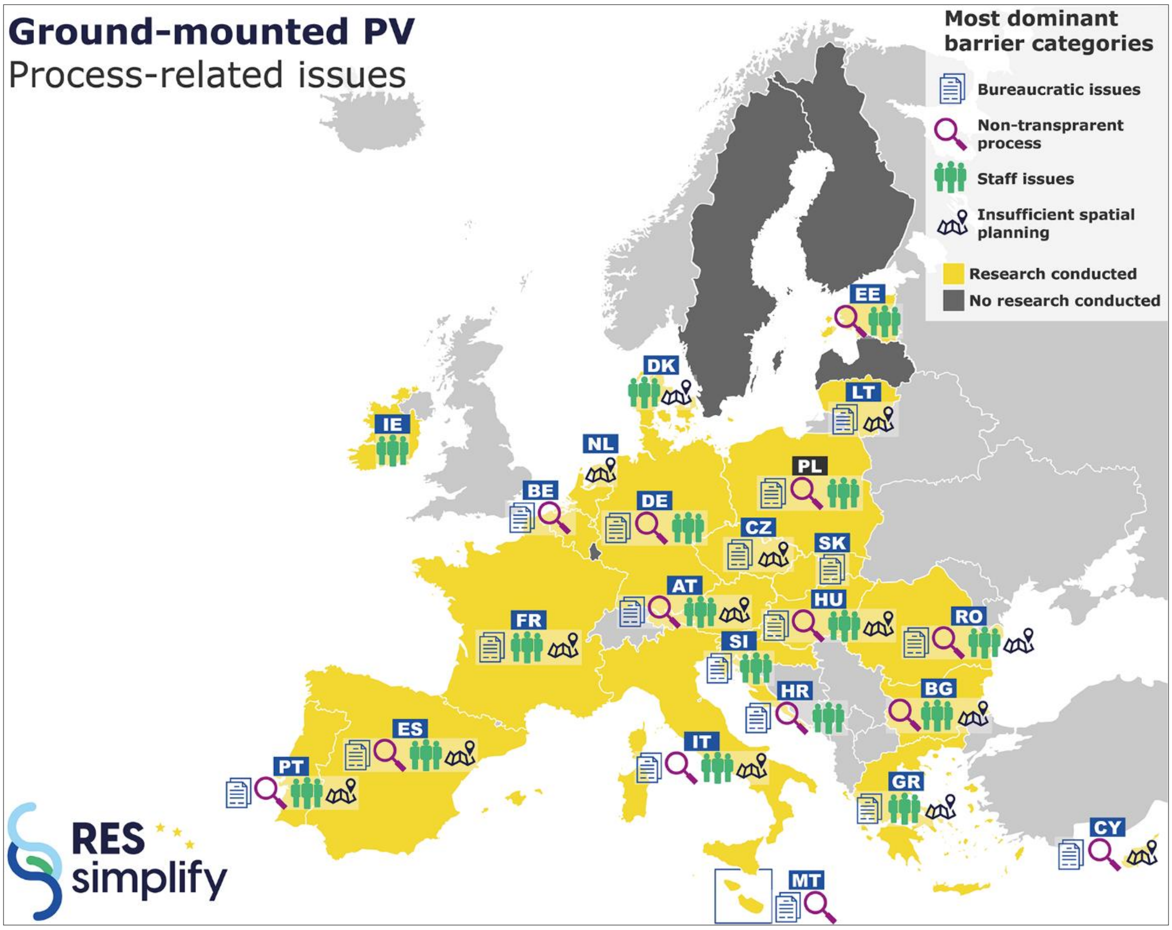


*Figure **2-16**: Overview of process-related issues for ground-mounted PV (Source: RES Simplify)*

The largest sub-category of process-related issues connected to ground-mounted PV is **bureaucracy**, which accounts for 53 barriers across Member States. Bureaucracy can bring about several different issues, for example lengthy permitting processes (Portugal, Slovenia), a large set of separate permits whose processes are not particularly compatible and harmonised (Cyprus, Italy), and a confusing or unclear legislative and policy framework (Croatia, Czechia). These administrative issues lead to prolonged and expensive permitting procedures, which slows ground-mounted PV projects significantly or even keeps investors from realising them. Bureaucratic issues have been reported in connection with several process steps: site selection, administrative authorisation and grid connection. In many cases, bureaucracy is intertwined with other process-related issues.

As ground-mounted PV installations take up large areas of land, several barriers have been listed under the sub-category of **insufficient spatial planning** across EU Member States. In Cyprus, the lack of appropriate planning of renewable energy sources (RES) has led to high uncertainty for project developers as any authority can halt a project at any given point of the permitting process. What is more, the Ministry of Agriculture, Rural Development and the Environment has suspended all integrated environmental authorisation processes for renewable energy installations for the time being due to the lack of a coherent RES spatial planning framework.

Serious obstacles were also identified in other Member States. In Bulgaria, ground-mounted PV installations can only be constructed on what is classified as “industrial land”, limiting site selection options. In Denmark, the spatial planning process of a large PV installation can take up to 4 years. This is an especially pervasive issue for small project developers, which cannot progress with another project as they are awaiting planning decision. This large delay is caused by the lack of designated spaces for RES; instead, spatial planners wait for renewable energy developers to signal what they should provide for renewable energy installations in the existing plan.

The most severe barrier for some Member States is connected to the **lack of legal coherence and lack of guidelines**. In Czechia, building authorities across the country have vastly different interpretations of land use and building regulations when it comes to constructing PV installations – this was flagged over a decade ago (Ecorys, 2010). Differences in the interpretation of legal documents was reported as a serious issue in Romania as well, where some authorities require documents at a stage when these documents have not been issued by other authorities. In Spain, there is incompatibility between the two levels of permitting authorities: regional and local for projects with a capacity under 50 MW, and national for larger projects.

Staffing problems (see 2.3.1.3.1) were frequently mentioned by experts in relation to ground-mounted PV permitting processes. Competent authorities frequently lack the expertise or sufficient capacities to process applications efficiently. Shortage of staff for processing applications for ground-mounted PV was also identified in Poland, Italy, France, Slovenia, and Croatia. Croatian experts note that the competent permitting authorities have increased their level of expertise on renewable energy technologies lately, reaching a satisfactory level, but that the shortage of staff still leads to delays.

2.3.3.3.2. Conflicting public goods

A total of 46 ground-mounted PV barriers detected fall under the category of **conflicting public goods**. The following map provides an overview, which barriers are present in which Member States.

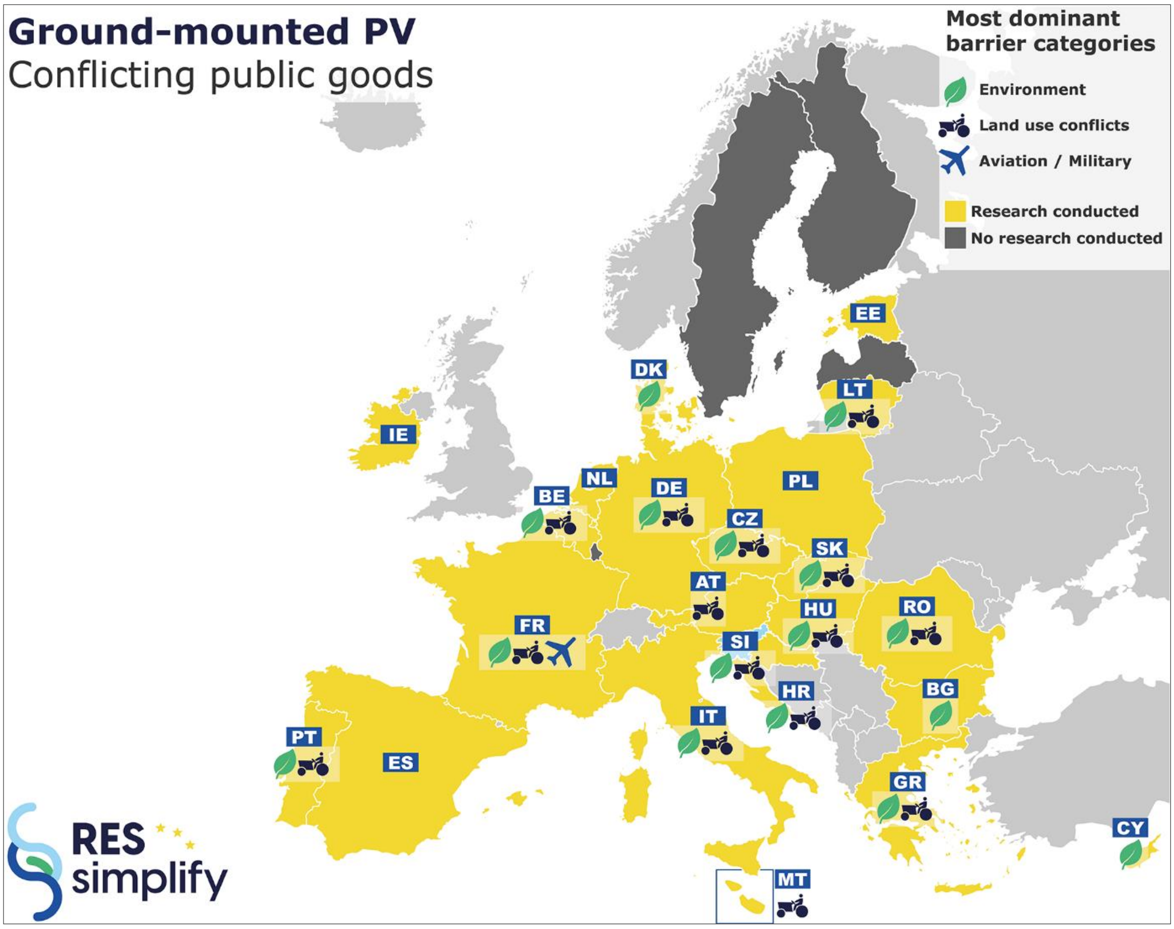


*Figure **2-17**: Overview of issues related to conflicting public goods for ground-mounted PV (Source: RES Simplify)*

Most of these barriers are either related to **land use conflicts** or the **environment**. The latter was identified in twelve Member States. The length, requirements and costs of EIA procedures form similar barriers as with onshore wind, see section 2.3.1.3.2. Further issues vary by type and severity. In Lithuania, national EIA legislation and its interpretation guidelines do not define what constitutes a "significant visual impact" when permitting a renewable energy installation, resulting in incoherent EIA conclusions. This vague definition poses a substantial challenge for project developers, as they do not have guidelines to follow. Meanwhile, renewable energy projects, mainly onshore wind and ground-mounted PV, are virtually blocked by environmental concerns in Cyprus.

In Germany, the environmental impacts of underground cables are likely to be examined more closely in the future, which is likely to impose further costs on project developers and slow the grid connection process. EIA processes are not only criticised by RES developers, but also by environmentalist organisations. In the latter's case, it is typically an issue of EIA's not being stringent enough. In France, there is increasing resistance to onshore wind and ground-mounted PV projects, with those opposed to them arguing that environmental assessments are not conducted thoroughly and too many renewable energy projects are realised in a close proximity to one-another, degrading the local environment.

As a land intensive technology, ground-mounted PV installation developers continuously face challenges over **land use conflicts** across Member States. In some regions of the Czechia, regional-level strategic planning documents are too restrictive to renewable energy technologies – mainly to onshore wind and ground-mounted PV – even if the natural conditions would be ideal for these technologies.

One of the most common barriers is the conflict over whether the land should be used for agriculture or ground-mounted PV. For example, in Germany, PV installations erected on arable land frequently do not qualify to receive renumeration under the Renewable Energy Act (*Erneuerbare-Energien-Gesetz* - EEG). This weighs on the growth of ground-mounted PV. Greece, in turn, has witnessed arguments between projects developers and pastoral farmers, who are both interested in similar land areas. Hungarian renewable energy developers face high land prices due agricultural subsidies, while repurposing of other, less fertile land, is not always possible or requires intensive lobbying.

2.3.3.3.3. Third-party issues

In comparison to wind power projects, third-party issues are less a problem for ground mounted PV.

The complex **public resistance** and **third-party complaints** are an issue in seven Member States, namely Belgium, Bulgaria, Croatia, Denmark, Estonia, Greece, Germany, Hungary, Ireland, Italy, Lithuania, Romania, Slovakia, and Slovenia. In Denmark, main barriers – third-party complaints concerning EIA process and reluctance from municipalities to engage in planning – are not as pronounced as they are for wind projects. The same applies for the NIMBY-phenomena in Estonia and Germany – it is present, but not as pervasive as with wind. In Croatia, France, and Slovenia, on the other hand, public protests – mainly over the use of land – also concern ground mounted solar projects.

A **lack of public and political interest** was identified in even fewer Member States (six). An example is Hungary, where construction codices are not updated although their up-to-date versions would be necessary to streamline permitting. Another example is Italy, where public consultation processes still do not sufficiently engage local communities. Although, this seems to have improved lately.

2.3.3.3.4. Grid issues

Grid issues pose a substantial barrier for ground-mounted PV. Most of the identified barriers, however, are indirectly connected to administrative processes and only fall within the scope of this study to a limited extent. The following map provides an overview, which barriers are present in which Member States.

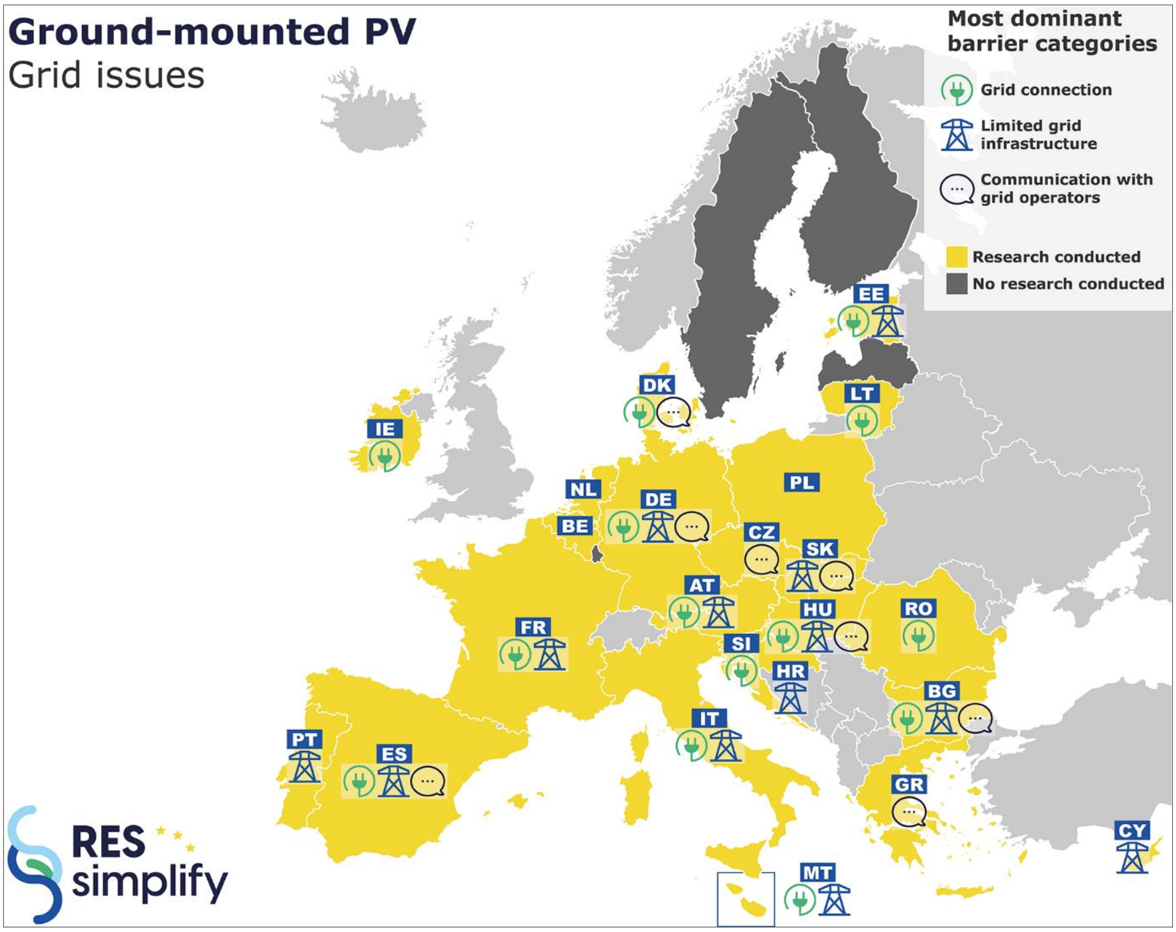


Figure ***2-18****: Overview of grid issues for ground-mounted PV (Source: RES Simplify)*

The main issues are linked to **conflicts with grid operators**. This type of barrier hinders the deployment of ground-mounted PV in Bulgaria, Czechia, Denmark, Germany, Greece, Hungary, Slovakia, and Spain. In Slovakia, DSOs have introduced a grid connection moratorium that makes the deployment of installations larger than 10 kW impossible. In other markets, the actions of grid operators are not quite this drastic, but can still seriously impede the diffusion of the technology. The main problems in that context are information asymmetry between the developers and the DSOs on technical issues (Germany and Hungary), delays in communication and other actions that are needed to conclude the connection (Czechia, Denmark, Greece) as well as a lack of clarity and communication on DSO interpretations of technical and financial data (Austria, Bulgaria, Cyprus, Czechia, Estonia, and Hungary). Interviewees levelled more severe criticism towards DSOs in Spain, where the allocation of grid connection points is administered by private single point partners. These are occasionally also renewable energy generators and thus possible competitors. Stakeholders in Hungary criticise that many DSO experts still lack the understanding or the willingness to deal with the "new" reality of decentralised energy generation and are organised in bureaucratic structures that further slow processes.

As with wind, the main grid issue relates to the **cost of grid connection and expansion**. This was reported in eleven Member States (Austria, Bulgaria, Denmark, Estonia, France, Germany, Hungary, Ireland, Malta, and Romania). In Austria, Malta and Romania, project developers already voiced the concern that many PV projects are not viable anymore due to high costs. In Austria, the grid related costs account for more than 20% of the total investment costs of ground-mounted PV projects. The frequent need for additional grid extensions makes many projects economically unviable. In Bulgaria, the legal framework is more favourable toward plant operators, because the DSO has to cover the costs of the grid expansion in principle. However, in practice, this does not always happen.

In Denmark and France, concerns regard future development. In Denmark, the reform of the cost allocation for grid connections worries PV project developers, as it might render existing business models economically unattractive. In France, stakeholders are concerned with the trend of increasing connection costs. The fact that the grid connection and expansion must be borne by project developers are also a key barrier in Estonia and Hungary. In the latter case, the problem is aggravated by the huge variance between the costs for substations between DSOs. There is also no system in place to distribute the costs between different projects, when more than one connects to the grid – essentially, the first in need of the connection bears the costs.

The underlying problem of cost issues is often due to **grid limitations**. Those are either the consequence of a **lacking grid infrastructure** (Bulgaria, Cyprus, Estonia, Germany, Greece, Hungary, and Italy). In some Member States, however, this problem is aggravated by developers reserving grid capacities and not using them (as in Austria, Estonia or Hungary). This is also linked to alleged speculation (Spain), as discussed above for onshore wind. Another acute problem worsening over time is the ageing of the grid, reported as an issue in Bulgaria and France. Ultimately, this can impede developers' ability to realise some projects or, as a worst-case scenario, DSOs can impose a moratorium, as is the case in Slovakia.

2.3.4. Rooftop PV

2.3.4.1. Introduction

Rooftop PV installations are the most common renewable energy installations across almost all EU Member States – the Nordic countries are the only notable exceptions. In Finland and Sweden, the issue is, however, not only the lack of solar radiation, but also the support schemes in place since they do not prioritise small, decentralised renewable energy installations. At the same time, their power prices are too low to allow the diffusion of rooftop solar. Consequently, they play a minor role in this part of the analysis.

2.3.4.2. Overview of the key process steps

The traffic light assessment of key process steps provides an overview of 23 Member States. On a positive note, the overall process for rooftop solar is simpler than onshore wind or ground-mounted PV projects. This is not surprising, considering site selection and most of the time administrative processes are less of an issue. The simplicity of procedures is also linked to their relatively small size and since they are completed by residents who generally lack the ability to deal with a larger administrative burden. Nonetheless, there are a number of moderate barriers in Denmark, as is the case in a few other countries.

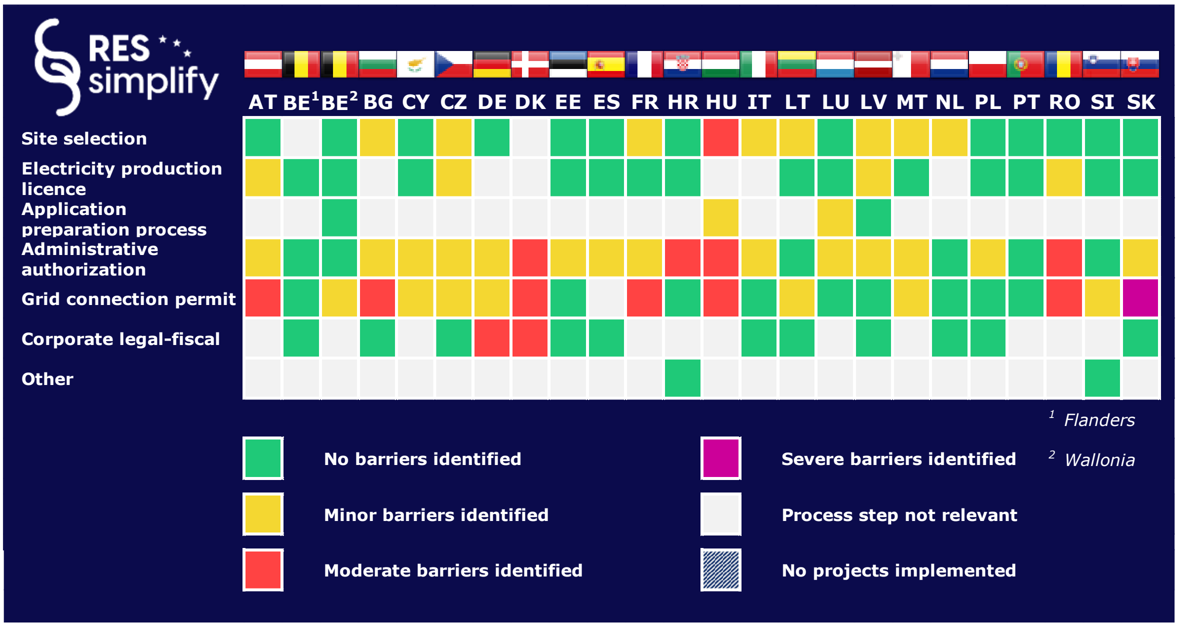


*Figure **2-19**: Traffic light assessment of project implementation process steps for rooftop PV (Source: RES Simplify)*

2.3.4.3. Key barriers

Most of the barriers that hamper the deployment of rooftop systems are similar to those that hinder ground-mounted PV installations. Although, there are rooftop-specific barriers as well. This section assesses these according to the barrier classification system applied for other technologies as well (process-related, conflicting public goods, third-party issues, and grid issues).

2.3.4.3.1. Process related issues

Barriers related to bureaucracy are cases where the administrative effort or the waiting time is not in proportion to the size of the project. This was criticised in Denmark, where the application process for a 200 kW installation can take six to eight months. This is aggravated in the case of mid-size projects for which some municipalities ask for a complex procedure (Denmark, Latvia), while other municipalities do not require permits at all. Such incoherent rules and long waiting times makes planning quite difficult. Another impediment is that residential rooftop solar plant users need to meet certain tax and commerce obligations. These are not a problem for larger projects but seem out of proportion in case of small systems, as is the case in Germany.

2.3.4.3.2. Conflicting public goods

Conflicting public goods are less common for rooftop systems, but some were reported in Malta. There, the redevelopment of two- or three-storey buildings into multi-storey apartment blocks increases how lower rooftops are overshadowed. This can render existing rooftop PV plants useless. Careful zoning and early communication within local communities might help address this issue.

2.3.4.3.3. Grid issues

Grid issues are linked to the inability of DSOs to assesses the impact of decentralised rooftop systems on the stability of the grid. In Poland, the number of PV prosumers increased from 4,050 in 2015 to 457,443 in 2020. Some grid operators are growing worried about this fast growth and claim that they should have the right to disconnect installations if output is too high. This demand, however, might undermine the business case of prosumers and can lead to additional procedural disadvantages. In Germany, most grid operators have set up simplified connection procedures for rooftop PV installations (usually below 30 kWp) but some grid operators require those that install any rooftop solar PV installation to go through the regular grid connection process, which overly burdens developers of small capacities.

2.3.5. Hydropower

2.3.5.1. Introduction

Hydropower is an important factor in the success of the EU's energy transition due to its low CO2 emissions intensity and its ability to mitigate variable wind and solar power production. Hydropower has a long history in Europe and much of its available potential has already been tapped (Kelly-Richards et al., 2017; Venus et al., 2020). Currently, nearly 650 TWh are generated in an average hydrological year within Europe (including Turkey), which corresponds to around 65% of the economically feasible hydropower potential (Hydropower-Europe, 2021; see Figure 2-20).

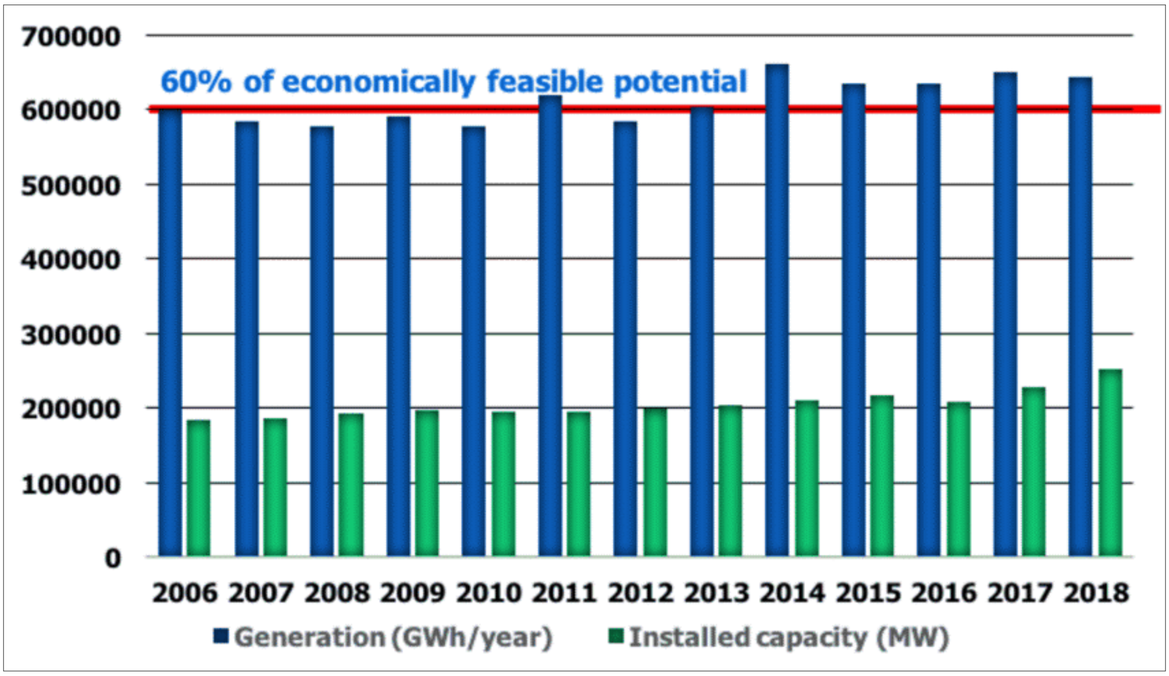


*Figure **2-20**: Evolution of yearly production and installed capacity of hydropower in Europe since 2005 (Source: Hydropower-Europe, 2021; Hydropower & Dams World Atlas 2020)*

Figure 2-21 demonstrates the untapped potential of hydropower in different European countries. In many of these countries there is still a considerable potential for expanding hydropower. Some target countries – Bulgaria, Greece, Slovakia, Poland, Czechia, Hungary, Cyprus, and Iceland – have tapped into less than 50% of their economical feasible potential so far (Hydropower-Europe, 2021).

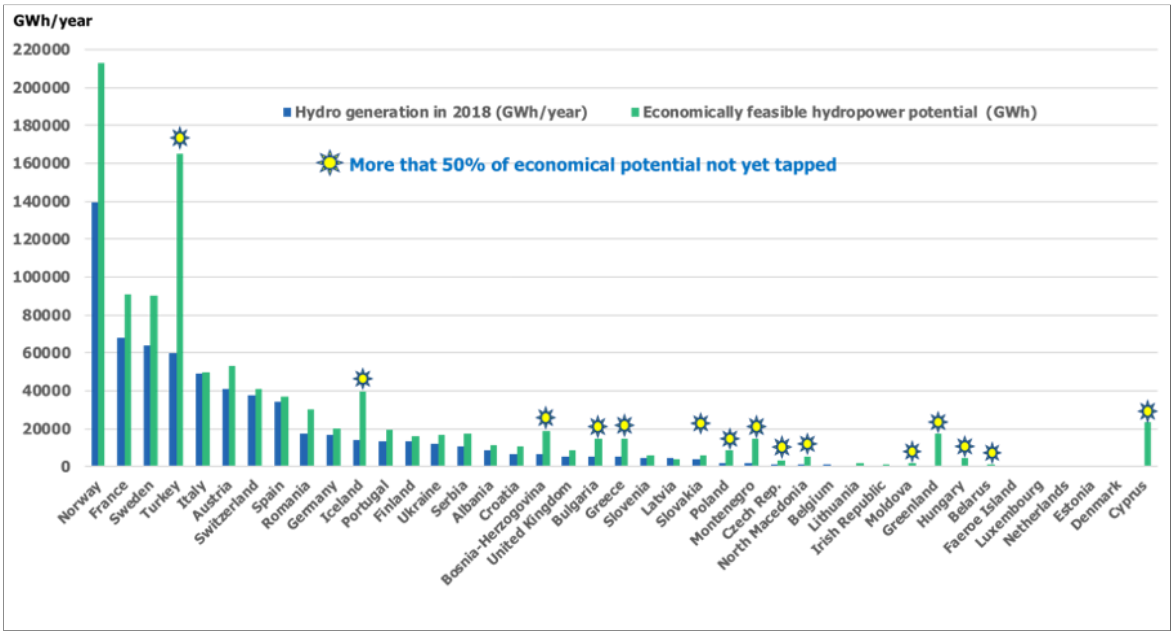


*Figure **2-21**: Generation and extension potential of hydropower in the European countries (Source: Hydropower-Europe, 2021; Hydropower & Dams World Atlas 2020)*

Nevertheless, not many Member States see a significant role for hydropower in their energy mix as can be seen from the NECPs (see Figure 2-22). This is partly because despite the large potential of hydropower, most sites for large hydropower plants in the European countries are already used. As a result, around 75% of future hydropower projects will have to be small or medium-sized (Kelly-Richards et al., 2017). Consequently, this report focuses more on small-scale hydropower, but also repowering, which is relevant for large hydropower plants (see e.g. section 2.3.5.3.4).

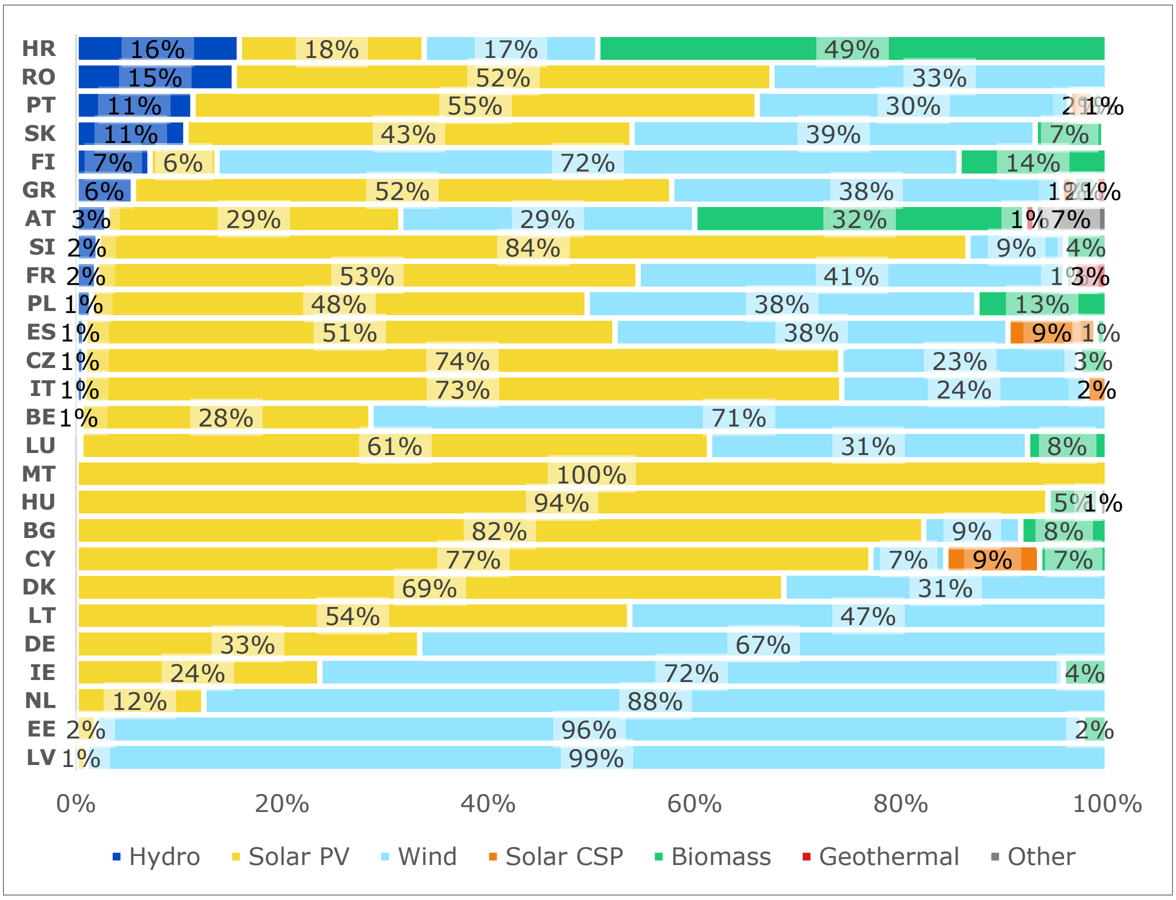


*Figure **2-22**: National targets for hydropower development (Source: NECP)*

2.3.5.2. Overview of the key process steps

This section provides an overview over the key process steps for the implementation of a small hydropower project in ten EU Member States: Austria, Germany, Estonia, France, Greece, Italy, Lithuania, Latvia, Sweden, and Slovenia[13].

