



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



Croatia

Written by: Dipl.-Jur. Saša Rajković, Jurga Tallat-Kelpšaitė,
eclareon GmbH

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Executive summary

This report covers three RES-E technologies: onshore wind as well as rooftop solar and ground-mounted solar PV.

The site selection for onshore wind and to a similar but lesser extent for ground-mounted PV is faced with obstacles regarding property rights issues of state-owned property, since these power plants are often built on land owned by the state and a high demand leads to long periods of planning uncertainty. For rooftop PV no barriers have been detected in this regard.

The electricity production license can be acquired without any problems, while the administrative authorisation entails the most serious barriers to the development of renewable energy technologies in Croatia. The procedures are deemed to be lengthy, complicated and not well harmonised with each other, which, again, leads to planning uncertainty and higher project costs.

The grid connection procedure consists of several steps and can be difficult for larger projects such as in particular wind power plants because transmission network capacities are often scarce. For the grid connection of rooftop PV no barriers were identified.

Obtaining the use permit is deemed to be unproblematic, if the steps before have been carried out carefully.

Croatia has not yet implemented provisions from the RED II directive into its national legislation, but the Ministry of Economy and Sustainable Growth intends to develop implementation proposals in spring 2021.

Table 1 contains a traffic light assessment of the relevant process steps for the installation of onshore wind and rooftop and ground-mounted solar PV in Croatia.

Table 1: Traffic light assessment of the relevant process steps

Process step	Site selection	Electricity production license	Application preparation process	Administrative authorization	Grid connection permit	Corporate legal-fiscal	Other
Onshore wind	Moderate barriers identified	No barriers identified	Not relevant for target country	Moderate barriers identified	Minor barriers identified	Not relevant for target country	No barriers identified
PV ground-mounted	No barriers identified	No barriers identified	Not relevant for target country	Moderate barriers identified	Minor barriers identified	Not relevant for target country	No barriers identified
PV rooftop	Minor barriers identified	No barriers identified	Not relevant for target country	Moderate barriers identified	Minor barriers identified	Not relevant for target country	No barriers identified

■ No barriers identified	■ Moderate barriers identified
■ Minor barriers identified	■ Not relevant for target country
■ Severe barriers identified	■ No projects implemented

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1. National RES targets and relevant RES technologies

In 2019, Croatia had a share of 28.47% of the gross final consumption of energy from renewable energy sources (RES) and has thus exceeded its 2020 target of 20% (Eurostat, 2020). For 2030, Croatia envisages a RES share in the gross final energy consumption of 36.4% (NECP, 2019, p. 54). Looking at the specific sectors, the gross direct consumption of RES in the electricity sector should increase from an estimated 47.0% in 2020 to 63.8% in 2030, whereas the RES consumption for heating and cooling should rise from 33.3% in 2020 to 36.6% in 2030 (NECP, 2019).

In the estimated contribution of RES technologies to gross final consumption hydropower accounts by far for the largest share, but with a view to 2030, it records relatively low growth due to its already extensive establishment (*ibid.*). The same finding also applies to the use of solid biofuels. The in relative numbers high growth potential for geothermal energy use is due to the fact that so far, the 16.5-MW Velika Ciglena is Croatia's only geothermal power plant. Since the developer in question was not prepared to share experiences with the administrative procedures and the fulfilment of the target will be achieved by only a small number of geothermal projects, this technology is not considered to be relevant for the purposes of the present enquiry.

For the achievement of the 2030 targets (especially in the electricity sector), solar and onshore wind power show dynamic development with promising growth rates in the coming years (*ibid.*). The newly adopted Energy Development Strategy 2020 also declares solar and especially onshore wind power to be the technologies with the highest technically feasible potential in Croatia.

This is not least due to the natural potential offered by the favourable geographic and topographic location. The solar irradiation is fairly high throughout the year especially in the southern regions like Dalmacija (Majdandžić, 2013). The mountainous regions bordering the Adriatic Sea are particularly suitable for wind power development (Štefulj, 2015). Also, with regard to cost-competitiveness, compared to other technologies wind and PV show a significant potential in Croatia (IRENA, 2017). Finally, among energy industry experts these technologies will play an undisputedly important role in the RES expansion in the upcoming years (Plečić, 2021).

Thus, onshore wind and solar power are considered to be relevant technologies for the achievement of the 2030 targets and for the analysis of barriers to permission and administrative procedures.

