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Guidance to Member States on good practices to speed up permit-granting procedures for renewable energy and related infrastructure projects

Accompanying the document

Commission Recommendation

on speeding up permit-granting procedures for renewable energy and related infrastructure projects

{C(2024) 2660 final} - {SWD(2024) 333 final}

CONTENTS

Guidance to the Member States on good practices to speed up permit-granting procedures for renewable energy and related infrastructure projects ([1])

1. Introduction

Renewable energy is at the heart of the clean energy transition necessary to achieve the objectives of the Paris Agreement and the European Green Deal. The revised Renewable Energy Directive ("the revised RED") adopted on 18 October 2023 ([2]) as part of the package delivering on the European Green Deal and the RePowerEU objectives sets the target to more than double the share of renewable energy in the energy mix in 2030 compared to 2020, to reach at least 42.5%, with an aspiration to reach a 45% renewable energy target in the Union. ([3])

Russia's invasion of Ukraine turned the quickest possible deployment of renewables into a strategic priority of the EU as it will cut down our dependence on – primarily imported - fossil fuels and help make energy more affordable. The REPowerEU Communication ([4]) outlined a plan to make Europe independent from Russian fossil fuels, starting with gas, well before the end of this decade. The Communication also suggested front-loading of wind and solar energy as well as heat pumps, increasing the average deployment rate by 20%, and additional capacities of 80 GW by 2030 to accommodate for higher production of renewable hydrogen. It was followed by the REpowerEU plan ([5]) and the proposal for additional amendments to the Renewable Energy Directive on 18 May 2022 ([6]) and by the adoption of a Council Regulation laying down a framework to accelerate the deployment of renewable energy in December 2022 (amended and partially prolonged in December 2023) ([7]). The revised RED including *inter alia* new ambitious EU target for renewables share in 2030 and new permitting provisions entered into force on 20 November 2023. Most of the permitting provisions are to be transposed by 1 July 2024.

([1]) This document is without prejudice to Member States' and undertakings' duty to fulfil their obligations under relevant EU law. Examples used are based on studies and stakeholder consultations and are for illustration only. The study "*Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify)*" has been carried out for the purpose of identifying barriers and best practices across Member States and its final report supported the drafting of this guidance. It is available at: https://data.europa.eu/doi/10.2833/894296. Some of the good practices that are presented have only recently been implemented, and, as a consequence, have not yet yielded results in all cases.

([2]) 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 (OJ L 328, 21.12.2018, p. 82, ELI: http://data.europa.eu/eli/dir/2018/2001/oj) as amended by Directive Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 (OJ L, 2023/2413, 31.10.2023, ELI: http://data.europa.eu/eli/dir/2023/2413/oj)

([3]) Reaching this target implies more than doubling the solar and wind capacities by 2030 (from 198 GW and 204 GW in 2022, respectively).

([4]) REPowerEU: Joint European Action for more affordable, secure and sustainable energy, COM(2022) 108 final

([5]) REPowerEU Plan, COM(2022) 230 final

([6]) COM (2022) 222 final

([7]) Council Regulation (EU) 2024/223 of 22 December 2023 amending Regulation (EU) 2022/2577 laying down a framework to accelerate the deployment of renewable energy, OJ L, 2024/223, 10.01.2024

In February 2024, the Commission published a detailed impact assessment on the 2040 Climate Targets, which analyses possible pathways to reach the agreed goal of making the European Union climate neutral by 2050. Based on this impact assessment, the Commission recommends a 90% net greenhouse gas emissions reduction by 2040 compared to 1990 levels.

All this means that the current pace of deployment of renewable energy projects and the related necessary infrastructure to integrate the new renewable energy produced into the electricity system will need to accelerate significantly to meet the needed capacity increase on time.

Reducing energy prices, driven mostly by high fossil gas prices, constitute an additional reason to speed up the deployment of renewable energy projects and the related infrastructure, and to reduce negative impacts on our citizens and businesses. Renewable power projects are increasingly offering electricity costs that are well below those of fossil fuel-based power plants in the wholesale market. Accelerated permit-granting is needed to bring them to the market rapidly, while recognising other legitimate societal needs as well as other legislation.

Whether renewable energy projects are developed through public tenders or corporate renewable energy purchase agreements or on a merchant basis, barriers related to permit-granting ([8]) and other administrative procedures ([9]) hold back the projects, increase uncertainty and costs and discourage investors, thus putting the achievement of the EU decarbonisation targets and the proposed renewable energy target for 2030 at risk . These barriers, mostly at the national, regional or even local level, include the complexity of the applicable rules for site selection and administrative authorisations for projects, grid connection issues, constraints on adapting technology specifications during the permit-granting procedure, or staffing issues of the permit-granting authorities or grid operators. As a result, the lead time for renewable energy projects can take up to ten years. The case for bringing down these barriers is now stronger than ever.

REDII introduced in 2018 rules on the organisation and maximum duration of the administrative part of the permit-granting process for renewable energy projects, covering all relevant permits to build, repower and operate plants, and for their grid connection. With the revised REDII of 2023, several changes have been introduced into the framework for permit-granting. The existing Article 16 on the organisation and main principles of the permit-granting procedure has been broadened to include new elements. The revised Article introduces the notion of the authorities acknowledging the completeness of the application and clarifies what should be considered the start of the permit-granting procedure. The scope of the Article is expanded to also include co-located energy storage facilities. Moreover, environmental assessments, where required, are now included in the maximum deadlines of the permit-granting process. This marks a key difference from the 2018 Directive that excluded environmental assessments from the maximum deadlines. With this in mind, the present guidance includes further elements on possible simplification of environmental procedures.

([8]) In this guidance, the term “permit-granting process” is used to refer to all relevant administrative authorisation, certification and licensing procedures that are applied to plants and, where relevant, to the administrative permits applicable to the associated transmission and distribution networks for the production of electricity, heating and cooling from renewable energy sources.

([9]) The term “administrative procedures” is wider than permit-granting processes and refers to e.g. spatial planning, building regulations and codes, certification and licensing procedures, or corporate-legal-fiscal procedures.

According to the revised Article 16, the single contact point is responsible for ensuring the fulfilment of the deadlines for the permit-granting procedures. Furthermore, by 21 November 2025, all permit-granting procedures must be carried out in electronic form. Beyond Article 16, the revised Directive introduces the new concept of renewables acceleration areas on which a dedicated guidance ([10]) has been issued and areas for grid and storage infrastructure necessary to integrate renewable energy into the electricity system, on which dedicated guidance was announced in the EU Action Plan for Grids ([11]).

The revised Directive also includes the presumption that, in the permit-granting procedure, the planning, construction and operation of renewable energy plants, the connection of such plants to the grid,the related grid itself, and storage assets are ofoverriding public interest and serving public health and safety for the purposes of specific derogations foreseen in the Birds ([12]), Habitats ([13]) and Water Framework ([14]) Directives and incorporates several measures included in the 2022 Emergency Regulation ([15]) related to repowering, heat pumps and solar energy equipment in artificial structures.

Member States have implemented or are implementing some 900 measures to speed up permit-granting for renewable energy projects as recommended in the original Recommendation of May 2022, with another 280 measures planned. ([16]) Available data signals that several Member States have experienced double-digit increases in the volume of permits issued for onshore wind since the entry into force of the Regulation as well as a strong increase in solar energy deployment. ([17]) Still, the Commission observes that significant variations in the national or regional permit-granting rules currently exist between the Member States in terms of the length and complexity of their administrative procedures. This suggests significant potential for improvements and learning from each other. Stakeholders have requested the Commission to clarify the Directive's provisions on administrative procedures as well as to disseminate best practices, in order to guide permit-granting authorities in their application.

This guidance presents good practices that exist in the Member States aimed at reducing the administrative burden and increasing planning certainty for renewable energy projects ([18]) and

([10]) SWD (2024) 333 final

([11]) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Grids, the missing link - An EU Action Plan for Grids, COM/2023/757 final

([12]) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds, OJ L 020 26.1.2010, p. 7.

([13]) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, OJ L 206 22.7.1992, p. 7.

([14]) Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy, OJ L 327, 22.12.2000, p. 1–73.

([15]) Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy, OJ L 335, 29.12.2022, p. 36–44

([16]) Second monitoring report under the DG ENER service contract with COWI, Prognos and eclaron on "Monitoring the implementation of the Commission Recommendation and Guidance on speeding up permit-granting procedures for renewable energy projects", available at https://ec.europa.eu/transparency/expert-groups-register/screen/meetings/consult?lang=en&meetingId=51835&fromExpertGroups=3885

([17]) Report from the Commission to the Council on the review of Council Regulation (EU) 2022/2577 of 22 December 2022 laying down a framework to accelerate the deployment of renewable energy, COM(2023) 764 final

([18]) For the purposes of the present guidance, renewable energy projects should be understood to mean production plants for the generation of renewable energy as defined in Directive (EU) 2018/2001, including

related infrastructure projects ([19]). It accompanies an updated Commission Recommendation on speeding up permitting-granting procedures and replaces the previous Guidance ([20]) presented in May 2022.

Tackling existing and identifying new barriers to permitting should be treated as a continuous process. In this context, the Commission is working with Member State authorities in an informal expert group on accelerating permitting for renewable energy projects ([21]), which is monitoring progress in the implementation of this Recommendation and serves as a forum for the exchange of good practices. Already since March 2022 work on removing 90 process-related barriers has been ongoing in the framework of the Single Market Enforcement Taskforce (SMET) ([22]). SMET is also supporting the uptake of one-stop shops, digital permitting, clear information and deadlines, and tacit agreement through exchange of experience among Member States and stakeholders' feedback. Other fora for the exchange of knowledge and good practices include the Concerted Action CA-RES ([23]), the expert groups on Environmental Impact Assessment/Strategic Environmental Assessment ([24]) and on maritime spatial planning ([25]),the political High-level groups ([26]), as well as the Cohesion for Transitions-C4T community of practice ([27]). Moreover, the Commission provides expertise through the Technical Support Instrument. The Comission also facilitates exchanges of best practices and clarifications of implementations issues as regards grids permitting through the work of the platform of national competent authorities in charge of permitting under the TEN-E Regulation. Full and rapid implementation of the Recommendation based on concrete ideas for simplification and shortening included in this guidance will allow cutting down the lead time for renewable projects and related infrastructure and their quicker massive deployment.

This guidance identifies the following main areas for improving permitting of renewable energy projects and related infrastructure: reducing the length and complexity of administrative authorisation procedures, sufficient staffing and skilling of permit-granting entities and authorities responsible for environmental assessments, site selection procedures and grid connection issues. Additionally, barriers related to the lack of support to certain projects by the public or relevant local stakeholders also exist in many Member States. The following sections will provide a short explanation of the barriers, possible solutions as well as identified good practices among national measures.

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in the form of hydrogen, and the assets needed for their grid connection and for storage of the energy produced.

([19]) For the purposes of the present guidance, related infrastructure projects should be understood to mean electricity, gas and heat grids or storage assets which are necessary to integrate renewable energy into the energy system.

([20]) SWD(2022) 149 final

([21]) https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=3885

([22]) https://ec.europa.eu/internal_market/smet/index_en.htm

([23]) https://www.ca-res.eu/

([24]) https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=508

([25]) https://ec.europa.eu/transparency/expert-groups-register/screen/expert-groups/consult?lang=en&groupID=100356

([26]) https://energy.ec.europa.eu/topics/infrastructure/high-level-groups_en

([27]) https://ec.europa.eu/regional_policy/policy/communities-and-networks/cohesion-4-transition_en

2. Faster and shorter administrative authorisation procedures

The duration of the permit-granting procedures greatly varies between the different renewable energy technologies and between Member States. For onshore wind, the reported duration of the permit-granting process varies between 3 and 9 years, and significant variation exists not only between Member States but at times also between the different regions of one country. For ground-mounted solar projects, the reported duration varies between around 1 year and over 4.5 years. ([28])

However, these averages are based on samples that are not fully representative, as there is a lack of comparable data across the EU on the total length of permit-granting procedures for renewable energy projects, including the preparation and finalisation of environmental assessments , granting the grid connection permit and addressing any potential legal challenges. Moreover, the length of the permit-granting procedures for renewable energy projects also depends on the availability, and expedited deployment or reinforcement, of grids to connect such projects and integrate the energy produced. What also needs to be taken into account is that in certain Member States procedures can be faster, however, not necessarily more effective. Various types of barriers can lead to fewer projects being approved, despite speedier procedures. This points to the need to pro-actively analyse and tackle barriers hampering permit-granting procedures in Member States.

In principle, to be able to implement the required permitting acceleration measures, Member States must have a continuous overview of existing permitting procedures and assess their effectiveness by regularly assessing the strengths and shortcomings of the permitting procedures in place while identifying opportunities for improvement. By carrying out an audit of their permit-granting procedures and most frequent causes for delays, Member States can focus reforms on the most pressing issues. **Estonia** provides a good practice example. The government has carried out an audit to identify the biggest bottlenecks in planning, permitting and building renewable energy projects. As a result of the audit, a legislative package has been prepared to make permit granting procedures shorter and more transparent. ([29]) EU support is available for such initiatives (see below). Similarly, in **Sweden**, the government has conducted from September 2021 to April 2023 an assessment of the national system to identify how to shorten lead times in grid development and ensure that different workstreams can proceed in parallel. This led to 90 proposals being tested in five ongoing projects and resulted in the identification of concrete improvements to the national permitting system. ([30])

Under the Technical Support Instrument, the Commission provided expertise to 17 Member States for phasing out their reliance on Russian fossil fuels ([31]), in line with the REPowerEU plan, including on faster permit-granting for renewable energy projects and enhancing the roll-out of rooftop solar. Specifically, under the 2023 TSI call, the Commission made

([28]) European Commission, Directorate-General for Energy, Tallat-Kelpšaitė, J., Brückmann, R., Banasiak, J. et al., Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify). Interim report., 2021, https://data.europa.eu/doi/10.2833/239077

([29]) https://commission.europa.eu/publications/estonia-draft-updated-necp-2021-2030_en

([30]) https://www.ei.se/om-oss/nyheter/2023/2023-04-27-ei-presenterar-ledtidsforkortande-atgarder-i-rapport-till-regeringen

([31]) https://ec.europa.eu/info/news/commissions-technical-support-instrument-help-17-member-states-curb-their-reliance-russian-fossil-fuels-2022-apr-06_en

available support to Member States with a flagship technical support on "Accelerating permitting for renewable energy" ([32]), which has been successfully used by six Member States.