13 Since based on the NECPs, hydropower will not play a key role in achieving national renewable energy targets for 2030 in the great majority of the EU Member States (see Figure 2-22), data for the traffic light assessment was collected in an interactive workshop with the small hydropower representatives from the ten Member States represented in Figure 2-23.

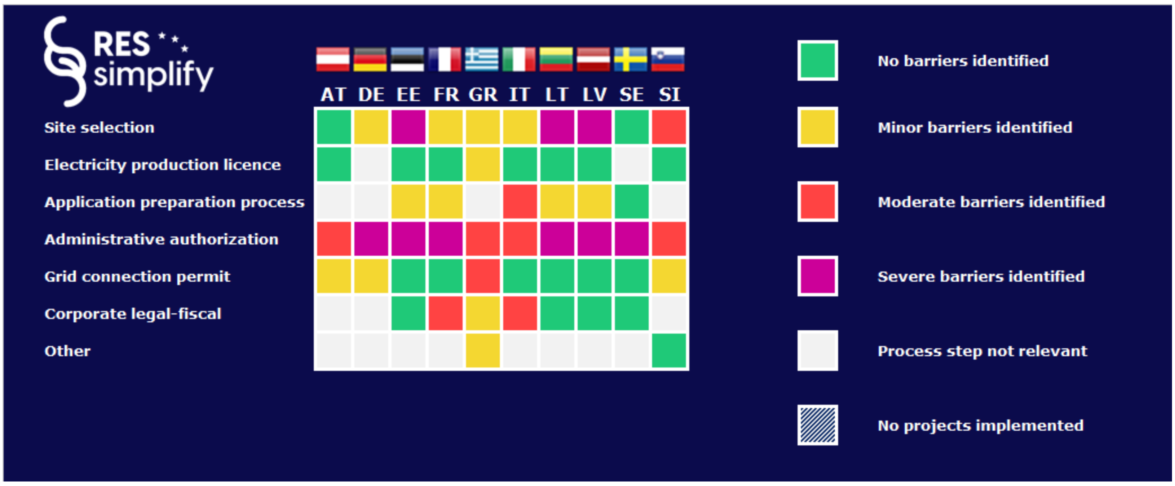


*Figure **2-23**: Traffic light assessment of project implementation process steps for small hydropower (Source: RES Simplify)*

Figure 2-23 shows that the assessment of the process steps for small hydropower projects are more negative than the assessment for wind and solar PV. The most problematic process step in all ten countries is administrative authorisation. It encompasses severe barriers in Germany, France, Sweden, Estonia, Latvia, and Lithuania, meaning that deployment of hydropower is almost impossible because of these barriers. In the remaining four countries – Austria, Greece, Italy, and Slovenia – administrative authorisation is impaired by moderate barriers. Two key obstacles make this stage of the project implementation extremely difficult: firstly, issues related to concessions, which falls under administrative authorisation procedure, and secondly, the deterioration ban stipulated in art. 4 (1) of the Water Framework Directive[14] (Directive 2000/60/EC - WFD; see section 2.3.5.3.1).

In the three Baltic States, namely, Estonia, Lithuania, and Latvia, developers undertaking site selection face severe obstacles. This is mainly because no sites are available for hydropower projects due to environmental constraints. In Lithuania, for example, the Law on Water (art. 3) prohibits building dams on ecologically and culturally valuable rivers. In 2004, the government approved the list of such rivers and, as a result, dams were banned from being built for any purpose on 169 rivers (Jatautas and Kasiulis, 2016).

In Italy, developers of small hydropower projects face moderate barriers in the application preparation process. This is mainly due to an increasing opposition from environmental non-governmental organisations (NGOs) and fisheries.

As can be seen on Figure 2-23, obtaining an electricity production license and grid connection appear to be the least problematic process steps in the vast majority of the ten European countries examined with regard to small hydropower. In Greece, however, connection to the grid is one of the fundamental barriers to the approval of all renewable energy technologies, including hydropower. The reason is that the Independent Power Transmission Operator (IPTO) as well as the Hellenic Distribution Network Operator (HEDNO) are currently overburdened with the provision of connection offers as well as with the review of the grid connection offers for re-designed ones, i.e. those that have amended the characteristics of their projects (e.g. capacity, etc.).

In France and Italy, corporate legal-fiscal processes face moderate obstacles. In France, this affects projects that have to be authorised before tendering procedure. However, the permitting process for hydropower is expensive, especially due to complex environmental

14 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32000L0060

impact assessments. This can lead to high losses for a small operator, if the tender fails. Larger operators are in a better position to take on these risks by spreading the costs over many projects.

2.3.5.3. Key barriers

This section provides an overview of the most important barriers to small hydropower in the permitting procedures across target countries. The most severe barriers that the developers of small hydropower projects face are related to the concession as well as the deterioration ban stipulated in the Water Framework Directive. In addition, national stakeholders reported that the approval procedure for small hydropower projects are time consuming and complex. The reasons for this include the involvement of a large number of authorities, and, in some cases, the lack of coordination between those involved. Moreover, national stakeholders communicated numerous requests from competent authorities for additional documents and a low level of digitalisation in the permitting processes as further obstacles adversely affecting project implementation. These and other barriers for small hydropower projects are discussed in more detail below.

2.3.5.3.1. Concession related issues

One of the key obstacles for hydropower are different legal frameworks for the use of water resources across the EU. In some of the EU Member States, the use of water resources falls under authorisation regime (e.g. Belgium), while in others (e.g. Sweden, Greece, Spain), a concession needs to be obtained for the use of water by the developers of hydropower projects. In France, for example, a mix of both regimes is in-place: small hydropower installations (under 4.5 MW) fall under an authorisation regime, while larger ones need to bargain for a concession (Weisrock, 2021; Morgan, 2021). In the case of authorisations, the competent authority stipulates the prerequisites for the activity and the authorisation is usually granted at the request of the applicant. In addition, the holder of an authorisation is free to withdraw from the authorised activity. In contrast to authorisations, concession agreements contain obligations that are legally binding for both sides. The execution of activity is subject to specific requirements that are defined by the contracting public authority (EC, 2019).

In addition, the length of the concession and the definitions of concessions for small and large hydropower differ from Member State to Member State (Weisrock, 2021; Morgan, 2021). More country-specific information on the concession can be found in Table 2-3, below.

*Table **2-3**. Concessions for hydropower in European countries (Morgan, 2021).*

Country	Some aspects of concessions
Belgium	Permits are issued for 20 years for both small and large hydropower installations. There is no competitive procedure.
Austria	Permits are issued for up to 90 years. Power plants up to 10 MW fall under *small concessions* and larger ones under *large concessions*. Permits are issued by the competent authorities at district, federal and provincial levels.
Portugal	Permits are usually issued for 35 years. The maximum duration is 70 years. As in Austria, power plants up to 10 MW fall under the definition of small concessions and those exceeding 10 MW under the definition of large concessions. In theory, the renewal of the permit is a competitive process. Nevertheless, the incumbent has the advantage.
Greece	The duration of concessions is 10 years. All current concessions will expire in 2022, when all River Basin District Management Plans must be put in place. Large concessions are for hydropower plants larger than 15 MW.
Spain	The duration of concessions is 75 years. The dividing line between small and large concessions is 10 MW.

France	The duration of large concessions is 30–40 years. They are issued by the Ministry of Energy. Small concessions are issued at regional level for 30 years. Large concessions are for hydropower plants larger than 10 MW.
Italy	From 2024, competitive tenders will be in place for large concessions. The Antitrust Authority wants to have competitive tenders for all concessions according to the *Service Directive*[15] *(Directive 2006/123/EC)*. The duration of concessions differs per region. The dividing line between small and large concessions is 3 MW.
Germany	In some cases, there the concessions have unlimited duration (*Altrechte*). In general, however, the concession is issued for 30–60 years. There is no competitive tendering in place. There are regional differences.

Thus, clarity and harmonisation are needed to create a level playing field for small-scale hydropower. According to the industry representatives, there is a need to harmonise the length of concessions and the definition of large and small hydropower to create certainty and allow for calculable investment decisions.

Another legal issue related to concession – raising concerns within the small hydropower industry – is whether concession should fall under the Service Directive (Directive 2006/123/EC, also called Bolkestein Directive). While authorisations fall under the Services Directive (Directive 2006/123/EC), concessions are covered by public procurement regulations (Directive 2014/23/EU, also called Procurement Directive). According to the European Commission, the Services Directive in particular covers situations where the number of authorisations for an activity is limited due to the scarcity of natural resources or technical capacities (e.g. scarcity of water resources). In these cases, transparent and impartial selection procedure for authorisations is crucial (EC, 2019).

Concession agreements must comply with EU regulations on public procurement and concessions. Compliance with these rules has to ensure that concession agreements are awarded through competitive, open, transparent and well-regulated tender procedures (ibid.). As of March 2019, seven infringement procedures were initiated by the European Commission regarding concessions on the grounds of insufficient transparency and impartial selection procedures (Morgan, 2021).

The concession procedure for large hydropower plants is a very lengthy and costly process according to the hydropower industry. For small hydropower plants, the concession process is less complicated, but there are still many small administrative problems.

2.3.5.3.2. Deterioration ban of the Water Framework Directive (WFD)

Society's perception of hydropower is ambiguous. On the one hand, it is a renewable source of electricity that provides an answer to climate change and energy security concerns and, on the other hand, a local environmental challenge given the impact on river ecosystems and local biodiversity, especially if the installation of the hydropower plant entails substantial interference with the environment of the water source (Abazaj et al., 2016).

The Water Framework Directive, adopted in 2000, created a common legal framework for the integrated management of water resources in EU Member States (Starke and Van Rijswick, 2021). The main aim of the Directive is to ensure the good status of all European water bodies, i.e. to achieve high water quality and good living conditions for aquatic flora and fauna. For this reason, this directive prioritises ecological considerations, such as the protection and enhancement of biodiversity (UBA, 2015).

In order to at least keep the current state of quality of water bodies, art. 4 WFD introduced a deterioration ban (Starke and Van Rijswick, 2021; art. 4 WFD). However, a hydropower

15 https://eur-lex.europa.eu/legal-content/de/TXT/?uri=CELEX:32006L0123.

project can be approved by the competent authority if it falls under the exemption from the deterioration ban in accordance with art. 4 (7) of the Directive (EREF, 2021). Art. 4 (7) WFD says that Member States do not breach the Directive if new sustainable development activities lead to a body of surface water to deteriorate from *high* to *good* status. More specifically, the following conditions need to be met by the project for the exemption from the deterioration ban to be applied (art. 4 (7) par. a-d WFD):

- All practicable mitigation measures are taken to mitigate the adverse impact on the status of the water body,
- The reasons for those modifications or alterations are of *overriding public interest* and/or the benefits to the environment and to society are outweighed by the benefits of the new modifications or alterations to human health, to the maintenance of human safety or to *sustainable development*,
- The beneficial objectives served by those modifications or alterations of the water body cannot for reasons of technical feasibility or disproportionate cost be achieved by other means, which are a significantly better environmental option and
- The project and the reasons for it are set out and explained in the River Basin Management Plans (art. 13 WFD).

Thus, a hydropower project can only be authorised if the competent authority considers the project to be a project of *overriding public interest*.

As highlighted by representatives of the small hydropower industry, the vague definition of *overriding public interest* leaves room for different interpretations by authorities. Despite *Schwarze Sulm* decision of the European Court of Justice (ECJ) (decision C-346/14 of 4 May 2016)[16], where the Court admitted that the energy transition is an *overriding public interest* and therefore may fall under the exemption to the ban on deterioration, the deterioration ban and, specifically, the interpretation of this clause by the national authorities constitute one of the biggest obstacles to the small hydropower sector.

Industry representatives complain that the Water Framework Directive is almost always the only benchmark for the competent authorities when deciding on the approval of a hydropower project. The advantages of hydropower, such as the reduction of CO2 emissions and thus contribution to climate protection, water retention, groundwater stabilisation, flood protection or social aspects are not taken into account in the decision-making process (BDW, 2021). Hence, there should be a better alignment of the renewable energy and environmental goals in the RED II and the WFD to allow for the further deployment of small-scale hydropower to meet the goals of the EU Green Deal. Furthermore, the harmonisation of the WFD implementation should be ensured by national, regional or local authorities, given that the implementation of the WFD falls within their competence. They also have a large margin of discretion in the implementation of the Directive (as described above) and so the decisions of the responsible authorities in the various countries, regions or municipalities could significantly differ under the same conditions.

2.3.5.3.3. Time-consuming and complex approval procedures

One of the obstacles faced by the small-scale hydropower developers across the EU are time-consuming approval procedures. There are several factors that cause lengthy administrative procedures. First, the stakeholders interviewed for this report highlighted that the approval process is often prolonged by **requests from competent authorities for**

16 https://eur-lex.europa.eu/legal-content/DE/TXT/?uri=CELEX:62014CJ0346.

additional documents to supplement applications for approvals, for example further expert opinions. Stakeholders admit that procedural delays are possible due to insufficient documentation by the applicant. However, this is sometimes alleged by the authorities to justify the excessive length of the procedure. Documents are then frequently returned to the applicant due to minor problems. However, each such rejection of the documents delays the process by 2-4 weeks. The reasons for the back and forth are often linked to experts or authorities seeking to establish legal protection, e.g. out of fear of a claim for damages. To address this issue, therefore, the legal deadlines and the limitation on the number of such requests are of crucial importance.

Another factor that is responsible for the lengthy administrative procedures is the **large number of authorities** involved in the approval process. In Greece, the "water use authorisation" is one of the most bureaucratic processes for realising a small hydropower project. Seven to eight agencies are involved in the issue of this licence alone (forest agency, archaeological agency, Natura 2000 site administrator, etc.). Involvement of different authorities in the approval process, can lead to **non-coordinated procedures**. In Austria, for example, the topic of water ecology is dealt with individually during the procedure stipulated by both the water law and the nature conservation law. In the case of double examination, it may happen that the requirements of the two do not correspond.

In addition, the industry emphasises the **lack of digitalisation** in the permitting processes. Applications for approvals still require a lot of paperwork in the great majority of European countries. In Austria, all applications, even those for very small installations, must submit several hard copies. In the case of small changes, which are common in the projects, all applications to all authorities must be reprinted. This lengthens and complicates the process. The demand for simplification includes the possibility of submitting project documents digitally. In Germany, most authorities require applications in both paper and digital form. According to the stakeholders, a single signed digital version of the application sent over by mail should be sufficient. In addition, the number of documents such as descriptions, grid sheets, expert surveys just for building a very small fish ladder on an existing barrier used by hydropower can easily reach 20 documents and 30-50 pages for each survey.

2.3.5.3.4. Repowering

Since a large part of the available hydropower potential has already been tapped, the hydropower industry will partially focus on repowering and refurbishing existing plants.

The difference between the *repowering* and *refurbishment* lies in the installed capacity. In the case of *repowering*, the replacement of machinery or its main components as well as automation parts or hydraulic systems (in whole or in part) leads to an increase in installed capacity and energy production of the plant. In the event of *refurbishment*, however, the replacement of components does not change the installed capacity (Enel, 2021).

The data collected for this report shows that repowering projects are generally subject to the same approval procedures as new hydropower projects in the European countries. In France, for example, the approval procedure for repowering and refurbishing a hydropower plant is the same as for a new installation. In Austria, there is no separate procedure for the modernisation of hydropower plants, which permits are required depends on the scope of the project and is decided individually. The procedure is determined by the Water Rights Act: If the project remains within the scope of the previous water law permit, there is usually no need to seek a new procedure, only a notification. However, a separate procedure is required for major changes and, according to experts, a new procedure is necessary for most revitalisation. In Norway, a repowering project requires a new approval procedure, unless it only has regional implications; In which case, a hearing with the municipality is sufficient.

In this context, the industry calls for a simplified procedure for repowering projects. Covering both permitting and grid connection procedure. One suggestion would be that repowering projects be subject to an EIA screening procedure rather than full EIA process. Another option seen as viable by the industry is to introduce a certain threshold. For example, a full EIA process would only be applicable if repowering increased the installed capacity of a power plant by more than 20%. This could be tied to developers having to avoid significant negative effects on the aquatic flora and fauna.

The simplification of repowering procedures is already included in art. 16 RED II. Art. 16 (6) RED II states:

“Member States shall facilitate the repowering of existing renewable energy plants by ensuring a simplified and swift permit-granting process. The length of that process shall not exceed one year.”

“Where duly justified on the grounds of extraordinary circumstances, such as on grounds of overriding safety reasons where the repowering project impacts substantially on the grid or the original capacity, size or performance of the installation, that one-year period may be extended by up to one year.”

In addition, Art. 17 (8) RED II foresees that Member States may introduce a simple notification procedure for repowering projects in the grid connection process. If this is applied by the Member State, repowering shall be permitted following notification to the competent authority. However, only so, if no significant negative environmental or social impact can be expected from the implementation of the respective project. The competent authority should then have a period of six months after receipt of a notification to decide whether this is sufficient.

RED II must be implemented in national law by the Member States by the end of June 2021.

2.3.5.3.5. Public opposition and resulting complaint procedures

The long approval process is often extended even further by legal action initiated by environmental organisations (based on the protection of rivers and biodiversity), but also competing users of water bodies, e.g. anglers. In Germany, due to litigation procedures a normal reactivation of a former hydropower location on an existing dam can easily take five to eight years or even longer.

The situation for small hydropower projects could get worse in the future, as in October 2020, 150 NGOs published a joint manifesto calling on the EU institutions to stop financing new hydropower projects in Europe. The NGOs claim that building more hydropower contradicts the biodiversity goals of the European Green Deal and that the EU can achieve climate neutrality by 2040 without new hydropower plants (EEB, 2020).

2.3.6. Geothermal

2.3.6.1. Introduction

Geothermal is a versatile energy source that can be harnessed for both electricity and heating production. From a regulatory perspective, geothermal technologies are divided into two categories: shallow and deep. The terms refer to the depth of the boreholes used to access the resource, and there is no universally applicable dividing line between the two. According to the European Geothermal Energy Council (EGEC), shallow geothermal installations – either ground source heat pumps or underground thermal energy storages – do not usually reach depths of more than 500 metres underground. Drillings extending deeper than that are considered as deep geothermal (EGEC, 2021a). The temperature of the geothermal resource also depends on the depth of the drilling: shallow geothermal tends to reach temperatures ranging until 30°C whereas deep geothermal resources can reach up to 200°C (Goetzl, 2020). While shallow geothermal can be used for small- and medium-scale heat production, deep geothermal resources can produce both heat and electricity, either separately or together (combined heat and power - CHP).

So far, Europe has only harnessed a fragment of its geothermal potential. In 2020, by far the largest installed geothermal capacity for electricity in the EU was in Italy (916 MW) followed by Germany (41 MW) and Portugal (33 MW). The largest geothermal district heating producers in 2020 were France (657 MW), Germany (344 MW) and the Netherlands (298 MW). In 2020, over 100,000 small shallow geothermal units were purchased, a half of which in three EU Member States: Germany, Sweden and the Netherlands. The largest share of households with a geothermal heat pump installed is in Sweden and Finland. (EGEC, 2021b)

According to a geothermal expansion model developed by Della Longa et al. (2020), it would be possible to reach geothermal electricity production level of 100–210 TWh/year and heating production of 880–1050 TWh/year by 2050. This trajectory implies that geothermal could contribute up to 7% of European electricity production by 2050 (ibid.). With the current pace of geothermal expansion, such figures seem unlikely to be achieved: numerous administrative, financial and other barriers stand in the way. Section 2.3.6.3. will shed light to some of the existing barriers to permitting geothermal installations across EU Member States.

2.3.6.2. Overview of the key process steps

Despite the notable differences of shallow and deep geothermal, only some EU Member States make this differentiation in their legal framework regulating geothermal energy. For example, Austria, Slovenia and Germany have set out maximum limits for the depth of shallow geothermal wells, varying from 300 to 400 metres (GeoPLASMA-CE, 2017).

For shallow geothermal installations in the EU Member States, the permitting procedure is less complex than for deep geothermal installations. The length of the process also depends on the impact the shallow geothermal installation has on the local water system: open loop systems tend to have more complicated permitting processes than closed loop systems. The permitting framework is the most straight-forward in Nordic and Alpine countries, such as Austria, Finland and Sweden, where a notification or an action permit (a simplified version of a construction permit in Finland) may be sufficient for a small shallow geothermal installation.

Deep geothermal installations are likely to have to undergo a more complicated and time-consuming permitting process. However, there are also Member States where deep geothermal permitting is rather straight-forward: in Finland, for example, the first deep geothermal project commissioned in 2021 only had to acquire an action permit and go through a relatively light environmental screening process. The same Finnish pilot project also benefited from the clear interpretation of who owns the geothermal resource: it belongs to the legal entity in possession of the property on the ground-level, regardless of the depth of the borehole.

In general, deep geothermal licensing can be divided into two main types of licenses: exploration and exploitation. Exploration licenses are acquired to map out the geothermal resource at hand and they are usually limited in duration, varying from between three to seven years. Exploitation licenses grant the actor the right to harvest the geothermal resource. In addition, other licenses are also required for deep geothermal installations. For example, in Hungary, a successful deep geothermal installation has to receive the following licenses or approvals: water license (if the boreholes do not exceed 2500 m), concession (for boreholes going deeper than 2500 m), heat plant license, and an environmental permit.

In Belgium, permits are required for exploration, production and environmental matters in Flanders, or a unique permit in Wallonia (Geoenvi, 2019).

2.3.6.3. Key barriers

The most severe barriers geothermal energy projects encounter are connected to the site selection and administrative authorisation process steps. As a rather novel technology, licensing (in particular) deep geothermal installation is hindered by a lack of suitable guidelines, land use planning, competent authority expertise, and precedence.

2.3.6.3.1. Lack of access to information

Currently, access to many forms of information relevant for geothermal energy projects is difficult and non-transparent in some EU Member States. The lack of transparency can occur on different occasions and affect different stakeholders ranging from project developers to public authorities and the civil society. For example, in the Netherlands, all subsurface data must be made public after five years after the results are available, whereas in some other countries, private companies do not have to share data they gathered while conducting geological surveys geothermal resource (EGEC, 2021a). As this data is often at least partially funded by the public sector, it would be for the benefit of the public and geothermal technology to share information more openly.

The GEOENVI report also raises the issue of insufficient geothermal statistics. As a nascent energy source, authorities do not collect data from geothermal installations. Therefore, the geothermal industry cannot present reliable information and statistics to concerned stakeholders, such as landowners or the general public, when initiating new geothermal projects (Geoenvi, 2019).

2.3.6.3.2. Incoherent legislation as legal basis to use the geothermal resource

In the EU, geothermal projects are regulated by a variety of different legal instruments. Shallow geothermal can fall under water legislation (Austria, Czechia, Germany, and Slovenia), mining legislation (Poland and Slovenia), land use and building legislation (Finland and Czechia), or a mix of two or more of the aforementioned. Deep geothermal tends to be regulated by mining laws, as well as other relevant environmental legislation (EGEC, 2021a).

The heterogenous legislation regulating geothermal installations has, in part, led to variation between EU Member States on who has the right to use the geothermal resource. In some Member States, the right is clearly defined in legislation; albeit, different legal documents are used as the basis for this right: in Germany, for example, the right is codified in mining legislation, whereas in Finland, the right is connected to the Land Use and Building Act. In other Member States, there is a lack of clarity regarding the right to use a geothermal resource, as there may not be precedence on such deep, underground operations and how to grant them administrative authorisation (GeoPLASMA-CE, 2017; EGEC, 2021a).

2.3.6.3.3. Lack of appropriate land use planning

In many EU Member States, geothermal technologies have not been deployed on a large scale. Partly due to this novelty factor, they have not yet become a part of land use planning. Geothermal installations still require careful planning, as they could potentially impact surrounding infrastructure or the underground ecosystem by, for example, interfering with groundwater reservoirs. It is highly important to only construct geothermal installations on sites that are geologically and hydrologically suitable and safe as there are environmental and health risks connected to ill-functioning installations (Geoenvi, 2019; EGEC, 2021c).

2.3.6.3.4. Need for simple permitting for shallow geothermal

Shallow geothermal installations are often small (geothermal heat pumps) and installed by private individuals or companies on their property to generate heat for the own use. Shallow geothermal thus competes with other forms of heating systems, such as district heating, or a gas- or oil-operated boiler on the property. Customers tend to opt for the most affordable and easy-to-use heating systems; therefore, if the permitting procedure for a geothermal heat pump is time-consuming and complicated, the customer is likely to choose a different technology. The permitting for small-scale shallow geothermal installations should be straight-forward, quick and affordable (Sanner, 2021). In Sweden, for example, the licensing procedure for a small geothermal heat pump is determined by the local municipality. In some municipalities, no permit is necessary and a simple notification to the Geological Survey of Sweden suffices. In the most densely populated areas, such as Stockholm, a permit is needed, and processing the application takes a couple of months. According to EGEC, the permitting process duration for shallow geothermal should not exceed two months (EGEC, 2021).

2.3.6.3.5. Complicated and lengthy licensing procedures for deep geothermal

Permitting deep geothermal installations currently requires numerous permits, which are administered by different authorities. In many EU Member States, commissioning a large-scale geothermal, especially deep geothermal, installation requires applying for several different types of permits, such as exploration, exploitation, water and environmental permits from numerous authorities. These tend to not cooperate with one-another, a key reason for the lengthy permitting processes (Geoenvi, 2021). EGEC calls for a one–year limit to the duration of the permitting process, which should include the evaluation of the application materials and granting the permits (EGEC, 2021a). In order to reach the goal, the whole permitting framework constituting of multiple permits from different authorities should be replaced with a One Stop Shop, which would eradicate crucial barriers to smoother and quicker permitting (EGEC, 2021a; Batini, 2021).

As a One Stop Shop, the national or regional geothermal authority would cut permitting times significantly. The geothermal permit would replace all the permits necessary in the current framework, including those pertaining to exploration and exploitation, all environmental impact assessments, as well as drilling and construction (EGEC, 2021a; EGEC, 2021c).

Currently, permitting authorities lack necessary competence and experience for permitting geothermal technologies. This has been reported by geothermal experts by Italian and French participants of the GEOENVI projects (Geoenvi, 2019). Having a competent authority focusing solely on geothermal planning and permitting would ensure the professionalism and experience needed for evaluating potential geothermal projects.

Bringing geothermal permitting under one license in a single competent authority would also solve two existing issues: grid availability and conflicting permit decisions. As it stands, it is possible in some EU Member States, such as Italy, for a deep geothermal installation to receive an exploration permit, but subsequently receive a negative concession decision (Geoenvi, 2019). In a similar manner, the One Stop Shop for geothermal should also be in charge of guaranteeing grid connection for geothermal projects, but could also become involved in assessing the project's technical and financial details (EGEC, 2021a). A geothermal authority could also assess application materials in a holistic manner, which would eliminate the possibility of discontinuing an ongoing project. It should be a local or regional level One Stop Shop; although, it could have national offices to evaluate large projects.

Even the existing One Stop Shops do not function as smoothly as they should: in Hungary, for instance, the competent authority for the concession for geothermal is the Mining Authority, but consultations from the Directorate for Disaster Management (water authority) is necessary. As these two institutions are under the auspices of different ministries, there are delays in their communication (Geoenvi, 2019).

2.3.6.3.6. Harmonised guidance needed for permitting and EIA procedures

As mentioned in the previous barriers, the permits necessary for a deep geothermal installation vary by Member State. Also, the documentation needed for applying for them differs from one country to another, making it challenging for geothermal developers to operate across borders. The terminology used for geothermal also varies from country to country, and both the state authorities licensing geothermal installations and project developers operating on several markets would benefit from an established geothermal terminology used across all EU Member States. Currently, there is no standardised list of documents that geothermal installations need when applying for certain permits (EGEC, 2021a). Having such a list would improve the quality of applications and accelerate the work of permitting authorities.

EIA processes of all EU Member States are guided by a common legal source, the EIA Directive[17] (Directive 2011/92/EU). Member States, however, carry out EIAs slightly differently, leading to different EIA guidelines and necessary documentation for screenings. The current EIA procedures and guidelines in most EU Member States do not take deep geothermal projects into account. Only Italy had a dedicated guideline for deep geothermal for the region of Tuscany (Geoenvi, 2019) of the GEOENVI project target countries (EU: France, Germany, Italy, Hungary, and Belgium; non-EU: Switzerland, Iceland and Turkey).

To ensure the safety of the deep geothermal installation planned and to avoid unnecessary assessments, EIA guidelines for deep geothermal should be developed. Furthermore, these national guidelines should be harmonised at the EU level, setting similar standards, required documentation and terminology (Geoenvi, 2019; EGEC, 2021a). Harmonisation should also be paired with differentiation, as each region has its own geological and hydrological characteristics, which frameworks should reflect.

2.3.7. Solar thermal

2.3.7.1. Introduction

According to the EurObserv'ER Solar thermal concentrated solar power barometer 2020 (EurObserv'ER, 2020), the solar thermal market of the EU28 saw a clear expansion of installed capacities in 2018 after almost ten years of decline. A slight increase was also observed in 2019 (+1.5% compared to 2018) when 2.28 million m² of new solar collector surface area was installed in Member States. This corresponds to a thermal capacity of just under 1.6 GW. The thermal output of the EU28 thus reached 37.8 GW at the end of 2019.

Apart from the expansionary trajectory, the market circumstances in EU countries differ considerably. The share of newly installed solar thermal capacity by EU country is demonstrated in Figure 2-24 below.

[17] https://eur-lex.europa.eu/legal-content/de/ALL/?uri=CELEX%3A32011L0092

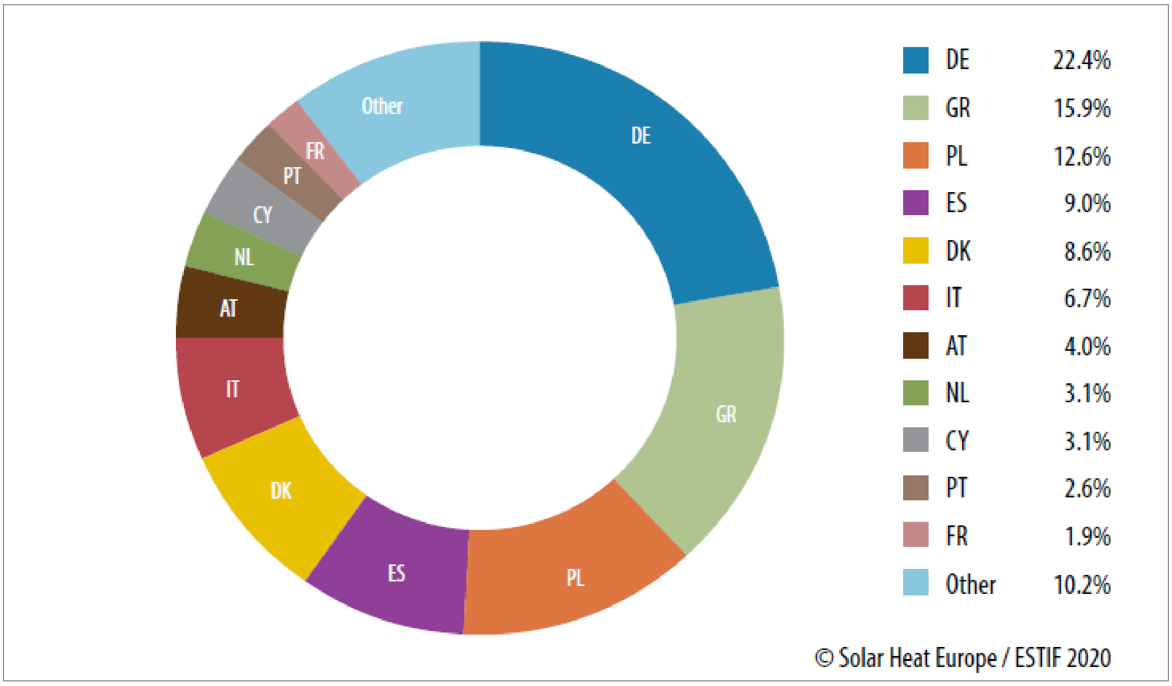


*Figure **2-24**: Shares of the European solar thermal market (newly installed capacity); Solarthermalworld.org, 2020*

Although Germany was still at the top of the list in 2019 (followed by Greece, Poland, Spain, and Denmark), its market continued a decade-long decline (-11% compared to 2018), due to opposing national trends (BMWi, 2020a). Installations in Austria and Italy also declined. In Denmark, on the other hand, installed capacity increased by 174%, which was a result of new solar district heating systems (EurObserv'ER, 2020; Solarthermalworld.org, 2020).

Looking at the total area of the installed collectors at the end of 2019, by far the largest collector area was installed in Germany, which led the EU by a large margin (19.3 Mio m²), followed by Austria (5.0 Mio m²), Greece (4.9 Mio m²), Spain (4.4 Mio m²), and Italy (4.3 Mio m²) (BMWi, 2020b).

Solar thermal heat supply technologies cover small-sized systems for single-family houses, medium-sized installations for multi-family houses, smaller heating networks, process heating systems and large solar thermal plants. In many European countries, the total potential of solar thermal energy is estimated at 3–12% of the overall heat production (Tschopp et al., 2020).

2.3.7.2. Key barriers

This section provides an overview of the most significant obstacles when applying for permits and connection to the district heating network for a solar thermal system. These obstacles contributed to the slumping installation trends which among other things contribute to the above given downward trends in some of the EU Member States.

The research for this report found that solar thermal energy is mostly impeded by barriers such as political, operational or business model-related obstacles as opposed to procedural issues. One of the political barriers is the lack of binding EU and national renewable heating targets as is the case with renewable energy overall. There should be strategic energy planning for the next 20-30 years with sectoral and technology-specific objectives and targets in the electricity, heating and cooling and the transport sectors. One of the most significant barriers related to business models, according to the industry, is the lack of long-term power purchase agreements (PPAs) for solar thermal projects – the report discusses this below, given its critical role. In terms of administrative barriers, the results of the mapping task have shown that access to land is becoming increasingly problematic for the developers of solar thermal projects, partly due to the lack of designated zones for projects in spatial plans and opposition of local environmental NGOs on environmental grounds. Implementation of solar thermal projects is aggravated by unclear regulations on district heating network connections, which provides network operators discretion over decisions and leads to time-consuming connection procedures. Moreover, seasonal solar thermal storage (SSTES) is not regulated and thus not included in the existing administrative procedures of the EU Member States. These and other barriers for solar thermal energy are discussed in more detail below.