Figure 1 displays the annual deployment of PV and onshore wind between 2010 and 2019. While the wind power deployment took constantly place during the 2010's with an impressive deployment between 2013 and 2016, the PV deployment started in the mid-2010's and decreased over the last years.

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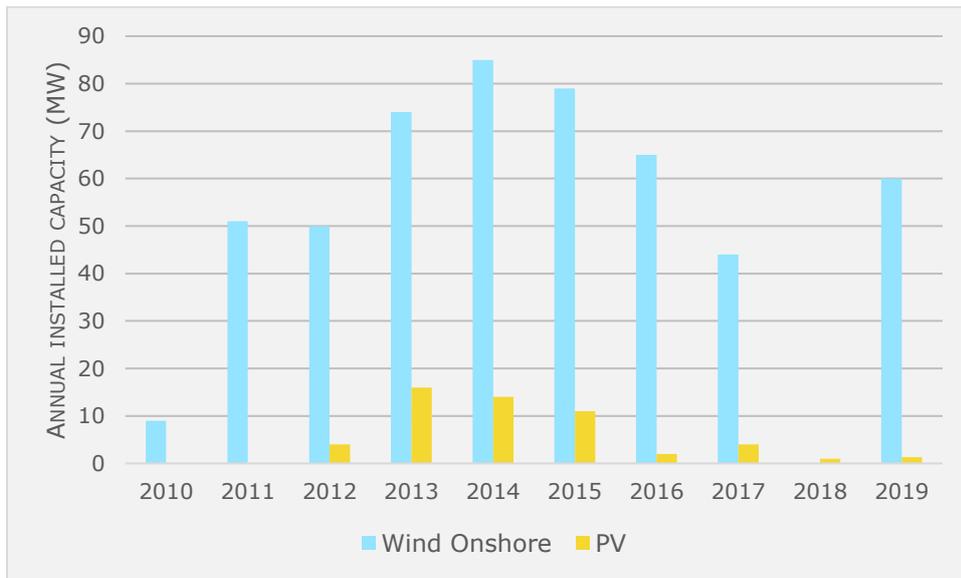


Figure 1: Annual installed capacity of PV and Wind onshore 2010-2019 (source: EurObserv'ER)

Due to a late adoption of necessary by-law, the Croatian auction scheme, which was introduced already in 2016, could start functioning only in 2020. This led to a serious halt in investments and slowed down RES expansion in the last years. Now a large number of projects is expected again, which makes smooth and simple permission and administrative procedures in the following years ever more important (Pleić, 2021).

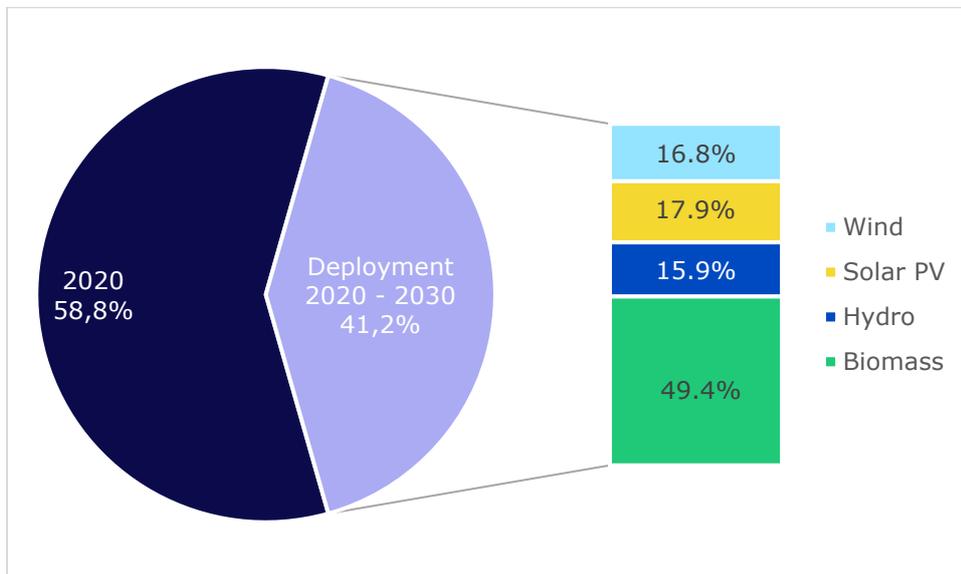


Figure 2: Planned deployment of RES-E 2020-2030 in relation to past deployment (source: NECP)

2. Administrative and grid connection procedure

2.1. Relevant process steps

When implementing a renewable energy project, the project developer will in the first step look for a suitable location for the project. If necessary, he can acquire an electricity production licence (energy activity permit).