Regional cooperation between Member States in the implementation of similar large-scale energy infrastructure projects has proven to act as a catalyst for accelerating permit-granting and the delivery of these projects ([33]). The Commission chairs four high-level groups in different regions of the European Union ([34]). The high level of political support these groups receive enables a common regional vision and allows for drawing up regional priorities and providing strategic guidance in the implementation of projects of common interest in energy infrastructure (PCIs), which require strong consensus, as well as to discuss renewable energy projects of regional importance. This is particularly relevant for offshore wind development, which is being recognised as a pan-European priority in all High-Level Groups ([35]). In addition to energy infrastructure projects, major, mature renewable energy projects will be identified as priorities in the workstreams of these groups, in line with the European Wind Power Action Plan, and benefit from close monitoring and strengthened cooperation at different political levels between Member States belonging to a certain region.

When it comes to the **monitoring and reporting** on the national provisions, in the integrated national energy and climate progress reports, which had to be submitted to the Commission by 15 March 2023, and every two years thereafter, Member States are required to report on the specific measures to fulfil the requirements set in Articles 15 to 17 of the RED to simplify, shorten and make more transparent the permit-granting procedures ([36]). According to the monitoring carried out for the informal expert group on accelerating permitting for renewable energy projects, measures related to faster and shorter procedures represent about a quarter of the measures taken or planned by Member States in the eight thematic areas covered by the Recommendation of May 2022. Beyond this, coherent EU-wide monitoring and assessment of administrative authorisation procedures for renewable energy projects would give the Commission, the Member States and project promoters insight into the duration of the various phases of project authorisation, their scope, requirements and the involved authorities, as well as the potential common features of the delays and other bottlenecks across the renewable energy technologies or authorisation stages. Under the revised RED, the Commission shall consider by 21 November 2025 if additional measures are needed to support Member States in the implementation of the permit-granting procedures provided for in the Directive, including by means of developing indicative key performance indicators.

([32]) https://reform-support.ec.europa.eu/accelerating-permitting-renewable-energy_en

([33]) European Commission, Directorate-General for Energy, Akkermans, F., Le Den, X., Heidecke, L., et al., *Support to the evaluation of Regulation (EU) No 347/2013 on guidelines for trans-European energy infrastructure : final report*, Publications Office, 2021, https://data.europa.eu/doi/10.2833/154438

([34]) The North Seas Energy Cooperation, Baltic Energy Market Interconnection Plan, Interconnections for South-West Europe, Central and South Eastern Europe Energy Connectivity

([35]) More information on the areas of cooperation covered by the four High-Level Groups: High level groups (europa.eu)

([36]) Article 20(b)(5) of the Governance Regulation. In 2023, Member States reported 36 policies and measures related to Art. 15 of REDII, 15 policies and measures related to Art. 16 of REDII and 13 policies and measures related to Art. 17 of REDII.

a. RED provisions and a comparison of good practices in their transposition

The 2018 RED specified that the administrative procedures for permit granting shall not exceed two years for renewable electricity production plants as well as the assets necessary for the connection of such plants to the grid, including all relevant authorisation, certification and licensing procedures by competent authorities. A similar provision on the simplification of authorisation procedures for hydrogen infrastructure is included in the recast Directive on common rules for the internal markets for renewable gas, natural gas and hydrogen ([37]). For renewable energy projects below 150 kW, the repowering of existing renewable energy plants, as well as co-located storage and their respective grid connections, the administrative process shall not exceed one year. With the revised RED, these deadlines include the time it takes to comply with Union environmental legislation, but not the duration of any court proceedings, and may be extended by six months in extraordinary circumstances ([38]). For offshore projects, the timeframe is extended to three years. ([39])

In renewables acceleration areas designated by a Member State, these deadlines are even shorter – one year as a general rule ([40]) and six months for projects below 150 kW repowering projects, co-located energy storage and their respective grid connections. For projects in these areas, Member States have to introduce a specific procedure consisting of a very quick screening process that has to be completed within 30 days.

The revised RED therefore sets clear maximum deadlines for the duration of the permit-granting process, with the possibility for an extension in case of extraordinary circumstances (of which have the project developer has to be clearly informed). Clear rules regarding deadlines improve transparency and predictability of the process and allow project developers to plan accordingly.

Some Member States have introduced complementary clarifications which specify the conditions allowing for the extension of the deadline, or have tasked the relevant authorities with cooperating closely with the project developers to ensure that the agreed timelines are adhered to. When it comes to the extension of the permitting deadlines, **Sweden** specifies that the deadline may be extended in case there is a need for time-consuming additions due to new regulations, information or guidelines, or if the delay is due to external circumstances which could not have been foreseen from the outset. **Slovenia** introduced a provision specifying that before the expiry of the defined deadline, the project developer needs to receive a reasoned decision by which, in exceptional circumstances explained in the decision, the procedure is extended.

When it comes to ensuring that the authorisation procedure does not exceed the agreed timelines in cases where several authorities are involved, **Finland**'s regulations require that if more than one authorisation or administrative approval procedure is necessary for the construction, upgrading, connection to the grid and operation of a renewable energy power plant, the responsible competent authorities need to cooperate to comply with the time limits.

([37]) Not yet adopted. It has been approved by the European Parliament (https://www.europarl.europa.eu/doceo/document/TA-9-2024-0283_EN.html), but adoption by the Council is still pending.
([38]) RED Article16b (1).
([39]) Ibid.
([40]) Two years for offshore projects.

The single contact point for project promoters ([41]) is tasked with assisting the competent authorities in agreeing on processing timelines for their procedures, where appropriate. Additionally, the transposing legislation specifies the points at which the calculation of the time limit begins and ends, and the single contact point is tasked with monitoring the implementation of the deadlines.

In the **Netherlands**, a new Environmental Act has entered into force in January 2024. It introduces the concept of 'decision period', in which RES project applicants shall receive a decision from the authorities (municipality, province, regional water board or national government). For regular projects the decision should be taken within 8 weeks, and for those that fall under the 'extensive procedure' the timeframe is 6 months. In the event of a decision on an application not being made, there is a possible penalty payment.

Also **Denmark** has introduced a single piece of legislation to unify the 'permit process'. Under the Danish law, this is defined as covering permits for building, grid connection and operation of renewable energy power plants. This provides clarity on the timeframe for the overall permitting process and applies to all authorities that issue these permits.

b. Other good practices to reduce the length of permit-granting procedures

The duration of court proceedings are outside the scope of the time limit set in RED, but Member States can take measures to reduce prolonged procedures due to challenges in courts. While the right of access to justice has to be ensured, Member States can organise their national jurisdictional system in such a way as to ensure faster processing of litigation cases, such as one-instance procedures for certain projects of national importance, setting up deadlines for certain steps of the litigation procedure depending on national circumstances to avoid unnecessary prolongation of appeal procedures, or introducing provisions aimed at limiting abusive litigation.

The revised RED requires Member States to ensure that administrative and judicial appeals ([42]) are subject to the most expeditious administrative and judicial procedure that is available at the relevant national, regional and local level. ([43]) Several Member States have already taken measures to streamline the duration of court proceedings related to permits.

France has reduced the number of possible appeals against environmental authorisations for onshore wind projects from three to only two. As of 1 December 2018 appeals can be lodged directly to the Administrative Courts of Appeal and they no longer need to go before the Administrative Tribunals first (this was already the case for offshore wind since the adoption of a Decree in January 2016).

The Netherlands has decided that permits for onshore wind projects over 100MW and solar PV projects over 50MW can only be appealed to the high court.

([41]) See the following section on the single contact point

([42]) This concerns appeals in the context of a project for the development of a renewable energy plant, the connection of that plant to the grid, and the assets necessary for the development of the energy infrastructure networks required to integrate energy from renewable sources into the energy system, including appeals related to environmental aspects.

([43]) RED Art. 16(6)

Austria, in its recently amended EIA Act, clarifies that in the case of blanket (insufficiently substantiated) complaints there is no suspensive effect of the appeal. The amended Act also structures the appeal procedure through concrete deadlines for objections at the beginning of the procedure and deadlines set by the authorities and the Federal Administrative Court for further submissions in the procedure. As a result, delays in the procedure by deliberately late submissions by project opponents are brought to an end.

In addition to streamlining the framework related to court proceedings, some Member States have also introduced other measures that allow prioritisation and thereby acceleration of permit-granting procedures, such as setting categories of strategic projects. Some projects of national importance may be adopted via a legislative procedure by a specific act in accordance with Article 2(5) of the Environmental Impact Assessment (EIA) Directive. This allows Member States to exempt that project from the provisions relating to public consultation, provided the objectives of this Directive are met. ([44])

The regional government of Andalusia in **Spain** has created an "accelerator unit" for projects considered strategic under the remit of the regional Department of Public Administration and Interior. The recognition of a strategic importance implies the selected projects receive preferential treatment when it comes to the administrative processing of the permits and authorisations needed to develop them. In the **United Kingdom**, the concept of Nationally Significant Infrastructure Project exists and is undergoing reform to allow for further acceleration of permit-granting. ([45]) Hence it is another good example for the monitoring and assessment of bottlenecks in the national procedures, leading to reform efforts, as in the Estonian case.

As regards network development projects, Member States should ensure that the projects enjoy the status of the highest national significance possible with all advantages deriving therefrom in any administrative or legal proceedings, as required in the case of projects of common interest and projects of mutual interest in line with Regulation (EU) 2022/869 (TEN-E Regulation). Such projects must have priority in any administrative and legal proceeding.

In **Latvia**, the national significance status can be awarded to cross-border projects through an Order from the Cabinet of Ministers. This status accelerates the awarding of building permits and can simplify coordination with landowners when projects affect their ownership rights. Regarding environmental assessments, this status has been found to significantly accelerate the process.

In **Romania**, the status of highest national significance provides swifer permitting, but also significantly facilitates the expropriation of any land necessary to develop the infrastructure.

Another good way to accelerate permit-granting is to allow for multiple applications to be made in parallel instead of in a sequential manner, including for related infrastructure projects.

In **Austria**, for example, developers can apply for multiple permits (electricity production license, approval under the nature conservation law procedure, aviation law procedure,

([44]) However, all the other stages of the EIA procedure (in particular access to justice) shall not be omitted.

([45]) https://www.gov.uk/government/publications/nationally-significant-infrastructure-projects-nsip-reforms-action-plan/nationally-significant-infrastructure-action-plan-for-reforms-to-the-planning-process

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 **France** and **Belgium** (Flanders and Wallonia) as well as the **Netherlands**, "single permit" procedures have been introduced. In the case of Flanders and Wallonia, these single permits combine the procedures for the environmental and urban permits, combined with exemptions for small-scale projects. In France, the procedure allows for a single examination of several permits for wind projects, including environmental authorisations, air navigation and military rights of way and the electricity production licence. **Estonia** is introducing a unified permit procedure for offshore wind projects.

When it comes **to small-scale renewables by households and energy communities**, the lack of resources aggravates even more the barriers already encountered by professional market participants. ([46]) In **Portugal**, renewable energy communities benefit from exemptions from prior control/communication, registration and operating requirements, depending on the installed capacity or the use of the public network for injection of electricity in case of self-consumption. Similarly in **Ireland,** energy communities do not need to have a planning permission before their grid application, can retain grid capacity for up to two years and undergo simplified authorization procedure ([47]). In **Spain and Lithuania**, grid capacity reservations are foreseen for energy communities.

Some Member States set up specialised environmental courts, chambers or engaging judges with a special environmental-permitting technical knowledge. This contributes to improving efficiency and making the courts proceedings more timely, in particular by saving time on having to involve special experts to assess the different technicalities. Several Member States have established specialized environmental review bodies or courts. Existing examples include the Swedish Land and Environment Court, the Finnish Administrative Court, the Danish Nature Protection and Environmental Board of Appeal, the Maltese Environment and Planning Review Tribunal, the Irish Planning Board and the Belgian Council for Permit Disputes ('Raad voor Vergunningsbetwistingen'). Most recently, an environmental section ("chambre de l'environnement") was established in the Court of Appeal of Mons in Belgium for both civil and criminal cases. ([48])

Early public consultation and having certain studies conducted earlier in the process can also accelerate permit-granting. For example, in the case of PCIs, having a mandatory public consultation performed at the beginning of the permit-granting process for establishing the location of the project has helped to identify and address public acceptance issues.

Finally, the assessments by the permit-granting authorities in the framework of environmental procedures outside renewable acceleration areas can be accelerated by setting specific deadlines. When an environmental assessment is required, Member States could cap the

([46]) See for instance the report of the Energy Communities Repository on "Barriers and action drivers for the development of energy communities & their activities", 29 January 2024, available at https://energy-communities-repository.ec.europa.eu/report-barriers-and-action-drivers-development-energy-communities-their-activities_en

([47]) Planning and Development (Solar Panels for Public Buildings, Schools, Homes and Other Premises) (Amendment) Bill 2021 (https://www.oireachtas.ie/en/debates/debate/seanad/2021-06-28/18/).

([48]) Communication on Environmental Implementation Review 2022 Turning the tide through environmental compliance (COM/2022/438).

length of various steps of the Environmental Impact Assessment procedure ([49]) by introducing binding maximum timeframes.

About half of the Member States have already established specific timelines for the competent authorities to give the green light to projects after receiving the environmental impact assessment submitted by the developer. In many cases these do not exceed one or two months (**Bulgaria, France, Greece, Italy, Latvia, Malta, and Romania**).