2.3.7.2.1. Land use related issues

According to the solar thermal industry, access to land for larger ground-mounted solar thermal systems (e.g. large-scale solar thermal heating systems connected to local district heating systems (DHS) or larger solar thermal systems for industrial processes (SHIP)) is increasingly problematic in EU Member States. This is related to the lack of designated zones for energy projects – including solar thermal - in spatial plans, resulting in land use conflicts and time-consuming land use change procedures.

As the construction of solar district heating (SDH) plants usually requires large areas, there are often conflicts with competing land uses, such as agriculture or nature conservation. Their potential negative impact on the environment and biodiversity or visual impact on the surroundings is a common reason for local resistance, especially from environmental NGOs (SDH, 2017).

A solution used in some European countries is the so called dual-use of infrastructure. This entails that land is used for both solar thermal projects and other objectives, such as nature conservation – examples of this approach include the use of closed landfill sites, agricultural areas, areas near highways (SDH, 2017). As landfill sites are brownfields, using them for solar energy projects (PV and solar heat) helps avoid adversely impacting negative impacts on sensitive ecosystems (Jäger-Waldau, 2020). In Malta, for example, quarries (currently operating, inactive or closed) are allowed to be used for the development of solar energy.

To solve the land use conflicts, the industry also calls for the designation of priority areas for solar thermal projects in spatial plans, since heat cannot be transported as easily as electricity and therefore solar thermal systems need to be installed near the district heating network, meaning close to the residential areas (i.e. cities, villages).

2.3.7.2.2. Connection to district heating networks

The solar thermal industry is also confronted with obstacles when connecting to district heating networks, which are primarily due to unclear regulations for connection. Definitions in regulations are rather vague and can be interpreted differently by various parties. When deciding whether to connect a system to the heating network, criteria such as “competitiveness”, “economic feasibility” or “efficiency” are often used, which are not clearly defined in regulations and thus give network operators a great deal of discretion. As a result, the network operator can say that connecting the solar thermal installation is economically not feasible and refuse the connection. There is often no clear legal justification for such decision, making a clear framework at national level essential.

According to the industry, guidelines at EU level might offer a solution. However, they should be drafted together with all relevant stakeholders and be based on national consultations.

2.3.7.2.3. Seasonality issues

One of the key obstacles to the greater deployment of solar thermal technology in the EU Member States is the lack of regulation and administrative procedures for the use of seasonal solar thermal storage (SSTES). This leads to individual and time-consuming negotiations with the stakeholders in each case. SSTES is one of the solutions that representatives of the solar thermal industry see in addressing the seasonal nature of this technology. There is a mismatch between solar thermal energy production during the summer and high demand in winter. In addition, demand for heat differs depending on the region: this tends to be higher in northern Europe and lower as one travels south.

Policy-makers did not take seasonality into account in most national legal frameworks and have not developed the foundations for storing energy in such a manner. This impacts the technology adversely, since using solar thermal energy only in the heating season is not economically viable. A non-discriminatory regulatory framework for flexibility and balancing solutions is one of the key factors for a level playing field for solar thermal energy storage. It means that non-discriminatory access to heating networks needs to be ensured by operators and, in particular, access to district heating systems for heat needs to be encouraged (EASE, 2017).

2.3.7.2.4. Lack of long-term PPAs

Representatives of the solar thermal industry reported that the absence of long-term PPAs in the heating sector is problematic – which is also an issue in the electricity sector of some EU countries. Although this is not an administrative barrier, it significantly impedes the further growth of the sector. In general, many operators of district heating system (DHS) produce the heat themselves but can also take on heat from other producers. In Lithuania, for example, competition among heat producers is organised on the basis of monthly heat sale auctions. There is a national fuel and energy exchange – BALTPOOL and all heat producers are obliged to buy fuel and sell heat on this exchange (RES Legal Europe, 2018; Euroheat & Power, 2019). This monthly auction is mainly used for biomass. However, according to the solar thermal industry, monthly heat auctions mean higher investment costs. Monthly auctions benefit natural gas, but not solar thermal since for cost reasons the latter simply cannot compete with the former under current market conditions. Solar is much more competitive vis-a-vis natural gas in countries with a high carbon tax. Otherwise, the competitiveness of solar can be underpinned by long-term – 10–15 year – PPAs.

2.3.8. Specific features aimed to ease administrative procedures

As part of the mapping task, the Consortium also examined whether there are specific features in the 27 EU Member States that facilitate renewable energy installations' administrative procedures. These were examined without regard to technology and include:

- Simultaneous procedures,
- One Stop Shop or a single contact point for renewable energy projects,
- “Two plus one” and/ or “one plus one” year rules,
- Simple notification procedure,
- Pre-planning procedure,
- Pre-application consultations,
- Project acceptance measures,
- Measures to streamline litigation by third parties.

Some of the features – single contact point, a simple notification procedure for small-scale installations and repowering projects, the “two plus one” and the “one plus one” rules – are integrated into RED II and thus Member States are obliged to introduce them by 30 June 2021. Thus, a number of them may have only been introduced by respective authorities after the research period. Nonetheless, Figure 2-25 demonstrates which of the examined simplification features researchers identified. Results are discussed in more detail below.

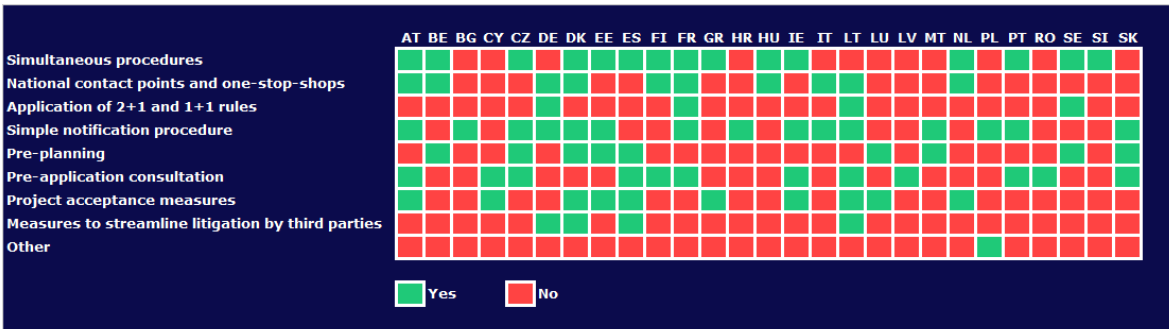


*Figure **2-25**: Specific features to ease administrative procedures in the 27 EU Member States*

2.3.8.1. Simultaneous procedures

Some approval processes for renewable energy projects can run simultaneously in many EU Member States. The aim of simultaneous procedures is to streamline the approval of the renewable energy projects. As can be seen on Figure 2-25, almost half of the Member States have introduced this.

In Austria, for example, developers can apply for multiple permits (electricity production license, approval under the nature conservation law procedure, aviation law procedure, forestry law permit, water law permit, occupational health and safety law permit, building permit) in parallel. Site selection and the grid connection application can also be done in parallel. In Portugal, obtaining an electricity production license and connecting the power plant to the grid may be carried out simultaneously, once the applicant has successfully obtained a grid capacity reserve title. In Finland, it is possible to combine construction permit and different environmental permit processes (joint procedure). As a part of the joint procedure, all applications are submitted electronically to competent authorities simultaneously. Moreover, the applicant can provide supplements for different applications at once, public hearings for all the processes are organised simultaneously, and decisions are published together.

Simultaneous procedures are intended to make the approval process more efficient, but this is not always the case in practice. Interviewees in Austria, for example, reported that during the substantive law procedure – when the impacts on public goods are examined individually by different authorities – it can happen that authority requirements are contradictory. In order to ensure that the simultaneous procedures are executed smoothly and efficiently, clear regulations as well as the distribution of responsibilities and good coordination between the authorities involved are essential.

2.3.8.2. One Stop Shop or a single contact point

Establishing a One Stop Shop or a single contact point is another feature that can simplify and accelerate permitting procedures for renewable energy projects.

A *One Stop Shop* in public administration refers to the ability to carry out all the necessary bureaucratic steps in one place. Similarly, according to RED II, the *single contact point* should guide the applicant through the entire administrative process so that the applicant is not obliged to contact other administrative authorities to obtain the approval, unless the applicant prefers to. As a result, art. 16 RED II requires the Member States to set up or designate one or more contact points for renewable energy projects. The approval process should cover all relevant permits to build, repower and operate renewable energy plants and assets necessary for their connection to the grid. In addition, RED II requires that the contact points make available a manual covering the procedures for developers. Thus, the aim of a One Stop Shop or a single contact point is to reduce the complexity of permitting for project developers and increase their efficiency and transparency (art. 16 RED II).

Figure 2-25 demonstrates that several Member States have already introduced a One Stop Shop or a single contact point. For instance, France has introduced a One Stop Shop for wind energy projects. Here, the "environmental authorisation" procedure applies to onshore wind projects that fall under environmental protection (ICPE) as of 2017 or offshore wind projects that fall under the Water Act (Schmid and FEE, 2020). This aims to combine all the environmental approvals which are necessary for the project in one single permit and alleviates the developer to have to apply for a building permit. In Germany, One Stop Shops for administrative authorisation cover building and environmental permits, but do not include grid connection. Belgium (Wallonia and Flanders) have merged the urban and environmental permits into a single one. There is a One Stop Shop – the environmental desk – in Flanders to obtain an integrated environmental permit for the construction, repowering and operation of the plant, i.e. the environmental desk. Although, this does not cover the electricity production license (if required) and the grid connection permit (if required). In Denmark, the Danish Energy Agency serves as a One Stop Shop for offshore wind procedures. Here, too, it does not cover the grid connection.

National experts emphasised during the stakeholder workshops that a One Stop Shop or a single contact point can also introduce risks and jeopardise project implementation. This can occur if there are staff related issues at the single competent authority, such as being understaffed or a lack of expertise. These can lead to serious bottlenecks in the permitting procedures. For this reason, some stakeholders prefer to have the One Stop Shop or single contact point introduced only as an optional alternative to the current splintered permitting procedure, as is the case under REDII. They seek the flexibility to choose between the two options to deal with administrative issues.

2.3.8.3. Application of "two plus one" and/ or "one plus one" rules

According to art. 16 RED II, the permit-granting process shall not exceed two years for power plants, including all relevant procedures of competent authorities. This two-year period may be extended by up to one year ("two plus one" rule) due to extraordinary circumstances. In addition, the permit-granting process shall not exceed one year for installations with an electrical capacity of less than 150 kW. This one-year period may be extended by up to an additional year due to extraordinary circumstances ("one plus one" rule). The "one plus one" rule applies also to permit-granting process for repowering. Extraordinary circumstances during repowering include safety considerations, if the project significantly impacts the network or the original capacity, size or performance of the system (art. 16 (4-6) RED II).

According to RED II, the deadlines of "two plus one" and "one plus one" rules do not cover the legal complaint procedures and the time required to conduct EIAs and other appropriate assessments (art. 16 (7) RED II). These two aspects caused some of the longest delays for wind and PV projects in most countries, which substantially weakens the impact of art. 16 RED II.

The results of the mapping task show that the deadlines for renewable energy projects in almost all EU Member States are not yet compatible with art. 16 RED II, except in Germany and Lithuania (see Figure 2-25). Although the EU Member States have established procedural deadlines for the approval of renewable energy projects, in all EU Member States there is no general deadline for the entire duration of the permit-granting process as stipulated in art. 16 RED II (note that the mapping task was completed earlier than the deadline for the RED II implementation). Moreover, there is no monitoring of the length of permitting procedures for renewable energy projects in the EU Member States.

In Lithuania, the procedures for installations larger than 30 kW are compliant with the “two plus one” rule, while installations with an installed capacity of less than 30 kW comply with the “one plus one” rule. In Germany, after the confirmed completion of submitting required documents for an onshore wind project, authorities need to approve the application within three months in the case of a simplified procedure and within seven months in the case of a formal procedure, if third parties do not cause delays. The reasons for delays need to be explained by the authority and allow for a prolongation of three months (BImSchV, 2020; BImSchG, 2020), which is in line with RED II. However, there is no explicit deadline for the total duration of the approval process for renewable energy projects in these two countries either.

2.3.8.4. Simple notification procedure

According to art. 17 (1) RED II, Member States shall establish a simple-notification procedure for the grid connections of renewable energy systems developed for self-consumption and demonstration projects with an electrical output of 10,8 kW or less. The DSO can either approve or reject the requested grid connection or suggest an alternative which it has to justify (e.g. safety reasons or technical incompatibility with the system). If the grid connection application is approved by the DSO or if there is no decision by the DSO within a period of one month after receipt of the notification (silent approval), the renewable energy systems can be connected.

In addition, Member States are allowed to establish a simple notification procedure for the grid connection of renewable energy systems with an installed capacity of more than 10,8 kW but not exceeding 50 kW. However, this can only be upheld if the stability, reliability and safety of the grid is ensured (art. 17 (2) RED II).

According to RED II, Member States are also allowed to introduce simple notification procedures for the grid connection of projects that are repowered. An important prerequisite, however, is that the project is not expected to carry any significant negative environmental or social impact. The competent authority shall decide whether the notification is sufficient within six months. If the decision is positive, the competent authority grants a permit. Otherwise, the developer must apply for a new permit (art. 16 (8) RED II).

It should be noted that the focus of the mapping of administrative and grid connection procedures was not only on the simple notification procedures discussed in the RED II. The scope of the research in terms of simple notification procedures was much broader and include all simple notification procedures in renewable energy project approval processes.

As can be seen on Figure 2-25, simple notification procedures for renewable energy projects are common in nearly half of the EU Member States. Some countries apply a simple notification procedure for the grid connection of small-scale projects (e.g. Ireland, Denmark, Lithuania, Malta). In Ireland, for example, there is a straight-forward, simple notification procedure for grid connection process under the micro-generation scheme for rooftop PV and onshore wind. This applies to installations with an installed capacity of less than 11 kW. In January 2021, the Department of Communications, Climate Action and the Environment launched a public consultation on a new micro-generation scheme for residential users. Based on this, experts expect that the capacity limit will be increased from 11kW to 50 kW. In Lithuania, simple notification procedure applies for the grid connection of prosumers’ installations with an installed capacity of less than 30 kW. In Denmark, a simple-notification procedure for grid connection to repower projects is already in line with art. 16 (8) RED II.

In other EU countries, the simple notification procedure is applied during the building permitting (e.g. Croatia, Spain). In Croatia, simple structures, including rooftop PV systems, do not require a building permit, if they are constructed on an already existing building irrespective of that being able to transit energy to the network. The 2017 Simple Buildings Regulation, however, suggests that the developer will be obliged to notify the competent building authority when they launch construction. In Spain, there is no simple notification procedure on a national level. However, units with a capacity of 10 kW or less in Andalucía are only subject to a responsible declaration or prior notification on the construction instead of a full building permit. In Poland, a simple notification is used for micro-installations (up to 50 kW) in both the building permitting and grid connection, if connected to the distribution grid.

Some EU Member States go even further and do not even require installing a power plant to notify the authorities if the projects do not exceed a certain capacity. For example, the Building Act in Czechia requires neither a building permit nor a building notification for electricity producing installations with a total capacity of up to and including 20 kW. In Portugal, self-consumption units (*Unidades de Produção para Autoconsumo* - UPAC) with an installed capacity below 350 W are not subject to prior notification nor control – producers may simply buy the equipment and install it.

In conclusion, the simple notification procedure is already fairly widespread in the EU countries. Nevertheless, there is still room for improvement in a large number of Member States. With regard to repowering in particular, simple notification procedures was detected only in Denmark.

2.3.8.5. Pre-planning procedure

This research project focused on the use of pre-planning tools in EU countries. Results demonstrate that the pre-planning measures are not particularly widespread in target countries. They were identified in only nine Member States (see Figure 2-25). The pre-planning instrument most frequently identified is the designation of areas for renewable energy projects, mainly wind power, but, in some countries, also for ground-mounted PV. In these areas the permitting requirements are reduced and therefore the projects can be implemented in an easier and faster manner.

In the case of offshore wind, the specified areas are usually legally binding for the competent authorities and project developers. For example, in Denmark, area screenings of Danish waters for offshore wind turbines are done by or on behalf of Danish Energy Agency and they provide the basis for the political decision on where to locate national tenders. In the case of onshore wind turbines and ground-mounted PV systems, the designated areas are usually not mandatory. The aim of the planning instruments that specify geographic areas for these two technologies is to inform the project developers about the most suitable locations for their projects.

There are different kinds of instruments used in the EU Member States to assist developers in choosing suitable locations for their power plants. In Belgium, the best locations for renewable energy projects are shown via a national grid capacity map. This is not binding and does not influence whether a project is permitted. In Spain, there are two maps published by the national government for wind and solar power. These classify the country's territory into five environmental sensitivity classes (maximum, very high, high, moderate and low) based on the type of project. These tools are only indicative and do not replace the necessary administrative steps, such as the EIA. In Czechia, areas in which the construction of wind power and solar PV plants is "unsuitable", "rather unsuitable" and "generally suitable" are defined in the Methodological Instructions issued by the Ministry of Environment. Nevertheless, the areas' differentiation only gives a broad overview on the expected complexity of follow-up processes, and is also not legally binding for state authorities.

Although most of the pre-planning tools identified are non-obligatory and only provide information, they tend to save project developers time since they indicate no-go or unsuitable areas for projects. This allows developers from the outset to focus on the areas with the greatest potential for approval.

2.3.8.6. Pre-application consultations

In a pre-application consultation, a developer consults with the community on a major development before applying for planning permission. The aim of the process is to improve the planning system by strengthening community participation at an early stage and better responding to local views on the proposed developments. Research results show that pre-application consultations are applied in twelve Member States, including Austria, Cyprus, Czechia, Spain, Finland, Ireland, Lithuania, Latvia, Portugal, Romania, and Slovakia.

In Ireland, for example, it is recommended that at least one pre-application meeting is held with the local authority to discuss the scope of the application and seek their views as to what should be included in the application or in the accompanying Environmental Report or Environmental Impact Statement (EIS). Pre-planning community engagement is not a mandatory requirement, but is strongly recommended. Local engagement can begin in early project development stages (e.g. for the wind monitoring mast) and/or during the EIA prior to submitting a planning application. Examples of public engagement activities include visits, information packs, meetings and public exhibitions (IWEA, 2012).

Preplanning community engagement mainly takes place prior or as a part of EIA procedures in EU countries. In Latvia, however, pre-consultations with the transmission or distribution system operators are also strongly recommended before submitting an application for grid connection. Accordingly, developers usually undertake pre-consultations, especially for larger renewable energy projects.

Pre-planning consultations are perceived as a useful tool to improve the administrative procedure as they provide a platform for project developers and all local actors involved to discuss the project and project implementation conditions in advance. This gives the local community the opportunity to express their fears and concerns at an early stage and the project developer to address them with the help of open and well-founded discussions. If all concerns of the local community are adequately (and to the extent possible) taken into account, this usually helps to avoid time-consuming appeal procedures thereafter.

2.3.8.7. Project acceptance measures

Project acceptance measures are measures that aim to enhance the local acceptance of renewable energy projects. The main reasons for the resistance from local communities (including NIMBY) are varying impacts, including visual and aesthetic, land-use and nature, environmental, health, and property-related.

Acceptance measures to reduce or avoid local opposition can be of a financial or non-financial nature.

Some non-financial measures were identified in Ireland. They are foreseen in the draft Wind Energy Development Guidelines and include (1) the obligation for public communication, where project developers are obliged to engage in **consultations with the local community**, before applying for a planning permission, and the (2) preparation of a **community report**. The community report should set out how the project development will affect the local community and how local community participation will be assured throughout the project's lifetime.

Most measures to increase project acceptance are, however, of a financial nature. **Taxes** are very often levied on onshore wind projects by local governments in the Member States. This is the case, for example, in Spain, Cyprus, Germany, and Lithuania. In this context, it is decisive, which municipality benefits from the local taxes: the municipality where the project is sited or where the headquarters of the project owning company is registered. In Germany, for example, the tax code had to be adapted to ensure the municipality where the plant is installed, can benefit, too. Similarly, a **"green fund scheme"** in Denmark obligates the developer to pay EUR 11,827 (DKK 88,000) per MW of onshore wind capacity to the relevant municipality, which can use the funds to support for local initiatives, such as local green projects.

The use of various **ownership models** is another common practice applied in the EU countries to enhance project acceptance. In Germany, for example, the majority of operating wind farms are community owned. A number of ownership models have emerged, including limited partnerships, cooperatives, voluntary associations, community trusts, informal community groups, and social enterprises. These can be combined with further measures aimed to support localities. For instance, the state of Brandenburg passed a law that forces operators to pay an annual lump sum of EUR 10,000 per wind turbine to neighbouring municipalities (Schmid and Business Intelligence, 2019). Similarly in Denmark, "RE-bonus scheme" obligates the developer to pay neighbours an annual bonus corresponding to a specified part of the capacity of the plant. In France, renewable projects can receive a local participation bonus if they have 40% of equity capital owned by at least 20 local persons or regional authorities (*investissement participatif*) or at least 20 natural persons contributing to 10% of overall project finance (*financement participatif*) (Schmid and FEE, 2020).

Ireland plans to establish a **"Community Benefit Fund",** which will be funded from renewable electricity produced by installations under the Renewable Electricity Support Scheme (RESS - auctions) (EUR 2/MWh). Finally, there are two schemes in Denmark that address opposition caused by local community concerns on how renewable energy projects impact on the value of their property. The **"loss of value scheme"** requires the developer to compensate any loss of value to residential property equal to or higher than 1% of the property value. While the **"option-to-sell scheme"** allows some neighbours within a distance of six times the height of a wind turbine or 200 m from a ground-mounted solar PV plant to sell their property to the project developer.

As mentioned above, less than half of the EU Member States have introduced or plan to take project acceptance measures. Especially those without such measures and with major local opposition problems should strongly consider learning from others that have already taken action that has proven to be effective.

2.3.8.8. Measures to streamline litigation by third parties

According to RED II (art. 16 (7)), judicial appeals, remedies and other proceedings before a court or tribunal, and alternative dispute resolution mechanisms, including complaint procedures, non-judicial appeals and remedies shall be unaffected from the Directive. The deadlines relating to "two plus one" and "one plus one" rules can be extended for the duration of these proceedings. As a result, the lead times of renewable energy projects are often much longer. Problems may also arise, when a third party (e.g. neighbour, a NGO or a completely unrelated person in a Member States with very liberal rights to make a claim) does not play fair and uses the right of complaint to simply delay project implementation for ideological or commercial reasons. To prevent this, some countries have safeguards in place. Nevertheless, measures to streamline litigation by third parties were identified in only four target countries (see Figure 2-25 above).

In Germany, for example, as a part of the Renewable Energy Sources Act (EEG), the Federal Ministry for Environment established a clearing authority[18] in 2007 for the resolution of conflicts concerning the deployment of renewable energy sources.

Another measure to streamline the judicial process research found in Member States by third parties is to limit the right of appeal to those parties who are (potentially) affected by the decision or act of the competent authority (significant individual interest). This is the

18 www.clearingstelle-eeg-kwkg.de/

case in Lithuania and Denmark. In contrast, all municipality residents in Finland have the right to lodge a complaint about spatial planning decisions – not only those who are directly (potentially) affected by the change in the spatial plan. No specific reason for filing a complaint is required. This is perceived as one of the significant barriers to the implementation of renewable energy projects in Finland. Also in Ireland, nearly everyone can appeal a planning permission. Having acknowledged that this is an obstacle to further and faster deployment of renewable energy projects, An Bord Pleanála (Ireland's national independent planning body) is now discussing how to reform the appeal process, to rationalise third parties' ability to file appeals.

In Denmark, the right to appeal in the case of decisions under the Planning Act (with the exception of rural zone permits) is limited to questions concerning the legality of the decision. The same is the case for EIA screening decisions. This means, that the board (the Planning Board of Appeals for planning decisions and the Environment and Food Board of Appeals in case of EIA screening decisions) can only try whether the decision was made in accordance with all applicable rules, but cannot reopen the examination of the subject matter. This hinders the re-evaluation of renewable energy projects that may be viable.

2.3.8.9. Summary

In summary, the results of the mapping of administrative permitting procedures show that in EU Member States the most frequently used features to simplify administrative procedures for renewable energy projects are (1) simultaneous procedures, (2) the use of simple notification procedures for small-scale renewable energy projects and (to a lesser extent) for repowering projects, (3) the use of pre-application consultations, and (4) the adoption of certain financial and/ or non-financial project acceptance measures. On the other hand, application of the “two plus one” and “one plus one” rules and measures to streamline the litigation by third parties are not yet widely implemented, leaving much room for improvement in the majority of countries.

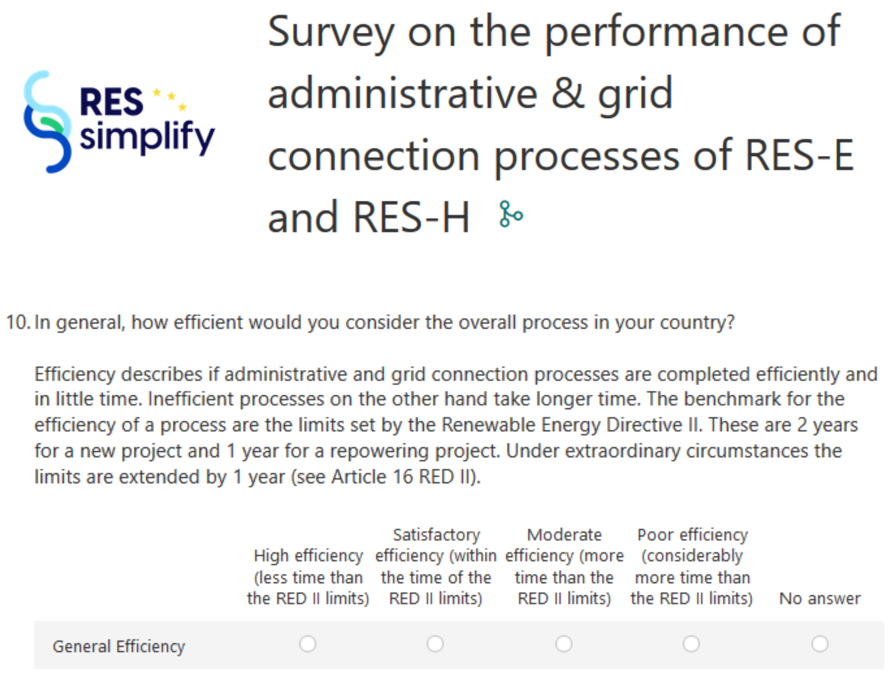
3. Monitoring of the Member States based on the performance indicators

The goal of the underlying work of this chapter is to grasp the performance of EU 27, Iceland, Norway and the UK when it comes to permitting procedures of renewables projects. Initially this was thought to be the basis for the analysis of best practice in permitting. However, this approach was adapted as is described in the following chapters.

3.1. Methodology

The performance indicators that were developed initially were the starting point for the analysis of good RES-E and RES-H permitting practice in Europe. To fill these indicators with life, we conducted an online survey and evaluated the data in the National Reports prepared by the Consortium. The project partners WindEurope and SolarPower Europe distributed the survey among their members. Also, members of the associations EREF Europe (small hydropower), EGEC (geothermal energy) and Solar Heat Europe were involved. The goal was to gather technology and process step specific information on the performance of permission procedures in individual countries. This approach aimed at identifying especially well functioning processes and steps so that these could be analysed further.

Figure 3-1 shows the headline of the survey and an exemplary question. For eight different topics participants could answer questions. Questions were either multiple choice questions or open questions. This way participants could choose a given answer and provide free text. The survey was open for two months and we received 39 responses.


Survey on the performance of administrative & grid connection processes of RES-E and RES-H

10. In general, how efficient would you consider the overall process in your country?

Efficiency describes if administrative and grid connection processes are completed efficiently and in little time. Inefficient processes on the other hand take longer time. The benchmark for the efficiency of a process are the limits set by the Renewable Energy Directive II. These are 2 years for a new project and 1 year for a repowering project. Under extraordinary circumstances the limits are extended by 1 year (see Article 16 RED II).

	High efficiency (less time than the RED II limits)	Satisfactory efficiency (within the time of the RED II limits)	Moderate efficiency (more time than the RED II limits)	Poor efficiency (considerably more time than the RED II limits)	No answer
General Efficiency					

Source: RES Simplify

*Figure **3-1**: Headline of the RES Simplify survey and exemplary question*

In addition to the survey responses, we also reviewed the National Reports elaborated in Task 1, as described in section 2.2. Data that provided information on the performance of procedures was added to the research. However, data was only available for 14 out of 27 Member States. Therefore, a complete picture of the European situation could not be painted.

Additionally, the data was not statistically robust and therefore it was unclear how representative the obtained information is. For seven Member States with the data, only one data point was available. The other Member States showed between three and eight replies, which can also not be considered representative from a statistical point of view. Therefore, we decided to deviate from the initial approach. Originally, the indicators were the basis for the research of best practice, which had aimed at focusing on obviously successful permission procedures in “high performance” Member States. However, with the data available it was not possible to clearly identify which Member States show good permitting procedures.

Although the data is not representative it can show trends and can give an idea on the situation in the respective Member States. Therefore, we used our evaluation as a starting point for discussion with stakeholders. For the depiction of the data, we formed average values for the individual Member States. Afterwards the data was shown in Europe maps. These maps were the input for two stakeholder workshops for wind and solar power.

The participants of the workshops were members of RES associations from their respective Member States. The goal of the workshops was to consolidate the data which had been gathered so far. Also, we planned to retrieve new information. During the workshops the findings on the performance indicators was presented. These consolidation workshops revealed that there are different perceptions on national situation amongst stakeholders and national experts. This underlined the dependencies from the individual subjective assessment, and the need for a broader data basis in order to clearly identify best practice countries.

Irrespective of that, section 3.2 presents the main findings on performance indicators. For further research, and as a contribution for monitoring and further improving permission procedures in Europe, it is recommended that the European Commission obliges the Member States to regularly report on the performance of the RES permission activities (see section 4.3.3).

3.2. Key findings on performance indicators

In this chapter the data from the survey and the National Reports is depicted in Europe maps. This way they give an overview of the European situation and possible regional trends. The maps either depict a single indicator or a combination of two indicators. This way possible connections or suspected effects of indicators become visible.

Disclaimer: The maps depicted in this chapter only have an indicative character as the data basis is not representative.

As the following Table 3-1 for overall efficiency shows, only limited data exists based on the conducted online survey. The sample size for all Member States for PV-related responses is 24 and for wind onshore 23. For most Member States only between one and three data points are available, with France and Poland being the exception with eight and five data points respectively. For other indicators the data basis has a similar shape.

*Table **3-1**: Overview over responses received on the performance indicator "overall efficiency of permission process" (selection list for optional answers: "High efficiency (less time than the RED II limits)"; "Satisfactory efficiency (within the time of the RED II limits)"; "Moderate efficiency (more time than the RED II limits)"; "Poor efficiency (considerably more time than the RED II limits)"; "No answer")*

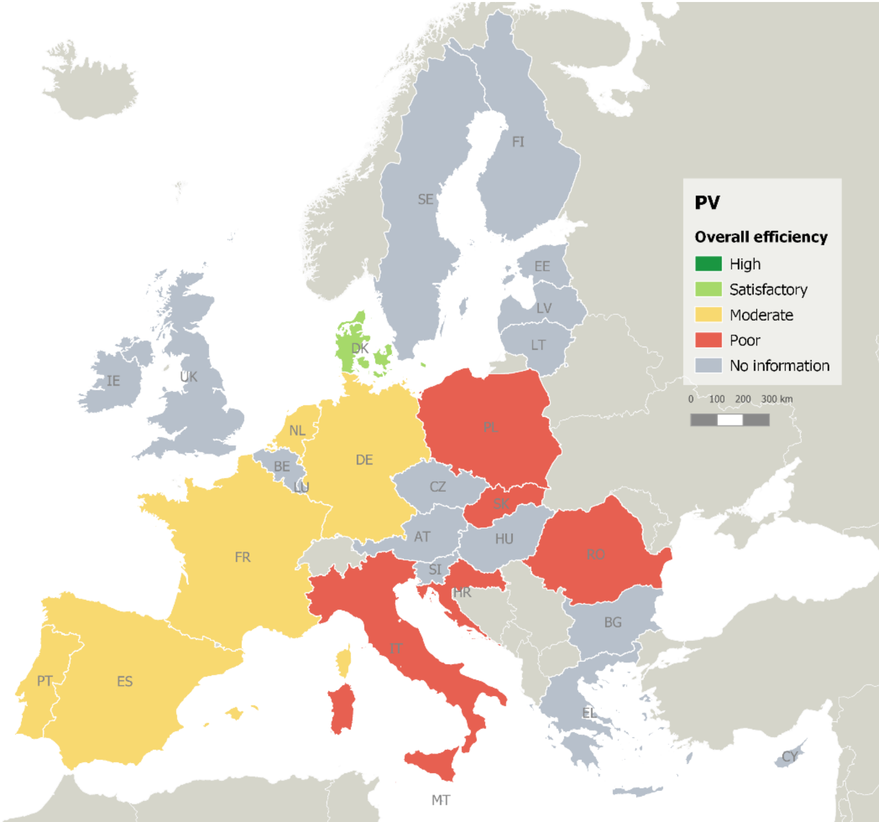
Country	PV	Wind onshore
Austria		Poor
Croatia	Poor	Poor
Denmark	Satisfactory	
France		Poor
France	Moderate	
France	Moderate	
France	Poor	
France	Poor	
France	Moderate	Moderate
France		Poor
France		Moderate
Germany	Poor	
Germany	Satisfactory	
Germany	Poor	Poor
Italy	Moderate	
Italy	Poor	Poor
Italy		Poor
Latvia		Moderate
Netherlands	Moderate	
Poland		Poor
Poland	Poor	Poor
Poland	Poor	Poor
Poland		Poor
Poland		Poor
Portugal	Poor	Poor
Portugal	Satisfactory	Satisfactory
Portugal	Moderate	Moderate
Romania	Poor	Poor
Slovakia	Poor	
Slovakia		
Slovakia	Poor	
Spain	Satisfactory	Satisfactory
Spain	Poor	Poor
Spain	Poor	Poor
United Kingdom		Moderate

Source: RES Simplify

For the depiction in Europe maps average values for the Member States were used. This is critical for Member States with only one data point. In this case the reply of a single stakeholder is depicted as representing the overall situation in a Member State. Although stakeholders were asked to reply not for individual projects but the whole industry this cannot necessarily be interpreted as the actual situation in the Member State. Therefore, the following maps rather show an indication and can serve as the basis for a discussion about the actual situation. Besides this, it should be pointed out that the focus on average values does neglect the range of provided answers.