The administrative authorisation starts with assessing whether the spatial plan is suitable for the project or whether it needs to be adapted. Then, if necessary, the developer will proceed to carry out the environmental impact assessment in order to obtain the location/building permit and the energy approval. For onshore wind projects, an air permit might be needed.

The grid connection procedure consists of the study of the optimal technical solution of the connection (*elaborat optimalnog tehničkog rješenja priključka*, hereinafter: EOTRP), the grid connection agreement and the electricity assent. Finally, the use permission is granted.

The Administration System Act (2019) and the General Administrative Procedure Act (2009) outline the basic structure of administrative procedures in the Republic of Croatia. In special administrative procedures, such as in the field of building or environmental protection law, additional provisions may apply and supersede general rules.

2.1.1. Site selection

Process flow

Suitable Site. First of all, the choice of a suitable location for the power plant must be made. For wind power, the Croatian Hydrometeorological Institute provides the Croatian Wind Atlas¹, which is a map of the Republic of Croatia depicting estimations of the average annual wind speed (m/s) and annual wind power density (W/m²) at altitudes of 10 to 80 m above the ground. Some locations naturally well suited for the use of wind power are already developed, which will make an informed and more sophisticated choice of a suitable site increasingly important (Reščec, 2021). The project developer will therefore have to carry out studies of the wind flow at his own expense (financially and in terms of time) in order to assess whether it is indeed a suitable site for construction and what size, type and number of wind turbines is optimal. This also allows to assess the average annual production, which is an important information for future administrative procedures like obtaining the location permit (RES developer, 2021).

Moreover, maps of habitats and protected areas as well as spatial plans should be consulted in order to determine the possible purpose of and the conditions for land use, as well as possible conflicting interests with the project.

Property rights issues. In case of onshore wind power or ground-mounted solar PV projects the project developer either acquires the project-site by purchasing the land or (most commonly) rents/leases it from the owner. As most of the land used for onshore wind power projects are state-owned questions of public procurement law can arise

¹ https://meteo.hr/klima.php?section=klima_hrvatska¶m=k1_8

(Pleić, 2021). This should be dealt with in an early stage in order to avoid (judicial) conflicts later on.

Dialogue with the Municipality and the County. It is advisable to find out at the earliest possible stage the willingness in principle of the local authorities concerned. This will gain time to initiate the sometimes lengthy processes of amending spatial plans at the earliest possible stage.

Contacting transmission system operator (TSO)/ distribution system operator (DSO). Furthermore, the Croatian TSO (HOPS) or the DSO (HEP-ODS) should be contacted at an early stage in order to find out the available grid capacity at the envisaged site.

Deadlines

Since the processes in the early stage of site selection are not administrative procedures in a formal sense, no specific deadlines apply.

Detected barriers

Agricultural land for PV. There are some issues concerning the use of agricultural land for ground-mounted PV installations in Croatia. The procedure of starting the property rights is possible after obtaining the energy approval (the step after location permit). All activities and documentation preparing can be lost since other investors can secure the land even after the developer has obtained the location permit. It is mandatory to pay to the TSO 5% of connection CAPEX on during the process of securing the grid connection agreement. The compensation scheme to local authorities is 0,01 HRK/kWh. However, the government is preparing and updating the existing legal frameworks to achieve a certain status of secure investment and to ensure a convenient framework for developers and the government (SolarPower Europe, n.d.).

Unclear process steps. It is not clear from the laws how projects should be started best, because the regulatory framework is confusing and in part seems to be poorly interrelated (Reščec, 2021).

Lots of sunk costs due to redundant wind potential studies. The wind potential of many locations is first measured individually (instead of being organised by the state as in Bosnia and Herzegovina) and due to commercial confidentiality, this information is not shared among competitors. As a result, lots of projects then are not realised.

State-owned property issues. Larger ground-mounted PV projects and onshore wind farms are often built (at least partially) on land owned by the state (Pačandi, 2021; Pleić, 2021).