Another possible simplification is to grant exemptions to all or some permitting requirements for small scale PV installations for self-consumption. No permit requirements are needed for such installations in **Ireland, Lithuania and Romania.** The same applies in **Italy,** unless the PV is in a protected zone or building. In **Belgium**, all three regions (Brussels, Flanders, Wallonia) exempt rooftop PV from the planning permit. ([50]) In **Slovenia**, no building permit is required for installations intended for self-consumption.

In addition to the usual permit-granting procedures, most Member States have strict consent requirements for the installation of rooftop PV on multi-apartment buildings, either when one neighbour wants to install rooftop PV for individual self-consumption purposes or when two or more neighbours want to do so for collective self-consumption purposes.. Almost half of the EU population lives in multi-apartment buildings ([51]), so another possibility is to ease these consent requirements. In **Portugal**, no consent is required for individuals willing to install rooftop PV on multi-apartment buildings. For collective self-consumption, in many Member States unanimity or two-thirds majority is required. In **Spain**, only simple majority is needed.

Additionally, **in Italy,** the government has revised the building permitting requirements to reduce the risk of delays and any overlapping procedures.

c. Increasing flexibility in adapting technology specifications in the timeframe between permit application and construction of projects

The length of permit-granting procedures or delays in permit-granting can lead to sub-optimal technology installation in cases where project developers are obliged to implement the exact technological specifications ([52]) of their initial permit application. In cases where the granting of a permit takes so long that the approved technological solution has become obsolete, the project promoter would need to apply for a new permit or conduct a new environmental impact assessment in order to be able to use the latest available technology. This may not always be meaningful or necessary from the environmental point of view (e.g. more efficient technologies, occupying the same space). More flexibility, i.e. allowing developers to apply for a range of technological parameters or to notify changes in a fast manner after the permit is issued to allow updating the permit while limiting the review of the authorities to the

([49]) The EIA Directive introduces two fixed time-frames concerning EIA – maximum 90 days for taking a screening decision for Annex II projects and minimum 30 days for public consultations of the EIA report for projects subject to EIA; other timeframes are for the Member States to establish.

([50]) A planning permit is required for classified buildings in Flanders, and for rooftop PV that is visible from the public space in Brussels.

([51]) https://ec.europa.eu/eurostat/web/interactive-publications/housing-2023

([52]) Such as the exact wind turbine model or the PV panel wattage

changes that are strictly necessary, helps in deploying the most efficient technologies in a faster manner, without necessarily entailing a greater environmental impact.

In order to address this issue, some Member States use the so-called "box model" for permits, which allows developers to set out a range of technology parameters in their permit application (e.g. regarding wind turbine tip height), giving them flexibility to deploy state of the art technology and maximise efficiency and renewable energy production. For instance, **Sweden** already allows this permit model to be applied for certain wind projects. Project developers must indicate the project area, the maximum number of turbines, the maximum tip height, restricted areas within the project area and the maximum footprint of the infrastructure. They have the flexibility to optimise the layout and increase or decrease the rotor size and hub height. Developers are also allowed to use the latest turbine technology to optimise the layout and maximise the capacity in the permit ([53]). **Romania** authorises changes to the wind turbine type after the final building permit is issued, as long as key parameters (tip height and rotor) are met. Developers only have to notify such changes to the competent authorities.

3. Internal coordination and clear and digitalised procedures to reduce the complexity of the administrative authorisation processes

Depending on the Member State, project promoters have to interact with administrations at national, regional and municipal level and/or different departments or ministries. Several layers of sometimes conflicting national and regional legislation and procedures, as well as a lack of a clear division of competences between national, regional and/or local authorities add unnecessary complexities and can result in delays in the permit-granting process. According to stakeholders, it is not always clear if the involvement of certain authorities in the administrative authorisation process is mandatory and if their opinion is binding. Moreover, when several public bodies are involved in the granting of a permit, there is often a lack of transparency regarding the status of a project application and the stage at which a bottleneck exists. Furthermore, the roll-out of digital tools and solutions is uneven across administrations.

a. *RED provisions on the one stop shop and digitalisation and good practices in their transposition*

The RED requires Member States to designate a single contact point ("one-stop-shop") to guide the applicants during the entire permit-granting procedure ([54]), similar to the provisions of the TEN-E Regulation ([55]), the new provisions being introduced in of the hydrogen and gas markets decarbonisation package ([56]) or the "Single points of Contact" under the recently

([53]) Speeding up renewable deployment, RES - Global Renewable Energy Company (res-group.com), available at: https://www.res-group.com/en/cop/speeding-up-renewable-deployment/

([54]) RED Article 16(3).

([55]) Article 8 of Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure

([56]) Not yet adopted. It has been approved by the European Parliament (https://www.europarl.europa.eu/doceo/document/TA-9-2024-0283_EN.html), but adoption by the Council is still pending

agreed Net-Zero Industry Act ([57]). Examples also exist in other sectors where the introduction of one-stop-shops has reduced time and cost invested in seeking information, especially in relation to licensing and permitting requirements ([58]). In line with the subsidiarity principle, the RED gives Member States the flexibility to choose the most appropriate implementation rules, provided that applicants are not required to contact more than one contact point for the entire permit-granting process. The revised RED includes a new requirement, tasking the single contact point with ensuring the fulfilment of the deadlines for the permit-granting procedures.

Various options exist for designing the one-stop-shop. A purely administrative one-stop shop channels the communication between the renewables project promoter and the relevant authorities involved in the granting of the various permits necessary for building a power plant and connecting it to the grid. An extension of the mandate of the administrative contact point can also be envisaged, and the contact point can be entrusted with issuing all the necessary permits itself. Multiple one-stop-shops can be set up to deal with different project sizes, renewables technologies or administrative divisions in a Member State, as long as each applicant has one single contact point to rely on for a particular project.

One-stop shops have also been set up by entities responsible for grid infrastructure, such as the "national competent authorities" for projects of common interest under the TEN-E Regulation, or National Regulatory Authorities, Transmission System Operators, and national, regional or local authorities for other types of grids. Close coordination and alignment of processes between the RED one-stop shops and the "national competent authorities" is advisable in the case of projects of common interest. Existing regional cooperation structures dealing with energy policy, such as the above-mentioned political high-level groups, could be appropriate to explore and expand this close coordination.

When it comes to national provisions transposing REDII, in most cases, Member States have designated an existing national energy agency or another implementing agency as the single contact point, with the task of streamlining the administrative permit application and granting process. Listing all the authorities with which the single contact point ensures communication and coordination increases certainty and transparency for project promoters, as does referring to the specific legislation on which the contact point can provide advice.

In the case of **Denmark**, the Danish Energy Agency (DEA) has been designated as the contact point, and provides overall guidance on the administrative process, including the steps that need to be taken to establish and operate renewable energy facilities. In the case of offshore wind, DEA itself issues permits for projects within Denmark's territorial waters and its Exclusive Economic Zone. DEA prepares and issues the licenses through an iterative

([57]) According to the preliminary agreement, the Net-Zero Industry Act will require Member States to set up their single points of contact within 6 months after the entry into force of NZIA. The regulation will immediately entro into force after its adoption and publication, and will not require transposition. The preliminary agreement is available at https://data.consilium.europa.eu/doc/document/ST-6269-2024-INIT/en/pdf

([58]) From Red Tape to Smart Tape : Administrative Simplification in OECD Countries | Cutting Red Tape | OECD iLibrary https://www.oecd-ilibrary.org/governance/from-red-tape-to-smart-tape_9789264100688-en

process with the relevant authorities and conveys project-specific information to the authorities to mitigate conflicting interests ([59]).

In the case of **Sweden**, the Swedish Energy Agency is tasked with establishing and being responsible for a digital contact point. Direct links to the authorities handling a case have to be provided through the contact point. The national provisions also include a list of authorities, which shall assist the contact point, including authorities and agencies responsible for maritime issues, environmental protection, the national heritage and agriculture, as well as the municipalities.

Finland's single contact point is tasked with providing procedural advice on authorisation and other administrative procedures for renewable energy production plants. The national provisions include a list of elements to which the contact point's duty of advice applies, which includes the opinion of the Defence Forces on the acceptability of wind power construction. Moreover, a single electronic service layer has been established for the digital one-stop-shop, to which the permit-granting authorities and the promoters are connected. It automatically counts and keeps track of the time limits defined in legislation for 18 different permit-granting procedures.

Under RED, the contact point shall make available a manual of procedures for developers of renewable energy plants and shall provide that information online, addressing distinctly also small-scale renewable energy projects, renewables self-consumers projects and renewable energy communities.

When it comes to the use of digital tools and solutions more broadly during the permit-granting procedures, the revised RED requires that applicants are allowed to submit relevant documents also in digital form ([60]) and that Member States ensure that all permit-granting procedures are carried out in electronic form by 21 November 2025. In addition, information on permit-granting procedures is covered by Regulation (EU) 2018/1724 establishing a single digital gateway under its Annex I, point N on 'Information on licenses and permit granting'. The digitalisation of those procedures is also covered by Annex II of the aforementioned regulation under the item 'starting, running and closing a business', which includes 'permission for exercising a business activity'. Therefore, Member States shall comply with all related obligations including the use the Once-Only Technical System (OOTS). The use of e-communication to replace the use of paper forms and digital communication platforms unifying the different application processes also helps staff in the permit-granting authorities in the handling of the applications, as well as forming the basis for monitoring and improving the procedures. This would also increase transparency to project promoters as to the current status of their application, as well as allow all the various authorities involved to access the same centralised project entry. The digital transmission of documents also provides new opportunities for the innovative use of new technologies such as artificial intelligence. Its use has significant potential to speed up the processing of information and the permit-granting procedure as such.

Cyprus has included in its Recovery and Resilience Plan (RRP) a reform setting up a digital one-stop shop to streamline permit-granting for renewable energy projects. In the first six

([59]) Global Offshore Wind Report 2021, Global Wind Energy Council, https://gwec.net/global-offshore-wind-report-2021/

([60]) Article 16(3) of the revised RED

months of its existence, more than 300 applications have already been received. All concerned administrative authorities can be involved digitally, which contributes to the fact that the administrative authorisation process for the developers of renewable energy projects in Cyprus will be shortened considerably. Cyprus benefitted from technical support, managed by DG REFORM to help designing the methodology needed for the development of the one stop shop. The **German** State of Lower Saxony has introduced an electronic authorisation application form for immission protection applications (ELiA) ([61]), which is being used by eight German federal states and offers an encrypted submission of application documents. In the **Netherlands**, there is an online platform for "All in One Permit for Physical Aspects" for onshore wind and ground-mounted PV. Regardless of whether the responsible authority in the permit-granting procedure is the municipality, the province or the national government, the online platform is accessible, both for the responsible authority and the project developer. In addition, the online platform is used by some provinces to apply for a Nature Permit as well. In the **US**, the national administration has developed an automated permitting tool for rooftop solar installations, standardizing requirements, streamlining the application and automating some approvals. The portal is free of charge for local permit-granting authorities and frees up their resources by performing an automatic review of permit applications, approving eligible systems instantly. Complex or ineligible systems are re-routed for additional review. ([62])

b. *Other good practice examples to reduce complexity of administrative procedures*

In instances where different administrations need to coordinate and give their approval, the lack of a reply from one administration which holds up the next steps could be mitigated by means of the introduction of positive administrative silence under clearly defined conditions and unless a reply is required by EU or national law. The revised RED introduces positive administrative silence for intermediary administrative steps of the permit-granting procedure in renewables acceleration areas under specific conditions ([63]). **Spain** has introduced positive administrative silence for specific administrative steps in a 2020 decree for self-consumption installations and solar parks. Whenever several administrations involved need to give a reply to each other and they do not do so within 30 days, the specific administrative step is considered as approved.

Certain complex permit-granting procedures, such as those relating to projects with a cross-border nature, are better handled at a national level rather than locally. In that regard, in the **Netherlands** permitting for energy infrastructure assets falls under the competence of local authorities, however, for cross-border projects it is handled by the authorities at the national level.

One-stop-shops can also play a crucial role mediating exchanges between promoters, stakeholders and all involved permit-granting authorities. In the case of **Ireland**, the existence of an early and regular communication between promoters, concerned authorities and stakeholders, allows to set up a clear timeline in terms of procedure and assessments to be done, which can be followed by all parties. It also supports a uniform interpretation of permitting rules.

([61]) Elektronisches Genehmigungsverfahren - Version 2.7 | Nds. Gewerbeaufsicht (niedersachsen.de)

([62]) https://www.reuters.com/business/sustainable-business/us-seeks-speed-rooftop-solar-growth-with-instant-permits-2021-07-15/

([63]) See Art. 16a (6) of the revised RED and Art. 16d (2) for solar energy equipment, which mirrors Art. 4 of Council Regulation (EU) 202272577.

Single information points are also relevant for capacity building information, advice and training for citizen and renewable energy communities. Information, involving both national and local authorities, could include i.a. information on procedural requirements to obtain licenses and permits. In **Austria**, the Austrian Coordination Office for Energy Communities coordinates with the Ministry of Climate, the NRA, and regional governments with the aim of making administrative procedures more efficient, faster and transparent. Support can also be given to networks of energy communities to develop such information points. In the **Netherlands**, Energie Samen – an umbrella organisation of energy communities – has set up a one-stop-shop to support the set up and growth of energy communities.

The Clear-X project, which has received funding from the EU's Horizon 2020 research and innovation programme, has helped consumers in five Member States (Bulgaria, Cyprus, Lithuania, Slovakia and Slovenia) and one non-Member State (North Macedonia) install reliable and affordable renewable technologies in their homes, mainly solar PV and heat pumps, by providing them with information on the technologies suitable for households and organising collective purchase campaigns. In **Slovakia,** the project also provided information and assistance with the grid connection procedure.