3.2.1. PV

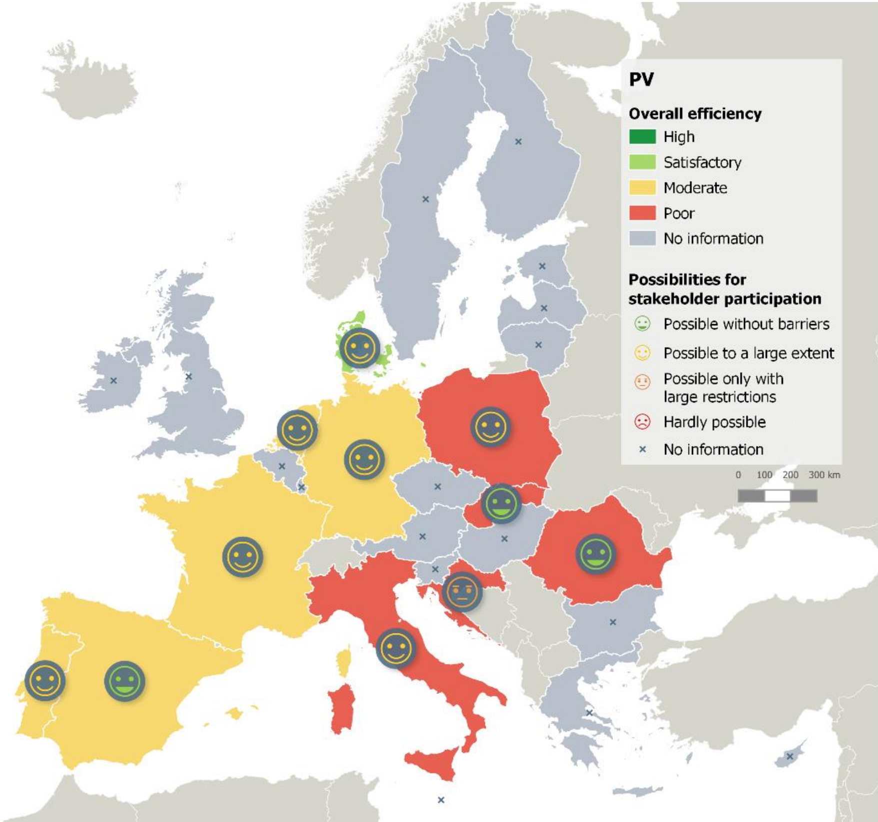
Figure 3-2 below depicts the overall perceived efficiency of PV permitting processes in European Member States. Efficiency of permitting describes the necessary time from handing in the application by project developers to handing out of permissions by authorities.



Source: RES Simplify

Figure ***3-2****: Indicative results of overall perceived efficiency of PV permitting processes (n = 24) in European Member States*

In most Member States stakeholders assessed the overall perceived efficiency as rather low. Denmark showed the highest score with a satisfactory efficiency. The efficiency of other Member States ranged from moderate to poor. Eastern and Southern Member States showed a lower efficiency than Western and Northern Member States. For a lot of Member States no information was available.



Source: RES Simplify

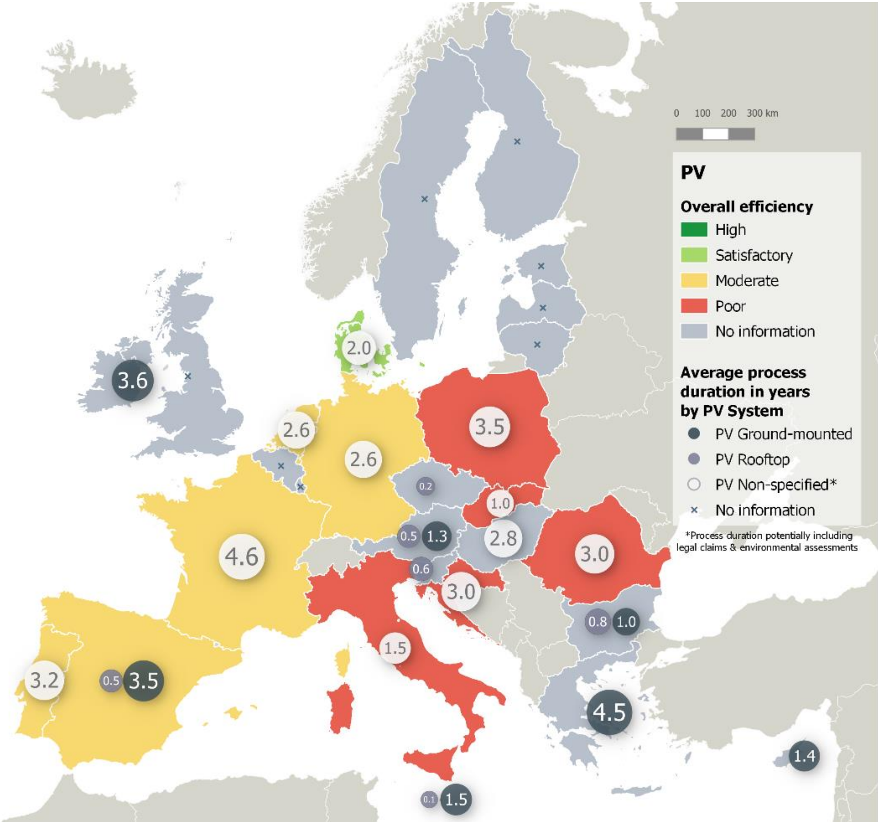
*Figure **3-3**: Indicative results of overall perceived efficiency of PV permitting processes (n = 24) and possibilities for stakeholder participation (n = 22) in European Member States*

In the online survey the respondents were asked for the possibilities of stakeholder participation in permitting procedures. The results reflect the subjective assessment of the situation by the respective respondents, but they do not technically reflect clearly defined measures for stakeholder participation. These measures can range from a situation where stakeholders are simply asked for their opinion to an in-depth participation in e.g. site selection. The concrete definition of participation was left open for the interpretation of stakeholders, which has to be considered when interpreting the results.

As stakeholders can influence RES-E projects, their opposition may lead to litigation and slow down their realisation. Participation therefore is important as it can prevent litigation and corresponding timely procedures. This way the realisation of projects is sped up. Therefore, an early stakeholder engagement plays a key role.

As depicted in Figure 3-3 above possibilities for participation range in Member States from "*Possible without barriers*" to "*Possible only with large restrictions*". For the majority of Member States for which data was available participation of stakeholders is possible to a large extent. Spain, Slovakia, and Romania show participation for stakeholders without barriers. Only Croatia demonstrates higher barriers for participation. For the interpretation of this overview, it should be pointed out that most respondents where representatives of the RES industry, whose assessments might differ from those of other stakeholders (e.g. environmental NGOs or authorities).

Combining the overall efficiency with the possibilities for participation did not show a clear trend. The assumption that in countries with well-functioning stakeholder participation project realisation is faster could not be confirmed: in "moderate" and "poor" efficiency countries both good and bad possibilities for participations can be observed. Disclaimers apply for this depiction.



Source: RES Simplify

*Figure **3-4**: Indicative results of overall perceived efficiency of PV permitting processes (n = 24) and average process duration (n = 39) in European Member States*

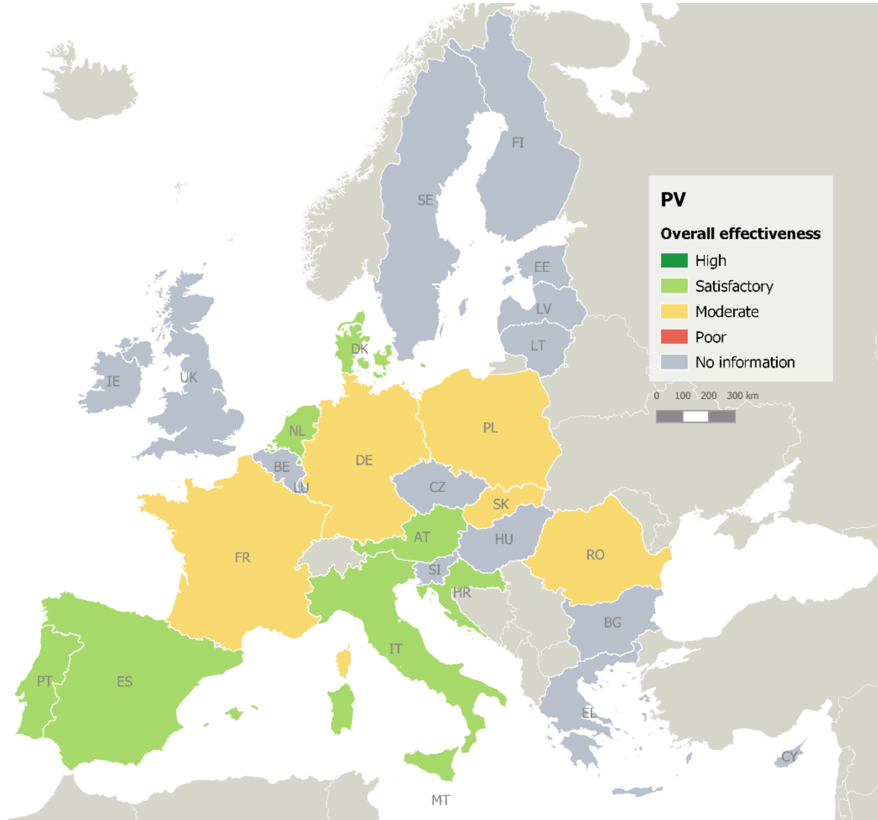
Figure 3-4 above depicts the overall permitting process duration and the overall perceived efficiency. PV data refers to rooftop systems, ground-mounted PV systems, and non-specified PV systems. If stakeholders gave information on PV without specifying the kind of technology, this data was interpreted as non-specified.

In the survey, the overall duration of permitting procedures comprises the time until all necessary permits are obtained. This also includes the time to clear legal challenges. Participants were asked to evaluate the situation in their Member States. Art. 16 RED II currently aims for a total process duration of two years on average. Under extraordinary circumstances this can be extended by one year. The duration defined by the RED II does not include legal challenges nor time spent on environmental assessments, in contrast to the survey. However, from a project developer's point of view, the relevant parameter is the total length of the process up to the commissioning of a plant, including expected legal cases. The survey also asked for a differentiated indication of the length of individual process steps. Thus, it was intended that also the process duration excluding the time for litigation could be evaluated. However, received data did not allow for such an assessment.

The overall process duration that was stated by stakeholders showed a large variation between Member States. For rooftop PV systems the process duration varied between 0.1 years in Malta and 0.8 years in Bulgaria. For ground-mounted PV systems the reported duration varies between one year in Bulgaria and 4.5 years in Greece. Not specified PV installations show comparably high durations that range from one to 4.6 years. As expected, the permitting duration experienced for rooftop installations is shorter than for ground-mounted systems. The duration of non-specified PV installations suggests that these power plants may be ground-mounted PV systems as well.

For rooftop PV systems the two-year limit defined by art. 16 RED II is met all over Europe. For ground-mounted systems durations potentially including legal challenges and EIA did not exceed two years in four out of seven Member States. Greece, Ireland, and Spain are exceptions as processes last for more than three or even four years here. Most processes for unspecified PV installations often do not exceed the duration of three years. Exceptions are France, Poland, and Portugal.

As a second major indicator the overall perceived effectiveness of processes was queried from stakeholders. Effectiveness was defined in the scope of the survey as the ability of processes to hand out permissions. Ineffective processes grant fewer permissions as a share of total applications.

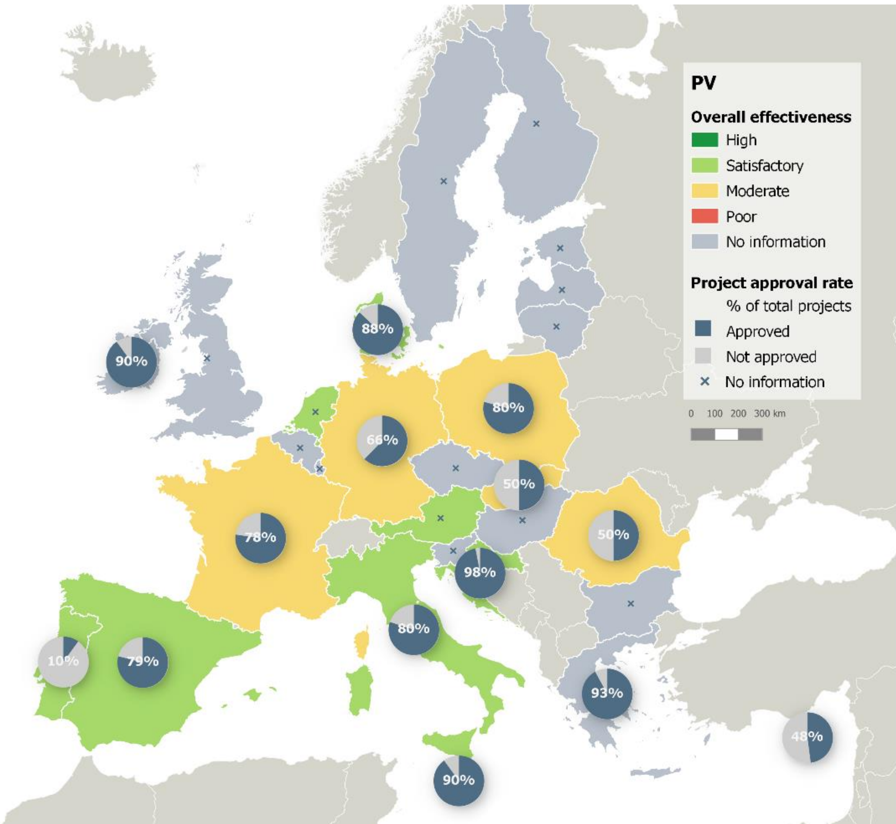


Source: RES Simplify

*Figure **3-5**: Overall perceived effectiveness of PV permitting procedures (n = 26) in European Member States*

The map above (Figure 3-5) depicts the overall perceived effectiveness in European Member States. In contrast to the overall efficiency of PV permitting procedures, there are no countries with a poor rating. Out of twelve Member States for which survey results were available, seven showed a satisfactory effectiveness and only five a moderate one.

This shows, with the disclaimers in mind, that although processes are not the most efficient ones, permits are granted to project developers at least with a moderate effectiveness.



Source: RES Simplify

*Figure **3-6**: Overall perceived effectiveness of PV permitting procedures (n = 26) and project approval rate (n = 44) in European Member States*

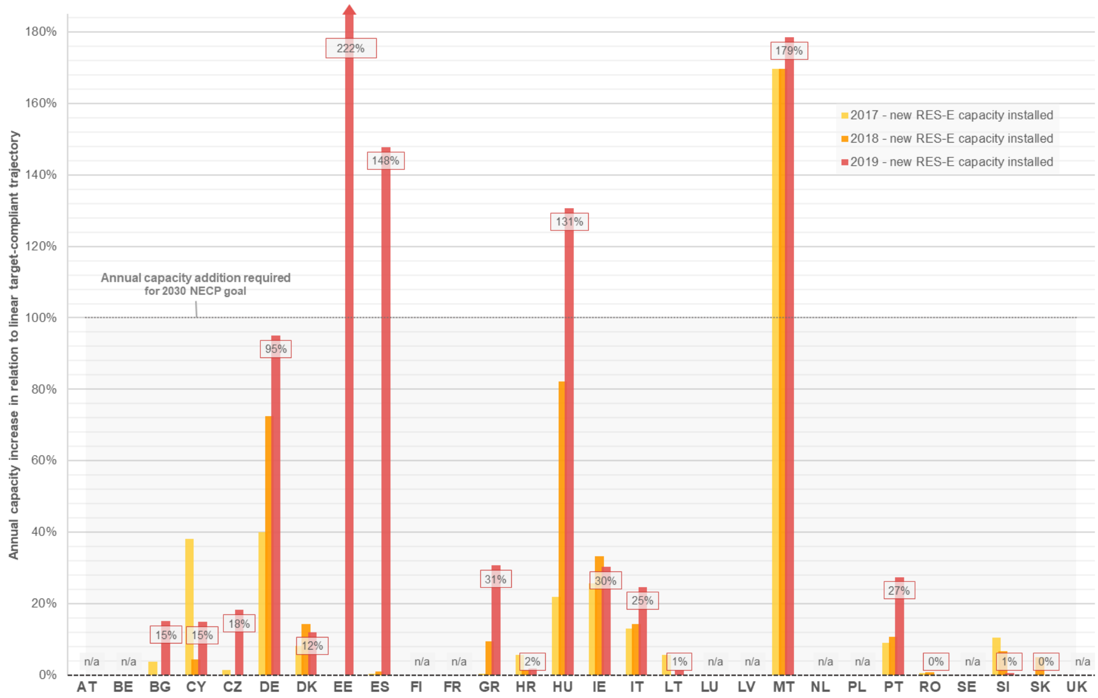
Figure 3-6 above shows the overall perceived effectiveness and the approval rate of PV project applications in European Member States and the UK as assessed in the RES Simplify survey. The approval rate defines what share of applications are handed out a permission. It thereby acts as a second indicator for the overall effectiveness of permitting procedures.

If no permission is handed out, authorities reject a planned project. Also, it may be the case that authorities cannot deal with a project in time or delay it by questioning assessments or documents. The reasons for this can be manyfold, e.g. the lack of a suitable basis for decision-making or the large number of applications.

The approval rate which has been derived based on the RES Simplify survey varies widely.[19] Approval rate ranges from 10% in Portugal to 98% in Croatia. However, Portugal seems to be an outlier with complicated procedures as for other Member States the approval rate is at least 48% and goes up to 98%.

As the survey responses are based on subjective experiences of the stakeholders, we also analysed the RES expansion of the EU Member States to complement this information.

19 Disclaimers apply here.



Source: RES Simplify based on the EurObserv'ER online database (https://www.eurobserv-er.org/online-database/ | Last access: 12 July 2021) and Integrated National Energy and Climate Plans of the Member States of the European Union.

*Figure **3-7**: Deployment of PV in 2017, 2018 and 2019 in relation to linear target-compliant trajectory to reach the 2030 PV capacity goals defined in the Integrated National Energy and Climate Plans (NECPs)*

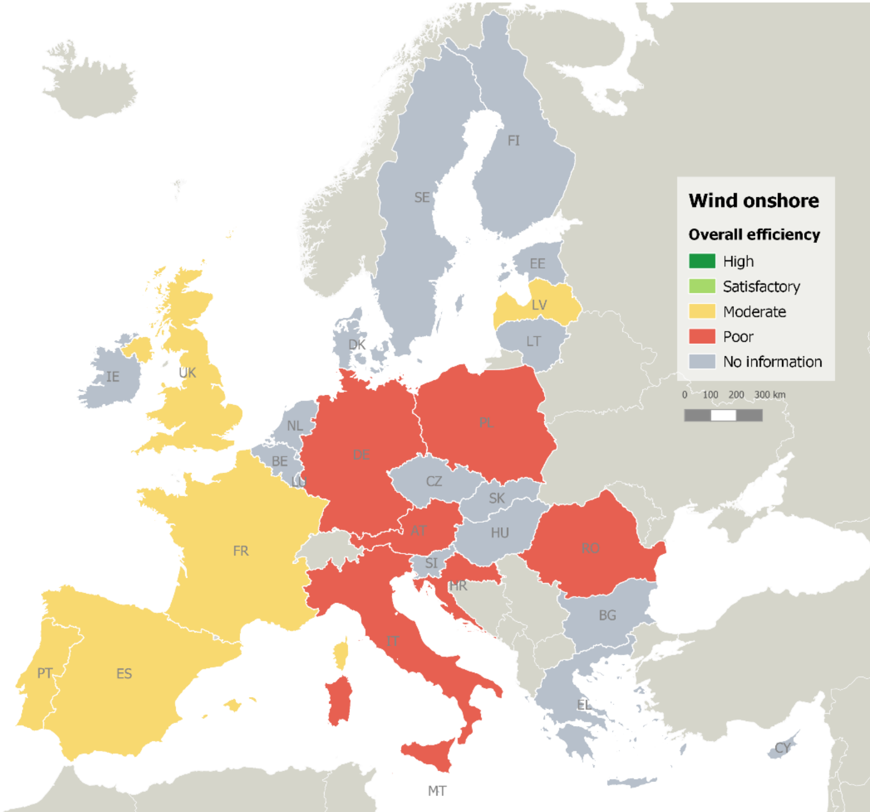
Figure 3-7 above shows the yearly deployment of PV in relation to the yearly necessary deployment to reach the 2030 PV capacity goals defined in the NECPs. 100% depicts the yearly deployment to reach these goals in a linear manner. For each Member State the deployment in 2017, 2018 and 2019 was extracted from the EurObserv'ER database, which is based on the data from Eurostat. This was put in relation to the necessary yearly PV deployment, which was derived from the technology specific targets defined in the NECPs. A deployment over 100% shows that necessary deployment was exceeded and vice versa. Not all states provided information in their NECPs that was usable for this figure. In this case "n/a" is shown for the country.

As the figure shows, only four states exceed their yearly necessary deployment (based on the assumption of a linear increase) in 2019: Estonia, Spain, Hungary, and Malta. Only Malta was able to surpass their goal in three consecutive years. Apart from the yearly target-compliant deployment, also the development in between years can be interpreted. Almost all states showed an improvement, most notably Germany and Hungary. The reason for this can be a change to more attractive support policies. Interestingly, Estonia and Spain had almost no expansion of PV in 2017 and 2018.

Countries with high deployment rates suggest that not only the support scheme is attractive but also permitting processes function well. Therefore, the information from the Figure 3-7 above can indicate best practice for permitting PV installations in Estonia, Spain, Hungary, and Malta.

3.2.2. Onshore wind

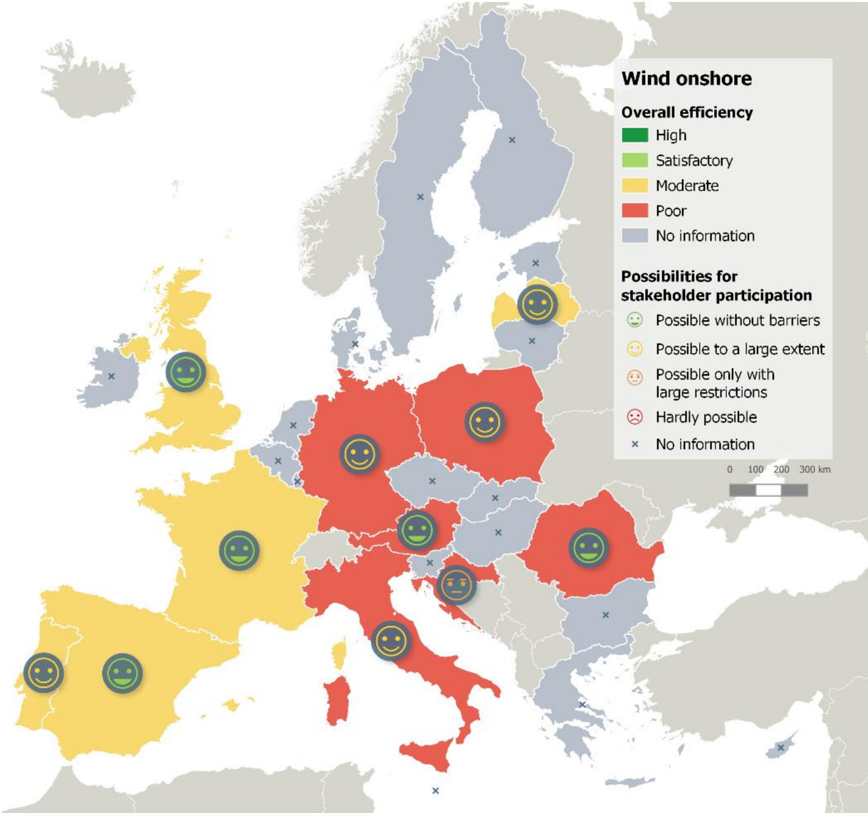
Figure 3-8 below depicts the overall perceived efficiency of onshore wind permitting processes in the EU Member States. Efficiency of permitting describes the necessary time from handing in of documents by project developers to handing out of permissions by authorities.



Source: RES Simplify

*Figure **3-8**: Indicative results of overall perceived efficiency of onshore wind permitting processes (n = 23) in European Member States and the UK*

In most Member States, stakeholders assessed the overall perceived efficiency of onshore wind permitting rather low. Most states show a poor efficiency. Exceptions are France, Latvia, Portugal, Spain, and the UK. Therefore, a distinction can be made between Western European countries on the one hand and Central and Eastern European countries on the other hand.



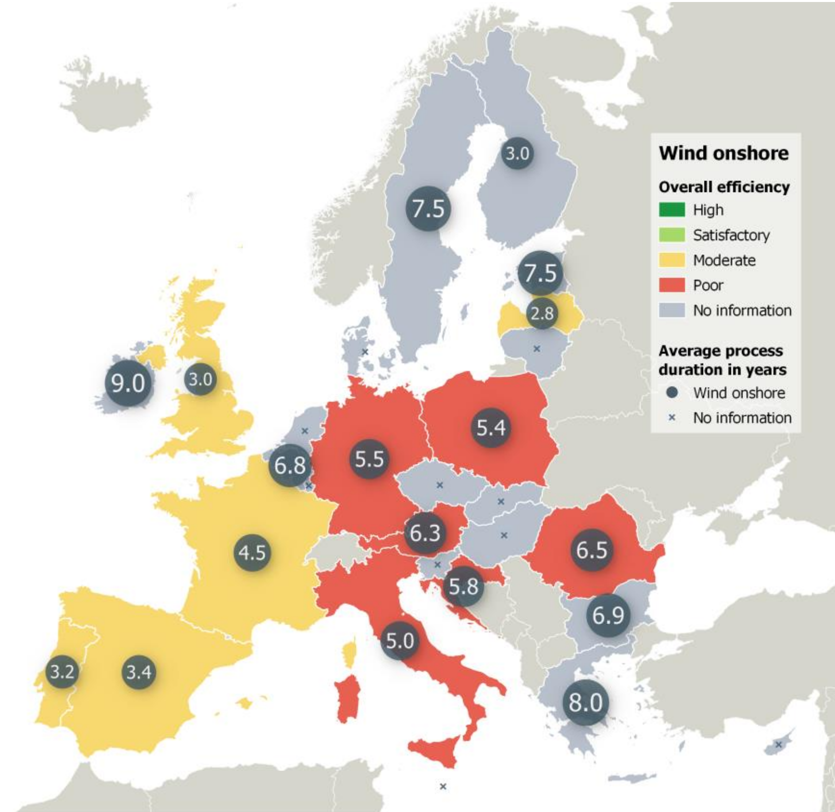
Source: RES Simplify

*Figure **3-9**: Indicative results of overall perceived efficiency of onshore wind permitting processes (n = 23) and possibilities for stakeholder participation (n = 21) in European Member States and the UK*

As was mentioned in the previous chapter, no clear definition of participation was given in the survey. Therefore, respondents might have different understandings of this concept. This must be considered when interpreting these results.

As is depicted in the figure above, the possibilities for participation between the Member States vary. For countries for which data was available, almost all make participation of stakeholders possible to a large extent. Austria, France, Romania, Spain, and the UK show participation for stakeholders without barriers. Also in Germany, Italy, Latvia, and Poland stakeholders may participate to a large extent without barriers. Only Croatia shows large restrictions for participation.

Combining the overall perceived efficiency with the possibilities for participation did not show a clear trend. The assumption that in countries with well-functioning stakeholder participation project realisation is faster could not be confirmed: In moderate and poor efficiency countries good and bad participatory possibilities can be observed.



Source: RES Simplify

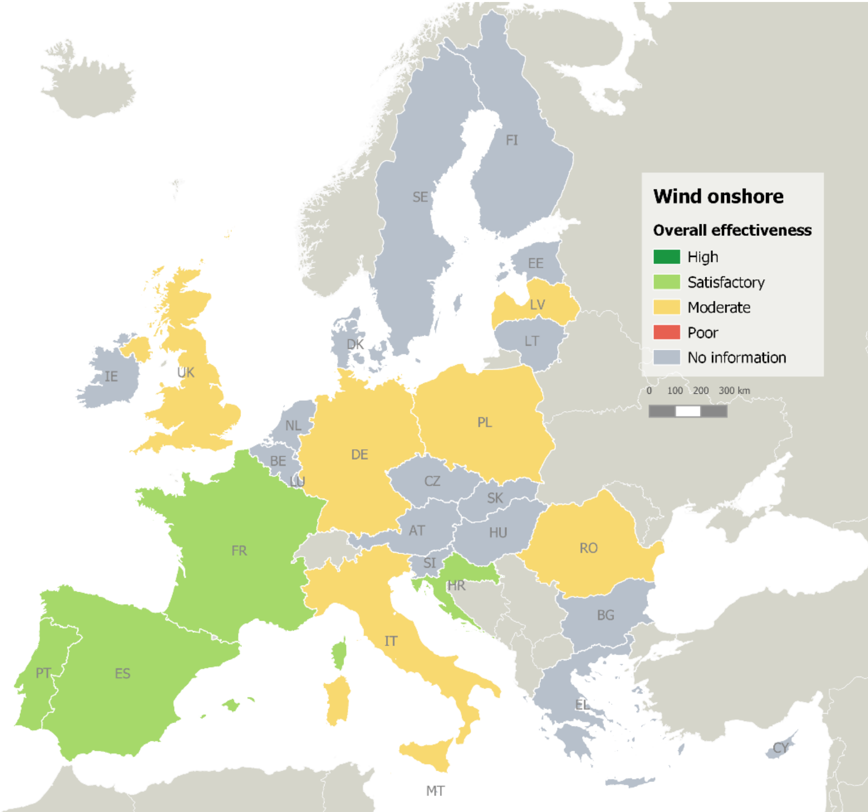
*Figure **3-10**: Indicative results of overall perceived efficiency of onshore wind permitting processes (n = 23) and average process duration (n = 39) in European Member States; Remarks: Belgium: Average duration is shown for Flanders and Wallonia combined. Italy: Only comprises time for the preparation of EIA and individual permit. Latvia: Since 2012 no new projects have been developed.*

Figure 3-10 above depicts the overall permitting process duration and the overall perceived efficiency for onshore wind projects. The overall duration of permitting procedures comprises the time until all necessary permits are obtained, possible legal challenges are cleared and the EIA is obtained. Art. 16 RED II currently aims for a total process duration of two years on average, which can be extended by one year under extraordinary circumstances. The duration defined by the RED II does not include legal challenges nor time spent on environmental assessments, contrary to the survey.

The provided information on overall process duration for onshore wind permitting showed a large variation between countries. For most countries, the duration of procedures varies around 6 years. The shortest durations can be found in Latvia with 2.8 years, the UK as well as Finland with 3 years. The longest durations with 8 and 9 years were reported in Greece and Ireland.

Almost no country manages to realise permitting in two (respectively three) years as stated in the RED II. It must be emphasised that the durations in the figure contain the time to clear legal challenges and realise the EIA. Therefore, long processes are not only caused by inefficient and slow processes. The figure shows that countries with a higher efficiency rating tend to show shorter permitting durations. This is a contrast to Figure 3-4 which shows the corresponding data for PV. There no trend between the perceived level of efficiency and the process duration could be found.

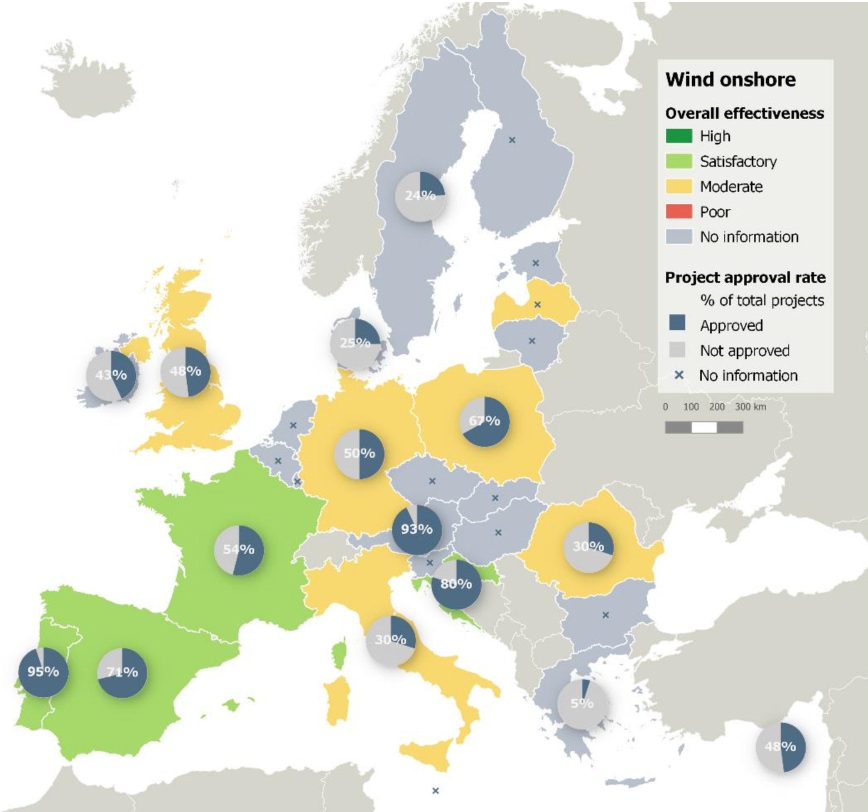
During the RES Simplify survey also the overall perceived effectiveness of processes was queried from stakeholders. Effectiveness was defined in the scope of the survey as the ability of processes to hand out permissions. Ineffective processes grant fewer permissions per applications or no permits at all.