Due to the high demand and the long period of unresolved issues regarding the use of the public land for construction, most of the applicants have high investment costs and a long period of planning uncertainty. In the end only one investor can actually realise the project.

The government is in the process of drafting a new, more appropriate approach. These ownership issues have so far been resolved shortly before obtaining the building permission, but now the idea is to start the process much earlier, thus sorting out some projects at an early point of time which would have no chance of success anyway but could still 'block' other promising candidates (Pačandi, 2021).

Identified good practice

Better communication among stakeholders. It can be observed that in the last years there is an earlier contacting of stakeholders and better communication between all parties involved. As a result, projects are often received more positively and can be completed faster (Pačandi, 2021).

More interest of Municipalities. The interest and willingness of municipalities to build power plants is increasing, as this also brings them tax advantages. Moreover, examples from the past have shown that the acknowledgement is rising that there are considerable economic benefits associated with RES projects (Plečić, 2021).

2.1.2. Electricity production license

Process flow

In Croatia, natural and legal persons can generally only produce energy if they have previously obtained an energy activity permit (*Dozvola za obavljanje energetske djelatnosti*) from the Croatian Energy Regulatory Agency (Hrvatska Energetska Regulatorna Agencija - CERA), which, among other things, enables electricity production (art. 15 and 16 par. 1 Energy Act). However, all small and medium producers with a total installed capacity up to 1 MW are exempted from this obligation (art. 16 par. 3 Energy Act and art. 10 par. 2 Electricity Market Act (2013)). Currently, there are in total 68 registered electricity producers in Croatia, out of which less than a half are onshore wind developers.

The process of obtaining this permit is mainly governed by the Energy Activity Permit Regulation (2015) and the Energy Activity Regulation Act (2012). The prerequisites are to prove the necessary technical, professional and financial qualification to provide the envisaged service of electricity production. The permit may be withdrawn by CERA, if the said requirements are no longer met.

Most of the electricity production permits are granted for a period of 5-7 years (CERA, n.d.).

Deadlines

The CERA is obliged to issue a decision on the energy activity permit within 30 days from the date of submission of a duly completed application, provided all the necessary documentation was complete. If beyond that an inspection of the construction is needed, the permit must be issued within 60 days (art. 12 Energy Activity Permit Regulation).

A new permit, i.e., an extension, must be applied for 3 months before its expiry (art. 17 Energy Activity Permit Regulation).

Detected barriers

CERA itself states that there are no major problems regarding the energy activity permit procedure (Koštić Ćurić, 2021). This claim was not objected to by the project developers surveyed.

Identified good practice

No good practice related to this process was identified.

2.1.3. Administrative authorisation

Process flow

Spatial planning

In Croatia, spatial planning is governed by the Spatial Planning Act (2013). It states that the Spatial Development Strategy of the Republic of Croatia is the basic document for the general direction of spatial development in Croatia.

The spatial plan (art. 53 et seq. Spatial Planning Act) is the basic document of spatial planning of each unit of local self-government. After a public hearing, the plan is adopted by the representative body of the local self-government unit, i.e., the municipal or city council. The spatial plan of a city or municipality determines the directions for the development of activities and the purpose of land use, as well as the conditions for sustainable and balanced development in the area. The building plans, plans of a lower level (e.g., municipality), must be in line with those of a higher level (e.g., county).

The competent body for the development of the spatial plan at state level is the Ministry of Physical Planning and Construction. The spatial plan at regional level is the responsibility of the administrative body of the county, i.e., the City of Zagreb, and the administrative body of the local government unit is responsible for developing the spatial plan at local level. These bodies commission an architect to draw up the design.

The process of drawing up a local spatial plan can be initiated by anyone. At least once a year the mayor is obliged to consider the submitted proposals (art. 85 Spatial Planning Act). The elaboration starts with an administrative act of the competent authority, which has to be published on the website of the unit of local government.

Art. 94 of the Spatial Planning Act foresees a compulsory public consultation in the spatial plan drafting process, where anyone can participate in. The participating persons have a right to access relevant documents and to express their opinion on the plan.

If the spatial plan does not already foresee a special area for the construction of wind farms or ground-mounted solar PV installations, the developer should already at an early stage get in touch with the competent zoning board in the local government. Whether a project is seen favourable also depends heavily on the ruling political interests in the respective zoning board (Pleić, 2021).