4. Sufficient and adequate human resources and skilling of permit-granting entities

Processing an increasing number of project permits will require a sufficient number of adequately skilled staff in permit-granting authorities and grid operators, as well as staff responsible for environmental assessments and national courts dealing with appeal procedures. As explained in the RES Simplify report and confirmed by consultations carried out by the Commission, the lack of staff in permit-granting authorities currently constitutes an important barrier to project deployment in many Member States – either there is not enough staff, or the staff lack the necessary expertise or skills to process the project applications. According to the findings of the RES Simplify report, the shortage of staff is reportedly more prevalent in large Member States, where the problem is larger at national level than at regional level, while a lack of expertise is more common in markets with less familiarity with a particular technology and fewer completed projects. The lack of expertise often occurs at the local level, where staff have less opportunity to specialise, and/or is related to complex technical and legal questions. This is particularly common in rural areas, with small administrative capacities, but where large renewable energy projects are designed. Staffing issues have an impact on other barriers since authorities do not have the capacity to coordinate their work with each other, allowing for smoother execution of administrative processes. This includes the implementation of a single contact point, where a lack of staff or relevant expertise can create additional bottlenecks in the administrative procedures. ([64]) It is hence key to ensure appropriate skills and attractive jobs in the sectors concerned, across the various administrative levels, including but not limited to permit-granting authorities.

([64]) European Commission, Directorate-General for Energy, Tallat-Kelpšaitė, J., Brückmann, R., Banasiak, J. et al., *Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify). Interim report., 2021,* https://data.europa.eu/doi/10.2833/239077

A targeted and anticipative approach is needed to address staff shortages on the one hand, and the skills gap on the other hand. ([65]) As part of this approach and in line with the European Commission's gender mainstreaming approach in all areas ([66]), including the green and digital transition, specific attention should be paid to increasing women's participation and equal opportunities for all at all levels. In October 2023, the Commission presented an action plan to enhance the European Administrative Space (ComPAct) ([67]). It aims to foster administrative cooperation between public administrations at all levels to help develop their workforces for current and future challenges, to strengthen the capacity of public administrations for their digital transformation and to strengthen the capacity of public administrations to lead the green transition and build resilience. As part of this plan, the Commission committed to scale up the TSI 2023 PACE flagship to an annual exchange programme to facilitate the mobility of European civil servants across the Member States, to set up a Network of Centres of Excellence for the provision of thematic training, including for the green transition, to support the delivery of fully accessible online administrative services by using the Single Digital Gateway, and recognised the need for specific support to regional and local administrations in addressing complex issues such as permitting. The Commission also intends to publish an overview of the funding opportunities for public administrations' digital transformation and the synergies between them and support the federation of cloud capabilities across public administrations by procuring an open-source Smart middleware platform and publishing guidance on the public procurement of cloud services.

In their National Energy and Climate Plans (NECPs), Member States were asked to provide information on the total planned installed renewable energy generation capacity from 2021 to 2030, divided by new capacity and repowering, per technology and sector in MW. Member States were also required to identify specific measures to provide information and training. This planned installed capacity, along with an assessment of capacity additions delivered with existing staff levels should guide Member States in estimating the staffing and budgeting needs of permit-granting authorities.

While limited employment data exist for permit-granting authorities, in **Spain** the Region of Aragón awarded 1,100 MW of new onshore wind farm permits in 2018, with 30 staff fully dedicated to processing wind and PV permit applications ([68]). Several Member States have made use of the Recovery and Resilience Facility to hire additional staff or to organise trainings for permit-granting authorities. **Finland** has allocated EUR 6 million from its Recovery and Resilience Plan to hire temporarily human resources for environmental permits and procedures and project processing in 2021-2023, and to support new energy technologies, including offshore wind, large-scale solar power and geothermal energy. The financial support was used for personnel costs related to assessing environmental impact assessments, the processing of appeals against environmental permit decisions and to support municipalities and counties in ensuring land use planning and the granting of construction permits. **Estonia** included in the REPowerEU chapter of its Recovery and Resilience Plan a measure to support local authorities in speeding up the preparation and processing of wind energy building and operating permits. The measure aims to support 20 local authorities by

([65]) In line with the Commission Action Plan on labour and skill shortages in the EU, COM (2024) 131 final

([66]) A Union of Equality: Gender Equality Strategy 2020-2025, COM/2020/152 final, available at: https://ec.europa.eu/info/policies/justice-and-fundamental-rights/gender-equality/gender-equality-strategy_en

([67]) COM(2023) 667 final

([68]) Source: WindEurope

the first quarter of 2025, with a maximum amount of EUR 200 000 available per municipality to employ the experts or procure the services needed to speed up permitting. **Slovakia**, in the REPower EU section of its RRP, envisages employing 115 additional full-time employees to speed up the permitting procedures for the granting of environmental permits related to RES.

Italy has set up a 40-member task force, overseen by the Ministry of Ecological Transition, dedicated to the implementation of its National Energy and Climate Plan and its Recovery and Resilience Plan. It is tasked with speeding up the processing of Environmental Impact Assessments. Each of the task force members has at least five years of professional experience and the necessary skills to assess technical, environmental and landscape-related aspects of renewables projects. The **German** 18-point simplification plan for permit-granting for onshore wind projects foresees that the federal states need to ensure that planning and approval authorities have sufficient staff allocated and the necessary technical equipment to process the permit applications. Furthermore, Germany plans to strengthen the role of project managers to alleviate the burden on the permit-granting authorities and created a "Skilled Workers Taskforce" as part of its onshore wind strategy that is concerned with identifying and securing the need for skilled workers for the energy transition, including permitting authorities. ([69]) In **Poland,** an internship programme 'Energy for future', based on cooperation between central administration, public sector and system operators each year prepares experts, who are later employed in key energy sector areas, including the Ministry of Climate and Environment. ([70])

When it comes to ensuring that staff at authorities responsible for assessing renewable energy project permits are equipped with the appropriate expertise in legal and technical issues, the Pact for Skills is a new engagement model for addressing skills challenges needed for the economic recovery and delivering on the EU Industrial Strategy, and the green and digital transitions. It aims to address skills gaps throughout industrial ecosystems by mobilising companies, workers, national, regional and local authorities, social partners, industry organisations, vocational education and training providers, chambers of commerce and employment services to invest in upskilling and reskilling actions. As a follow up to the high-level roundtable under the Pact for Skills in 2021, renewable energy trade associations and representatives of installers of clean technologies, with the support of the European Commission, launched a large-scale skills partnership for onshore renewable energy in March 2023. The partnership will, among others, propose policy recommendations to advance skills development, involving relevant national authorities, education institutions, especially vocational education and training institutions, and training platforms; and attracting more women to clean energy-related jobs. The partnership declaration includes administrative, legal and technical/digital skills for staff in permitting authorities among the priorities for reskilling and upskilling. Under the Net Zero Industry Act, the Commission will be tasked with the creation of “Net Zero Academies” provide training and education on net-zero technologies. ([71]) Additionally, relevant EU funding opportunities are available (e.g. LIFE, cohesion policy funds, Technical Support Instrument). In this context, mutual recognition of

([69]) https://www.bmwk.de/Redaktion/DE/Publikationen/Energie/windenergie-an-land-strategie.pdf
([70]) https://www.gov.pl/web/klimat/program-stazowy-energia-dla-przyszlosci
([71]) See preliminary agreement available at https://data.consilium.europa.eu/doc/document/ST-6269-2024-INIT/en/pdf

diplomas, skills and qualifications across the EU is also key, particularly important in EU border regions ([72]).

Particular attention needs to be placed on the need for training and skills related initiatives to be targeted also specifically at the staff of the regional and local permit-granting authorities, and to take into account the specificities of their roles. In this respect, Member States are encouraged to take action and provide sufficient training opportunities in close cooperation with the social partners of the sectors concerned. A good practice example exists in **Estonia**, where the Ministry of Regional Affairs and Agriculture organises renewable energy information days, field trips/seminars and monthly roundtables for local governments to learn and exchange on spatial planning regulations. Moreover, the Environmental Board, a government agency, has provided training to local authorities and benefits itself from trainings on environmental effects of renewable energy projects and the assessment thereof, funded under the past under the EU TAIEX instrument and now under the REPowerEU chapter of the Estonian RRP.

In the maritime sector, initiatives at the EU level to tackle the skills challenge have gained momentum in 2017 with the maritime technology Blueprint for Sectoral Cooperation on Skills , followed by the Sector Skills Alliance (MATES project) which developed a long-term Strategy and Action Plan, set up a network and a number of pilots (training courses, measures to promote mobility, etc). Building on this, the Pact for Skills for Offshore Renewable Energy Partnership was established in 2021 under the European Pact for Skills, leading to the FLORES project ("Forward looking at Offshore Renewables") in 2022. It is worth noting that education and training schemes targeting the offshore renewable energy sector still do not exist in all Member States with significant offshore potential. Administrative twinning could be particularly relevant in the offshore sector, as some Member States are about to permit offshore renewable projects for the first time, while others have gained more experience.

With a view to facilitating the exchange of information, reducing complexity in the implementation of large-scale renewable energy projects and mitigating the pressing need for capacity building, Member States could also envisage setting up voluntary platforms for permit granting authorities. An example exists in **Spain**, where an informal working group on Environmental Integration was created in 2020 with representatives from the General State Administration (AGE) and the Autonomous Communities to coordinate environmental bodies in the assessment of renewable energy projects. Such platforms could act as knowledge-sharing repositories providing best practices, aiming to increase efficiency or identify synergies in the different processes in Member States. In addition, project promoters could benefit from capacity building initiatives aimed at eliminating delays due to the low quality of the documents and studies submitted to the permit-granting authorities.

5. Better identification and planning of locations for renewable energy projects and related infrastructure

A decarbonised energy system largely based on renewable energy sources will generally require more space than the traditional energy system, characterised by larger, centralised

([72]) Report from the Commission "EU Border Regions: Living labs of European integration", COM/2021/393 final.

energy production plants. Being in large parts a densely populated continent, land use conflicts and the need to balance different public goods and interests are frequent in Europe. Renewable energy projects are facing competition for access to suitable areas and land/sea use constraints resulting in particular from agriculture/fisheries, maritime transport routes, cultural heritage and defence-related activities. In order to accelerate the deployment of renewables and of related infrastructure in the medium to long term, well-designed spatial planning and analytical feasibility studies are therefore key instruments. They intervene in an early phase, having the potential to reduce environmental impacts, land/sea use conflicts and point project developers to suitable sites, which in turn may accelerate permit-granting procedures. This is also the approach for renewable acceleration areas and dedicated infrastructure areas under the revised RED.

a. Land/sea use constraints and good practices to facilitate the identification of suitable areas

A more strategic approach to designate sites for renewables deployment through spatial planning will be instrumental in making available sufficient space to host the additional renewable energy capacities which are required to meet the EU targets. This concerns both offshore and onshore technologies for renewable power generation as well as the renewable heat sector. The relevant administrative level for such plans may be different per technology – for instance, suitable sites for wind installations may need to be identified at a more regional level, while small solar PV sites can be designated at the municipal level. Maritime Spatial Plans are developed at the national level, more and more in cooperation with neighbouring countries within the same sea basin. The Offshore Strategy ([73]) clarified that Maritime Spatial Planning was a key pillar of the deployment of these technologies, which must comply with EU environmental legislation and integrated maritime policy. The revised TEN-E Regulation requires Member States to cooperate in setting their deployment targets for offshore renewable energy in 2050, with intermediate steps in 2030 and 2040. The revised RED has introduced new mapping and planning obligations for renewable energy projects as legally binding obligations in Articles 15b and 15c. Article 15b requires Member States to translate their national contributions towards the revised EU renewable energy target into the areas that are required for the renewable energy projects needed to achieve those targets. Article 15c introduces a more targeted mapping obligation. Taking as a starting point the areas identified under Article 15b, the relevant competent authorities of Member States must identify, as a sub-set of those, areas that can be designated as "renewable acceleration areas" for at least one renewable energy technology where the deployment of such technology is not expected to have a significant environmental impact. When doing so, Member States must exclude Natura 2000 sites and areas designated under national protection schemes for nature and biodiversity conservation, major bird and marine mammal migratory routes as well as other areas identified on the basis of sensitivity maping. Member States shall give priority to artificial and built surfaces, such as rooftops and facades of buildings, transport infrastructure and their direct surroundings, parking areas, farms, waste sites, industrial sites, mines, artificial inland water bodies, lakes or reservoirs and, where appropriate, urban waste water treatment sites, as well as degraded land not usable for agriculture. The relevant competent authorities of Member States must adopt one or more plans designating renewables acceleration areas for

([73]) An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future, COM (2020) 741 final

one or more renewable energy technologies by 21 February 2026. The European Wind Power Action Plan ([74]) announced the dedicated guidance ([75]) on the designation of renewables acceleration areas to provide Member States with a set of initial considerations, good practice examples and an overview of possible mapping, planning and digital tools that can support the designation process.

Importantly, in the context of the just transition, coal mines located in the coal regions in transition could become attractive locations for conversion into wind and solar PV sites, or even geothermal or renewable hydrogen production, depending on the location and surrounding industrial ecosystem. More generally, coal regions hold a potential for renewables deployment – estimated to be at about 1.4 GW of wind power and 2.7 GW of solar. ([76]) An additional advantage of former fossil fuel exploitation sites is that they often enjoy good grid connection, and an available workforce on-site. Examples exist in **Spain, Greece** or **Hungary,** and **Germany** explores ways to use floating PV on quarry lakes that are the result of reclamation measures in former lignite mining areas.

Italy has set out the applicable regulations for the identification of suitable areas for the installation of renewable energy. The total capacity that can be installed in the identified areas needs to be at least equal to the capacity identified in the National Energy and Climate Plan as necessary for reaching the objectives when it comes to the development of renewables. These regulations also specify that when identifying areas suitable for renewables, the impact on the environment, cultural heritage, the landscape, as well as other relevant considerations such as the availability of resources and grid infrastructure, needs to be taken into account. An implementing decree is currently under elaboration with the concerned Ministries and the regions, which will define homogeneous criteria and principles as well as provide for the distribution of the targets in terms of installed capacity between regions. A digital platform will be created to connect and process data for the characterization and qualification of the territory and to monitor progress.