Source: RES Simplify

*Figure **3-11**: Overall perceived effectiveness of onshore wind permitting procedures (n = 23) in European Member States and the UK*

The map above depicts the overall effectiveness in European Member States and the UK. In contrast to the overall perceived efficiency of onshore wind procedures, there are no countries with a poor rating. Out of the ten countries for which data was available six showed a moderate effectiveness and four a satisfactory one.



Source: RES Simplify

*Figure **3-12**: Overall perceived effectiveness of onshore wind permitting procedures (n = 23) and project approval rate (n = 28) in European Member States and the UK*

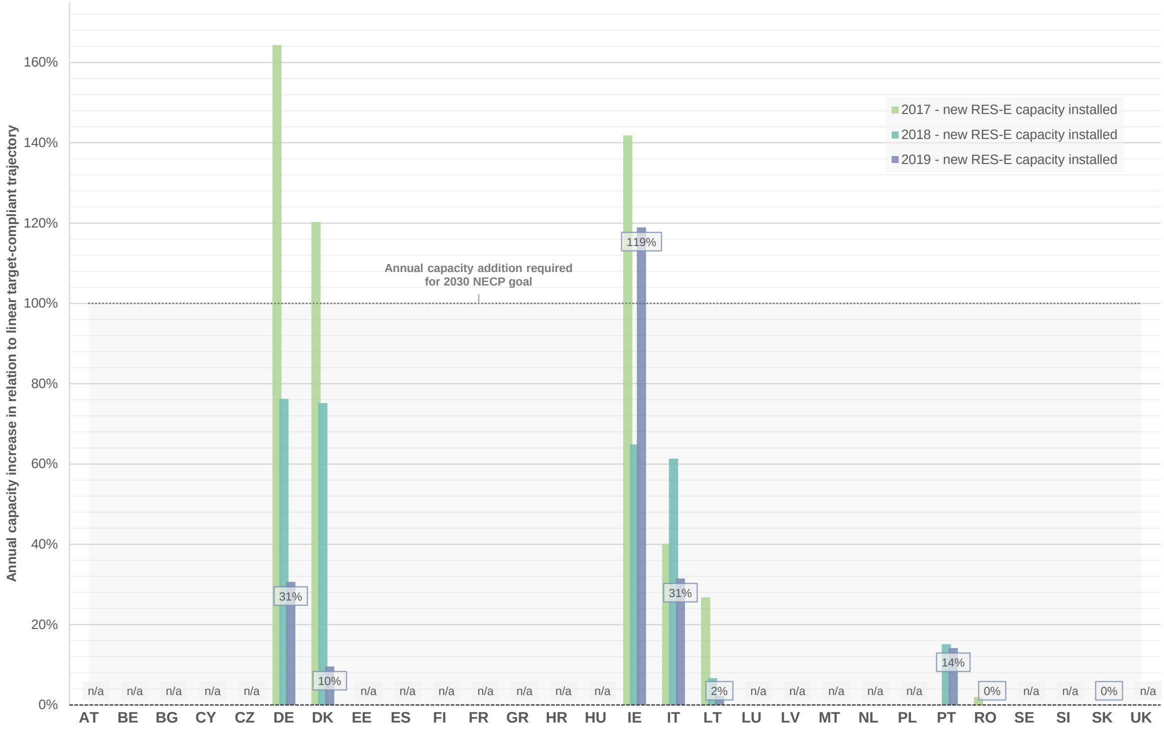
The approval rate defines what share of applications are handed out a permission. If no permission is handed out, authorities reject a planned project. The approval rate therefore evaluates the effectiveness of permitting procedures and complements the information on the overall perceived effectiveness of processes.

The approval rate varies widely.[20] The approval rate varies between 5% and goes up to 95%. Greece shows the lowest approval rate. The low rate of 5% here is connected to the project developers' approach in this country, as has been clarified in the consolidation workshops: usually a large variety of projects is planned of which only a small number is completed. Low rates are also present in Denmark, Italy, and Sweden. The highest approval rates can be found in Austria, Croatia, and Portugal.

The overall perceived effectiveness is displayed in combination with the project approval rate. This confirmed the hypothesis that a good effectiveness potentially appears with higher approval rates. An exception is France, which shows a comparably low approval rate with a high effectiveness.

In order to complement the picture which derives from the subjective responses to the survey, we analysed how the annual RES capacity increase in Member States relates to the increase which is necessary in order to reach national 2030 RES targets, as indicated in the NECPs.

20 Disclaimers apply here.



Source: RES Simplify based on the EurObserv'ER online database (https://www.eurobserv-er.org/online-database/ | Last access: 12 July 2021) and Integrated National Energy and Climate Plans of the Member States of the European Union.

*Figure **3-13**: Deployment of wind onshore in 2017, 2018 and 2019 in relation to linear target-compliant trajectory to reach the 2030 wind capacity goals defined in the Integrated National Energy and Climate Plans (NECPs)*

Figure 3-13 above shows the yearly deployment of onshore wind in relation to the yearly necessary deployment to reach the 2030 NECP onshore wind goals. 100% depicts the necessary deployment to reach these goals in a linear manner. For each Member State the yearly deployment in 2017, 2018 and 2019 was extracted from the EurObserv'ER database, which is based on the data from Eurostat. This was put in relation to the necessary yearly onshore wind deployment that was derived from the technology specific targets defined in the NECPs. A deployment over 100% shows the necessary deployment was exceeded and vice versa. Not all states provided information in their NECPs that was usable for this figure. In this case “n/a” is shown for the country.

Again, this lack of data underlines the need for a common EU requirement that Member States should make such data available in their national reporting (see section 4.3.3).

As Figure 3-13 shows, only Ireland exceeded their yearly necessary deployment (based on the assumption of linear increase) in 2019 after a decline in 2018. For Denmark, Germany, Italy, Latvia, Portugal, Romania, and Slovakia the installation of capacity in 2019 is the lowest in all three years. The development of the yearly deployment indicates that the permitting situation in none of the countries was improving. For Germany, Denmark, and Italy it seems that the situation was even worsening. However, in 2021 the German situation is improving (FA Wind 2021). Latvia, Portugal, Romania, and Slovakia will need to increase their deployment conditions significantly as wind expansion is progressing with a very low rate or not at all.

Ireland exceeded its goals in 2019 and improved in comparison to 2018. From this follows that the assessment of available data only suggests Ireland as a candidate for permitting best practice.

4. Best practice in permitting procedures

This section presents the best practice recommendations for permitting procedures which we have identified and elaborated for this report. We considered the EU 27, Iceland, Norway and the UK for potential best practice. It also includes further recommendations on improving permitting procedures based on the conducted research.

4.1. Methodology

This section describes the methodology that was applied to identify and further develop best practice in permitting procedures.

The initial approach for the identification of good practice can be divided in three steps:

- Literature research,
- Interactive stakeholder workshops,
- Consolidation.

In the first step, literature on permitting procedures was evaluated. The goal was to identify existing best practice in permitting and new suggestions to speed up procedures. The basis for this, on the one hand, were the National Reports that were prepared as described in section 3.1. In these reports for each target country, different country-specific process steps were evaluated considering barriers and best practice. Also, literature research on suggestions for better procedures was conducted. The main source for this was international, European, and national grey literature. Among others the following literature was reviewed in order to identify and further develop best-practice recommendations:[21]

- Attendorn (2020a): Thorsten Attendorn: Klimaschutz erfolgreich gestalten – was Behörden tun können; Handlungsfelder Windkraft, Wasserkraft und Verkehrswende, 2018.
- Attendorn (2020b): Thorsten Attendorn: Aufwertung der Wasserkraft bei wasserrechtlichen Abwägungsentscheidungen; in: Wasserwirtschaft 11/2020.
- Brancheninitiative Windindustrie (2021): Akuter Handlungsbedarf für Onshore-Windenergie in Deutschland: „Flächen bereitstellen und Genehmigungshemmnisse abbauen" Impulspapier der Brancheninitiative Windindustrie; March 2021.
- BDW (2021): Bundesverband Deutscher Wasserkraftwerke: Administrative Barriers to small hydro power development in Germany.
- BWE (2021a): BWE-Vorschläge zur Beschleunigung und Erleichterung des Repowering von Windenergieanlagen; Bundesverband WindEnergie, March 2021.
- BWE (2021b): Dringende Änderungen im Erneuerbare-Energien-Gesetz 2021 – Forderungen für ein „Reparaturgesetz" des EEG 2021, Bundesverband WindEnergie, March 2021.
- BWE (2021c): Genehmigungen für Windenergie ziehen wieder an; Pressemitteilung des Bundesverband WindEnergie e.V., April 2021.

21 It should be noted that this list includes not only literature which has been reviewed at the initial literature review, but also documents which have been consulted at a later stage with the aim of identifying and elaborating best practice recommendations.

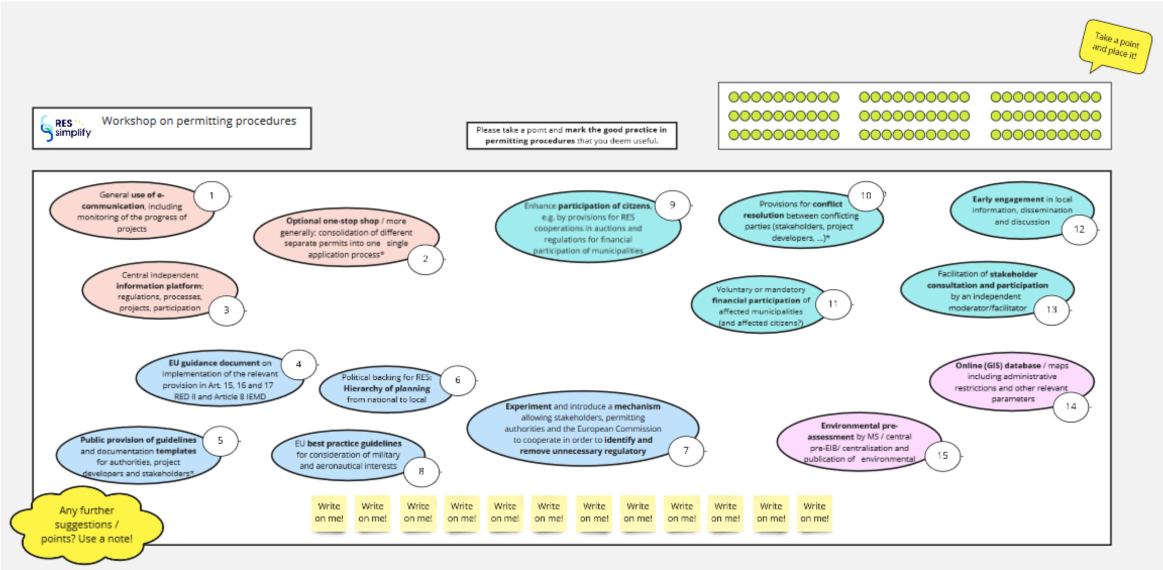
- DG ENER/Navigant (2020): Technical assistance in realisation of the 5th report on progress of renewable energy in the EU (Task 1-2).
- Deutsche WindGuard (2019), Vorbereitung und Begleitung bei der Erstellung eines Erfahrungsberichts gemäß §97 Erneuerbare-Energien-Gesetz, Bundesministerium für Wirtschaft und Energie: Berlin.
- FSR (2015): Regimes for granting the right to use hydropower in Europe; Glachant, J.-M., Saguan, M., Rious, V., Douguet, S. (Florence School of Regulation), 2015.
- Geoenvi (2019b), Proposal For A Harmonized European Geothermal Licensing Guidelines, Geoenvi: Brussels.
- IEW (2018): Freins et leviers au développement éolien en Wallonie; Fédération Inter-Environnement Wallonie, 2018.
- Interreg Europe (2021), Advancing Public Participation and stakeholdeR engagement fOr the improVement of renewable Energy policies, Interreg Europe: Lille.
- Kment, M. (2020): Sachdienliche Änderungen des Baugesetzbuchs zur Förderung von Flächenausweisungen für Windenergieanlagen; Rechtswissenschaftliches Gutachten im Auftrag der Stiftung Klimaneutralität; Augsburg 2020.
- Landkreis Waldshut et al. (2015): Landkreis Waldshut, Landesnaturschutzverband Baden-Württemberg e.V., Arbeitsgemeinschaft Wasserkraftwerke, Landesfischereiverband Baden e.V.: Ablaufschema: Gestattungsverfahren für eine Wasserkraftanlage – Hinweise für Planer und Investoren im Landkreis Waldshut (2015).
- Öko-Institut et al. (2017): Study on Technical Assistance in Realisation of the 2016 Report on Renewable Energy, in preparation of the Renewable Energy Package for the Period 2020-2030 in the European Union. https://ec.europa.eu/energy/sites/ener/files/documents/res-study_final_report_170227.pdf.
- Regeocities (2015): Recommendation guidelines for a common European regulatory framework, 2015.
- Regeocities (2021): Compilation of Recommendations on environmental regulations.
- SKN & Agora (2021): Stiftung Klimaneutralität, Agora Energiewende, Agora Verkehrswende: Politikinstrumente für ein klimaneutrales Deutschland. 50 Empfehlungen für die 20. Legislaturperiode.
- SKN (2021): Wie kann die Verfügbarkeit von Flächen für die Windenergie an Land schnell und rechtssicher erhöht werden?, Stiftung Klimaneutralität: Berlin.
- SUER (2020): EE-Ausbau im öffentlichen Interesse und im Dienst der öffentlichen Sicherheit (§ 1 Abs. 5 EEG 2021): Rechtliche Auswirkungen; Presentation by Frank Sailer (Stiftung Umweltenergierecht) at „Stiftung spezial #EEG2021“, 12. November 2020.
- UBA et al. (2018): Stephan Naumann (Umweltbundesamt), Stephan Heimerl (Fichtner Water & Transportation GmbH), Ulf Stein (Ecologic Institut): Empfehlungen des Forums Fischschutz und Fischabstieg; in: Wasserwirtschaft 6/2018.
- UTAH Energy Hub (2021), Solar Permitting Best Practice, UTAH Energy Hub: Utah.

In addition to best practice recommendations from the literature, the research team also further elaborated suggestions for best practices based on stakeholder interviews and desktop research. The result of this research was a list of 156 best practice suggestions. The options in the list were at different degrees fundamental and effective. This was considered in the definition of a best practice short list, which formed the basis for the discussion with stakeholders in several technology-specific workshops. This list was further discussed in the Consortium and options were chosen that the team deemed especially useful to speed up permitting.

A first round of workshops has resulted in only limited feedback on the presented performance indicators and best practice suggestions. In order to improve the level and quality of feedback from stakeholders we opted to adapt the methodology. We redesigned our workshops and swapped our more informative approach to an interactive one. The goal of these new workshops was to work jointly with stakeholders on suggestions for better permitting and shape out policy recommendations. The workshops were divided into three stages:

- Presentation of the best practice short list defined by the project team;
- Discussion on the best practice short list, addition of new best practice and evaluation of best practice suggestions;
- In-depth discussion of the best practice suggestions which have been rated as high-priority by the participating experts.

The interactive workshops were realised through the online tool *miro*. This tool offers the possibility to jointly work on a digital flipchart, allowing participants to contribute simultaneously in parallel to a web conference.



Source: RES Simplify

*Figure **4-1**: Screenshot of an exemplary miro board that was used during the stakeholder workshops*

The discussions with the stakeholders covered different aspects of the identified best practice recommendations. These included the specific barriers which need to be addressed by best practice from the stakeholders' point of view. For the different recommendations, success factors have been discussed. Such success factors can relate to external aspects (e.g. specific regulatory or geographical framework), which are necessary to make the best practice recommendations applicable in a given country. This should help to assess to which extent the recommendations are applicable and transferable for different countries. Furthermore, such success factors include internal aspects, i.e.

details of how the recommended measure has to be implemented so that it can develop its full effect.

In the end, a set of best practice recommendations has been compiled which is broadly applicable and suitable for addressing major barriers to an effective and efficient permission of RES installations. This set of recommendations also is considered appropriate to give major guidance and support for implementing the specific requirements which are stipulated by arts. 15, 16 and 17 RED II (see section 5: Outline for the optimised processes and supporting IT infrastructure that are compliant with RED II).

The recommendations can be grouped in six different categories:

- Administrative communication and processes,
- Guidance and best practice,
- Central provision of information,
- Participation and acceptance measures,
- Eased procedures,
- Clarified priority for RES in administrative processes.

An overview of the given recommendations is provided in Figure 4-2 and Figure 4-3.

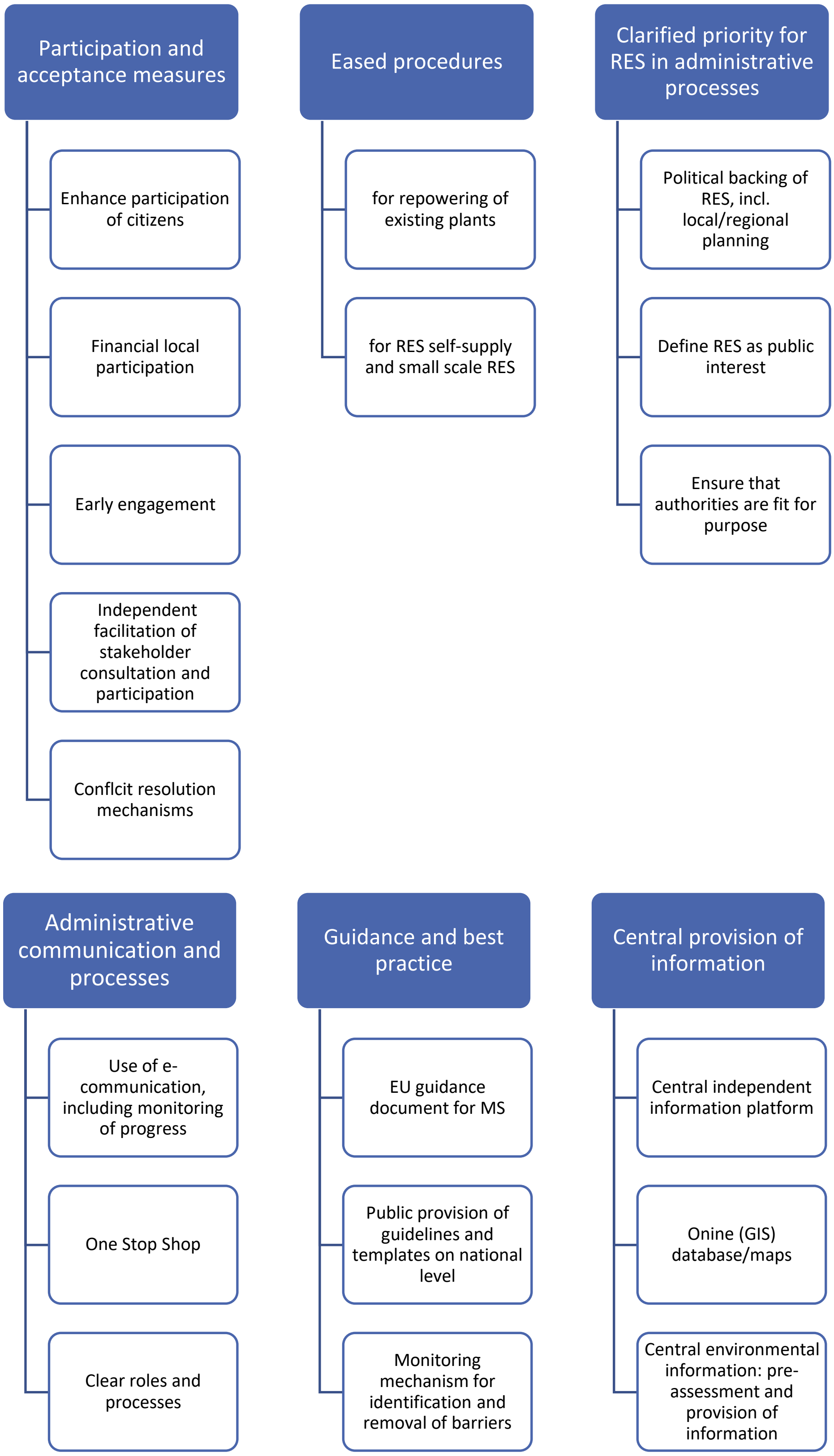


*Figure **4-2**: Overview over general best practice recommendations in order to enhance permission procedures*

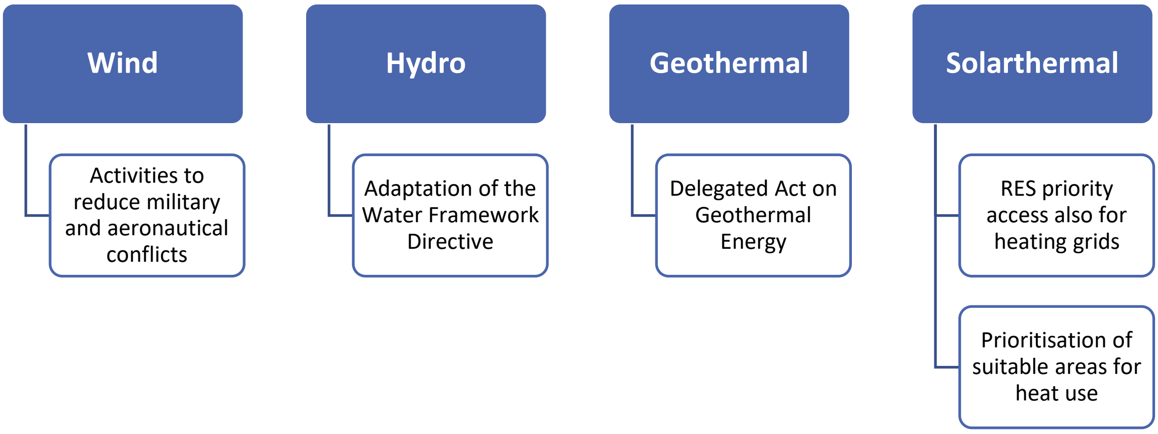


*Figure **4-3**: Overview over additional technology-specific best practice recommendations*

These recommendations, as shown in Figure 4-2 and in Figure 4-3, are further described in the following sections.

4.2. Administrative communication and processes

This section contains best practices on the communication between project developers and competent authorities, and general improvement of the administrative processes.

4.2.1. Use of e-communication, including a mechanism for monitoring project progress

The introduction of e-communication can substitute the use of paper forms and unifies the different application processes. For each application a digital version of documents can be prepared. Those should contain the necessary information for permitting. After submitting their application online, participants can follow their application process. This way applicants can understand in which phase of the process they are. Officials also benefit from this: they can easily sort, store, and review applications. Thereby, they can get a better overview of all the documents that are present, access them quickly and process them.

Another benefit of digitalisation is the indication of possible barriers. If a process step is slow in comparison to others, this can indicate difficulties in processing. When a barrier is found, it can be analysed and measures can be taken to support the personnel or the necessary infrastructure. Therefore, digitalisation does not only help to speed up the processes, but also is the basis for monitoring and improving.

This digital communication platform should also allow for an easy application (from the developers' point of view) in the context of simplified authorisation procedures and simple notification for grid connection.

For example, in Germany, EIA documents show higher complexity than others. For officials it is hard to evaluate, if a species protection report that was handed in is sufficient. As their work focusses mainly on processing of documents, officials often lack the specialised knowledge when it comes to species and nature protection. As this process step takes a lot of time this indicates the necessity of support. Possible solutions may be the introduction of a nature conservation council that advises officials, if necessary. Also, the legal basis for permitting of the EIA could be changed so that officials have a clear idea on when and when not to give out a permission.

Further guidance on the implementation of an electronic platform for communication and appropriate IT structures can be found in section 5.4.

Good practice examples:

Germany:[22] In 2010, the State of Lower Saxony introduced an electronic authorisation application form for immission protection applications (*EL*ektronische *i*mmissionsschutzrechtliche *A*ntragstellung - ELiA), which today is used by eight German federal states and offers an encrypted submission of application documents.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2 (a): Administrative procedures are streamlined,
- Art. 15 (1) par. 2 (b): Simplified authorisation procedures (--> also to be facilitated digitally),
- Art. 16 (2): Applicants shall be allowed to submit relevant documents also in digital form,
- Art. 16 (4), 16 (5) and 16 (6): time limits for application process (--> can be monitored digitally),
- Art 16 (8), art. 17 (1) and 17 (2): simple notification for grid connection (--> also to be facilitated digitally).

4.2.2. One Stop Shop / consolidation into one single application process

A One Stop Shop (OSS) is a single national contact point for the permission of renewable projects. The main benefit for project developers is that they only need to contact a single institution to gather all necessary permits to realise their projects. This saves time as all documents are sent to a single contact point. This way developers do not need to communicate with more than one official. Beneficiaries also can be international developers that have little to no local knowledge.

An OSS can be designed differently. It can support applicants with the permission of their projects. Officials that work at the OSS communicate with the authorities instead of planners. This way they gather the permissions of a project. Applicants do not need to engage with more than one official. They concentrate on the preparation of all documents that are necessary for grid access, electricity production license or the environmental impact assessment.

Another type of the OSS gives out the permission themselves. It reviews the documents that are presented by the project developers. Only if documents are not sufficient, they get into contact with other authorities. Designing an OSS this way relieves authorities, but on the other hand has high demands to the OSS employees. As they are the responsible authority that permits, they must be prepared accordingly. Otherwise, this design of the OSS could also lead to delays in permitting.

An option to mitigate this is to create OSS on different levels. They could deal with different project types. A local OSS could support households and small businesses. A regional OSS could deal with medium sized projects by regional planners. A national OSS could support

22 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

very large projects. This way, the specialisation of the OSS can be divided among institutions. Organising OSS in this subsidiary way could fulfil different needs when it comes to project planning, e.g. personal contact between consumers and an authority that knows the regional situation. National OSS on the other hand could be highly specialised in one project type.

Different OSS could also be implemented with technology-specific responsibilities, thus ensuring high technology-specific competences.

An OSS also can be designed as optional. This way project applicants can still directly contact single authorities. This can be important: If an optional OSS is working slowly, applicants still can skip it. Permitting procedures can continue. Also, planners still can benefit from their experience and personal contacts. Project developers that work well with authorities can continue their style of working. This shows that there is a benefit in having different ways to apply for permissions. This approach is also in line with the wording of RED II, which stipulates that "Those contact points shall, *upon request by the applicant*, guide through and facilitate the entire administrative permit application and granting process."

Another understanding of OSS is that it simply acts as a guide for project developers. This kind of OSS simply guides the planners towards responsible authorities and helps gather permissions. Planners still would have to apply for permissions themselves.

According to the requirements of RED II, the OSS should also provide online manuals of procedures for RES developers (see recommendations under 4.4).

Good practice examples:

Norway:[23] As energy act license and hydropower license are both often granted by the national regulatory authority Norges vassdrags- og energidirektorat NVE (depending on the size and potential impacts of the installation), the processes run parallel to each other and the processes can be coordinated within the same authority. In addition, NVE and the national grid operator Statnett are engaged in dialogue during the licensing process and the assessment of grid capacity for hydropower projects. Collaboration and dialogue ensure the potential situation of granting grid capacity or a hydropower license for a project, and denying it of the other. The hydropower license, processed and granted by the NVE or processed by NVE and granted by a Royal Decree, has a wide variety of built-in features that are often granted as separate licenses in other countries: operation permit, environmental permit, construction permit, and so on. The NVE serves as a national contact point and OSS for hydropower licensing, which has multiple benefits from the viewpoint of smooth permitting. The applicant can turn to NVE with all permitting-related questions and doubts, and the same rings true to other stakeholders taking interest in upcoming hydropower projects, such as NGOs willing to have their say about the ongoing processes. The OSS role also has positive effect on the NVE's internal functioning as it is home to (almost) all the hydropower permitting expertise and experience in Norway. The NVE can combine all possible aspects of permitting into the same decision-making "table", which allows it to acquire a comprehensive picture of the potential hydropower projects, and to assess an assembled impact of the project at hand. Considering all possible impacts and features at the same time is time-consuming, but according to the interviewed NVE experts, it enables the institution to take "balanced and sustainable decisions". NVE is in charge of most hydropower-related permits and procedures, but not all. For example, the authority for land use lies within municipalities. However, the permitting authorities, such as NVE, municipalities and grid operators, are engaged in long-standing cooperation when it comes to combining interests and evaluating the effects and plans of potential hydropower projects.

23 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

Germany:[24] Germany's current OSS design for offshore wind energy offers project developers a single authorisation process with the national maritime agency (Bundesamt für Seeschifffahrt und Hydrographie – BSH) as the competent authority. In addition, this process is preceded by another simplified step as site allocation and public subsidy selection are combined into one single process at the national regulatory agency (Bundesnetzagentur). Comparing the complexity of these two authorisation steps with the procedures required for German onshore wind parks, suggests that the authorisation design developed for offshore wind energy reflects some measures demanded for a simplification of onshore authorisation processes.

Denmark:[25] The Danish Energy Ageny (DEA) serving as an OSS for offshore procedures is very efficient according to an interviewed stakeholder. All the permitting decisions are coordinated by DEA with other authorities, which are responsible for different offshore interests. The resulting licenses are thus "comprehensive" in the sense that they are granted on behalf of several authorities and include conditions stipulated by all these. The mentioned licences do not completely preclude the need to obtain permits from other authorities as seen above. The system however eases the process for the developer greatly, and also provides more certainty that the project can be established, as all relevant authorities have cleared the project on the stated conditions.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2 (a): Administrative procedures are expedited at the appropriate administrative level: --> OSS involves, where appropriate, other administrative authorities,
- Art. 15 (1) par. 2 (b): Rules take fully into account the particularities of individual renewable energy technologies: → OSS could be technology specific, thus ensuring high technology-specific competences,
- Art. 15 (1) par. 2 (d), arts. 16 (6), 16 (7), 16 (8), 17 (1), 17(2): Simplified procedures for specific devices,
- Art. 16 (1), 16 (2): Establishment of a One Stop Shop ("contact point"),
- Art. 16 (3): OSS shall make available also online manuals of procedures for RES developers and address also small-scale and self-consumer projects.

4.2.3. Clear roles and processes

Country analysis and stakeholder discussions have revealed that in many Member States responsibilities and processes are not only complex, but also non transparent both for authorities and for project developers. Therefore, it seems essential to define and to clearly describe the process which must be followed in an application process, and the responsibilities of the parties involved. The design of the process should take the following elements into account:

- A clear sequential description of the application process should be provided
- Individual responsibilities of authorities (and other parties) should be clearly assigned

24 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

25 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Denmark.

  - The establishment of a central "responsible" authority should be considered, or at least implemented in the form of an OSS
  - The number of involved parties should be clearly restricted in order to improve efficiency of the process
- Transparency on required documentation for each process step should be provided
  - Repetitive requests for (further) data and documentation should be avoided by appropriate rules
  - Each documentation should only be required once
- Clear deadlines for each step of the process should be defined
  - Rules should be defined with respect to the effect of a deadline not being kept (e.g. classification as approval, start of an alternative "bypass" process, etc.)
- Depending on complexity, size and technology, the process should include a multi-tier application approach, from initial screening to general eligibility and clarification of details
- The process should sufficiently take specific differences into account:
  - Size of project (capacity)
  - Technology
  - Type of project (new installation, repowering, self-consumer installation, etc.).
- Concerns from other interests (environmental, archaeological, military or aviation) should be formulated at an early stage in order to avoid a late appearance of show-stoppers
- The process design should include a clear framework on complaint procedure and deadlines for challenging a permission
- An appropriate IT infrastructure should be set up.

Such a process description can be elaborated on different levels of details from national to local level, depending on possible differences of the processes and involved parties. Ideally, it should also include cooperation with stakeholder associations which are relevant in the given sphere of action in order to increase acceptance and reduce the risk of complaints throughout the process.

Depending on the details of implementation one can expect synergies and interplay with the following proposed measures:

- Use of e-communication, including a mechanism for monitoring project progress (see section 4.2.1),
- One Stop Shop / consolidation into one single application process (see section 4.2.2),
- Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders (see section 4.3.2),
- Cooperative monitoring mechanism for the identification and removal of regulatory barriers (see section 4.3.3).

The outline of such a process should take into account the advice taken from other best-practice recommendations, as is further elaborated in section 5.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2 (a): Administrative procedures are streamlined, expedited at the appropriate level and predictable timeframes,
- Art. 15 (1) par 2 (b): Rules are objective, transparent and proportionate, do not discriminate between applicants and take fully into account the particularities of individual renewable energy technologies,
- Art. 15 (1) par. 2 (d), Arts. 16 (6), 16 (7), 16 (8), 17 (1), 17(2): Simplified procedures for specific devices are implemented in the process design,
- Art. 16 (1), 16 (2), 16 (3): role of OSS --> should be reflected by the process design,
- Art. 16 (4), 16 (5), 16 (6), 16 (7), 16 (8): time-limitations for overall processes --> should be consistently implemented,
- Art. 16 (5): easy access for applicants for dispute resolution,
- Arts. 16 (6), 16 (8), 17 (1), 17 (2): simplified procedures for repowering and self-consumers.

4.3. Guidance and best practice

4.3.1. EU guidance document on implementation of relevant regulation provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD

This recommendation suggests that the European Commission should provide a guidance document for Member States on the implementation of the relevant provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD[26] (Internal Electricity Market Directive (EU)2019/944). Guidance documents fulfil an important function: They empower and help to reach goals. They point out safe ways and pitfalls and equip actors with useful knowledge on their way. A RED II guidance document helps Member States to reach the goals defined in the Directive. It gives recommendations for each of the different requirements imposed by the Directive and describes success factors for their implementation. When formulating recommendations, the challenge arises that the directive's goals are formulated very universally.

However, this is considered necessary. European Member States are a diverse group of countries. Large differences between permitting procedures and processes exist between them. Laws and regulations differ, and responsibilities are distributed differently. The definition of a single measure therefore is not productive as it may not be applicable for every Member State. This must be kept in mind when writing a guidance document: Recommendations must be general enough to be applicable in different Member States. On the other hand, they must be concrete enough so that it is clear how to approach the RED II articles.

An example of a guidance document is outlined in chapter 5 of this report on optimised processes and supporting IT infrastructure. It summarises the findings of this project's research and assigns results to the relevant articles and their goals. The best practice recommendations described in this chapter follow the principle of being abstract but

26 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32019L0944.

applicable at the same time. The provided best practice examples can help Member States to learn from specific real cases which could be used as a blueprint for addressing their respective needs, depending on the national situation. Therefore, it can be used as starting point for a broad basis for the further development of the requested guidance for Member States.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- This recommendation refers per definition to all relevant requirements of arts. 15, 16 and 17 of RED II.