Before the adoption of the spatial plan the Ministry of Physical Planning and Construction must give its approval that the plan is in line with the Spatial Planning Act (art. 61 Spatial Planning Act).

Environmental Impact Assessment (EIA)

Typically, larger onshore wind or solar power projects have to carry out an EIA, especially in regions with larger numbers of protected birds or other animals such as bats.

The Environmental Impact Assessment (*Procjena utjecaja na okoliš*) is governed by the Environmental Protection Act (2013) and the Environmental Impact Assessment Decree (2014).

The EIA entails a process of assessing the acceptability of the intended project with regard to the environment and it determines the necessary environmental protection measures in order to minimise the impacts and achieve the greatest possible preservation of environmental quality. The assessment procedure is carried out at an

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early stage of the project planning, i.e., before the issuance of the location permit or other approvals for projects for which the issuance of a location permit is not mandatory.

Annex I of the EIA Decree (2014) contains a list of projects for which an EIA needs always to be carried out. This list includes wind power projects of more than 20 MW and all power plants of more than 100 MW.

Annex II of the EIA Decree (2014) entails a list of projects for which an assessment must be made, whether an EIA has to be carried out or not (EIA screening). The Annex II list covers also solar power plants as free-standing installations.

The competent body for the EIA is the county administration or the City of Zagreb.

The EIA procedure is initiated based on a written request from the project developer and the content of this request is prescribed in article 80 of the Environmental Protection Act (2013). The mandatory content of the Environmental Impact Study, which is an integral part of the application, is set out in more detail in Annex IV. The study must assess the impact of the planned project on the environment on the basis of factors that, depending on the project and the characteristics of the environment, determine the spread, intensity and duration of the impact. The study must contain all the necessary data, documentation, explanations and descriptions in textual and graphical form, a proposal for the assessment of the acceptability of the project and environmental protection measures in relation to the project and, if necessary, a monitoring programme. The study must be made on the basis of the latest, credible and available data.

The impact of the project on the environment will be assessed by a commission of scientists and professional experts. The Commission is appointed by the Ministry for the projects from Annex I and II. The Commission works in sessions and after determining that the Environmental Impact Study is complete and acceptable, it proposes to the competent body to initiate a public consultation on the study.

When the competent authority receives a request for an environmental impact assessment, it informs the public of the project, location, project holder, competent authority, other participants in the procedure, the method of conducting the assessment procedure, the method of public and interested public participation and the method of informing about the outcome of the procedure.

The participation of the interested third parties and the general public in the process of assessing the impact of the project on the environment is carried out through a public hearing that includes public insight and public presentations. Since 2020 these steps also take place online more often.

Location permit

Spatial plans are among others implemented by issuing location permits and building permits based on the Building Act (2013) (art. 114 Spatial Planning Act). Probably the most crucial and decisive process step for wind power and larger solar power projects is obtaining the location permit (*lokacijska dozvola*), since it largely anticipates the central requirements of the later necessary building permit.

The location permitting procedure is mainly governed by the Spatial Planning Act (2013) (art. 125 et seq.). It is initiated at the request of an interested party and has to be supplemented with a conceptual design in electronic form and in printed form, the positive decision on the EIA of the project and a certificate of nostrification of the conceptual design, if the design is made according to foreign regulations. The conceptual design is a set of specific documents compiled by architects and (electrical) engineers.

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The authorities responsible for issuing the location permit are the administrative bodies that perform the tasks for spatial planning and construction of the 20 counties and of the City of Zagreb. If certain specific prerequisites apply for the intended project, the project developer can request the competent authorities or the Ministry for Spatial Planning and Construction to provide information on the applicable regulations and the way of implementing the spatial plan, in order to create the conceptual design accurately.

Before the decision is taken, a public hearing is organised by the competent authority for the procedural parties (landowner, project developer, neighbours). If there are more than ten neighbours, the competent body needs to publish an announcement about the possibility of reviewing the project file.

The main prerequisites for the issue of a location permit are: Complete documentation, a conceptual design in accordance with the spatial plan, the fulfilment of all (special) grid connection requirements, the clarification and solution of real estate property law issues and that the project cannot hinder the infrastructural development.

The communication in the location permitting procedure largely takes place via the online submission system e-dozvola (see section 3 'Use of IT systems').