Coordination across different levels of government is crucial in particular in federal states or countries with autonomous regions. In **Germany**, the federal states are required to report to the federal government on the status of renewables, including on permitted renewables 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. The new Wind Onshore Act requires that two percent of the land area is to be designated for onshore wind energy. In the federal states of Hessen and Schleswig-Holstein, this approach has already been implemented successfully.

In addition to a supportive spatial planning framework, digital tools such as geographic information system (GIS) online databases and cadastres may also ease identification of suitable land (e.g. showing potential per technology ([77]), restricted areas, degraded land not usable for agriculture, grid availability, existing projects and data/studies, environmental pre-assessments). At the Union level, the Energy and Industry Geography Lab (EIGL) is visualising some of these data. ([78]) The Commission has just finalised the inclusion of data sets in the EIGL that can help the Member States identify suitable areas for wind and solar

([74]) European Wind Power Action Plan, COM/2023/669 final
([75]) SWD (2024) 333 final
([76]) Clean energy technologies in coal regions, Kapetaki, Z. editor(s), Luxembourg, 2020, doi:10.2760/384605
([77]) See for example the REZoning tool available at https://rezoning.energydata.info/
([78]) https://ec.europa.eu/energy-industry-geography-lab

energy projects. While relevant datasets depend on the renewable energy source under assessment, the following have been already included in EIGL amongst others: Natura 2000 sites, nationally designated areas, key biodiversity and important bird areas, soil data, data on marine noise and the occurrence of threatened species. ([79])

While the inclusion of such data sets in the mapping tool does not introduce any constraints or limitations in the deployment of renewable infrastructures in line with the relevant legislation, it facilitates their deployment while minimising conflicts and negative impacts on the environment. The mapping tool is thus intended as an enabling and empowering instrument to support planning choices by national and regional authorities who may not otherwise have immediate access to the full range of available data, with particular benefits for projects likely to have cross-border impacts. This in turn should guide and support investment decisions by economic actors on the basis of predictability and clarity. The Commission intends to develop this mapping tool further by incorporating additional data sets and links with Member States' digital spatial planning tools.

In **Denmark**, the online platform The Danish Environmental Portal ([80]) 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. 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. ([81]) In **Croatia**, the Open Data Portal of the Republic of Croatia is a data platform used for the collection, categorisation and distribution of open data created by the public sector, including geolocation, meteorological and environmental data. In **Poland**, the Commission is supporting the development of a database of former and current coal mining sites coupled to a GIS, which aims at identifying possible reuse of sites, including for the deployment of clean energy solutions. A similar project was also supported by the Commission in **Greece**. In the Brussels region in **Belgium**, citizens can check the potential of their roofs in terms of PV generation. ([82]) To simplify licensing and permitting for small scale geothermal heat pump installations, some regions in **Austria, France, Germany** and **Italy** already operate tri-zonal 'traffic light' systems based on geological surveys, indicating zones where a simple notification is required, zones where a permit is required and zones where drilling is prohibited.

As regards grids, **Germany** made use of the dedicated grid area provisions of Article 6 of the Council Regulation (EU) 2022/2577 of 22 December 2022 in swift manner after the enactment of the Regulation, allowing a significant acceleration in grid permitting by 6 months for projects already advanced in the permitting process and up to 3 years for projects at early stages (in combination with other measures). ([83])

([79]) An explanatory note on data limitations, knowledge gaps as well as on how to use the different layers (e.g. clarifying that wind and solar energy projects can be located in Natura 2000 sites provided that the provisions of the Habitats Directive are respected) is also available.

([80]) https://miljoeportal.dk

([81]) Thus, the only uncertainty left in this regard is possible archaeological finds.

([82]) https://geodata.environnement.brussels/client/solar/?_ga=2.96364508.1780876011.1647281973-1886784996.1647281973

([83]) For more details, see presentation by Germany at the 3rd meeting of the RES permitting expert group, available at https://ec.europa.eu/transparency/expert-groups-register/screen/meetings/consult?lang=en&meetingId=51835&fromExpertGroups=3885

b. Multiple use of space

Another way to address land/sea use constraints is by facilitating multiple use of space. This approach in maritime spatial planning can support the coexistence of energy infrastructure and shipping routes, and contribute to the protection of marine ecosystems. Other approaches, such as Agri-PV or floating solar can optimise the space available for renewable energy projects. Lifting restrictions in national legislation banning the multiple use of space or creating a dedicated framework for multiple use could enable more projects. To that end, the EU Solar Energy Strategy, adopted in May 2022, announced that the Commission would provide guidance to Member States on promoting the development of innovative forms of solar deployment that either allow for multiple use of space (agri-PV, floating PV, transport infrastructure PV) or are integrated with other products (building-integrated PV and vehicle-integrated PV). Under the recently agreed Net-Zero Industry Act Member States have the possibility to designate Net-Zero Acceleration Valleys to foster net-zero industrial activity clusters and streamline administrative procedures. In this regard, Member States should ensure potential synergies with RED acceleration areas. Innovation in the field of permit-granting, that is commonly a very sectoral process, will also be needed to support new multi-use projects.

Agri-PV, the practice of combining agriculture and solar PV production, has started to become more widespread over the past few years. Several Member States have defined guidelines (**France, Italy**) or standards (**Germany**) for Agri-PV initiatives, and others are looking into introducing legislative and non-legislative initiatives to foster the development of Agri-PV installations (including **Czechia, Poland and Spain**). Dual use via Agri-PV can help gain public acceptance and directly benefit farmers and rural communities. Scientific research shows that these approaches can also bring co-benefits, like better water retention in arid areas and overall better productivity.[84] Consensus on definitions and impact criteria would be beneficial at national and regional levels. This would pave the way for allowing Agri-PV more systematically in land use plans and help avoiding negative effects for farmers.

A similar practice has emerged in the maritime space, where **Belgium** has designated sites in its maritime spatial plan for simultaneous development of activities, i.e. food production (fisheries, aquaculture) and offshore renewable energy, thereby promoting synergies and multi-use by design. Establishing fora for key stakeholders to exchange sensitive information is another way to promoting co-existence. This is the approach followed by the project Symbiosis led by the European defence agency ([85]). Multi-use can also develop through adding new activities to existing ones. ([86]) Combining a marine economic activity with nature

([84]) Barron-Gafford, G.A., Pavao-Zuckerman, M.A., Minor, R.L. et al. Agrivoltaics provide mutual benefits across the food–energy–water nexus in drylands. Nat Sustain 2, 848–855 (2019). https://doi.org/10.1038/s41893-019-0364-5; Hassanpour Adeh E, Selker JS, Higgins CW (2018) Remarkable agrivoltaic influence on soil moisture, micrometeorology and water-use efficiency. PLoS ONE 13(11): e0203256. https://doi.org/10.1371/journal.pone.0203256

([85]) https://eda.europa.eu/what-we-do/eu-policies/symbiosis

([86]) For example, as developed under the EDULIS project (2017-2019), offshore wind farm infrastructure can be used to develop aquaculture such as mussels farming. More details on can be found in then "Best Practice Guidance in Multi-Use Issues and Licensing Procedures", June 2021, https://maritime-spatial-planning.ec.europa.eu/msp-resources/ec-msp-studies

protection (e.g. in Natura 2000 sites as long as the project does not adversely affect the integrity of the site concerned) or with restoration measures is also possible.

c. *Community acceptance and involvement*

Centrally defined deployment or space use targets can be important depending on the national context, since municipalities often tend to see the development of renewable energy from the local perspective and do not always take into account the national renewable energy targets. On the other hand, renewables and grids development should be embraced locally and not seen as imposed on local communities to their detriment. Therefore, early public involvement in defining regional or local spatial plans is crucial ([87]), and so are measures to allow local communities to benefit from renewable energy installations in their vicinity, also in the broader perspective of a socially just green transition ([88]). This can be achieved via energy communities ([89]), reduced costs of electricity or financial participation schemes ("co-ownership" or "co-benefits") or industrial development plans for a region.

Such schemes can be organised in different forms, e.g. funding from national or regional sources being allocated to the local authorities for the provision of areas and resources, plant operators directly paying a specific fee or tax to the local authorities, or plant operators voluntarily making payments to a regional association with the purpose of improving the local situation. Such payments should be bound to specific purposes in order to increase social benefits of citizens, on top of social services and infrastructures that the State already delivers. A clear regulatory framework avoids case by case negotiations, which could lead to uneven results and present a higher risk for public misconduct. Some Member States have incorporated criteria related to benefits for local communities in their auction schemes for renewable energy projects, e.g. **Ireland** in its first offshore wind auction ORESS 1. However, not all renewable energy projects rely on participation in public support schemes.

The revised RED includes a new article 15d on public participation, which requires Member States to promote public acceptance of renewable energy projects by means of direct and indirect participation of local communities in those projects.

Examples of schemes introduced at national level include the „green funds scheme" for municipalities hosting wind projects in **Denmark,** a subsidy scheme for municipalities in **Luxembourg** or minimal participation rates of local inhabitants foreseen in various regional energy strategies in **The Netherlands**. The Climate Change Act of the Balearic Islands, **Spain**, has a special provision that all renewables projects above 5MW must open at least 20% of the investment to the local population. Another possibility for enhanced local economic participation are options for investing in shares of renewable energy projects, as promoted for example by the "Green growth crowdfunding label" in **France** ([90]). These

([87]) Public participation at project level, if designed well, can also increase acceptability, but it is more effective when combined with public participation at an earlier planning stage.

([88]) See also the Council Recommendation of 16 June 2022 on ensuring a fair transition towards climate neutrality (2022/C/243/04) and its whole-of-society approach, including the assessment of the effective involvement of citizens and societal stakeholders and the exchange of good practices for ensuring the fair sharing of the costs and benefits of installations.

([89]) Renewable energy communities as defined in the Renewable Energy Directive, citizen energy communities as defined in the Electricity Market Directive, or other types of community energy.

([90]) https://www.ecologie.gouv.fr/label-financement-participatif

crowdfunding approaches, as well as certain other financial participation schemes, however only create benefits for the citizens who are able to invest in the projects ("co-ownership", with or without participation in the governance).

Renewable energy communities are very powerful tools to enhance the active participation and benefits of the local population in the energy transition. They can also help address energy poverty. In **Greece**, the definition of renewable and citizen energy communities provides that they may support vulnerable consumers and alleviate energy poverty. To this end, citizens living below the poverty line can benefit from the energy produced by the community without being part of it through virtual net-metering (a form of energy sharing). In **Belgium**, social housing companies developed an innovative business model where they invest in solar panels settled on the roofs of the social housings, and the cost of the use of PVs and the generated electricity is included in the rents. The rental cost is cheaper than current electricity prices, thanks to the important scale of the project. ([91])

Cross-border energy communities can play a significant role in EU border regions ([92]). The project "SEREH – The Smart Energy Region of Emmen-Haren" ([93]), under the Interreg cross-border cooperation programme between **Germany** and the **Netherlands**, is already leading the way. It is developing a decentralised cross-border electricity and energy market, and other border regions will be able to build on its findings and recommendations.

When it comes to the involvement of communities in the energy transition, in 2021 the **Irish** Transmission System Operator EirGrid, Friends of the Earth and the Renewables Grid Initiative have launched a joint 3-year project ([94]) to engage communities in a dialogue on the challenges and opportunities associated with Ireland's energy transition.

In the **Netherlands**, a comprehensive involvement of citizens and regional stakeholders is part of the national programme on regional energy strategies. These strategies describe the region's quantitative ambition to contribute to the national 2030 renewables target, including where and how, and are updated every two years. Moreover, guidance and tools on how to organise public participation under the environmental and planning act are made available online. ([95]) Also, when developers apply for a permit, they have to indicate in the application whether citizens, companies, NGOs or public authorities have been consulted and how the process was carried out.

As regards grids development, public hearings, or other stakeholder engagement opportunities are beneficial when organised early and regularly during the design and planning procedure in an inclusive, accessible, and informal manner, allowing the public to interact with the project promoters and decision-makers. This allows still for possible changes or adaptations of the location, routing or technology used thus mitigating public opposition at later stages. In **Sweden,** a recently conducted assessment on how to achieve shorter lead times for the

([91]) https://aster.vlaanderen/nl/english-summary
([92]) Both the Electricity Market Directive and the Renewable Energy Directive set the conditions for Member States to include options for cross-border implementation of energy communities in their national transpositions.
([93]) https://sereh.eu/en/sereh/
([94]) https://renewables-grid.eu/activities/ird/our-energy-future.html
([95]) https://iplo.nl/regelgeving/omgevingswet/participatie

development of grid projects concluded that early dialogues with stakeholders are essential to solve problems as early and as effectively as possible. ([96])

Proximity of wind turbines to housing also in some cases constitute grounds for public opposition to projects. In these cases citizens raise concerns related to the nuisances they suffer, such as noise and visual impacts.

Regulations on distance between wind turbines and housing vary across the Member States ([97]) – in some cases the setback distance depends on region or municipality, or on the population density of the area where the turbines are located. In other cases, the turbine's tip height and rotor diameter determine the setback distance.

Studies suggest that very high setback distances may only result in marginal additional benefits from the noise reduction perspective while at the same time increasing costs associated with service roads and support infrastructure, and locating electricity generation further away from demand ([98]). Restrictive regulations in this regard can also make large shares of land unavailable for projects and/or reduce the possibility to repower existing wind farms with the most up to date technology. As a consequence, developers sometimes need to install outdated equipment in the form of smaller and less efficient wind turbines to fulfil the distance requirements. Project developers may also opt for lifetime extension rather than repowering of the existing sites.

The rules regarding distance to housing should be factually grounded and evidence-based, i.e. in relation to noise and visual disturbances and set at the minimum necessary ([99]). When setting the rules, Member States need to balance the need to minimise the negative effects of wind turbines and maximise the availability of land for the development of projects, also taking into account other spatial planning constraints. Furthermore, clear and transparent information on restrictions related to distance to housing is needed to ensure investment certainty for project developers.