4.3.2. Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders

Guidelines for stakeholders act as a helping hand when it comes to realisation of renewable projects. They inform on and describe the process of RES-E and RES-H permitting. Stakeholders can extract the necessary information and even application documents they use during project permitting. Guidelines deal with the specific topic of RES-E project permitting. They therefore have to be more specific than guidance documents on the EU level and should facilitate specific renewable energy projects rather than support the establishment of an appropriate policy framework. As they focus on projects in a single Member State, they describe in detail the process steps for planners in the respective country.

To ensure that a guideline unfolds its complete potential, accessibility of information must be guaranteed. A guideline needs to transfer helpful information to a target group. Therefore, information must be easily extractable. What does this mean? It is essential that texts are not formulated in a too complex manner. Knowledge should be displayed in an appealing way. Figures can also help to show information clearly arranged.

The shape of the information should orient itself by the weakest member of the target group. If the document is prepared in a way that this member can access information easily, each other member of the group can. If this is not the case, the access to information needs to be simplified. However, this does not mean that guidelines always must be formulated extremely simple. It rather means that the target group has an impact on the way a guideline is written. Therefore, it can be useful to integrate an actor from the target group when formulating guidelines. They can give feedback on formulated advice and on how understandable the guidelines are.

Provision of guidelines

The formulation of guidelines is only the first step. The second step is to make the guidelines easily accessible. Without an easy access the quality of the guidelines itself does not matter, as nobody is able to access and read the advice. As described in an earlier section, digitalisation is key when it comes to quick, easy, and transparent access to information. This is also true when it comes to guidance and application documents. Therefore, a digital central contact point must be implemented to make this access possible. With an easy access to these documents planners and authorities alike can integrate advice into their planning and work.

This is true for all documents that can help to ease the process for both sides. If documentation and application templates can be downloaded quickly via a central platform, there is no restriction of use. This speeds up the process for planners. Authorities also benefit from this. If templates are easily accessible, they face less requests for documents.

They can ensure that the applications they receive are uniform and easier to process. In any case a digital point of contact is of help for both sides.

See also section 4.2.1 (Use of e-communication, including a mechanism for monitoring project progress), section 4.2.2 (One Stop Shop / consolidation into one single application process) and section 5.4 (IT infrastructure) on related best practice recommendations.

Good practice examples:

Spain:[27] The Spanish Aviation Safety Ageny (Agencia Estatal de Seguridad Aérea – AESA) has elaborated guidance material, such as support documentation for the processing of applications. Four form templates are available to assist users in the processing of authorisation applications, that can be used by wind power developers for instance.

Some Autonomous Communities, such as Andalucía and Extremadura, published a guiding document explaining step by step how to install a renewable energy system for self-consumption.

Italy:[28] Stakeholders have described as good practice by the competent authority to provide project developers with guidance on the application process at the beginning of the authorisation procedures, as for example the 'MUTA portal' of the Lombardy region.

UK:[29] The Scottish Government has published "Good Practice Principles for Community Benefits from Onshore Renewable Energy Developments" which provides guidance on good practice principles for communities, businesses, local authorities and others (Scottish Government 2019).

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par 2. (b): public provision of guidelines,
- Art. 16 (1), 16 (2), 16 (3): Member States establish a single contact point which guides the applicant through the administrative permit application in a transparent manner, providing the applicant with all necessary information and making available a manual of procedures.

4.3.3. Cooperative monitoring mechanism for the identification and removal of regulatory barriers

A monitoring process helps with identifying and removing barriers. In this approach, stakeholders, permitting authorities and potentially even the European Commission work together to speed up processes. For this, authorities set up a digital contact point. Stakeholders can submit their experience with procedures which then is reviewed by authorities. In a second step, a joint approach to solve these problems is prepared. Stakeholders and authorities work together in analysing problems and talking about possible solutions.

Step 1: Reporting barriers and slow processes

When planners encounter a problem, they turn towards the monitoring contact point. Via an online formular they can submit their case 24 hours a day, 7 days a week. The information they submitted and the person that is responsible for their case can always be reviewed

27 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Spain.

28 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Italy.

29 Description taken from responses to the RES Simplify Survey.

online. In the online formular information on the barrier they experienced can be stated. This can entail different topics, among other:

- Type of authority,
- Process step,
- Type of technology,
- Time for completing this process step.

Step 2: Sorting information and evaluating information

This information that is submitted by planners is sorted by authorities. This is the basis for them to understand if there is a systematic problem or only an irregularity in procedures. Not all cases need to be followed through. Otherwise, resources are bound and processes are slowed down. But when should a barrier be addressed? This needs to be clearly defined. For example, a certain number of complaints is reached, or the impact of the barrier is very severe, e.g. slows a project down immensely.

Step 3: Investigating and working on solutions

If a barrier has been found that needs to be addressed the third process step is initiated. Authorities and project developers jointly investigate and analyse the barrier. Cooperation can have different forms in this process step. Most optimally an open discussion on the process and influence factors is realised. This can be a joint workshop and group discussions. The outcome of this should be a clear picture of what causes a barrier. Is it the type of information project developers submit or the legal basis that authorities apply when permitting? In any case this is the basis for the next process step.

Step 4: Defining solutions and speeding up the process

If it is clear what the factors are that cause a slow process, they can be addressed. Project developers and authorities alike jointly think about approaches that can speed up the process. Both perspectives are relevant here. On the one hand, state authorities define what resources are necessary for them to approve an application. This can be of different nature, e.g. certain information that needs to be provided, guidelines on a specific topic, or an increase in workforce.

On the other hand, project developers state which information they can easily or hardly provide. They can review the requirements stated by the authorities and provide information on these from the planner’s point of view. At this point new barriers in processes can already be avoided as all parties are included in this process. Too strong requirements stand out quickly and can be redefined and streamlined for the implementation.

In addition to that, a structured analysis of the performance of permission procedures should be enhanced by EU-wide reporting obligations on the Member States on efficiency and effectiveness of RES permissions. For that purpose, e.g. the NECP template could be extended by the European Commission in order to cover, amongst others, the following aspects:

- In order to assess the effectiveness of permitting procedures:
  - What are the project approval rates?
  - How high is the % of projects which are legally challenged?
- In order to assess the efficiency of permitting procedures:
  - Do deadlines exist in the overall process and for individual process steps?
  - How long does the overall process and individual process steps take?

Based on such information, Member States and the European Commission can regularly assess the performance of RES permission regulation, and consider appropriate measures for improvement.

Good practice examples:

Germany: The German Renewable Energy Act requires the federal states to report to the federal government on the status of renewables. This particularly includes permitted RES installations, the progress of repowering, and the area of land which is available for further wind energy deployment according to regional and urban land-use plans. If the available area is not sufficient, reasons and proposals for improvement must be provided. Monitoring reports are assessed by a cooperation committee of the Federal Ministry of Economy and Energy and the federal states. Based on the committee's assessment, the Federal Government report on the progress of RES deployment with a view to reaching the RES targets and provides recommendations for further measures (Tagesspiegel Background 2021).

Portugal:[30] In an attempt to help government entities tackle the numerous amount of processes, and also to assist its own associates with their endeavours, the Portuguese Renewables Association APREN (Associação Portuguesa de Energias Renováveis) created a task force in 2019, following a request by the State Secretariat of Energy, with the aim to identify the main problems in the licensing, environmental and grid connection steps.

Spain:[31] The interviewed expert of UNEF shared the experience of the so called "self-consumption roundtables" organised by Autonomous Communities, which involve different stakeholders such as companies, associations, distributors and the public administrations. In those roundtables, stakeholders share doubts and conflicts in the application of regulation and try to resolve them and work on initiatives to facilitate the procedures for installing self-consumption.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- This recommendation is not aiming at the implementation of a specific article, but on identification of any key barriers and appropriate measures in the permission process, irrespective of to which aspect of permission they relate.

4.4. Central provision of information

4.4.1. Central independent information platform on regulation, processes, projects, participation

A central independent information platform on installation of new renewable energy plants could be an appropriate and reliable source of information for all parties involved in planning and permission of new plants. This could e.g. include information on the following aspects:

- relevant regulation and legal framework,

30 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

31 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Spain.

- description of processes and requirements,
- information on administrative charges,
- information on options for public participation, including public information on individual projects,
- provision of templates,
- overview over involved parties,
- possibly overview over current new projects.

The proposed information platform could target all parties involved, including authorities, project developers and external stakeholders. Thus, it could ensure that everyone has the same references and expectations on the process. By focussing on one central platform, it becomes easier to keep it up-to-date rather than running into confusion on different levels of status. However, it might reduce complexity if there were separate platforms for different RES technologies. In any case, it appears appropriate to ensure that the operator of the platform is neutral and free from own interests, so that the provided information is in any case considered trustworthy also by sceptical stakeholders.

Depending on how such an information platform is implemented, there may be strong synergies and interplay with the proposed measures on e-communication, provision of guidelines, implementation of a relevant GIS map and design of the one stop shop.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par 2 (b): Rules have to be transparent,
- Art. 15 (1) par 2 (c): Administrative charges have to be transparent and cost-related,
- Art. 16 (2): The single contact points shall provide the applicants with all necessary information,
- Art. 16 (3): The single contact point shall make available a manual of procedures for RES developers also online.

4.4.2. Online (GIS) database / maps including administrative restrictions and other relevant parameters

A key element of good practice recommendations is the introduction of an online database which can be ideally accessed as GIS maps. These maps should easily allow project developers to assess the level of restrictions given for specific areas and sites, and should therefore include e.g. the following features:

- Information on restricted areas (nature conservation, aviation or military interests, settlements, archaeological sites, etc.)
- Differentiated assessment per RES technology
- Differentiated evaluation and display in traffic light coding:
    - Green: generally suitable
    - Yellow: case-by-case clarification needed (possibly including further specifications)
    - Red: clearly restricted areas due to specific reasons
- Information on grid availability

- Potential further information:
  - Data on general RES potential (wind potential, solar radiation, geothermal gradient, etc.)
  - Information on existing projects
  - Possibly link to available environmental assessments / studies / data for a given region
  - For some technologies, also further information might be relevant

Implementation of such a GIS map could easily allow planners to focus on promising areas. This would lead to higher efficiency of planning procedures and accordingly lower cost of RES deployment. Authorities are relieved as their applicants are better prepared, and they do not have to deal with requests relating to restricted areas. Project developers can also consider to focus activities on locations that require less documentation and permissions due to a generally high availability of grid capacity or to a foreseeable low environmental impact.

In order to make use of synergies and take an interplay of measures into account, the implementation of such a GIS map should be coordinated with the proposed measures on:

- Political backing of RES: Integrated planning system from national to local (see section 4.7.1),
- Environmental preassessment by authorities / centralisation and publication of environmental data and assessments (see section 4.4.3),
- Central independent information platform on regulation, processes, projects, participation (see section 4.4.1).

Good practice examples:

Denmark:[32] The online platform The Danish Environmental Portal (Danmarks Miljøportal) is a joint public partnership owned by the state, the municipalities and the regions. Covering the entire country, the portal includes area specific data on the environment, water, nature and land use. It enables authorities to update and access data across administrative units, sectors and geographical areas. However, private citizens and professionals can also use the portal to access data on different land use restrictions relating to e.g. nature protection, conservation, building lines and planning in specific areas. This possibility was noted as very valuable in the siting process by an interviewed stakeholder, as it gives developers full overview of all restrictions in different areas through the same databases that are used by the authorities. Thus, the only uncertainty left in this regard is possible archaeological finds.

Spain:[33] Given the ambitious goals of the Spanish NECP, especially regarding solar PV and wind power, the Ministry for the Ecologic Transition and the Demographic Challenge has recently created a tool to help in strategic decision-making on the location of large solar and wind installations (not self-consumption and rooftop) because they involve significant use of land and can generate significant environmental impacts. The tool consists of a zoning of the environmental sensitivity of the territory. Hence, it identifies the areas of the national territory that present the greatest environmental conditioning factors for the implementation of renewable energy projects. The tool includes two maps showing the territory classified into 5 environmental sensitivity classes for each type of project analysed (maximum, very high, high, moderate and low).

32 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Denmark.

33 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Spain.

Besides, the Autonomous Community of Castilla-La Mancha has an application on the website called INES (Information system on Sensitive Spaces in Environmental Impact Assessments), which allows to analyse the environmental effects of plans, programmes and projects. It groups together the cartographic information on protected natural spaces, sensitive areas, public forests and livestock trails.

The layers of the INES map allow the user to view and consult: Protected Natural Spaces, Peripheral Protection Areas, Sites of Community Interest, Areas of Special Importance for Birds, Protected Areas in Process, Fauna Refuges, Fishing Refuges, Geomorphology Wetlands, Linear Geomorphology, among others. Besides, the Autonomous Community offers two additional sources (online maps) to observe in greater detail Protected Areas and livestock trails and public forests.

It should be noted that these tools do not exempt from the relevant EIA process, they are rather a guidance to ascertain the environmental conditioning factors associated with the locations of the installation from the early stage, which can be very useful.

Portugal:[34] Project developers can assess via an environmental licensing online web platform (SILIAMB), if an EIA for a project is necessary. An environmental scoping is submitted to the platform. After authorities have reviewed this scoping, a decision is made in regard to the necessity of a complete EIA. Although the main input to this process is the environmental scoping authorities have centralised their information and thereby have a basis for their decisions.

USA: In the USA the NGO *The Nature Conservancy* combines data on space, nature and species protection to locate sites that are suitable for wind expansion. By combining different data the online GIS database *"Site Wind Right"*[35] was created that is openly accessible. For certain species information is shown very detailed, but also more aggregated data is depicted in the map. This can be data on natural habitats and landscapes or cities. For project planners this map can consulted when deciding on a possible location for their turbine. The map is not only accessible online but also can be downloaded in a high detail version.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (3): Competent authorities at national, regional and local level shall include provisions for the integration and deployment of renewable energy in spatial planning and public works --> effects on spatial (dis)qualification of given areas should be appropriately displayed/communicated.
- Art. 15 (7): MS shall carry out an assessment of their RES potential, including (where appropriate) spatial analysis of areas suitable for low-ecological-risk deployment --> results should be appropriately displayed/communicated.

4.4.3. Environmental preassessment by authorities / centralisation and publication of environmental data and assessments

Particularly for wind and hydro, but also for other RES technologies, the elaboration and approval of the environmental assessments for new RES projects are related to both a high

34 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

35 Accessible via: https://www.nature.org/en-us/what-we-do/our-priorities/tackle-climate-change/climate-change-stories/site-wind-right/ (last accessed: 05.07.2021).

level of cost and effort. Furthermore, project developers must cope with the related risk of being rejected when starting the development process of a project.

The efficiency of this could be increased by a central provision of available environmental studies and data relating to a given region and technology. A real gamechanger could be the active conduct of environmental assessments by authorities relating to the relevant aspects for RES commissioning.

As an effect, the initial work and analysis would not have to be duplicated, and stranded costs by investing in projects which turn out not to be licensable would be avoided from the project developers' point of view. While a high level of uncertainty for any new project results in high requirements for risk management and diversification and therefore privileges large companies, a reduced risk to fail is particularly beneficial also for smaller project developers and can therefore enhance plurality of actors and competitiveness also for RES cooperatives.

It should be discussed whether the related cost should be socialised and paid for by tax-money, or whether a mechanism should be introduced that the related cost is allocated to the benefitting project developers.

Such central government-led activities have been considered to be particularly helpful by wind representatives. With a view to offshore wind, a specific challenge is imposed by the need for good coordination between governments when operating in the same sea basin.

Good practice examples:

Netherlands:[36] Wozep is a long-term research program launched in 2016 by the Dutch government of Economic Affairs and Climate. It is an offshore wind ecological programme, which was established to expand the knowledge base about how wind farms affect protected species so that it will be possible to arrive at the best possible estimate of the ecological impact during the preparations for new roadmaps (proposed areas for wind farms in the years to come). So far, the research has generated important insights into how wind farms affect birds, bats and marine mammals. These findings are included in determining future locations for offshore wind in the Netherlands.

Norway:[37] The Norwegian Government has published information on the available potential large hydropower sites in their Master Plans for Hydropower Development until 2016, when the tool was discontinued as it has largely fulfilled its purpose. The remaining, realistic hydropower potential is about 34 TWh/year, excluding protected rivers and hydropower projects that have been rejected in the past. The Master Plans also included "an order of priority for projects that can be considered for licensing".

Germany:[38] An expert explained that thanks to the preliminary field analyses (*Flächenvoruntersuchungen*) conducted after the development of the site development plan (*Flächenentwicklungsplan*) by the national marine authority BSH, the risk of an authorisation application is considerably lowered: Apart from the wind park's individual technical specifications, more general suitability criteria such as environmental aspects or shipping safety have already been assessed by the competent authority.

36 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on the Netherlands.

37 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

38 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2: Administrative procedures shall be streamlined and within predictive timeframes --> environmental pre-assessments help to streamline the application process and reduces the risk of delays related to environmental assessments.
- Art. 15 (7): MS shall carry out an assessment of their RES potential, including (where appropriate) spatial analysis of areas suitable for low-ecological-risk deployment --> preassessment as background for the identification of low-ecological risk deployment.
- Art 16. (7): Deadlines for the permit-granting process shall be extended for other procedures related to environmental law --> improved environmental data and assessment reduces risk for such delays.

4.5. Participation and acceptance

4.5.1. Financial participation of affected municipalities

In many cases, new RES projects face local opposition due to the fact that at least some parties see a high level of local negative restrictions by the project (particularly wind and hydro). While the positive effects of the projects both in terms of climate protection and economic benefit are not focussed on the local level. Thus, they are not adequately taken into account. Such opposition can result in a reduced level of support for the permission by local authorities, or the delay of the permission procedure by complaints or even lawsuits. The positive effects of the projects in terms of climate protection and economic benefit are so far not considered adequately at the local level.

While the positive effects of climate protection have to be explained by communication measures, the economic benefit can be explicitly improved on the local level by allowing or even requiring financial participation of affected municipalities in the revenues of RES plants. Such payments should be bound to purposes in order to increase social benefits of citizens, like social services (e.g. kindergarten, health services) or infrastructure (e.g. streets or public transportation).

In technical terms, financial participation could be organised in different forms, e.g.:

- National or regional level gives funding to the local authorities for the provision of areas and resources, as the RES deployment contributes to reaching the national RES targets.
- Plant operators directly pay a specific fee or tax to the local authorities, which might depend on the produced RES volume.
- Plant operators voluntarily make payments to a regional association with the purpose to improve the local situation

The cost of such additional payments should be covered by public funding, as emission reduction is a societal challenge. For this purpose, such funding (if being paid by the plant operator) should be appropriately considered in public support systems. Furthermore, it should be clear that such payments to local authorities in no way can be understood as corruption, but that it has a clear regulatory framework.

Another possibility for enhanced local economic participation are options for investing in shares of the RES projects (RES cooperations, renewable energy communities and others).

This voluntary alternative can probably further motivate ecological front runners at least for projects where this possibility is given. However, the outlined approach is considered to be more effective in order to address also the more opposing parties (who otherwise might actively complain or sue), and include those who might not have the resources to actively buy in such projects.

Good practice examples:

Denmark[39]: Four schemes are currently in place to enhance project acceptance: The so-called "RE-bonus scheme", which obligates the developer to pay neighbours an annual bonus corresponding to a specified part of the capacity of the plant; the "loss of value scheme", which requires the developer to compensate any loss of value to residential property equal to or higher than 1% of the property value; the "option-to-sell scheme", which allows some neighbours within a distance of six times the height of a wind turbine or 200 m from a ground-mounted solar PV plant to sell their property to the project developer; and finally the "green fund scheme", which obligates the developer to pay EUR 11,827 (DKK 88,000) per MW onshore wind equivalents to the relevant municipality, which can use the funds to support e.g. local green initiatives.

Germany:[40] In order to increase the public acceptance for wind parks, an amendment to the Renewable Energy Act (EEG, 2020) was taken in the 2020, allowing plant operators to pay municipalities up to EUR 25,000 annually for each wind turbine in their community.

With a further revision of the EEG 2021, the option to agree payments with the affected municipality has been extended also for large PV. This allows a payment of up to 0.2 ct/kWh for the municipality, which could equal 2,000 EUR per hectare and year. In order to enhance a legally sound agreement between the RES producer and the municipality, a sample contract for wind has been developed in cooperation with wind industry representatives and municipal associations (Remmers 2021, Solarthemen 2021).

Luxembourg:[41] Luxembourg's 102 municipalities have all signed the Climate Pact, revealing a desire to move towards energy transition. In addition, the State strongly encourages municipalities to disclose land that can be used for energy purposes in order to increase the number of projects. In this respect, municipalities that promote several energy projects on their territory receive state subsidies for their support to project developers. These subsidies can subsequently be reallocated to other local purposes.

Norway:[42] Norwegian hydropower permits always have in-built benefit-sharing and compensation mechanisms. These mechanisms have a long tradition on Norwegian hydropower permitting, and they have substantial impacts on communities' willingness to allow hydropower in their lands. Firstly, municipalities have come to view hydropower as a stable source of income due to the annual license fees and the "compulsory power" that they can either consume or sell on an open market for profit. Secondly, hydropower producers are often obliged to make reparations to the affected ecosystems and recreational activities, such as fishing. The reparations can take the form of an environmental develop fund, for example. It is important to note that some of these benefit-sharing mechanisms are only relevant to large hydropower plants; small-scale hydropower projects are usually initiated by the local community and therefore, they benefit the locals by default.

39 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Denmark.

40 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

41 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Luxembourg.

42 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

Netherlands:[43] The Regional Energy Strategies prescribe a participation grade of 50% with the locals for renewable energy projects. The project developer, together with the environment and the competent authority, draws up a participation plan for each wind project. Also for ground-mounted PV, similar participation plans are drawn up. These plans describe which stakeholders there are and what their questions, concerns and wishes are, how and when they will be involved in the project and how they can participate.

There are many different forms of project participation. Local residents can take part in the profit of a renewable energy projects through certificates (shares) in the wind project. Participation can also be done by investing in bonds; a financial participation with risk. Through investment, participation is possible both before and after the construction of the wind farm or the solar park.

Ireland:[44] The draft Wind Energy Development Guidelines foresee certain project acceptance measures. These provisions have been included in the Irish Renewable Electricity Support Scheme. Firstly, project developers are obliged to engage in consultations with the local community, before applying for planning permission. Secondly, a community report should be prepared and should set out how the project development will affect the local community and how local community participation will be assured throughout the whole lifetime of the project. Thirdly, a "Community Benefit Fund" is established. The Fund will be supported from renewable electricity produced by installations under the national support scheme (auctions) (EUR 2/MWh). Fourthly, Community Ownership is promoted. This is achieved by creating a separate group of projects (the so-called "community-led" projects) that participate in the auctions on the national support scheme. It should be noted that these are fairly new and ambitious measures and it remains to be seen if they are effective.

4.5.2. Early engagement in local information, dissemination, and discussion

Citizens and other stakeholders' acceptance of projects plays a vital role in renewable expansion. Through the right participatory approach, the acceptability of projects can be increased. However, information and participation need to follow certain principles.

Information on the importance of renewable energy

On a regional level, the understanding for the importance of renewable energies is often not present. For example, not all citizens understand the direct connection of a single wind power plant and the fight against climate change. Without this knowledge the striking question of "Why have renewable energies to be realised in my region?" remains not answered. However, this understanding is a basis for acceptance. Therefore, the first step in a participatory process is providing information. This can entail the handing out of information material or a discussion between experts and citizens. In any case open questions must be answered.

Best case scenario is that citizens themselves engage in project development. These projects show the highest acceptability due to local participation and the goal to benefit the region. In comparison to projects realised through external planners they keep the majority of financial benefits in the project region.

43 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on the Netherlands.

44 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Ireland.

Early, open-ended engagement

Participation should start before projects are planned in a region. At this point regional actors can jointly discuss and plan the development of the region and the role renewable energies will play. Stakeholders can express their views on the way space is used, which can be considered when spatial planning is taking place. This early participation is important as at this point citizens can still influence siting of renewable planning. This process is still very open, and its outcome is not clearly defined. Therefore, its credibility is guaranteed. Project planners play a minor role during this participatory step.

Without this early participation the basis for a successful process is not there. If citizens are consulted during the project phase for the first time, they may assume that projects still can be influenced. However, areas for renewable plants are planned before projects. This may disappoint citizens and create the feeling they are not taken seriously. They may ask themselves: Why are we participating, if the project hardly can be influenced. Still, it is important that planners engage with citizens. However, the main goal of this interaction should not be the siting of the power plant in the region.

Participation during project planning

Although the general area of a project cannot be influenced during project planning, an early engagement during this phase is also important. As a first step, planners should realize an actor and context analysis to understand the surrounding of the project they planned. Citizens should be part of an extended project team. This way the regional and social characteristics can be implemented in the planning process. This can entail information on sites that are especially suited or groups of citizens that might want to support the project financially. This information is left out, if planners do not enter into dialogue with citizens.

Good practice examples:

France:[45] Even if there is no obligation to consider the opinions of local communities upstream of an onshore wind project, a wind energy company has set up an ethical charter. This charter stipulates for a greater consideration of the local community in order to encourage a transparent and broad communication so that the population can better understand the general framework of the development of a given project. Thanks to this informal impulse, parliamentary discussions should take place to provide for a legal basis to a public consultation in the pre-planning stage.

Ireland:[46] Despite the fact that community engagement is not mandatory for onshore wind projects, the Wind Energy Ireland (WEA), former Irish Wind Energy Association (IWEA), recommends its member to engage in local information and dissemination activities at a very early stage of project development. Project developers organise venues and inform local residents door-to-door on the prospective realisation of an onshore wind energy project. In this way, issues can be resolved at a very early stage and the possibility of an appeal later in the planning permission process can be avoided. It should also be noted that this approach is slowly followed in the deployment of offshore wind projects. Although the legislative framework is not yet in place, project developers have initiated information campaigns for local marine communities. Main aim is to inform the local residents on the offshore wind project and answer questions on the possible effects on marine flora and fauna. The very early engagement for offshore wind projects is based on the experience the members of Wind Energy Ireland have accumulated throughout the last twenty years in onshore wind deployment. The main lesson learnt was that without early engagement, a wind project could not succeed.

45 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on France.

46 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Ireland.

Netherlands:[47] Site selection for offshore wind energy in the Netherlands takes place through an extensive participative process. This participative process is a process which takes years in total to finish and takes into account the opinions of all stakeholders.

The industry organisation HollandSolar, together with the relevant stakeholders, has drawn up, a Code of Conduct for ground-mounted PV installations. The PV sector is bound by the agreements contained in this Code. Moreover, the Code of Conduct was signed by the nature conservation organisations, which leads to good understanding between the developers of ground-mounted PV projects and potential opponents. The Code is mainly about a good management and good practice, but also foresees complaint procedures if the rules are not followed and has its own assessment committee consisting of representatives of sector organisations and nature conservation organisations. This helps to reduce resistance and thus results in significantly fewer complaint procedures against ground-mounted PV.

Portugal:[48] In Portugal it is possible for every stakeholder to participate via a website: PARTICIPA.[49] This portal acts as a digital forum in which NGOs, civil society, associations and virtually anyone can participate and issue opinions about projects placed for public consultation in the country.

UK:[50] Project developers propose a public consultation plan for their projects to the council, and the council approves or supplies recommendations. Typical plans include the following features:

- Public Exhibitions where locals see the details of the emerging project, provide feedback and ask the project team any questions. This may take place in different localities around the site.
- Provision of a website and a point of contact.
- List of locations where hard copies of project materials will be displayed.
- Creation of a forum to keep local community councils and business and political stakeholders updated on the project progression.
- Creation of a Community Liaison Forum with local community group leaders to discuss the project and the community benefit fund.
- Offering shared ownership on the project.

Stakeholders are also engaged if there is a material change in the project while it is in planning. Locals can make representations to the council on the planning application for about a month after the information is submitted.

A pre-application consultation report is submitted to the council with major applications that details stakeholder consultation that took place prior to the planning applications, the feedback received and how that feedback was considered in the project.

4.5.3. Project independent moderator for stakeholder participation and problem resolution

A project-independent moderator acts as a communication facilitator between stakeholders. This is important when planning the process of RES-E project realisation and in the event

47 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on the Netherlands.

48 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

49 https://participa.pt/

50 Description taken from responses to the RES Simplify Survey.

of disputes between project developers and stakeholders. They act as a communication facilitator and thereby mediate between the different parties. With their support, planners and stakeholders such as citizens or environmental organisations can more easily come to a joint solution and accepted project realisation.

Moderation between citizens and planners

The expansion of renewable power plants often leads to concerns of citizens. The most prominent ones are onshore wind projects. Often concerns regarding health or the visual impact of power plants arise. Also, citizens may distrust project developers as their interests are clearly economically driven. Therefore, they may have the feeling that their concerns are not taken seriously when communicating with them. Project developers, on the other hand, are very familiar with their technologies. They know their ins and outs and may not be able to relate to the citizens point of view.

A moderator can help by facilitating communication between these parties and facilitate the realisation of projects. Optimally their work starts early. After a project developer has chosen a region for a project, they should approach the regional community with the help of a moderator. This early communication is key to prevent conflicts at a later project stage. A moderator listens and explains the different points of view. They guide the discussion between the parties and avoid disputes. The goal is to come to a project that all parties can accept.

An external moderator is especially important when disputes arise. The opposition of the parties may be too strong to resolve the conflict on their own. Here, an external moderator can be of great help. They listen, explain and enable communication where it was not possible before. As disputes can arise during project planning, but also during realisation, moderators are needed until the plant is built and commissioned.

Neutrality

An important aspect of moderation is the moderator’s neutrality. Moderation between stakeholders is only possible if the moderator can blank out his personal views. This way the communication is not influenced and distorted. Also, stakeholders do not get the feeling of an unjust influence of the moderator on the project outcome.

Regional Origins

Second important aspect, a moderator should be well known among the stakeholders of the project. Especially for citizens a person with local knowledge is important. They can be sure that this person is familiar with the situation. Also, they can relate to their concerns and interests. For example, there is no need to describe the importance of a local natural habitat to the community or a potential negative visual impact can be easily understood. In the case of external moderators, there may be insufficient trust in the moderator and therefore the citizens might be reluctant to explain certain matters to the external person.

Moderating between planners

Moderation can not only be important between citizens and project developers, but also between developers themselves. Conflicts may arise if two parties plan a similar project for a region. They may have already invested resources in the project and want to go forward. To minimize the losses of all parties, a moderator can help to find an outcome. E.g. they can find a new location for a project or developers may realise a project jointly. This can also come to a more efficient use of regional resources. The moderator in this case does not need to be a single person. Rather a process led by the authorities themselves can help to find a solution to this problem.

Moderation between planners and interest groups

Conflicts may also arise between planners and organisations. This can be nature conservation organisations that want to avoid a negative impact on species and ecosystems. Here, an independent moderator can also help to mitigate conflicts. This can be a single person, but also a committee of experts from both sides. Ultimately, this committee fulfils the same functions as a moderator between citizens and planners.

Moderation between planners and authorities

A clear conflict resolution mechanism should also be implemented for project developers in order to settle disputes between project developers and authorities and grid operators. This should help solving disputes in an efficient manner before an ordinary (civil) court.

Good practice examples:

Austria[51]: One of the tasks of the Austrian Energy Regulator (Energy Control Austria) is to act as an arbitration board in case of grid access denials and other grid connection related disputes (§12 (1) E-Control Act 2011). Within the framework of the grid connection approval procedure, applicants also have the option of contacting the PV-Austria working group on grids in the event of complaints.

Austria:[52] The Austrian Energy Regulator (Energy Control Austria) acts as an arbitration board in case of grid access denials and other grid connection related disputes. Within the framework of the grid connection approval procedure, applicants also have the option of contacting the PV-Austria working group on grids in the event of complaints. Stakeholders tend to consider the complaint procedure to be effective provided that all those involved act in good faith.

Germany:[53] Since 2007, the Federal Ministry for Environment runs a clearing authority for the resolution of conflicts concerning the deployment of renewable energy sources in the context of the Renewable Energy Sources Act. Its service is free of charge and it offers information on ongoing and past disputes.

Netherlands:[54] The sector organisation HollandSolar has drawn up in correspondence with all stakeholders a Code of Conduct for ground-mounted PV installations. The sector is bound by the agreements included in the Code of Conduct. The code of conduct was also co-signed by nature organisations, which results into a situation of good understanding between project developers of ground-mounted PV and opposing parties. The Code of Conduct mainly works around good management and good practice. The Code of Conducts even foresees complaint procedures if the rules are not followed and has its own assessment committee with the sector organisations together with nature organisations. In general, everyone always agrees with the decisions made by the committee. This results into much less resistance and thus much less appeal procedures against ground-mounted PV.

Poland:[55] In Poland, there is a Coordinator for negotiations to the President of the Polish Energy Regulatory Office (ERO), which is responsible for conducting out-of-court dispute settlement procedures between the renewable energy prosumers and energy companies (e.g. grid operator in the area where the micro-installation is located).

51 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Austria.

52 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Austria.

53 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

54 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on the Netherlands.

55 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Poland.

Among other things, the Coordinator deals with the questions related to the grid connection of micro-installations and provision of electricity transmission or distribution services. The key role of the Coordinator is to help the parties to resolve the dispute. His key tasks are therefore to bring the parties' positions closer together and to propose a solution to them.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 16 (5): Easy access for applicants to simple procedures for the settlement of disputes including, where applicable, alternative dispute resolution mechanisms.
- Art. 16 (7): Deadlines for the permit-granting process shall be extended for other procedures related to environmental law judicial appeals, remedies or other proceedings before a court or tribunal, and to alternative dispute resolution mechanisms --> improved provisions for conflict resolution reduces risk of such delays.

4.6. Eased procedures

4.6.1. Eased procedures for the repowering of existing power plants

After power plants reach the end of their lifetime, different scenarios may follow. They may stop their operation, or they are repowered to match today’s technological standards. Repowering is especially attractive when operators receive a subsidy. Also, it can contribute to renewable expansion goals as retrofitted power plants show higher capacities. Sites are well known, accepted and infrastructure is already present.