Building permit

While a location permit is of central importance for complex projects, it is not required for smaller renewable energy systems. For smaller systems, the building permit is one of the central administrative acts in the project implementation process. There are no principal differences for wind power plants or other constructions; Therefore, the normal building regulations such as the Building Act (2013) apply. The procedure is mainly governed by art. 106 et seq. of the Building Act (2013).

Constructions are differentiated according to whether an EIA is necessary or not. If an EIA is required, the competent authorities for the issue of a building permit depending on the project size are the Ministry for Spatial Planning and Construction, the 20 Counties, the City of Zagreb and larger cities (art. 99 Building Act).

Together with the application for a building permit, the project developer needs to submit certain accompanying documents, e.g., an electronic form with the key data on the project, a printout of the project certified by the designers, if necessary, nostrifications, and evidence of the justified interest in a building permit.

Interested parties and the general public are informed via an electronic bulletin board about the submitted application for a building permit, the content of the application, the documents submitted, about issued project certificates and, finally, about the issue of the permit, if it was issued (art. 107a Building Act).

As is the case of the location permit, the communication in the building permitting procedure largely takes place via online submission system e-dozvola (see section 3 'Use of IT systems').

Simple constructions

According to art. 128 of the Building Act in combination with the Simple Buildings Regulation (2017), simple buildings, such as rooftop PV systems, do not require a building permit, if they are built on an already existing building with or without the possibility to transmit energy to the network (art. 5 Simple Buildings Regulation).

In the planning and construction of buildings, the project developer is nevertheless obliged to comply with all building regulations. Moreover, the buildings cannot be planned

if they are prohibited by the spatial plan. However, an exception is foreseen for solar PV or solar thermal collectors. These can be built without a building permit even in contradiction to the spatial plan, but only if the energy is not fed into the grid, i.e., they are used for self-consumption purpose (art. 128 par. 5 item 3 Building Act).

The Simple Buildings Regulation (2017) foresees a technical supervision of the construction and the obligation to notify the competent building authority of the beginning of construction works.

Finally, simple constructions do not need to acquire an energy approval (see above).

Air permit

For reasons of aviation safety, the construction of onshore wind turbines must also obtain an approval from the Croatian Air Traffic Control (Croatian Air Navigation Services Act 1998). It will decide whether the turbine can be built taking into account air traffic, lighting and colour of the wind turbine (Reščec, 2021).

Energy approval

The issuance of the energy approval is governed by art. 12 and 13 Electricity Market Act and in more detail by the Energy Approval Regulation (2020). It applies to new installations, but also to reconstructions and refurbishments of power plants. The purpose of this act is to ensure the safety of power generation systems and thereby the public health and environmental safety, where applicable the proper use of public goods and the legality of the project in other regards (art. 4 Energy Approval Regulation).

If for the construction of a generating plant a location permit is prescribed, the energy approval is issued after the location permit or otherwise after the issuance of the building permit (art. 5 Energy Approval Regulation). The request for energy approval has to be submitted to the Ministry of Economy and Sustainable Development and it has to entail a list of technical and financial information about the project as well as the above mentioned already acquired permits (Annex I Energy Approval Regulation).

In the event of solar power plants, the project development area and the highest point of the system (measured from the ground) must be determined. For wind power plants, the planned arrangement of the wind turbines as well as the position of the wind measuring point and the substation have to be specified in addition to the development area and the highest point. Art. 8 of the Energy Approval Regulation entails specific technical prerequisites for wind power turbines such as provisions on minimum distance and space. Annex II of the Energy Approval Regulation (2020) contains a table with the minimum space requirements depending on the capacity of the wind power plant, e.g., up to 4 square kilometres for up to 10 MW, 4-8 square kilometres for 10-20 MW, etc.

However, pursuant to art. 6 of the Energy Approval Regulation the Ministry can also request the applicant to submit 'other evidence' if this is deemed necessary for the decision on the energy approval.

After acquiring the energy approval, the project developer can obtain the status of a privileged producer (art. 3 Energy Approval Regulation), which is an essential prerequisite for eligibility under the Croatian auction support scheme for renewable energies.

Deadlines

Art. 10 of the General Administrative Procedure Act (2009) establishes the principle of efficiency and economy, which states that the administrative procedure shall be as simple as possible, without delay and with the least possible costs.