As regards permitting for grids, issues can be identified early on and mitigated when permitting authorities draw a comprehensive permitting schedule based on bilateral discussions with promoters early in the planning process to determine the permitting and public consultation needs. Moreover, contacts with concerned authorities immediately after the start of the permit-granting process will allow project promoters to identify concerns early and account for them in the permitting preparation. In **Ireland**, the permitting authority ensures such contacts with promoters early in the planning phase, which are later complemented by regular clarification sessions between the promoter and the authority. Additionally, the national permitting authority contacts other concerned authorities, flagging potential issues and relevant assessments, including to the national environment authority, affording them sufficient time to act without increasing the permitting duration. In **Sweden**, the recent assessment of the permitting system for electricity grids concluded that an early engagement with concerned authorities is essential to allow the creation of parallel

([96]) https://www.ei.se/om-oss/nyheter/2023/2023-04-27-ei-presenterar-ledtidsforkortande-atgarder-i-rapport-till-regeringen

([97]) JRC Publications Repository - Wind potentials for EU and neighbouring countries: Input datasets for the JRC-EU-TIMES Model (europa.eu)

([98]) Is setback distance the best criteria for siting wind turbines under crowded conditions? An empirical analysis, Energy Policy 155 (2021) 112346. https://doi.org/10.1016/j.enpol.2021.112346

([99]) In most Member States minimum distance rules of 500-1000 m are in place.

workstreams and to jointly design a comprehensive permitting plan. To support it, a national knowledge sharing platform is being set up.

d. *Environmental considerations*

Some of the most common issues related to site selection faced by renewables project developers are the length and complexity of procedures to comply with environmental legislation as well as conflicts with environmental associations or citizens. Permits and associated environmental assessments are a tool to balance different societal interests, but this also makes them prone to the introduction at national level of high levels of complexity and challenges in administration and courts of justice. Where different societal interests need to be assessed and balanced, the reflection and decision-making process necessarily takes time. Therefore it is necessary to integrate environmental considerations in the renewable energy and grids planning processes from the start. This allows identifying the likely significant effects on the environment and the measures envisaged to prevent, reduce and offset them as much as possible. For this reason, environmental assessments at planning level (such as SEA or Appropriate Assessment under the Habitats Directive) are of utmost importance. Furthermore, there may be options which would allow Member States to streamline the procedures to ensure compliance with environmental legislation and to facilitate selection of suitable sites by promoters. This would also help in reducing conflicts that can arise with environmental groups and individual actors but also with public authorities at different levels. Such conflicts affect in particular wind power, geothermal power and hydropower, but also large-scale solar PV installations. ([100]) While access to justice is a fundamental right, alternative dispute resolution mechanisms and mediation can lead to faster resolution of such conflicts, even if Courts of Justice (and notably the European Court of Justice when cases refer to the EU acquis) have always the primacy.

i. Requirements stemming from EU environmental legislation and ways to streamline compliance

It is possible that several **environmental assessments** for a single project are required.. Specific additional requirements in permit processes are often introduced at the national level (e.g. related to property issues, land-use planning or cultural heritage). Multiple legal requirements and parallel assessments for a single project can lead to administrative and implementation costs and delays, discrepancies and administrative uncertainty in their application.

The revised RED has introduced targeted modifications and derogations to certain rules of Union environmental legislation, mainly for “renewable acceleration areas”, “dedicated infrastructure areas” but also provisions for streamlined permitting procedures and accelerated timelines for renewable energy projects located outside such areas. For instance, the revised RED requests Member States to carry out the environmental assessment under the EIA

([100]) European Commission, Directorate-General for Energy, Tallat-Kelpšaitė, J., Brückmann, R., Banasiak, J. et al., *Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify). Interim report., 2021,* https://data.europa.eu/doi/10.2833/239077

Directive or the appropriate asseessment under the Habitats Directive in a single procedure combining all relevant assessments for the specific project. Streamlining offers a significant potential for simplifying environmental permit-granting when several environmental assessments stemming from a number of Directives (the EIA Directive, the SEA Directive, the Habitats and Birds Directives, the Industrial Emissions Directives, the Water Framework Directives, the Seveso Directives, etc.) are required and several authorities are involved. Under the "one-stop shop" approach, the above assessments and their approval can be prepared separately but be coordinated; they can also be joined together as part of a single process.

Good practices in this regard can be observed in **Austria**, where EIA procedures are concentrated permitting procedures in which all necessary approvals are granted in one procedure by one authority and in **Romania**, where not only the appropriate assessment, but other obligations related to environmental protection (derived from the Industrial Emissions Directive, Seveso Directive, Waste Directive) are integral part of the EIA process. The procedure for assessment of impact on water bodies is coordinated with the EIA process.

Seamless roll-out of renewable energy projects and related infrastructure could also be supported by transparent and strategic planning ([101]), also outside renewables acceleration areas and dedicated grid areas. Concerning environmental permits, Member States could increase legal certainty and transparency by systematically applying the Strategic Environmental Assessment (SEA) ([102]) Directive to plans relevant for renewable projects and related grids planning and permitting. The SEA allows to plan strategically the development of renewable energy projects and of the necessary grids with more certainty, while factoring in the environmental obligations. Where applicable, the national authorities and project developers can rely on the outcomes of the SEA and take these into account in the subsequent project development, in particular for identifying reasonable alternatives in the context of the nature conservation and preservation objectives. This would allow Member States to harness the energy potential from different renewable energy sources while mitigating the negative environmental impacts from energy projects. It would encourage a more integrated and efficient approach to territorial planning where environmental considerations are taken into account in early phases of the planning process and at a much more strategic level. It would also translate into fewer conflicts at the individual project level, both in substance and in terms of public acceptance. A good practice exists in **Portugal**, where authorities issued practical guidance on how to do SEA in an innovative and sustainability oriented way, using strategic thinking. ([103])

The Commission has adopted revised methodological guidance on Article 6(3) and (4) of the Habitats Directive, i.e. on appropriate assessment of plans and projects located in Natura 2000 sites. ([104]) These guidelines, together with sectoral guidelines on wind energy ([105]), energy

([101]) Also underlined in the Communication from the Commission “An EU Strategy to harness the potential of offshore renewable energy for a climate neutral future” (COM/2020/741 final).

([102]) Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment, OJ L 197, 21.7.2001, p. 30

([103]) SEA better practice guide, available via https://maritime-spatial-planning.ec.europa.eu/practices/strategic-environmental-assessment-better-practice-guide-0

([104]) https://ec.europa.eu/environment/nature/natura2000/management/pdf/methodological-guidance_2021-10/EN.pdf

([105]) https://ec.europa.eu/environment/nature/natura2000/management/docs/wind_farms_en.pdf

transmission ([106]) and hydropower ([107]), provide many practical examples of how project approval can be facilitated, without compromising nature protection needs, among others via strategic (spatial) planning, use of solid environmental data and suitable mitigation measures. Guidance ([108]) has also been developed under the Water Framework Directive, clarifying in particular options to streamline procedures for assessing environmental impacts, identifying better environmental alternative measures, justifying the existence of an overriding public interest and identifying appropriate mitigation measures. Some Member States also developed national guidelines for the preparation of EIA reports specifically for renewable energy projects, e.g. **Spain** for PV ([109]), **Latvia** for screening wind power plants ([110]) and **Romania** for hydropower ([111]).

Most renewable energy projects are not automatically subject to an obligatory EIA and Member States should establish clear thresholds or criteria in this regard, within the flexibilities allowed by the EIA Directive. In **Slovakia**, for instance, the provisions of the EIA Act apply solely for PV plants over 5 MW. In the case of plants in the power range between 5 and 50 MW, an investigation process (i.e. screening) follows. For PV plants with the installed capacity of 50 MW and higher, the mandatory assessment applies.

Clear and transparent rules for environmental assessments communicated to the project developer at the start of the process are another avenue for accelerating procedures. Scoping opinions from environmental authorities are a very useful tool in this regard. The revised RED now requests the competent authorities, taking into account the information provided by the project developer, to issue an opinion on the scope and level of detail of the information to be included by the project developer in the environmental impact assessment report, of which the scope shall not be extended subsequently. In a number of Member States, such scoping is already mandatory (**Bulgaria, Czech Republic, Denmark, Estonia, Finland, Luxembourg, Romania**).

Practical experience shows that clarifying the scope and level of detail of the environmental information at an early stage avoids multiple exchanges and new requests between the developer and the competent authorities at a later stage and speeds up the project approval. In **Estonia**, the competent authority itself prepares the EIA programme and decides on the scope of the EIA for onshore wind farms. The deadline for decisions on the EIA is 90 days. **Lithuania** introduced in its amended EIA law consultative meetings of institutions and drafters of EIA documents, with the aim to avoid repeated submission of comments to the EIA report and its faster correction. The law also introduced shorter deadlines for renewable energy projects related to examination and coordination of the EIA reports and making decisions. Moreover, the Ministry of Environment introduced detailed criteria for assessing

([106])https://ec.europa.eu/environment/nature/natura2000/management/pdf/guidance_on_energy_transmission_infrastructure_and_eu_nature_legislation_en.pdf

([107]) https://ec.europa.eu/environment/nature/natura2000/management/docs/hydro_final_june_2018_en.pdf

([108]) Common Implementation Strategy for the Water Framework Directive and the Floods Directive, Guidance Document No. 36: Exemptions to the Environmental Objectives according to Article 4(7) https://circabc.europa.eu/sd/a/e0352ec3-9f3b-4d91-bdbb-939185be3e89/CIS_Guidance_Article_4_7_FINAL.PDF

([109]) https://www.miteco.gob.es/content/dam/miteco/es/calidad-y-evaluacion-ambiental/temas/evaluacion-ambiental/guiaelaboracionesiaplantasfotovoltaicassgea_tcm30-538300.pdf

([110]) https://www.vvd.gov.lv/lv/jaunums/izstradatas-vadlinijas-veja-parku-ietekmes-uz-vidi-sakotnejo-izvertejumu-veiksanai

([111]) https://www.mmediu.ro/categorie/ghiduri/179

the impacts of wind farms on birds and bats as well as on landscape and adopted standardised environmental requirements for solar power plants. The link between EIA and permitting was strengthened by requiring mitigation measures with concrete timeframe to be determined during the EIA, which made it easier to translate them into permit conditions.

The concept of 'imperative reason of overriding public interest' is referred to in several pieces of environmental legislation. In order to facilitate the use of existing derogations in EU environmental and energy legislation, Member States should transpose in their national legislation the provision in the revised RED ([112]) that the planning, construction and operation of plants for the production of energy from renewable sources, their connection to the grid and the related grid itself are presumed as being in the **overriding public interest** and in the interest of public safety. Projects which are able to benefit from such presumption on a case-by-case basis should qualify for the most favourable procedure available in their planning and permit-granting procedures.

For the purposes of deployment of renewable energy projects outside renewable acceleration areas, Member States should establish clear and simple procedures to screen renewable energy projects in view of assessing whether they are likely to have a significant negative impacts on Natura 2000 sites on their own or in combination with other plans or projects. Whenever significant impacts cannot be excluded by the competent authorities, an appropriate assessment should be carried out under Article 6(3) of the Habitats Directive.

Both screening and appropriate assessment should be carried out in view of the site-specific conservation objectives. To this end Member States should establish site-specific conservation objectives for all Natura 2000 sites without further delays. This will allow to properly and promptly assess the likelihood of impacts on the Natura 2000 sites and the impacts themselves during screening phase and appropriate assessment, respectively. Clarity about the likelihood of impacts and the impacts themselves on the Natura 2000 sites is in the interest of project promoters and Member States authorities, as this determines a swift conclusion of the authorisation procedure with the required legal certainty.

Member States should swiftly conclude the authorisation process by authorising all the projects not likely to have significant impacts on Natura 2000 sites in view of their site-specific conservation objectives, on their own or in combination with other plans or projects.

Member States should also swiftly conclude the authorisation process by authorising all the projects assessed as not affecting the integrity of the Natura 2000 sites in view of their site-specific conservation objectives, on their own or in combination with other plans or projects. Member States should also ensure that renewable energy projects and the related infrastructure projects integrate appropriate mitigation measures to effectively prevent or reduce negative impacts on the protected habitats and species under the Birds and Habitats Directives.

Finally, the concept of overriding public interest and of the need to weigh up the advantages for sustainable development against potential negative impact on the environment also applies in the context of the Water Framework Directive. Article 4(7) of that directive requires a prior authorisation of all new modifications or projects which may deteriorate the status of water

([112]) Article 16f of the revised RED

bodies, in accordance with the case law of the Court of Justice of the EU ([113]). This requires in the first place an assessment of the potential impact on all potentially affected water bodies. Should deterioration be likely, it requires to assess:

1) Whether the advantages for sustainable development can be considered to override the potential negative impact on water status;
2) Whether there are no better environmental alternative solutions for achieving the benefits for sustainable development, which are not disproportionately costly;
3) Whether all practical measures are being taken to mitigate the impact as much as possible.

These procedural steps can benefit from information obtained under assessments to be carried out under various other pieces of environmental legislation (including SEA, EIA, Habitats Directives), as explained in recent guidance ([114]) developed by the Commission in cooperation with Member States and stakeholders. In turn, the latter would benefit from information obtained under the WFD assessments. Coordinated or, preferably, joint procedures could simplify and shorten the authorisation of renewable energy projects to a significant degree.

ii. National approaches which facilitate selection of suitable sites or adapting projects from the environmental point of view

Central provision of available environmental studies and regularly updated data relating to a given region and technology, or even active conduct of environmental assessments by authorities relating to the relevant aspects for renewables commissioning, is a highly relevant tool to facilitate the site selection process for project developers or to allow them to design projects accordingly.