Easier permitting procedures for repowering can help to capitalise on all these positive effects. Old plants already have run through different procedures and assessments. These have shown that the power plant can be realised at the corresponding site. New permissions and assessment therefore should only comprise possible new impacts. For example, if a retrofitted wind power plant has a considerably larger height, a new assessment considering its impact on the avifauna or shadow casting could be necessary. An assessment on its impact on bats is not necessary as for the old plant has been shown that no bats live in the area. Also for an environmental assessment (e.g. with a view to the protection of species), the responsible authorities must take prior restrictions of the old installation into account as a baseline. This way it is ensured that the assessment of the power plant still suffice the demands of the permitting procedure. At the same time, additional expenses and time loss for planners are reduced to the extent possible.

With respect to repowering of hydropower plants, it is proposed that renovations should be possible within certain capacity limits without further permits, at least if the environmentally relevant hydrological parameters do not change (like minimum flow or hydro-peaking). The expected ecological relevance and the applicability of this simplification could be subject to an assessment by local authorities (or at least authorities which are well familiar with the local conditions). This assessment could be conducted e.g. in the context of a formal hearing.

Furthermore, compensation measures for negative effects on landscape have to take into account compensation measures which already have been provided for the previous installation.

Good practice examples:

Germany: In June 2021, the Federal Parliament has passed legislation that for permitting procedures for repowering of wind only changes compared to the status quo should be assessed rather than the effects of an assumed green-field installation, as was the case so far. Also, for an environmental assessment e.g. with a view to the protection of species the responsible authorities must take prior restrictions of the old installation into account as baseline. Thus, if a repowering project leads to improvements compared to the status quo this has to be acknowledged. Furthermore, compensation measures for negative effects on landscape have to take into account compensation measures which already have been provided for the previous installation. Besides this, the new legislation only requires a public hearing in case the project developer requests this (Solarthemen, 2021). However, it should be stated that such activities for stakeholder involvement are considered beneficial in order to increase public acceptance.

Portugal:[56] The publication of Decree Law 76/2019 represented a significant legislative step towards enabling RES to play a bigger role in the country's energy mix. Specifically, the changes made in the electricity production licensing regime with the intent to enable the existence of hybrid plants (art. 4, par. 3 "[…] installation of new units in an already existing power plant that uses a different power source") are to be commended, as hybridisation (especially for the wind sector) is one of the main strategies for increasing electricity production from RES in the country.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 16 (6): Simplified and swift permit-granting process for repowering.
- Art. 16 (8): Option to establish a simple-notification procedure for grid connections for repowering projects.

4.6.2. Eased procedures for RES self-supply and small-scale RES

Easing and simplifying procedures for projects is a simple approach to speed up permitting. It helps project developers and authorities alike and increases the speed projects are realised with. By simply reducing the number of necessary permits for projects, they need to prepare less documents. Authorities, on the other hand, receive less applications and therefore can use their resources to permit large and important projects.

The questions arise: In what cases are simplified procedures applicable? What does it entail? Clearly this should not apply to every project. Large procedures that thoroughly assess a project can be necessary. Especially for large scale project that have a considerable impact on nature and citizens, this is necessary. The impacts of small-scale projects on the other hand are often negligible. They often consist of few plants and have low capacities.

Also, similar things can be said about self-consumption projects. They are realised on the project developer's own ground and their impact can be compared to the one of small-scale projects. Easier procedures for self-consumption projects can help to nudge citizens to investing themselves. With lower transaction costs for the realisation of the project barriers are smaller and potentially more investments may follow.

56 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

Also, the number of necessary assessments can be reduced. If only low impacts may follow from a project, it becomes obsolete to conduct assessments. This way planners can save time.

Among the EU Member States different versions of easy permitting exist. Those are described in the following.

Good practice examples:

Austria:[57] In Upper Austria there is an exemption from the electricity generation licence for small hydropower plants with a capacity of up to 400 kW. This is seen as a simplification of the procedure.

The Building Code in the province of Carinthia was mentioned as a positive example. The Code is currently being revised and will stipulate that all PV systems installed on a roof should be completely notification-free. This would mean significantly less effort for the planning of these systems (PV stakeholder, 2020).

Lithuania:[58] The stakeholders surveyed perceive the simplified grid connection procedure for renewable power systems with the capacity of less than 30 kW as good practice. The grid connection of these small-scale systems does not require many documents and the connection is organised quickly. Moreover, all documents and the grid connection status can be viewed online when logged on the operator's website.

Norway:[59] For hydropower installations that fulfil the criteria for the sales license, the license is usually approved automatically and rather quickly. Even if the license is manually processed by an NVE officer, the licensing time is usually limited to 2–4 weeks. The Altinn online application system is connected to the Brønnøysund company registry, and retrieves company information from there.

Portugal:[60] A new legislation aims at simplifying the licensing rules and regulatory procedures applied to production units for self-consumption (unidade de produção para autoconsumo – UPAC). For certain facilities (depending on the installed capacity), a mere notification to the Directorate-General of Energy and Geology is required in order to start operating the unit (for others not even that is required), which is a positive reinforcement for small and medium-sized photovoltaic producers as well as owners of small/mini wind turbines.

Small power plants with a capacity of up to 1 MW can apply for a fast application via a web page to gain the grid connection permit.

Portugal:[61] For certain small-medium sized power plants, it is only necessary to notify the (Portuguese) Directorate-General of Energy and Geology (DGEG) of their intention to connect the unit to the grid – and, for specific cases, not even a notification is required. Such instrument provides agility to photovoltaic projects that fit in the criteria, reducing costs and optimising time efficiency of projects.

Romania:[62] For years, there were no prosumers in the Romanian electricity market due to a legal gap: it was not clear if the prosumers should be treated like other electricity producers and therefore be required to obtain an official classification according to the Statistical Classification of Economic Activities in the European Community (Nomenclature statistique

57 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Austria.

58 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Lithuania.

59 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

60 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

61 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

62 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Romania.

des activités économiques dans la Communauté européenne - NACE code D35). In 2018, Law 220/2008 was amended and the amendments now allow commercial prosumers up to 100 MW/ location to operate without a NACE code. This facilitates a much faster interaction with the local authorities before the certification and authorisation stages.

Slovenia:[63] Slovenia has implemented the RES-E Self-supply Decree (2019), with which individual self-supply, self-supply in buildings with several apartments and communities that jointly install facilities for the production of energy from renewable sources are promoted. The decree was adopted and changed to remove administrative barriers in the formation of community self-sufficiency and to simplify the process of connecting devices to the power grid, e.g. by lifting the capacity limit of community devices. So far, the implementation of the new regulation has worked well and brought a significant acceleration of administrative procedures.

Spain:[64] The Autonomous Community of Andalucía does not request a building permit for self-consumption units with power up to 10 kW.

UNEF and SolarPower Europe conducted a study and reported that in many European countries (as Germany, the Netherlands, Italy, Sweden, among others) self-consumption units only require a prior notification to the municipality. Others, however, require a building permit, which can delay the process up to 8 months.

Sweden: In Sweden, the licensing procedure for a small geothermal heat pump is determined by the local municipality. In some municipalities, no permit is necessary and a simple notification to the Geological Survey of Sweden suffices. In the most densely populated areas, such as Stockholm, a permit is needed, and processing the application takes a couple of months. According to EGEC, the permitting process duration for shallow geothermal should not exceed 2 months (EGEC, 2021a).

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2 (b): Rules shall be objective, transparent and proportionate and do not discriminate between applicants.
- Art. 15 (1) par. 2 (d): Simplified and less burdensome authorisation procedures, including a simple-notification procedure, for decentralised devices, and for producing and storing energy from renewable sources.
- Art. 16 (3): The contact point shall address also small-scale and self-consumption projects.
- Art. 16 (5): Permit-granting process shall not exceed one year for RES-E installation < 150 kW (in extraordinary circumstances: two years).
- Art. 17 (1): Simple-notification procedure for grid connections for self-consumers of renewables and demonstration projects (<10,8 kW).
- Art. 17 (2): Simple-notification procedure for grid connections for installations with 10,8 kW up to 50 kW, provided that grid stability, grid reliability and grid safety are maintained.

63 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Slovenia.

64 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Spain.

4.7. Clarified priority for RES in administrative processes

4.7.1. Political backing of RES: Integrated planning system from national to local level

The need for regional and local action for RES deployment can be opposed by actors who have a focussed view on local restrictions, thus following a NIMBY ("not in my backyard") strategy. Understanding of the need for a local contribution and the motivation of regional and local authorities and other actors can be enhanced by a general area planning strategy, which includes a consistent breakdown of national targets on the regional and local level. Specific measures should be implemented to legally ensure the availability of sufficient land area for a target-compliant RES development (e.g. x% of national area for wind power). At the same time, some flexibility on specific sites still remains in the hands of local actors.

Good practice examples:

Germany: The German Renewable Energy Act requires the federal states to report to the federal government on the status of renewables. This particularly includes permitted RES installations, the progress of repowering, and the area of land which is available for further wind energy deployment according to regional and urban land-use plans. If the available area is not sufficient, reasons and proposals for improvement have to be provided. Monitoring reports are assessed by a cooperation committee of the Federal Ministry of Economy and Energy and the federal states. Based on the committee's assessment, the Federal Government report on the progress of RES deployment with a view to reaching the RES targets and provides recommendations for further measures (Tagesspiegel Background 2021).

Luxembourg:[65] Luxembourg's 102 municipalities have all signed the Climate Pact, revealing a desire to move towards energy transition. In addition, the State strongly encourages municipalities to disclose land that can be used for energy purposes in order to increase the number of projects. In this respect, municipalities that promote several energy projects on their territory receive state subsidies for their support to project developers. These subsidies can subsequently be reallocated to other local purposes.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (3): Member States shall ensure that their competent authorities at national, regional and local level include provisions for the integration and deployment of renewable energy in spatial planning and public works.

4.7.2. Define RES as public interest

Permission of RES projects also depends on how their environmental benefit is ranked compared to any restrictions which derive from their installation and operation. Such a weighting is relevant both for administrative decisions and also possible subsequent legal cases. In order to clarify the high value of renewables for fighting climate change on the global level, renewables should be legally defined as issue of public interest. This would relieve project developers from the obligation to individually prove the public interest for their individual projects, and would enhance that this benefit is properly taken into account.

65 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Luxembourg.

Ideally, such a status could be regulated by EU legislation rather than only on the level of Member States.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (3): Member States shall ensure that their competent authorities at national, regional and local level include provisions for the integration and deployment of renewable energy in spatial planning and public works.

4.7.3. Ensure that responsible authorities are fit for purpose

Authorities should be put in a position that they can make robust decisions on applications within the required deadlines or even faster. This can comprise several specific measures:

- A sufficient number of staff should be available in order to deal with the applications.
- The responsible staff persons have to be trained in order to have a sufficient level of expertise for the relevant aspects which have to be considered during a permission process by that authority.
- This can also be supported by the establishment of central departments with experts on specific issues which can provide assistance to responsible authorities on the regional and local level. As an option, this could be organised within the framework of the OSS.

The effectiveness of these measures should be supported by an appropriate implementation of the following recommendations:

- OSS: when planning and implementing this organisation, a key success factor is obviously an adequate planning of the required human resources. The specific design of responsibilities could comprise the provision of expert support for local/regional authorities within their respective responsibilities for admission.
- Clarified roles and processes: The organisation of the permission process should include an assessment on the required human resources and expertise on the level of all authorities involved, allowing for an alignment with the available staff.
- Monitoring process for identification of regulatory barriers: This monitoring process should also include not only regulatory aspects in a narrow sense, but also specifically assess bottlenecks in the permission processes which can be an indicator of an insufficient level of staff or expertise in the individual authorities.
- Use of e-communication, including monitoring of individual projects: The implementation of this measure should provide the necessary knowledge in order to identify a lack of resources, so that this can be adapted appropriately.
- Guidance and best practice: Measures in this field can be designed so that they contribute to capacity building and a sufficient level of expertise amongst the responsible staff in the permission procedure.

Good practice examples:

Finland:[66] As onshore wind has expanded rapidly within the last decade in Finland, the municipal authorities' expertise with it has also increased drastically. Municipal environmental and construction authorities exchange information with each other and have

66 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Finland.

begun to network country-wide. In addition, construction permit decisions from projects all across Finland are public documents, and can be consulted as examples when in doubt.

RED II requirements whose implementation is enhanced by this good practice recommendation:

- Art. 15 (1) par. 2 (a): Administrative procedures are streamlined and expedited at the appropriate administrative level within predictable timeframes --> the assignment of responsibilities obviously also depends on the qualification of the respective authorities.

4.8. Technology specific best practice

Different RES technologies face different barriers within the respective RES permission processes. To some extent they require specific measures in order to overcome the existing obstacles. With a view to the technology specific best practices for permitting procedures, such summaries of the specific needs and requirements for good practice measures were derived in collaborative workshops with stakeholders from European associations of the corresponding technologies.

Figure 4-4 gives an overview over the priorities which stakeholders assigned to different best-practice recommendations in the course of the technology-specific workshops which have been conducted for the identification and discussion of best-practice. Participants have been asked to assign priority points for those best-practice recommendations which they considered the most relevant. Those priority points are also displayed in Figure 4-4 (e.g. yellow for photovoltaics). It should be noted that the number of participants of the different workshops differed significantly. Therefore, a meaningful priority can be particularly derived from the relative number of “priority points” per technology, rather than by comparison with the absolute numbers. Besides best-practice recommendations which have been presented and proposed by the project team, participants also had the possibility to propose further recommendations (displayed in yellow shapes in Figure 4-4).

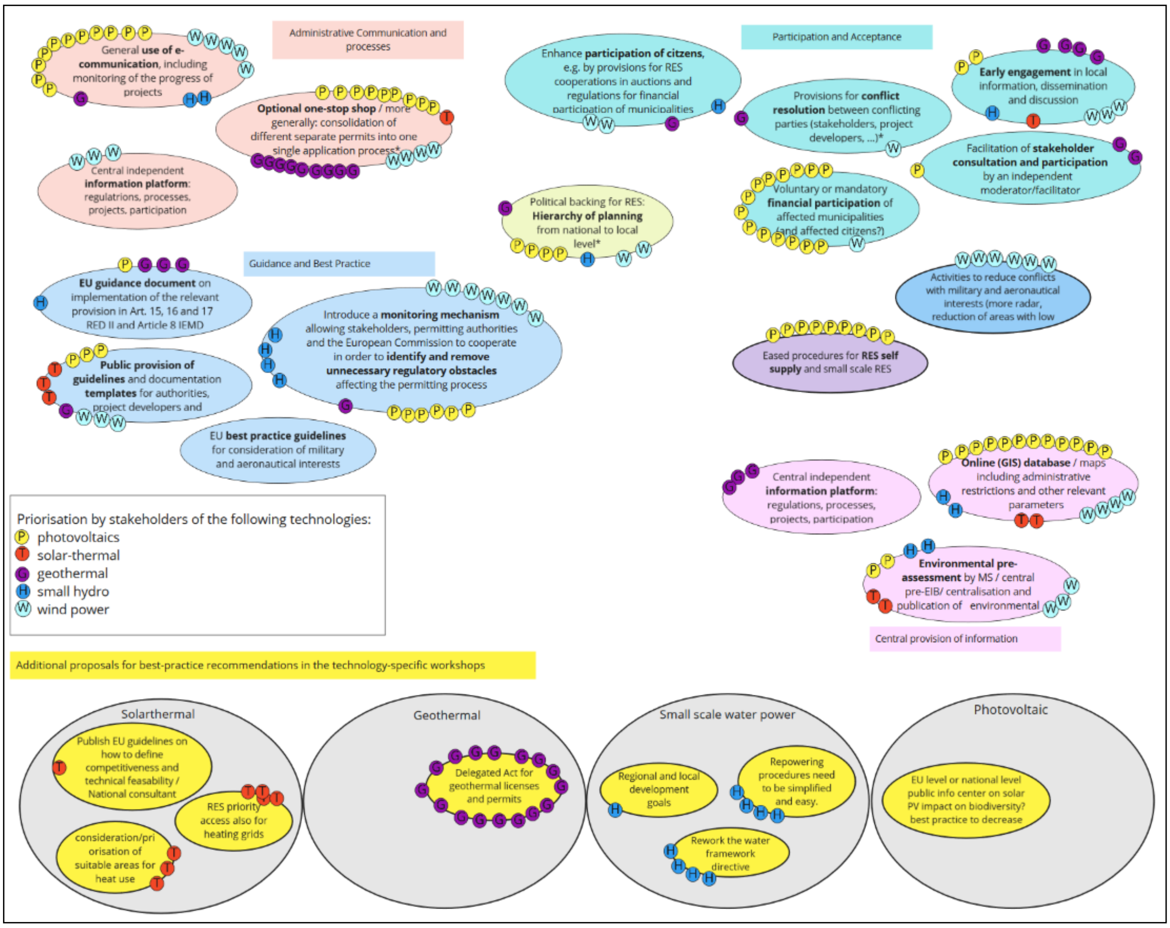


*Figure **4-4**: Overview over prioritisation of different good practice recommendations by consulted stakeholders in the technology-specific workshops*

4.8.1. Wind

In many European Member States wind power is a key technology for reaching the RES targets, at least in the electricity sector. A specific barrier for wind derives from the effects of increasingly high wind turbines on ecological systems (bird protection), on landscape and actual or perceived impairment of residents. Furthermore, the high turbines conflict to some extent with military and aeronautical interests (see section 2.3.1.3.2).

Within the technology-specific workshop, stakeholders expressed particularly the relevance of the following best-practice recommendations:

- Cooperative monitoring mechanism for the identification and removal of regulatory barriers (see section 4.3.3),
- Activities to reduce conflicts with military and aeronautical interests (see below),
- Use of e-communication, including a mechanism for monitoring project progress (see section 4.2.1),
- One Stop Shop / consolidation into one single application process (see section 4.2.2),
- Online (GIS) database / maps including administrative restrictions and other relevant parameters (see section 4.4.2),

- Environmental preassessment by authorities / centralisation and publication of environmental data and assessments (see section 4.4.3).[67]

A specific recommendation with respect to wind therefore relates to activities to reduce conflicts with military and aeronautical interests.

Wind-specific best practice recommendation: the European Commission should initiate best-practice guidelines for the Member States on measures to reduce conflicts with military and aeronautical interests.

Such activities could take place on various levels. Technical investment measures could include the implementation of additional or of high-performance radar, or the specific support of specific compatible wind turbines. Improvements could also be done on the operational field. Operators could provide remote controlling powers for installations to military which can be used specifically when needed. Also, best-practice standards for the assessment of omni-directional radio beacon could be adapted and measures to achieve a fair balance between different interests can be appropriate. This can include a re-design of areas which are dedicated for training flights, or even financial compensation by wind developers. With respect to the permission procedure, stakeholders have also proposed that it would be helpful if military approval would not be necessarily acceptance or refusal, but could be conditional, depending on specified adaptations.

Best practice examples:

France:[68] So-called stealth wind turbines, developed by a French company and used by the state-controlled utility EDF (*Electricité de France*), allow the wind turbines and radars to coexist without affecting the operation of the latter, because turbine blades are designed to minimise interference with radar systems. First requests for connections of such new wind turbines have already been received by the Regional Directorates for the Environmental, Development and Housing.

Given the fact that the security constraints represent the biggest obstacle in the site selection for onshore wind, the French Civil Aviation Authority (*La Direction générale de l'Aviation civile* - DGAC) re-evaluated areas that might be suitable for wind energy development, namely "Training sector at very low altitude" and "Tactical flight sector". As a consequence of this, 13.3% of land was made available for the development of this technology.

The DGAC and Air Force (*Armée de l'Air)* has worked on the development of radar interference assessment tools together with wind energy developers in order to have a more transparent dialogue. A similar tool is being developed for military radars.

Estonia:[69] The Estonian government decided in late 2019 that it will invest in the development of renewable energy in Ida-Viru county, by making the necessary investments to improve air surveillance capabilities, in other words financing the purchase of an extra radar for that region. According to the initial plan, the radar will be ready to become operational in 2024, which would ease the height restrictions for wind turbines in parts of North-eastern Estonia.

Finland:[70] In the recent years, the limiting effect of the Defence Forces on the onshore wind installations in the country has been addressed increasingly in Finland. The current

67 Although this best-practice recommendation has not been assigned a majority of the "priority points", discussions revealed that this aspect is considered crucial by wind power representatives.

68 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

69 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Estonia.

70 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Finland.

government's programme, too, mentions the negative effects and pledges to conduct assessments on how to diminish them. A governmental working group has been set to work on combining the needs of both wind power sector and Defence Forces better in the future as wind power's role in de-carbonising the Finnish electricity system will be significant. According to an official from the Ministry of the Environment, the working group will deliver its first report in spring 2021. The Defence Forces, too, are willing to increase the compatibility of their military technology and the pressure to install more onshore wind turbines in the country.

4.8.2. Additional specifics for offshore wind

Offshore wind has some additional specifics which should be taken into account. For offshore wind, the need for coordination of activities in open sea by several governments imposes further challenges. Furthermore, grid access requires specific attention as offshore wind parks usually are remote to existing grid. Therefore, grid extension and grid access have to be planned consistently.

It should be highlighted that the fundamental requirement for the implementation of a One Stop Shop and further coordination is already planned to be expanded on the multi-national level by current EU legislative initiatives.

Best practice examples:

Germany:[71] Under previous regimes, the German offshore wind deployment had become increasingly constrained by the development of its grid infrastructure, which saw a slower realisation speed than the construction of the actual wind parks. This problem was essentially solved by the current regulatory system, a legal expert outlines: The development of area development plans (*Flächenentwicklungsplan* – FEP) as central reference for the spatial development of German offshore capacities also includes the respective offshore grid development into the planning. Consequently, this will essentially lead to a synchronisation of wind park and grid development as the FEP provides grid operators with a more long-term planning basis, while wind park developers have a shorter, yet sufficiently long realisation period after a successful bid in the auction.

4.8.3. Solar

Increased electricity production by photovoltaics is – besides wind - in many European Member States the major RES technology in order to reach RES targets in the electricity sector. In terms of permission procedures, there are significant differences between ground-mounted PV systems and rooftop PV systems. While the first type of PV plants usually has a comparably high capacity and is planned by professional RES developers, the latter type is often very small-scale and planned and operated by non-professionals. This also includes an increasing share of prosumers which use all or part of their production for self-consumption.

Within the technology-specific workshop, solar stakeholders expressed particularly the relevance of the following best-practice recommendations:

- Eased procedures for RES self-supply and small-scale RES (see section 4.6.2),
- One Stop Shop / consolidation into one single application process (see section 4.2.2),

71 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

- Use of e-communication, including a mechanism for monitoring project progress (see section 4.2.1),
- Financial participation of affected municipalities (see section 4.5.1),
- Online (GIS) database / maps including administrative restrictions and other relevant parameters (see section 4.4.2).

The request for eased procedures for RES self-supply and small-scale RES projects obviously relates particularly to rooftop PV. One proposal for such a simplification could be an exemption from construction permit for rooftop PV, and very simple authorisation procedures. It has also been proposed that consumer-based projects could be subject to easier procedures particularly with respect to grid connection.

4.8.4. Small hydropower

Hydro power has in many cases a major share in national RES electricity production, as this technology is well established and has been introduced since many decades. At the same time, it mostly has a limited role in the further expansion of RES shares towards the 2030 and 2050 RES targets. Reason being that potentials are already tapped to a large extent and conflicts with other public goods (environment and others) are limiting the further increase of hydro capacities. Still, there is further hydro potential to be addressed, and specific attention should be put on the role of repowering of existing hydropower plants.

Within the technology-specific workshop, hydro stakeholders expressed particularly the relevance of the following best-practice recommendations:

- Environmental preassessment by authorities / centralisation and publication of environmental data and assessments (see section 4.4.3),
- Eased procedures for the repowering of existing power plants (see section 4.6.1),
- Cooperative monitoring mechanism for the identification and removal of regulatory barriers (see section 4.3.3),
- Adaptation of the Water Framework Directive (see below).

Environmental pre-assessment is considered to be of good help, as has shown also the example of Norway, where 8000 hydro sites were identified by the national regulatory body NVE and published. This led to a high share of applications, and also to lower cost for project developers.

With respect to repowering, proposed approaches include that refurbishments should be allowed within specific capacity limits without the project developer having to obtain further permissions, at least if environmentally relevant hydrological parameters do not change (like minimum flow or hydro-peaking). The expected ecological relevance and the applicability of this simplification could be subject to an assessment by local authorities (or at least authorities which are well familiar with the local conditions). This assessment could be conducted e.g. in the context of a formal hearing. Thus, a more comprehensive re-application procedure and particularly an EIA would only be required in case substantial effects of the planned measure can be expected. With respect to grid-connection, a simple notification procedure according to art. 17 (8) RED II could be applied.

A monitoring mechanism for the identification and removal of administrative barriers has been assumed to be particularly helpful. This mechanism identifies immoderate or even discretionary application of regulation by local administration to prevent further hydro deployment beyond legal and administrative requirements. Another measure to generally provide political and administrative support for the installation of hydro power plants is considered to be the definition of hydro as being of public interest for its intrinsic qualities (flexible provision of renewable energy, supporting the integration and higher penetration of solar and wind) rather than on a case-by-case basis (see section 4.7.2).

Stakeholders have furthermore formulated the need for a redefinition of the Water Framework Directive (WFD), particularly relating to an enforcement of the cost-efficiency principle which is stipulated by the WFD as technology-specific best-practice recommendation:

Hydro-specific best practice recommendation: Adaptation of the Water Framework Directive.

A hydro-power specific recommendation which has been brought forward by stakeholders refers to a redefinition of the Water Framework Directive (WFD), particularly relating to an enforcement of the cost-efficiency principle which is stipulated by the WFD. This means that permitting authorities should be obliged to prove the cost-efficiency of mitigation measures which they require over and above those measures which are defined based on an environmental impact assessment. For the assessment of the cost-efficiency, authorities should consider the value of flexible and reliable provision of renewable electricity and weight this against the benefit of achieving or preserving good status by its additional requirements. For this purpose, these benefits should be duly assessed. More generally, there should be a better alignment of the renewable energy and environmental goals in the RED II and the WFD, so that it becomes clear to which extent hydropower projects can be considered to be projects of *overriding public interest* in the sense of the WFD, and thus are licensable by responsible authorities. A harmonised and balanced implementation of the WFD then should be ensured e.g. by appropriate guidelines, as authorisation decisions fall within the competence of national, regional or local authorities.

4.8.5. Geothermal

Geothermal energy has some specifics which also must be considered when discussing permission procedures. It can be used for generation of electricity, but a large share of the geothermal energy relates to the provision of heat. As the transportability of heat over long distances is quite limited, its application is more dependent on the existence of a heat grid and heat sinks in the proximity of the geothermal installation. In terms of feasible installations, it is worth distinguishing between different types of geothermal installations. Shallow geothermal installations, which are mostly an end-consumer product, are operated in the form of ground source heat pumps (GSHPs) and in the form of underground thermal energy storage (UTES). With a depth of lower than 500 m, mining law is sometimes not applicable. Besides this, deep geothermal installations on an industrial scale can be used for district heating systems. With depths of up to 6 km such plants are typically governed by mining law (EGEC, 2021a).

Within the technology-specific workshop, geothermal stakeholders expressed particularly the relevance of the following best-practice recommendations:

- One Stop Shop / consolidation into one single application process (see section 4.2.2),
- Early engagement in local information, dissemination, and discussion (see section 4.5.2),
- Delegated Act for geothermal licenses and permits (see below).

The GEOENVI project (Batini, 2021) as well as statements by the geothermal branch organisation EGEC (EGEC, 2021a) highlight also the high relevance of various further recommendations as described in sections 4.2 to 4.7. These include:

- Environmental preassessment by authorities / centralisation and publication of environmental data and assessments (see section 4.4.3); in this case: availability of subsurface data, particularly when being partly or fully financed by public funds,
- Online (GIS) database / maps including administrative restrictions and other relevant parameters (see section 4.4.2),
- Clear roles and processes (see section 4.2.3),
- Clarified priority for RES in administrative processes (see section 4.7), more specifically by the development of a detailed National Geothermal Development Plan, and by ensuring the sufficient level of skills and knowledge,
- EU guidance document on implementation of relevant regulation provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD (see section 4.3.1) and Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders (see section 4.3.2), particularly on permitting in Environmental Impact Assessments suitable for deep geothermal projects.

The implementation of One Stop Shops has been pointed out to be of central relevance for geothermal planners and operators. However, due to the variety of plants and stakeholders, the One Stop Shops should be different. Depending on the plant size the contact point should be located on a local or higher level. This way the need for local contact for small and private actors and the need for a high level of (central) expertise for large installations are sufficiently balanced. As special fields of responsibility, geothermal stakeholders have stressed that this authority should – for large geothermal installations - also be responsible to guarantee grid connection and dispatchability for power projects.

As the competent authority for all geothermal-related issues and permits, the new geothermal authority would be capable of evaluating the proposed projects in a holistic and professional way, including the assessment of the project’s technical and financial details (EGEC, 2021a). In addition to granting permits, the authority should be responsible for the development of national long-term geothermal development plans. The plans could include the geothermal potential of the country, identify suitable areas for geothermal development, define the country’s contribution of geothermal energy to the EU decarbonisation targets and ensure grid availability for geothermal electricity and heat.

More publicly available data about geothermal projects that are already commissioned or currently developed would help spread accurate information about geothermal technologies and therefore increase public acceptance (Geoenvi, 2019a). The GEOENVI report also calls for establishing a European minimum standard for data-sharing, which would provide Member States with the option to expand transparency beyond the standard. While creating this standard, special attention should be paid to the selection of confidential and non-confidential data. In order to ensure environmental safety and easier geothermal project development, maps could be drawn to identify suitable sites. Some cities and regions of EU Member States have already compiled such maps, such as the region of Murcia in Spain (Sanner, 2021). The Murcia map indicates the suitability of the subsurface conditions for geothermal energy production across the region, dividing the land into three “traffic light” categories: green areas are considered as safe for geothermal projects, yellow areas have to be assessed individually, and red areas are no-go zones (Sanner, 2021). Similar open-source, traffic light maps could be used for other regions with a potential for geothermal development, as well. Ideally, the mapping and planning of geothermal resource use should be undertaken by a national or regional geothermal authority.

Stakeholders have formulated the need for a delegated act for geothermal licenses and permits as technology-specific best-practice recommendation:

Geothermal-specific best practice recommendation: A Delegated Act for Geothermal Licenses and Permits.

A Delegated Act regulating the provision of geothermal licenses and permits has been strongly proposed to streamline the various layers of permitting. For this purpose, art. 15 RED should be amended. Stakeholders have requested that such a Delegated Act should outline harmonised rules on licensing and permitting of geothermal projects. Furthermore, it should implement the "Simplified Life Cycle Assessment (LCA) Model" as developed by the GEOENVI project EGEC 2021). This model is supposed to evaluate the environmental performance of geothermal projects, particularly in comparison to fossil alternatives (Geoenvi, 2019c).

4.8.6. Solar thermal

The situation of solar thermal energy is, like geothermal energy, to some extent different to other RES technologies discussed in this report, as it is particularly capable of providing heat energy. This can be realised by on-site installations for self-consumption, but also on a larger scale for feeding in the heat grid. A major barrier for such larger solar thermal installations is based on the fact that district heating systems generally are privately owned and not connected with each other. Feed-in by third parties is always subject to private negotiations, as there is no obligatory right e.g. for operators of solar thermal installations for feed in of RES heat in heat grids.

Within the technology-specific workshop, solar thermal stakeholders expressed particularly the relevance of the following best-practice recommendations:

- Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders (see section 4.3.2),
- RES priority access also for heating grids (see below),
- Consideration / prioritisation of suitable areas for heat use (e.g. urban areas / close to district heating pipeline) (see below).

Stakeholders assigned high priority to the public provision of guidelines on how to assess RES heat supply in district heating. This particularly should include guidance on how to evaluate applications based on cost and performance, harmonising possible requirements across the country and RES heat technologies. With a view to the European level, one approach could also be a requirement for Member States to define the framework and possible exemptions for RES heat to be classified as "efficient district heating" in the sense of art. 24 RED II. However, it was highlighted that an assessment of the competitiveness of RES heat can hardly be clearly regulated on EU level, but should leave sufficient room for a case-specific assessment. More specifically, the EU could either publish EU guidelines on how competitiveness and technical feasibility of RES-E could be generally defined, or to oblige Member States to have a national consultation on how to define a clear framework on the national level. Thus, this request by stakeholders is also strongly supporting best-practice recommendation on an EU guidance document for Member States on the implementation of relevant articles of the RED II (see section 4.3.1 on EU guidance document on implementation of relevant regulation provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD).

Solar thermal-specific best practice recommendation: RES priority access and feed-in also for heating grids

It is recommended that similar to RES electricity installations also RES heat installations get a priority access for grid connection and feed-in of the respective energy.

This would increase bankability of RES heat projects when there is a clear perspective for participation in the RES heat system. It would also push district heat operators to make changes in their overall energy supply, either by adding own heat generation or by adding external RES heat supply. The general priority for RES heat could also be supplemented by an obligation to increase RES shares in case of extensions of district heating systems.

Solar thermal-specific best practice recommendation: Priority of suitable areas for heat use

The implementation of solar thermal energy is bound to a good connection to the heat consumer, either directly or via a district heating grid. Therefore, the suitable sites for implementation are quite limited compared to electricity production. By pre-assessing suitable areas for RES heat and providing a priority for RES heat, such sites which are in urban areas or close to district heating pipelines could be made available and thus support the increase of RES installations. Based on such pre-assessments and clear priorities, negotiations regarding land use rights could be facilitated and project developers would increase their options for land use.

If the planning and prioritisation would not only consider the current status of projects and technology, but also reserve areas at least in the mid-term, the use of available sites could be decided based on the most suitable technology.

Synergies could also be tapped related the mapping of heat needs, which is conducted at national level with local level granularity (Annex VIII Energy Efficiency Directive – EED ((EU) 2018/2002)[72]), and the requirements of art. 15 (3) RED II, which stipulates that Member States should encourage local and regional administrative bodies to include renewable heating and cooling in the planning of the city infrastructure.

Best practice examples:

Austria: Austrian solar thermal stakeholders have published a white paper on good practice for land use with a view to solar thermal installations in Styria. This proposes a preference to areas which are already in use (e.g. close to traffic). If such areas are not available, the use of green land is suggested, while an overall ecological concept has to be part of the application. Furthermore, areas around cities should be prioritised for heat over electricity, as heat cannot be transported as well as electricity. A similar priority should apply in areas close to existing heat pipelines, with the threshold distance being depending on the size of the plant. The paper also proposes to introduce a classification of land use as “use for energy” (Mauthner et al., 2021).