In **Spain**, the government has created a tool ([115]) to help in strategic decision-making on the location of large solar and wind installations. The tool maps the environmental sensitivity of the national territory and identifies the areas that present the greatest environmental conditioning factors for the implementation of renewable energy projects. Although these tools do not exempt projects from the relevant EIA process, they are a useful guidance to ascertain the environmental conditioning factors associated with the locations of an installation from the early stage. In **Germany**, the Association of Nature Conservation (NABU) and the German solar energy association (BSW-Solar) have developed a joint paper ([116]) containing criteria for environmentally sound planning of ground-mounted solar projects. In **Belgium**, the region of Flanders maintains an online wind farm sensitivity map ([117]) for birds and bats aimed at identifying areas where siting wind turbines may pose a risk to birds or bats, informing and guiding more site-level assessments and strategic planning.

Making available data from environmental assessments and monitoring of impacts of existing projects also helps in the identification of suitable sites and taking account of potential cumulative impacts. Some Member States have taken steps to ensure greater transparency of

([113]) C-346/14, European Commission v Republic of Austria, ECLI:EU:C:2016:322.
([114]) See footnotes 65 to 69 above.
([115]) https://sig.mapama.gob.es/geoportal/
([116]) https://www.nabu.de/imperia/md/content/nabude/energie/solarenergie/210505-nabu-bsw-kritereien_fuer_naturvertraegliche_solarparks.pdf
([117]) https://geo.inbo.be/windturbines/

data stemming from environmental impact assessments. In **Austria**, the Federal Environment Agency operates the "EIA documentation" website which makes data on EIA procedures available such as the environmental impact assessment reports, the reasoned conclusions by the authority, the EIA decisions and the results of post-project analysis. ([118]) In **Estonia**, digitalisation of previous EIA/SEA reports is ongoing in order to enable rapid analysis of certain data from previous assessments and improve the quality of reports, as part of a wider EIA digitalisation effort. **Belgium** is gathering and publishing data on environmental impacts of offshore wind farms through an impact monitoring programme, in ancitipation of furure capacity expansion. ([119])

Good practice examples exist in the **Netherlands** and **Germany** on environmental pre-assessment of offshore wind sites. The site development plan of the German Federal Maritime and Hydrographic Agency includes extensive consultation processes, early site adaptability investigations and strategic environmental assessments. Thanks to the field analyses on general suitability criteria such as environmental aspects or shipping safety conducted by the agency, the risk associated with an authorisation application is considerably lowered for project promoters in the region. The Dutch Ministry of Economic Affairs and Climate Policy is conducting an offshore wind ecological programme ([120]), which was established to expand the knowledge base about how wind farms affect protected species. Its findings are included in the determination of future locations for offshore wind in the Netherlands. Developing similar practices on land would be particularly beneficial for smaller project developers and in the renewables heating sector.

e. *Defence and aviation-related considerations*

Conflicts with aviation and military use of space have been identified among the most common barriers to wind farms, in particular in the North-East of Europe. If an assessment done by the national defence forces reveals that the planned wind farms could interfere with military radar and radio communication systems, they could prevent the project from going ahead or request lower turbines to be installed.

An effective solution to address this barrier would be investment in additional radar equipment. In this regard, the **Estonian** government has decided to invest in additional radars, which will become operational in 2024 and help address the height restrictions for wind turbines in the north-eastern part of the country. The Estonian military have recently agreed to restrict the number of zones where no wind energy installations can be built. As a consequence 60% of the Estonian territory now has no height restrictions. Similarly, **Lithuania** has purchased radars that will be used to cover the blind spots that wind turbines create for military radars.

An additional barrier relates to the ability of military and defence authorities to raise objections to wind power projects, including at a late stage of the project development when the permits for the project have already been issued and significant resources have already been committed. This could be mitigated by setting up dedicated communication channels

([118]) https://www.umweltbundesamt.at/umweltthemen/uvpsup/uvpoesterreich1/uvp-dokumentation
([119])https://www.naturalsciences.be/en/science/news/environmental-impact-of-offshore-wind-farms-getting-ready-for-expansion-in-the-belgian-north-sea
([120]) https://wozep.nl/

between representatives of the renewable energy sector and defence and civil aviation to enable exchanges in the course of the development of the project and minimise the emergence of objections at late stages of the project. **Finland** and **France** have set up a dedicated Working Group to enhance cooperation between wind farm developers and defence forces. Furthermore, as a follow up to the EU Offshore Strategy, the Commission and the European Defence Agency have set up a joint action to identify barriers for offshore renewable energy developments in areas reserved for defence activities and improve co-existence ([121]). The project will also perform simulation-modelling, and evaluation testing, to explore various legal, technological, and operational solutions to address stakeholder concerns, including military requirements, to boost offshore renewable energy development..

6. Easier network connection, combined technology power plants, repowering, hydrogen and innovative technologies

A better interconnected electricity grid is a precondition for the integration of higher shares of renewable energy in the European power system. The revised TEN-E Regulation includes strengthened integrated infrastructure planning provisions aiming at ensuring, through sector integration, the most effective and efficient solutions and allowing anticipatory grid investments to cater for future expansion of renewables generation capacities. Moreover, to help deliver the European Green Deal the Commission has proposed in November 2023 an Action Plan to make sure our electricity grids will operate more efficiently and will be rolled out further and faster. The Action Plan aims to address the main challenges in expanding, digitalising and better using EU electricity transmission and distribution grids through concrete and tailor-made actions.

While small-scale installations benefit from the provisions on simple notification procedure for grid connections under Article 17 of the RED, obtaining a grid connection permit is one of the required process steps for almost all other projects which result in new renewables production capacities. The permit-granting process for grid connection assets is covered by the obligation to establish single contact points referred to in Article 16, aimed at better coordination and synchronisation of multiple permit-granting procedures (handled by system operators and public authorities). Repowering of existing installations (as defined in RED Article 2(10)) and hybridisation, i.e. combining different renewables technologies at the same site, are ways to make a rational use of grid capacities and to limit grid expansion needs and should therefore be facilitated as much as possible.

a. Grid connection issues

Issues related to grid connections are widespread and they can slow down or halt overall renewable energy deployment. The main grid connection issues very often result from (perceived) inadequate grid capacities, which require negotiations between the project developer and the system operator over the possibility, timing and cost for connecting a renewable generation plant to the grid, leading to project delays. In some Member States, the lack of transparency regarding the availability of grid capacity also creates a bottleneck for

([121]) https://eda.europa.eu/what-we-do/eu-policies/symbiosis

identifying a location for the project. 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. Moreover, the trend of increasing connection costs is a threat to the economic viability for many projects, especially in Member States where the costs of grid connection and expansion must be borne by project developers. In some Member States, these problems are aggravated by speculative behaviour of market actors having an incentive to hoard and sell grid connection permits when grid capacities decline. ([122])

Network connection issues are even more pressing for renewable heat, since the heat they produce cannot be transported over longer distances. Similar to what is in place in some Member States for renewable electricity installations, it would be beneficial to ensure renewable heat installations can access fast-track procedures for a grid connection.

In order to help address the issues mentioned above, a good practice is to make full use of digitalisation and to ensure transparent processes, i.e. to facilitate grid connection permits by e-communication and by the activities of the single contact points, based on clear roles and processes which are described in transparent guidelines. In **Estonia**, the national TSO Elering has an electronic application portal ([123]), where all documents necessary for the connection of a renewable energy installation to the electricity transmission grid can be submitted. Also in **Denmark**, a centralised online platform of the Danish national transmission system operator Energinet provides easily accessible information on all grid connection procedures for a given RES project, as well as a capacity map. ([124])

Allowing for grid connection permits to be requested and granted in parallel to other authorisations, such as in **Austria** ([125]), can also help speed up the overall permit-granting process. In **Ireland**, specific privileged connection pathways are foreseen for energy communities, including the possibility to apply at any time, an exemption from the prior planning permission requirement, validity of the grid connection permit for two years and the annual reservation of 15 connection offers for energy communities.

Since infrastructure is essential to ensure the uptake of renewable energy, Member States and national regulatory authorities should consider ways to enable and facilitate anticipatory investments for energy infrastructure projects. Grid access requires specific attention in the offshore sector, as offshore wind parks usually are remote to the existing grid and onshore grid reinforcement might be needed before connecting an offshore project. Given long lead times, space constraints at sea and specific technical challenges for developing subsea infrastructure, it would be advisable to develop offshore grids with a view to future increases in generation capacities, or grids supplied with technological features exceeding what is necessary in the short term. The revised TEN-E Regulation provides rules for allowing projects that incur higher risks, including due to the need of anticipatory investments, to benefit from regulatory incentives to mitigate the additional risks. Under the new electricity market design rules, national regulatory authorities need to account for anticipatory

([122]) European Commission, Directorate-General for Energy, Tallat-Kelpšaitė, J., Brückmann, R., Banasiak, J. et al., *Technical support for RES policy development and implementation – Simplification of permission and administrative procedures for RES installations (RES Simplify). Interim report., 2021,* https://data.europa.eu/doi/10.2833/239077

([123]) www.egle.ee

([124]) https://energinet.dk/

([125]) See section 2, point b.

investments. The Commission will propose at the beginning of 2025 guiding principles identifying conditions under which anticipatory investments in grid projects should be granted.

Cross-border coordination is particularly important as regards offshore hybrid grid and power assets, so as to allow the coordination of the permitting and development of the grid infrastructure assets with those of the generation assets. By the implementation of single points of contact in the revised TEN-E Regulation, the Commission encourages Member States to adapt their permitting regime to allow for effective and efficient cross-border coordination. As a minimum measure, Member States should commit themselves to ensuring that, in the future, there is no possibility for further prolongation of permit-granting procedures and to setting up and fully applying the status of the highest national significance, which has been proven to accelerate the permit-granting process. In order to facilitate permit-granting for joint offshore renewable energy projects, the revised RED requires Member States to reduce the complexity and increase the efficiency and transparency of the permit-granting procedure, to enhance cooperation among themselves and, where appropriate, to establish a single contact point. It is also important to take into consideration relevant EU and international reqirements (in particular the Espoo and Aarhus Conventions) on cross-border impacts, including assessment and involvement of the public and the relevant neighbouring countries' authorities to avoid potential legal disputes in the long-term.

In order to enable long-term visibility of grid capacity, the coordinated planning of grids and renewable generation capacities should favour a strategic and comprehensive approach that takes into consideration limitations arising from the application of environmental legislation but also synergies, including those relating to nature protected areas or areas subject to restoration measures. In this case, strengthened cooperation between competent authorities responsible for the permitting of grid and renewable generation assets is key in making use of existing tools and assessments, such as the environmental assessments at planning level, to anticipate potential impacts arising from the application of environmental protection measures. Such a strategic and integrated approach would also allow for improved tender design for renewable energy projects. Tenders could, for example, include potential locations, allowing for needed visibility on grid availability and development.

Another tool to address the grid connection issues described above is to ensure transparency on grid capacities, ideally via open data obligations and online databases in the form of Geographic Information Systems. Such transparency enables developers to focus on locations with higher availability of grid capacity and factor in the anticipated grid connection costs in their site selection decisions. In **Spain**, TSOs and DSOs are obliged to publish online the available grid capacity. 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, but ensures visibility for developers. **Czechia** recently introduced mandatory monthly publication of free capacities in the grid (relevant for new power plants) by the respective DSOs through online/digital maps. DSOs will also be obliged to publish and update on their website once a month data on the number of accepted and rejected applications for connection to the distribution system. In **Estonia**, the online platform e-Gridmap ([126]) has been established to provide readily available information on the

([126]) https://elering.ee/en/connection-capacities-e-gridmap

approximate connection capacities in substations that can be used without increasing the service capacity of transmission lines. Additionally, it estimates the cost of extra investment necessary to support the required connection capacity at a particular substation, which can improve coordination between project developers.

France introduced regional grid connection plans for renewable energies 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 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 needed in the future.

The area development plans prepared as part of maritime spatial planning processes in **Germany** also include the respective offshore grid development needs. Consequently, this will essentially lead to a synchronisation of wind park and grid development as the plan provides grid operators with a more long-term planning basis.

System operators can also address grid capacity issues by offering flexible connections, which allows restricting access to the network at times of peak load. Alternatively, grid operators should tap into the flexibility potential of distributed producers, active customers and energy communities by developing local flexibility markets. Member States should encourage openness of system operators to such more innovative solutions.

Several Member States have a legal framework in place that allows for the existance of non-firm or flexible connections (**the Belgian region of Wallonia, France, Hungary**), though under some conditions. To facilitate the connection of new users to the grid, in **the Netherlands,** Distribution System Operators can enter into contracts with system users under which they can temporarily limit the use of their contracted firm capacity in exchange for compensation negotiated within the contract. In **Austria**, flexible connections in the form of bilateral agreements between power generators (primarily, but not exclusively, wind power) and grid operators are utilised in cases where generation units cannot be granted firm access to the grid in the required schedule. ([127])

There are few examples of flexibility markets in the EU (**the Netherlands, Sweden**), mainly trading flexibility products for short-term network congestion management. Barriers for such development remain (e.g. lack of product design, access for small assets including through aggregation, complexity and diversity of qualification processes, lack of data standardisation, lack of cooperation between TSOs and DSOs).

b. *Combined technology power plants*

Combined technology power plants, also referred to as hybrid plants, use and combine different renewable and related technologies (e.g. wind, solar and/or storage assets) at the same location. Combining different technologies is also relevant at sea, where offshore wind parks can be combined with ocean energy or floating solar installations. While the number of

([127]) CEER paper on alternative connection agreements, May 2023, available at https://www.ceer.eu/documents/104400/-/-/e473b6de-03c9-61aa-2c6a-86f2e3aa8f08

such power plants currently remains limited ([128]), as the share of variable renewable energy in the electricity grid increases, hybridisation offers a number of benefits. In the context of scarce grid connection capacity, hybridisation allows optimising the use of grids and can help to reduce the infrastructure investment costs. It can also ensure more stable power output, mitigating the variability of renewable energy generation when different renewable energy resources with complementary generation profiles (e.g. wind and solar) are combined. Adding a storage device could enable storing the energy that would otherwise need to be curtailed when the renewable energy generation exceeds the allowed grid connection capacity.

The current challenges to the development of combined technology power plants include technological development, costs, the lack of a clear regulatory framework, access to grid and its availability. The regulatory framework would need to clarify such aspects as the applicable rules for permit-granting for plants combining different renewable energy technologies and/or storage, including on securing grid capacity, and the rules for monitoring the energy flows between the storage device and the grid.

Access to grid and its availability can constitute a barrier for developing combined technology power plants if these need to apply for grid capacity that is equal to the sum of the components of the individual technology plants. This barrier can be addressed for instance by allowing the power plants to apply for grid capacity on the basis of the maximum anticipated production, instead of the sum of the capacities of the individual complementary technologies. Thus, the connection capacity should be allocated to the combined project ("cable pooling") and not as if they were two separate projects requiring the duplication of capacity.

In 2019 **Portugal** introduced changes to its electricity production licensing regime, which enables the "hybridisation" of two technologies in the same infrastructure and connection point of the grid up to the maximum licensed capacity. This allows maximising the renewable energy production output, without incurring more costs for the grid infrastructure investments. The addition of the second technology is subject to additional licensing requirements ([129]). **Spain** has also introduced regulatory changes which allow access to the grid by power installations using different generation technologies as long as it is technically feasible. In the case of hybridisation of existing assets, and provided that certain conditions on capacity and distance between the assets are met, only an update of the existing connection agreement is required. Both countries have also introduced scoring systems to incentivize combined technology projects by giving them higher priority for grid connection. Other Member States have introduced cable pooling for hybrid power plants more recently and **Lithuania** used it to design a unified permitting procedure which lasts only five months, compared to eleven months previously.

c. *Repowering*

Repowering is defined in RED as renewing power plants that produce renewable energy, including the full or partial replacement of installations or operation systems and equipment

([128]) https://windeurope.org/about-wind/database-for-wind-and-storage-colocated-projects/

([129]) Renewable energy law and regulation in Portugal. CMS Expert Guide. https://cms.law/en/int/expert-guides/cms-expert-guide-to-renewable-energy/portugal

for the purposes of replacing capacity or increasing the efficiency or capacity of the installation ([130]).

Although to date repowering has been concentrated in a few markets, by the late 2020s it could become a key business activity for the wind industry across Europe ([131]). The benefits of repowering include the existing grid connection, knowledge of the wind resource availability and the potential environmental impacts, and frequently high levels of public acceptance ([132]). In Denmark, between 2012 and 2019, there has been a 1.3 GW gain in wind capacity, of which 576.8 MW resulted from repowering of existing installations, and a net reduction of 109 wind turbines thanks to the higher efficiency of the new turbines. Only 10% more capacity was developed in greenfield projects than in repowering.

A Wind Europe analysis of 137 projects repowered in Europe shows that on average, the number of turbines in these repowered wind projects decreased by 27%, while installed capacity was doubled and electricity output tripled ([133]).

Repowering will also play a role for large hydropower plants, since a large share of the available hydropower potential has already been tapped ([134]). An increasing number of solar projects will also reach the end of their life and be candidates for the replacement of some of the components, or repowering leading to a capacity increase. Clear guidelines and simplified procedures will also need to be established for the repowering of solar plants.

The revised RED requires Member States to facilitate the repowering of existing plants by ensuring a simplified permit-granting process, which does not exceed one year (six months in renewables acceleration areas). ([135]) This may be extended by up to half of that duration where justified on the grounds of extraordinary circumstances, such as overriding safety reasons or substantial impacts on the grid or the original capacity, size or performance of the installation. ([136]) The revised RED has also modified environmental assessments and screening obligations with regards to repowering: such assessments should only focus on the potential impacts arising from the change or extension compared to the original project.

According to project promoters, currently repowering in most Member States has to undergo the same application and permit-granting procedures as greenfield projects, including in certain cases the need to carry out an EIA or other environmental assessments. Industry also identifies the growth of dwellings close to existing wind farms, the increase in the turbine size, the increase in environmentally protected areas or the increase of the allowed distance between wind farms and military radars as factors reducing the possibilities to repower the existing projects. As a result, operators tend to choose lifetime extension of the existing assets for as long as possible, followed by full decommissioning at the end of the assets' lifetime, which creates a missed opportunity for the role repowering could play in reaching the 2030 targets.

([130]) RED Article 2 (10)
([131]) According to WindEurope, 45 GW of wind parks are approaching their economic end of life in 2022-2026
([132]) Kitzing, L., Jensen, M.K., Telsnig, T. et al., *Multifaceted drivers for onshore wind energy repowering and their implications for energy transition*. Nat Energy 5, 1012–1021 (2020). https://doi.org/10.1038/s41560-020-00717-1
([133]) Why repowering is key to wind power industry's growth, Windpower Monthly, available at https://www.windpowermonthly.com/article/1735687/why-repowering-key-wind-power-industrys-growth
([134]) Hydropower Europe, https://hydropower-europe.eu/about-hydropower-europe/hydropower-energy/
([135]) See RED Art. 16a (2) and (3), 16b (2) and 16c.
([136]) RED Article 16a (2) and Article 16b (2)

Some Member States have introduced legislative or procedural changes which simplify the framework for repowering. **Italy** has introduced legislative changes for repowering projects, and no authorisation is required for modifications of wind turbines or their components which imply a size modification of no more than 15% of the initial size of the turbine. In **Germany**, legislation specifies that for the repowering of wind installations, only changes compared to the status quo have to be assessed. A specific procedure for permitting of repowering projects now exists and the species and nature protection laws and the construction law were amended in 2022 to ease repowering projects. For instance, projects can now be constructed within 4 years of decommissioning and further away from the original installation (up to five times the height of the original turbines). Public hearings are only required if the project developer requests it. **France** has also introduced requirements related to the EIA on the basis of thresholds for changes to the number and height of the turbines. If the increase in the number of turbines and tip height increases by no more than 10%, it is not considered a significant modification, and an EIA concerning impacts on noise and biodiversity is considered sufficient. In case the increase in the number of turbines and tip height exceed 50%, the modification is considered substantial, and a new EIA is required. In cases where the increase is between 10% and 50%, the competent authorities apply a case-by-case assessment, on the basis of e.g. comprehensive environmental monitoring and local acceptance. In **Denmark** renewable energy production plants are divided into three groups, based on capacity – less than 10 MW, 10-25 MW and above 25 MW. In case of changes to the capacity, including by repowering, a notification has to be made, or a new license has to be requested, depending on the capacity group into which the plant falls. Plants with capacity under 10 MW are exempted from the requirement to apply for a new license, while plants with capacity between 10-25 MW are exempted if the notify the Danish Energy Agency and the TSO before beginning the construction. For plants with capacity above 25 MW, a license is always required for repowering or any other changes to the capacity of the plant. In **Portugal**, the government has issued a detailed handbook for project developers. ([137]) According to the handbook, the project developer must notify about modifications below 20% of the original power capacity and there is no need to change initially assigned connection, providing the network operator issues a positive opinion and that there is appropriate network availability. Repowering schemes are also exempt from environmental assessments as long as they remain in the predetermined area.

d. Hydrogen

The acceleration of renewable power generation is also important for providing decarbonised and affordable energy carriers to those sectors that will continue to rely on gases and fuels. In particular, the conversion of renewable electricity into renewable hydrogen through electrolysers will be an important pathway for our future energy system.

The conversion of renewable electricity into hydrogen, and the subsequent transport, storage and dispatch of hydrogen to the end-consumers will most likely encounter some of the same barriers as identified for renewable energy projects, such as the absence of enough and adequately skilled staff to process permit applications and the duration of administrative procedures. This is inherent to the nascent status of the renewable hydrogen value chain and the lack of experience with related new, innovative technologies. Outdated or inexistent

([137]) https://www.apren.pt/contents/documents/guia-de-licenciamento-versao-final.pdf

legislation at all levels of the administration for hydrogen production and use may result in confusing or inadequate permit-granting procedures. Some of these processes may be complex, can vary between different countries or regions and often exceed the estimated timing for a permit response.

Relatively few experiences with developing hydrogen projects means that not all barriers may be known, and therefore exchanges of information through fora could be beneficial. Additionally, good practices to address these specific barriers may also emerge over time and be shared through these fora.

With the expected adoption of the Directive on common rules for the internal markets for renewable gas, natural gas and hydrogen ([138]) the main frameworks for permitting and authorisations of hydrogen networks at Union level will have been established. This includes the requirement for Member States to develop objective and non-discriminatory authorisation criteria and transparent procedures for both renewable and low carbon hydrogen. Those criteria and procedures shall be made consistent with the Member States network development plans for hydrogen. The authorisation procedure shall not exceed two years, and Member States shall set up contact point to guide applicants and facilitate authorisation procedure for free. In order to facilitate the repurposing, the Directive includes a grand fathering provision requiring that the existing natural gas infrastructure authorisations also apply to hydrogen, unless safety rules are violated. The Directive also clarifies that if an authorisation falls under the revised Renewable Energy Directive, only those provisions shall apply.

The Clean Hydrogen Alliance published in 2022 a stakeholder-driven report on hydrogen project permit-related barriers which have derived some recommendations and best practices ([139]). The report suggests that prioritizing the implementation of hydrogen-related legislation would help to clarify the regulatory framework and its applicability, build expertise as concerns renewable hydrogen technologies and improve consistency and compliance with the existing environmental legislation.

Further, guidance or manuals laying down the permit-granting procedures for renewable hydrogen production facilities would increase predictability and improve the efficiency of the overall process for all parties involved. **Portugal** already prepared such a guide for hydrogen projects.

Similar to renewable energy projects, spatial planning can be instrumental for the identification of suitable locations for the roll-out of electrolysers. On the basis of integrated network plans ([140]), dedicated areas should be designated to hydrogen infrastructure such as electrolysers. It could be a means to incentivize the roll-out of electrolysers at locations where they can play a role in avoiding or addressing electricity congestion and where they can bring higher societal benefit (e.g. by avoiding an increase in electricity network tariffs due to required grid reinforcements). Such an approach is inherent to the single network development plans prescribed in the recast Gas Market Directive. It requires the plans to be

([138]) Not yet adopted. It has been approved by the European Parliament (https://www.europarl.europa.eu/doceo/document/TA-9-2024-0283_EN.html), but adoption by the Council is still pending.

([139]) https://ec.europa.eu/docsroom/documents/50514/attachments/1/translations/en/renditions/native

([140]) As proposed under the hydrogen and gas markets decarbonisation package

based on joint scenarios that are developed every two years between the relevant infrastructure operators of at least natural gas, hydrogen, electricity and where applicable also district heating.

e. Supporting innovation

Permit-granting procedures might also affect the future deployment of innovative decarbonisation technologies, including pilot and demonstration projects, that will be needed to reach climate neutrality. Considering the innovative nature of these technologies, there is less experience with the applicable authorisation procedures.

One of the potential avenues for supporting innovation, is by means of regulatory sandboxes. Regulatory sandboxes are frameworks which provide a structured context for experimentation to enable the testing of innovative technologies, products, services or approaches for a limited time and in a limited scope under regulatory supervision to ensure the appropriate safeguards ([141]). They have already been used in the financial, banking and ICT sectors, but the use in the energy sector has so far been relatively limited. The rationale behind setting up a regulatory sandbox is to allow innovators to test new technologies and business models that may only partially be compatible with the existing legal and regulatory framework, and to allow regulators to familiarise themselves with particular innovations so that they can adapt the regulatory environment to accommodate them ([142]). Under the recently agreed Net-Zero Industry Act, Member States may at their own initiative establish regulatory sandboxes for innovative net-zero technologies, and are obliged to do so when this is requested by a private entity.

In **France**, regulatory sandboxes for the energy sector have been introduced in the legislation. The sandbox allows the national regulatory authority CRE to grant exemptions to the conditions of access to and use of networks for experimental deployment of innovative technologies or services supporting the energy transition, smart grids and infrastructures ([143]). A number of projects were granted a derogation under this scheme, including a project aiming to increase the capacity of wind farms, derogating from the provisions of the French energy code limiting the installed capacity of production installations connected to a public electricity distribution network at high voltage.

In the **Netherlands**, the Ministry of Economic Affairs issued an executive order ([144]) on experiments with decentralised, sustainable electricity production, on the basis of which projects were authorised to set up a sandbox. The articles in the Electricity Act from which projects could be exempted were pre-defined, and only small entities such as energy communities and homeowner associations were eligible. During the four years in which the scheme was open, 15 exemptions were granted.

([141]) https://data.consilium.europa.eu/doc/document/ST-13026-2020-INIT/en/pdf (Council Conclusions on regulatory sandboxes)
([142]) https://fsr.eui.eu/regulatory-sandboxes-in-the-energy-sector-the-what-the-who-and-the-how/
([143]) https://www.cre.fr/en/Energetic-transition-and-technologic-innovation/regulatory-sandbox
([144]) https://www.rvo.nl/subsidies-financiering/experimenten-elektriciteitswet-2015-2018

The **Austrian** Federal Ministry for Climate Protection, Environment, Mobility, Innovation and Technology is running a funding programme "Energie.Frei.Raum"([145]), which serves as a preparatory phase for a possible experimentation clause to test new market models for the system integration of renewable energy, storage and energy efficiency technologies.

More recently, **Slovenia** introduced regulatory sandboxes in its legislation in 2023 with the aim to test innovative technologies, products or approaches in the field of electricity generation from RES and storage. Approval for the regulatory sandboxes will be granted based on the project's degree of contribution to the development of renewable energy sources and of interference with existing regulations.

Also in **Poland** legal framework for regulatory sandboxes was introduced in the amendment to the Energy Law (2023), with the aim to deploy innovative technologies such as intelligent grids, green hydrogen projects.

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As the Member States have to present to the Commission the update of their latest notified integrated national energy and climate plan by 30 June 2024, the good practices set out in this guidance could serve for identifying policies and measures that the Member States could put forward with the aim of boosting the development of renewable energy.

([145]) https://www.ffg.at/Energie.Frei.Raum