5. Outline for the optimised processes and supporting IT infrastructure that are compliant with RED II

5.1. Objective and methodology

Within the scope of this project, a general outline for optimised processes and supporting IT infrastructures that are compliant with RED II has been elaborated. This should cover the permission-related aspects as stipulated by art. 15, 16 and 17 RED II. These aspects include the following:

72 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.328.01.0210.01.ENG

- How to organise simplified and less burdensome authorisation procedures, including a simple notification procedure, for decentralised devices (art. 15.1),
- Digital design of One Stop Shops (not more than one contact point for the entire process) and encompassing permit granting process, comprising all procedures (art. 16.1),
- Provide the applicant with all necessary information (art. 16.2),
- Applicants shall be allowed to submit relevant documents also in digital form (art. 16.2),
- Manual of procedures, including information online (art. 16.3).

The task does not provide recommendations on the specific IT infrastructure but provides generic process guidelines and addresses what requirements this entails for the IT infrastructure. This includes the interface between the permitting authority and the project developer, and the way the interface is managed during the permitting process, including the documentation of all relevant information in the process. This also includes the role of third parties and the public where needed. Furthermore, the task covers processes that are internal to the permitting authority and where changes can for example help to speed up the process. Finally, it also covers processes beyond individual projects and in between projects. How can the documentation of experiences and results that have been achieved in one project and by one authority be made accessible for other projects and other authorities and developers?

In order to achieve the described objectives, the methodology as described in sections 2.2.2 and 3.1 has been adapted in order to address also the specific needs of RED II requirements. The applicability of different best practice recommendations with respect to specific RED II requirements has been assessed in order to provide broad support for an efficient implementation of RED II requirements. Furthermore, the relevance of the identified best practice recommendations for the different process steps has been assessed and described. This should support Member States to either generally implement best practice recommendations as appropriate for the whole process, but also to focus on individual process steps if it becomes obvious that permission procedures face particular barriers in these process steps.

This includes the process steps that are considered essential for developing renewable energy projects as described in section 2.2, and outlined in the following Figure 5-1:

Site selection	• Acquisition of the project-site (by purchasing or renting it) • Any needed process to make it legally suitable, e.g. • initiate changes with regard to local development plans and zoning • possibly including Strategic Environmental Impact Assessments etc.
Electricity production license	• Necessary processes to obtain the license to produce electricity • (this license has in different countries different names, such as electricity production license, electricity generation license or exploitation authorisation)
Pre-application process	• Process before submitting an application for a permit to the competent authority, where the authority provides an advice on the subsequent application to make the application successful
Administrative authorisation process	• All processes that have to be obtained from authorities to construct a renewable energy installation, e.g. • building permit • environmental permission including an Environmental Impact Assessment (EIA) • technology-specific permission, for example a water permit for hydro or a radar permit for wind power plants);
Grid connection permit process	• The formal process to obtain the permission to connect the installation to the grid as well as additional processes that might be necessary to actually connect the installation
Corporate legal-fiscal processes	• All necessary processes to incorporate (if this is legally required) or to become member of a certain association or to become liable for taxation or to become exempted from it respectively • Such requirements are particular burdensome for smaller and decentralised devices
Other relevant processes	• Any country specific processes which are not listed above

Source: RES Simplify

*Figure **5-1**: Overview over relevant process steps for admission procedures*

5.2. Relevance of best practice recommendations for individual steps of an optimised permission process

5.2.1. Introduction and general recommendations

When striving to optimise processes, it is not always possible to clearly identify a specific barrier to be addressed, or to anticipate the effect of any change of the admissions procedure, taking the complexity and possible interactions into account. Furthermore, when processes are to be optimised for the permission of renewable installations, drafting a blueprint process in order to be adapted across all European Member States does not appear to be a promising approach. Firstly, such an approach could hardly take the diversity of national administration systems and state structures into account and ensure consistency of all interactions. Secondly, effects of technical and geographical differences could not be considered appropriately, including RES potentials, grid situation, and differences between different RES technologies in the different countries.

Still, the general principles and good practice recommendations outlined in section 4 are elaborated in order to give general guidance for optimising RES permission processes and for addressing major barriers to new RES installations which have been identified. The best practice recommendations which are described in section 4 are rarely only relevant for one single process step, but mostly apply generally to several of those process steps or specifically address the coordination and interaction between the different process steps.

A key recommendation in that respect is that roles and processes have to be clearly defined and communicated for a given site and technology. Country analysis and stakeholder discussions have revealed that in many Member States responsibilities and processes are not only complex, but also non transparent both for authorities and for project developers. Therefore, it seems essential to define and to clearly describe the process which has to be followed in an application process, and the responsibilities of the parties involved. The design of the process should take the following elements into account:

- A clear sequential description of the application process should be provided.
- Individual responsibilities of authorities (and other parties) should be clearly assigned.
    - The establishment of a central "responsible" authority should be considered, or at least implemented in the form of a One Stop Shop
    - The number of involved parties should be clearly restricted in order to improve efficiency of the process.
- Transparency on required documentation for each process step should be provided.
    - Repetitive requests for (further) data and documentation should be avoided by appropriate rules.
    - Each documentation should only be required once.
- Clear deadlines for each step of the process should be defined.
    - Rules should be defined with respect to the effect of a deadline not being kept (e.g. classification as approval, start of an alternative "bypass" process, etc.).
- Depending on complexity, size and technology, the process should include a multi-tier application approach, from initial screening to general eligibility and clarification of details.
- The process should sufficiently take specific differences into account:
    - Size of project (capacity)
    - Technology
    - Type of project (new installation, repowering, self-consumer installation, etc.).
- Concerns from other interests (environmental, archaeological, military or aviation) should be formulated at an early stage in order to avoid a late appearance of show-stoppers.
- The process design should include a clear framework on complaint procedure and deadlines for challenging a permission.
- An appropriate IT infrastructure should be set up.

Such a process description can be elaborated on different levels of details from national to local level, depending on possible differences of the processes and involved parties. Ideally, it should include also cooperation with stakeholder associations which are relevant in the given sphere of action in order to increase acceptance and reduce the risk of complaints throughout the process.

Besides these recommendations on the general process design, the following list gives an overview over the recommendations which can be applied on different levels and refer to different process steps:

- 4.2.1 Use of e-communication, including a mechanism for monitoring project progress,
- 4.2.2 One Stop Shop / consolidation into one single application process,
- 4.2.3 Clear roles and processes,
- 4.3.1 EU guidance document on implementation of relevant regulation provisions in arts. 15, 16 and 17 RED II and art. 8 IEMD,
- 4.3.2 Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders,
- 4.3.3 Cooperative monitoring mechanism for the identification and removal of regulatory barriers,
- 4.4.1 Central independent information platform on regulation, processes, projects, participation,
- 4.4.2 Online (GIS) database / maps including administrative restrictions and other relevant parameters,
- 4.4.3 Environmental preassessment by authorities / centralisation and publication of environmental data and assessments,
- 4.5.1 Financial participation of affected municipalities,
- 4.5.2 Early engagement in local information, dissemination, and discussion,
- 4.5.3 Project independent moderator for stakeholder participation ,
- 4.6.1 Eased procedures for the repowering of existing power plants,
- 4.6.2 Eased procedures for RES self-supply and small-scale RES,
- 4.7.1 Political backing of RES: Integrated planning system from national to local,
- 4.7.2 Define RES as public interest,
- 4.7.3 Ensure that responsible authorities are fit for purpose.

In case that it is deemed necessary to put a focus on individual process steps for which e.g. the barrier assessment of section 2.3 has revealed that major barriers exist and the process step in general needs to be improved, the following chapters give advice on which measures might be specifically helpful.

5.2.2. Site selection

Site selection	• Acquisition of the project-site (by purchasing or renting it)
	• Any needed process to make it legally suitable, e.g.:
	  • Initiate changes with regard to local development plans and zoning;
	  • Possibly including Strategic Environmental Impact Assessments etc.

The process step of site selection could be enhanced by several of the outlined best practice recommendations. In order to ensure on a high level that sufficient land and sites are available for a target-compliant RES development, regional planning should be based on comprehensive RES targets and an estimation of the appropriate contribution of a given region for RES deployment (see 4.7.1 Political backing of RES: Integrated planning system from national to local). For the enhancement of general public acceptance, already at this stage appropriate measures for stakeholder involvement can be taken into account. Amongst others, this includes early consultation and participation of relevant stakeholders for the definition of regional RES development plans (e.g. 4.5.2 Early engagement in local information, dissemination, and discussion).

As a starting point for site selection, project developers can be supported by a GIS database which gives clear spatial information on which sites are eligible in principle for the given project and technology type, and which administrative and technical issues have to be individually clarified for a given site (see 4.4.2 Online (GIS) database / maps including administrative restrictions and other relevant parameters). The data basis for the indication of environmental restrictions and challenges per area and technology can be improved by public activities for the provision of environmental assessments. This could comprise active environmental pre-assessments by public authorities, but at least build on the provision of relevant existing data for interested project developers (see 4.4.3 Environmental preassessment by authorities / centralisation and publication of environmental data and assessments). Provision of information in the mentioned database could even include or be supplemented by information on grid availability for a given site. If project developers know about general grid constraints, they can contribute to solving grid constraints rather than increasing existing ones. Related cost for grid connection which also depends on the available grid capacity can also be a relevant aspect in the stage of site selection. Already at this stage, project planners could improve their site selection process based on information in which regions or municipalities a specific monetary compensation is possible or required towards the local authorities, thus affecting project finance on the one hand, but also the probability of high acceptance and chances for the realisation of the project (see 4.5.1 Financial participation of affected municipalities).

With respect to different RES technologies and project types, some specifics have to be taken into account. For the repowering of existing plants, the site is already defined and not subject to a site-selection process for new plants. But also for installations for self-consumption and small-scale RES, the site is particularly depending on the location of the investor rather than on best potential; however, there is to some extent choice with respect to the technology type to be applied by such an investor (PV, solar thermal, geothermal, etc.). For Wind and PV, the process step of site selection and the described supportive measures are highly relevant, and the wind-specific best-practice recommendation on measures related to increased compatibility with aviation and military needs relates to this process step. Hydro plants often are complex technologies and installations which need a high level of individual expertise already at early stage which can hardly be “centrally supported”. For installations for the use of geothermal and solar thermal energy, it is worth pointing out that the site-selection is more related to availability of grid and heat sinks, and to market conditions for grid access.

5.2.3. Electricity production license

Electricity production license	• Necessary processes to obtain the license to produce electricity • This license has in different countries different names, such as electricity production license, electricity generation license or exploitation authorisation

The process step of obtaining the license to produce electricity is enhanced by a lot of the recommendations which are described under “General recommendations”. This includes e.g. e-communication (see 4.2.1: Use of e-communication, including a mechanism for monitoring project progress, the installation of a One Stop Shop (see 4.2.2: One Stop Shop / consolidation into one single application process), a clear definition and communication of responsibilities and processes (see 4.2.3: Clear roles and processes) and general measures for transparency (e.g. see 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders or 4.4.1: Central independent information platform on regulation, processes, projects, participation).

With respect to obtaining an electricity production license it seems particularly important to consider that the specific requirements for planners and operators are appropriate to the type of operator, and to the type of installation. With respect to repowering of existing plants, an extension of the electricity production license should not be a relevant barrier depending on comprehensive requirements (see 4.6.1: Eased procedures for the repowering of existing power plants). RES self-supply and small-scale RES can be considered another special case for obtaining the electricity production license, as also those actors probably have a comparably low level of expertise and experience, and the respective individual plants have a limited relevance from the system perspective. Thus, it should be considered whether such plants should need a license at all, or whether this can just be based on a simple notification procedure (see 4.6.2: Eased procedures for RES self-supply and small-scale RES).

Good practice examples specifically referring to the electricity production license:

Austria:[73] In Upper Austria there is an exemption from the electricity generation licence for small hydropower plants with a capacity of up to 400 kW. This is seen as a simplification of the procedure.

Portugal:[74] The publication of Decree Law 76/2019 represented a significant legislative step towards enabling RES to play a bigger role in the country's energy mix. Specifically, the changes made in the electricity production licensing regime with the intent to enable the existence of hybrid plants (art. 4, par. 3 "[…] installation of new units in an already existing power plant that uses a different power source") are to be commended, as hybridisation (especially for the wind sector) is one of the main strategies for increasing electricity production from RES in the country.

A new legislation aims at simplifying the licensing rules and regulatory procedures applied to production units for self-consumption. For certain facilities (depending on the installed capacity), a mere notification to the Directorate-General of Energy and Geology is required in order to start operating the unit (for others not even that is required), which is a positive reinforcement for small and medium-sized photovoltaic producers as well as owners of small/mini wind turbines.

5.2.4. Pre-application process

Pre-application process	• Process before submitting an application for a permit to the competent authority, where the authority provides an advice on the subsequent application to make the application successful.

The pre-application process step is enhanced by some of the general recommendations outlined above (see section 5.2.1). It also has some overlap with the described recommendations for site selection (see section 5.2.2) depending on where individual process steps are allocated.

73 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Austria.

74 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

The basic precondition for a smooth pre-application process is the integration of such a process step in national administration plans at first hand. This should be clarified in a multi-step application process (see section 4.2.3: Clear roles and processes).

A critical aspect in order to obtain a meaningful advice obviously includes that the contacted authority has the necessary competences to make a preliminary judgement on the proposal. This is, amongst others, enhanced by the recommendations on the One Stop Shop (see 4.2.2: One Stop Shop / consolidation into one single application process) and by measures to ensure that responsible authorities are fit for purpose (see section 4.7.3: Ensure that responsible authorities are fit for purpose). It is advisable that already at this early stage, possible conflicts with other interests and opposition by stakeholders are considered and taken into account (see section 4.5.2: Early engagement in local information, dissemination, and discussion).

Good practice example specifically referring to the pre-application process:

UK:[75] Project developers propose public consultation plans for their projects to the council, and the council approves or supplies recommendations. Typical plans include the following features:

- Public Exhibitions where locals see the details of the emerging project, provide feedback and ask the project team any questions. This may take place in different localities around the site.
- Provide a website and a point of contact.
- List the locations where hard copies of project materials will be displayed.
- Contact local community councils and business and political stakeholders to keep them updated on the project progression.
- Create a Community Liaison Forum with local community group leaders to discuss the project and the community benefit fund.
- Offer shared ownership on the project.

Stakeholders are also engaged if there is a material change in the project while it is in planning. Locals can make representations to the council on the planning application for about a month after the information is submitted.

A pre-application consultation report is submitted with major applications that details that stakeholder consultation that took place prior to the planning applications, the feedback received and how that feedback was considered in the project.

5.2.5. Administrative authorisation process

Administrative authorisation process	• All processes that have to be obtained from authorities to construct a r enewable energy installation, e.g. • building permit; • environmental permission including an Environmental Impact Assessment (EIA); • technology-specific permission, for example a water permit for hydro or a radar permit for wind power plants.

The process for obtaining the administrative authorisation for the construction of a renewable energy installation can include many different individual process steps and

75 Description taken from responses to the RES Simplify Survey.

individual authorisations. Therefore, not only a sound definition of the individual steps, but also a good coordination of the whole process is key in order to enhance the whole administrative authorisation. Basically, all of the good practice recommendations which are listed under section 5.2.1 "Introduction and general recommendations" are therefore of relevance for the administrative authorisation.

5.2.6. Grid connection permit process

Grid connection permit process	• The formal process to obtain the permission to connect the installation to the grid as well as additional processes that might be necessary to actually connect the installation.

The process to obtain the grid connection permit differs from the other described process steps particularly by the involvement of the grid operator as an extra player (at least in the "back office"). Still, a lot of the general recommendations are also relevant for the grid connection. It should be facilitated by e-communication and be covered by the activities of the One Stop Shop, based on clear roles and processes which are described in transparent guidelines (see sections 4.2.1: Use of e-communication, including a mechanism for monitoring project progress, 4.2.2: One Stop Shop / consolidation into one single application process, 4.2.3: Clear roles and processes and 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders).

With respect to the recommended establishment and provision of an online GIS database on the suitability of different areas (see section 4.4.2: Online (GIS) database / maps including administrative restrictions and other relevant parameters), a specific feature might be information on grid availability for a given site. It should be pointed out that particularly with respect to grid connection, eased procedures for repowering, small-scale RES and for self-consumption RES should apply due to the limited impact of the individual installations on the grid. In general, it should be ensured that connection of RES installations and the feed-in of RES energy is generally prioritised over conventional energy.

Good practice examples specifically referring to the grid-connection process:

Finland:[76] During the survey, the stakeholders expressed a high overall level of satisfaction with their interaction with the DSOs and the TSO, Fingrid. Both levels of grid administration and development are regarded as fluent and transparent. Fingrid is very willing to enable connection of the fast-growing wind power sector to the grid. The good communication between RES installations and Fingrid has developed through years of cooperation and being open to each other's needs, leading to mutual benefit. Stakeholders in the wind power sector emphasised the grid operator's willingness to being updated about the future prospects of the wind power sector, and its interest in being notified about projects that are still in development or planning stages. Project developers have a good working relationship with Fingrid, enabling them to have conversations together about the future development of the main grid and access to it. Fingrid is willing to make reparations to the grid in order to ensure access to wind power facilities. Unlike local grid operators in Finland, Fingrid also has a clear and consistent pricing system.

Germany:[77] The 'principle of priority' guarantees renewable energy sources preferential treatment for grid connection over other energy plants.

76 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Finland.

77 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Germany.

France:[78] The Grenelle II Law introduced the Regional grid connection plan for renewable energies (*Schéma régional de raccordement au réseau des ENR* - ENR'S3EnR) to accelerate the connection to the electricity network and, moreover, to mutualise the costs throughout the territory. This planning tool enables the Regional Directorates for the Environment, Planning and Housing (Direction régionale de l'Environnement, de l'Aménagement et du Logement – DREAL) and project developers to closely monitor the development of the electricity network throughout the country. In addition, these plans provide planning and anticipation of grid connections.

Lithuania:[79] Stakeholders surveyed for the RES Simplify project perceive the simplified grid connection procedure for renewable power systems with the capacity of less than 30 kW as good practice. The grid connection of these small-scale systems does not require many documents and the connection is organised quickly. Moreover, all documents and the grid connection status can be viewed online when logged on the operator’s website.

Norway:[80] As energy act license and hydropower license are both often granted by the national regulatory authority Norges vassdrags- og energidirektorat (NVE) (depending on the size and potential impacts of the installation), the processes run parallel to each other and the processes can be coordinated within the same authority. In addition, NVE and the national grid operator Statnett are engaged in dialogue during the licensing process and the assessment of grid capacity for hydropower projects. Collaboration and dialogue ensure the potential situation of granting grid capacity or a hydropower license for a project, and denying it of the other.

Poland:[81] In Poland, there is a Coordinator for negotiations to the President of the Polish Energy Regulatory Office (ERO), which is responsible for conducting out-of-court dispute settlement procedures between the renewable energy prosumers and energy companies (e.g. grid operator in the area where the micro-installation is located).

Among other things, the Coordinator deals with the questions related to the grid connection of micro-installations and provision of electricity transmission or distribution services. The key role of the Coordinator is to help the parties to resolve the dispute. His key tasks are therefore to bring the parties' positions closer together and to propose a solution to them (art. 31a Energy Law).

Portugal:[82] For certain small-medium sized power plants, it is only necessary to notify the (Portuguese) Directorate-General of Energy and Geology (DGEG) of their intention to connect the unit to the grid – and, for specific cases, not even a notification is required. Such instrument provides agility to photovoltaic projects that fit in the criteria, reducing costs and optimising time efficiency of projects.

Small power plants with a capacity of up to 1 MW can apply for a fast application via a web page to gain the grid connection permit.

Slovenia:[83] Slovenia has implemented the RES-E Self-supply Decree (2019), with which individual self-supply, self-supply in buildings with several apartments and communities that jointly install facilities for the production of energy from renewable sources are promoted. The decree was adopted and changed to remove administrative barriers in the formation of community self-sufficiency and to simplify the process of connecting devices to the power grid, e.g. by lifting the capacity limit of community devices. So far, the implementation of the

78 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on France.

79 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Lithuania.

80 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

81 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Poland.

82 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Portugal.

83 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Slovenia.

new regulation has worked well and brought a significant acceleration of administrative procedures.

5.2.7. Corporate legal-fiscal processes

Corporate legal-fiscal processes	• All necessary processes to incorporate (if this is legally required) or to become member of a certain association or to become liable for taxation or to become exempted from it respectively • Such requirements are particular burdensome for smaller and decentralised devices

Corporal legal-fiscal processes are strongly dependent on the national framework and the administrative process. In this respect the basic precondition for smooth operation are all best practice recommendations which relate to the fields of administrative communication and processes (see section 4.2), Guidance and best practice (see section 4.3), and to the Central provision of information (see section 4.4). The particular challenge for planners and operators of small and decentralised devices should be appropriately addressed by eased procedures for such stakeholders and devices (see section 4.6).

Good practice examples specifically referring to corporate legal-fiscal processes:

Norway:[84] For hydropower installations that fulfil the criteria for the sales license, the license is usually approved automatically and rather quickly. Even if the license is manually processed by an NVE officer, the licensing time is usually limited to 2–4 weeks. The Altinn online application system is connected to the Brønnøysund company registry, and retrieves company information from there.

5.3. Relevance of best practice recommendations for an optimised implementation of RED II key requirements

An optimised process for the permission of RES installations has to take into account all requirements which are stipulated by art. 15, 16 and 17 RED II. Table 5-1, Table 5-2 and Table 5-3 provide an overview on how the recommendations which are described in sections 4.2 to 4.7 and in section 0 support the implementation of RED II requirements. This overview thus provides recommendations on how to reach the objectives set in the RED II by an optimised permission process.

*Table **Fehler! Kein Text mit angegebener Formatvorlage im Dokument.**-1: Overview over specific key requirements from the RED II (art. 15) with respect to admission procedures and best practice recommendations supporting the respective RED II requirements*

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
Art. 15 (1) par. 2 (a)	Administrative procedures are 1) streamlined and 2) expedited at the appropriate administrative level and 3) predictable timeframes	Ad 1) 4.2.1 Use of e-communication, including a mechanism for monitoring project progress Ad 1, 2, 3) 4.2.3: Clear roles and processes

84 Description taken from RES Simplify National Report. For further information and references pls. see Annex 1: RES Simplify National Report on Norway.

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
		Ad 1, 3) 4.4.3: Environmental preassessment by authorities / centralisation and publication of environmental data and assessments Ad 2) 4.2.2: One Stop Shop / consolidation into one single application process 4.7.3: Ensure that responsible authorities are fit for purpose
Art. 15 (1) par. 2 (b)	Rules are 1) objective, transparent and proportionate, 2) do not discriminate between applicants and 3) take fully into account the particularities of individual renewable energy technologies	Ad 1, 2, 3) 4.2.3: Clear roles and processes Ad 1) 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders Ad 2) 4.6.2: Eased procedures for RES self-supply and small-scale RES Ad 3) 4.2.2: One Stop Shop / consolidation into one single application process
Art. 15 (1) par. 2 (c)	Administrative charges are transparent and cost-related; and	4.4.1: Central independent information platform on regulation, processes, projects, participation
Art. 15 (1) par. 2 (d)	Simplified and less burdensome authorisation procedures, including a simple-notification procedure, are established for decentralised devices, and for producing and storing energy from renewable sources	4.2.1 Use of e-communication, including a mechanism for monitoring project progress 4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.6.2: Eased procedures for RES self-supply and small-scale RES
Art. 15 (3)	Member States shall ensure that their competent authorities at national, regional and local level include provisions for the integration and deployment of renewable energy in spatial planning and public works. Member States shall encourage local and regional administrative bodies to include RES H&C in the planning of city infrastructure where appropriate, and to consult the network operators to reflect the impact of energy efficiency and demand response programs as well as specific provisions on renewables self- consumption and renewable energy communities, on the infrastructure development plans of the operators.	4.4.2: Online (GIS) database / maps including administrative restrictions and other relevant parameters 4.7.1: Political backing of RES: Integrated planning system from national to local 4.7.2: Define RES as public interest 4.6.2: Eased procedures for RES self-supply and small-scale RES 4.8.5: Geothermal technology-specific best practice 4.8.6: Solar thermal technology-specific best practice
Art. 15 (7)	MS shall carry out an assessment of their RES potential, including spatial analysis of areas suitable for low-ecological-risk	4.4.2: Online (GIS) database / maps including administrative restrictions and other relevant parameters

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
	deployment and potential for small-scale household projects.	4.4.3: Environmental preassessment by authorities / centralisation and publication of environmental data and assessments 4.7.1: Political backing of RES: Integrated planning system from national to local

*Table **5-2**: Overview over specific key requirements from the RED II (art. 16) with respect to admission procedures and best practice recommendations supporting the respective RED II requirements*

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
Art. 16 (1)	Establishment of one or more contact points which shall, upon request by the applicant, guide through and facilitate the entire administrative permit application and granting process, including all the relevant administrative permits to build, repower and operate RES plants.	4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders
Art. 16 (2)	The contact point shall 1) guide the applicant through the administrative permit application process in a transparent manner up to the delivery of final decisions by the responsible authorities, 2) provide the applicant with all necessary information and 3) involve, where appropriate, other administrative authorities.	4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders 4.4.1: Central independent information platform on regulation, processes, projects, participation
Art. 16 (2)	Applicants shall be allowed to submit relevant documents also in digital form.	4.2.1: Use of e-communication, including a mechanism for monitoring project progress
Art 16 (3)	The contact point shall 1) make available a manual of procedures for RES developers also online, 2) addressing also small-scale and self-consumers projects. Online information shall indicate the contact point relevant to the applicant's application.	4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.3.2: Public provision of guidelines and documentation templates on the national level for authorities, project developers and stakeholders 4.4.1: Central independent information platform on regulation, processes, projects, participation Ad 2) 4.6.2: Eased procedures for RES self-supply and small-scale RES

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
Art. 16 (4)	Permit-granting process (cf. par 1) shall not exceed two years, including all relevant procedures of competent authorities (in extraordinary circumstances: three years).	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.3: Clear roles and processes
Art. 16 (5)	Permit-granting process (cf. par 1) shall not exceed one year for RES-E installations < 150 kW (in extraordinary circumstances: two years).	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.3: Clear roles and processes 4.6.2: Eased procedures for RES self-supply and small-scale RES
Art. 16 (5)	Easy access for applicants to simple procedures for the settlement of disputes including, where applicable, alternative dispute resolution mechanisms.	4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.3.3: Cooperative monitoring mechanism for the identification and removal of regulatory barriers
Art. 16 (6)	Simplified and swift permit-granting process for repowering (length < one year, in extraordinary circumstances <2 years).	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.3 Clear roles and processes 4.6.1 Eased procedures for the repowering of existing power plants
Art. 16 (7)	Mentioned deadlines shall be extended for the duration of other procedures like obligations under applicable Union environmental law, judicial appeals, remedies and other proceedings before a court or tribunal, and to alternative dispute resolution mechanisms.	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.3 Clear roles and processes 4.4.3 Environmental preassessment by authorities / centralisation and publication of environmental data and assessments 4.3.3: Cooperative monitoring mechanism for the identification and removal of regulatory barriers
Art. 16 (8)	Option to establish a simple-notification procedure for grid connections for repowering projects (cf. art 17(1)). Permission upon notification to the relevant authority where no significant negative environmental or social impact is expected. That authority shall decide within six months of receipt of a notification whether this is sufficient. Where the relevant authority decides that a notification is sufficient, it shall automatically grant the permit. Where that authority decides that the notification is not sufficient, it shall be necessary to apply for a new permit and the time- limits referred to in paragraph 6 shall apply.	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.6.1: Eased procedures for the repowering of existing power plants

*Table **Fehler! Kein Text mit angegebener Formatvorlage im Dokument.**-2: Overview over specific key requirements from the RED II (art. 17) with respect to admission procedures and best practice recommendations supporting the respective RED II requirements*

RED II reference	Specific key requirement for permission procedure	Best practice recommendations supporting the respective RED II requirements
Art. 17 (1)	Simple-notification procedure for grid connections for renewables self-consumers and demonstration projects (< 10,8 kW) upon notification to the DSO. DSO may within a limited period (1 month) reject the requested grid connection or propose an alternative grid connection point on justified grounds of safety concerns or technical incompatibility of the system components.	4.2.1: Use of e-communication, including a mechanism for monitoring project progress 4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.6.2: Eased procedures for RES self-supply and small-scale RES
Art. 17 (2)	Optional simple-notification procedure for installations with 10,8 kW up to 50 kW, provided that grid stability, grid reliability and grid safety are maintained.	4.2.2: One Stop Shop / consolidation into one single application process 4.2.3: Clear roles and processes 4.6.2: Eased procedures for RES self-supply and small-scale RES

Source: RES Simplify

5.4. IT infrastructure

Optimised processes require adequate IT infrastructure. RED II contains a number of requirements that necessitate this. Optimised processes that are compliant with the RED II need to fulfil the following functions:

1. Provide information to applicants (arts. 16.2, 16.3).
2. Facilitate the information flow from applicants to authority (arts. 16.1, 16.2). According to art. 16.2 RED II, applicants shall be allowed to submit relevant documents in digital form.
3. Besides these explicit requirements concerning the interface between applicants and authorities, there is also a need for optimal processes within and between authorities, to make the process as effective and efficient as possible, which is needed to meet the requirements of the RED II, for example to stick to time limits.

In the following, we present a number of infrastructure issues that need to be considered in order to meet these requirements. Some of these issues have already been addressed above, but are presented here in a structured way, focusing specifically on IT infrastructure.

A wide range of existing "client portal" or "customer service" software platforms are commercially available. Using existing platforms is typically less cost intensive then having a new platform developed.

1) Provide information to applicants

IT infrastructure should support applicants’ access to requisite information. This entails establishing necessary repositories of data where necessary information is collected and made available. This should cover a range of issues that are all accessible through a single platform. This way IT infrastructure supports the development of single contact points.

- There needs to be information provided on all steps of the permitting processes and what is required by the applicant. In countries in which the regional authorities have a lot of administrative power and different requirements are in place, there should also be a central up to date information point on all these differences between regions.
- The IT platform should also provide the applicants with information they need to prepare their project and their application. For example, this can include a GIS which includes all constraints that can exist at a local level (military, radar, protected areas, projected grid development, local planning etc.) as well as data that has already been collected on these constraints and that developers can use to select and plan appropriate sites.
- There also needs to be transparent information on the permitting platform itself on how it works and the platform should provide user support, including access to support staff. This is also to make sure that replacing conventional systems with digital ones does not delay processes because users encounter problems for which they cannot find a solution.

2) Facilitate information flow from applicants to authorities

Besides channelling information from authorities to applicants, IT infrastructure should also facilitate information flow in the other direction. Most importantly, developers should be able to submit application documents digitally, but such a platform could enable further communication from the applicant.

IT infrastructure should be the basis for a single contact point, but should not become a black box for applicants.

Black box means that a project developer loses the possibility to interact with the people that actually examine the project in the different administrations and the developer does not know which procedure takes how much time and why. As a result, the developer has no chance to react, because there is only a digital single contact. The above-mentioned support can contribute to addressing this potential black box problem. What is also needed is a tracking system that allows applicants to follow their application through the process and see the progress made in assessing its project. Moreover, while this transparency should reduce the need for applicants to contact the authority and ask about the process, there should also be staff available that applicants can contact. This also needs to be made transparent in the IT system.

The two-way communication between applicants and authorities (requirements to both provide information to the applicant and to facilitate the information flow from applicants to authorities) should be combined in one central platform. This should ensure that all information is in one place for a project at hand.

The platform should enable communication, including questions, answers, comments in both directions. Ideally, this replaces communication via email or on the phone, so that all information can be stored and tracked in one place. This also increases the flexibility for example in the case of staff changes, both on the side of the applicant and the authority.

Based on this, the platform can have a broader scope beyond the individual project. It can also enable information exchange as well as learning between projects and avoid “reinventing the wheel”. Questions that have already been clarified for a previous project and answers that have been provided should be made accessible via this platform, both for the authority and the applicants – obviously ensuring the required project confidentiality.

Moreover, the platform can have a similar function between authorities, not just between projects. It can act as a central information point where decisions, experiences, data sources etc. are made available between authorities, so that they can learn from each other, use each other's resources and do not have to repeat the work that has already been carried out by other authorities.

Thus, the central platform can also contribute to the third function, to optimise processes within and between the authorities.

3) Optimal process within authorities

Finally, IT infrastructure should not only support interaction between authorities and applicants, but should also contribute to the effective and efficient processing of applications within the authorities.

Depending on the type of data that is being submitted, the data should not just be provided in digital form, but rather digital & machine readable. Processes can be sped up significantly if it is possible to parse and validate data on the platform side automatically.

Some of the above-mentioned features can increase internal efficiency and therefore IT solutions should be designed to support these objectives. First, the central platform can also be used as knowledge management system for the involved authorities.

Second, a tracking system can make the process transparent for applicants as well as those experts working within authorities, i.e. ensure that the employees of the authorities can clearly identify a specific permitting process with a unique application number and always know where an application is located in the process, who is responsible for which step, which steps can be worked on in parallel and who is responsible next. It also allows the authorities to manage the timing of the individual process steps. This is all the more important in a single contact point approach where different authorities have to ensure coordination between each other. Finally, such a system cannot just help manage individual applications, but it can also be used to analyse indicators across applications and thus identify bottlenecks in the process that lead to long processing times.

6. Next steps

The Consortium will begin the dissemination and promotion of the best practices it identified (section 4) as the next step in the RES Simplify project. It will also share the optimised processes and IT solutions (section 5) it identified during the research. Dissemination will engage policy makers and regulators as well as private sector and civil society groups in discussions to collect ideas and suggestions to further improve the permit granting procedures in EU countries. In addition, the Consortium will examine best practices during its Member State monitoring, which will focus on the implementation of arts. 15, 16 and 17 RED II in EU Member States.

Feedback from both discussions at the dissemination events and the results of the Member State monitoring will inform recommendations for EU level policy in order to further optimise permitting procedures for renewable energy projects. Streamlined and accelerated permitting procedures will help achieve the ambitious renewable energy targets at both the Member State and EU levels by 2030 and beyond.

Annex

National Reports for 27 EU Member States, Iceland and Norway are available at the following website: https://www.eclareon.com/en/projects/res-simplify

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