Spatial Planning

If the Ministry of Physical Planning and Construction refuses to give its consent to the proposed spatial plan, the competent authority may, within 90 calendar days, correct the final proposal of the spatial plan in accordance with the reasons of refusal and resubmit it for approval (art. 108 Spatial Planning Act 2013).

EIA

Art. 12 of the Environmental Impact Assessment Decree (2014) provides that the first session of the commission must be held within 10 days from its appointment. If the Environmental Impact Study lacks information, the Commission will ask for a supplementation within a reasonable time, but not longer than 30 calendar days.

Location permit

The competent offices of the counties or the City of Zagreb or the Ministry shall provide information on whether and what special conditions apply to the given project within 15 days of receipt of the application for a location permit. If the competent body does not outline any special conditions (e.g., for the grid connection) within 15 days, it is considered that there are no special conditions, i.e., that the installation can be connected to the grid infrastructure.

The location permit becomes invalid, if the developer does not apply for a building permit within 2 years (art. 150 par. 1 number 4 Spatial Planning Act). The validity of the location permit is extended at the request of the developer once for another two years, if the conditions prescribed by the spatial plan in accordance with which the location permit was issued have not changed.

Building permit

The building permit is valid for 3 years and ceases to be valid, if the investor does not start the construction within this period of time (art. 123 Building Act 2013). The validity of the building permit may be extended at the request of the investor once every three years, if the conditions for the implementation of the project in the area determined by the spatial plan have not changed.

The construction must be completed no later than 7 years after the start of construction (art. 124 Building Act).

Energy approval

The energy approval shall be revoked, if the location or building permit becomes invalid (art. 11 Energy Approval Regulation).

Detected barriers

Local opposition. In Croatia, the local population has prevented the construction of wind power plants during the spatial planning process (e.g., by means of a referendum) for a variety of reasons (Pačandi, 2021). The most common ones are the environmental protection, especially the protection of endangered species, as well as the prevention of noise, aesthetic reasons and tourism, which is expected to decline as a result.

Lengthy procedures. In general, administrative authorisation procedures are perceived as lengthy. Also, because surveys to determine the suitability of a site can take up to months and, in the case of monitoring, e.g., flight paths of rare bird species also years, the EIA should be initiated at an early stage of the project implementation (Pleić, 2021; Reščec, 2021).

From the point of view of the competent authorities, the duration of the process in general largely depends on the benevolent cooperation on the part of the investor, so that many solar power projects can be realised within a year. Delays in issuing permits are also due to incomplete or inadequate application documents submitted by the project developers (Pačandi, 2021). Larger projects require more time if, for example, the monitoring of certain sites needs to be conducted during the EIA procedure, otherwise other EU regulations would be violated.

Contradicting signals. Strict environmental regulations are perceived as an obstacle to the use of more modern and, in particular, larger technologies, even though the state itself sees better opportunities for them and thus encourages their use in the support scheme (Reščec, 2021).

No process overviews. There is no comprehensive overview over the procedural steps for the installation of renewable energy technologies in Croatia (Pačandi, 2021; Reščec, 2021; Kirac, 2021). Publicly available information that provided detailed information with regard to the specific technologies (e.g., prepared by the Government:²) are now obsolete and not updated anymore. As the experience of the market participants had increased over the years, this assistance was no longer continued and now only renewable energy associations have overtaken the role of giving assistance to (possible) developers in this regard.

The last comprehensive overview was made more than 10 years ago (Tilošanec, 2009). Renewable energy associations offer their support only for members or for a fee, which hinders transparency and efficiency especially for the development of smaller installations such as rooftop PV systems.

Confusing and complex legal framework. The many selective changes in the administrative processes in recent years do not seem to be coordinated with each other and do not follow a uniform plan, so that it is partly unclear which of the previous procedural requirements still have to be followed. This makes it difficult to plan the entire project (RES Developer, 2021; RNP, 2020). The 2009 Energy Development Strategy defined a strategy that was not accompanied by an adequate regulatory framework, which led to frequent changes in administrative procedures. In short, investors often could not plan project development deadlines, and the development itself lasted up to ten years (Trstenjak, 2020).

Inappropriate regulations for ground-mounted solar PV. Often, distance regulations for ground-mounted solar PV installations in spatial plans were merely copied from the provisions for wind turbines, although such restrictive rules do not seem to make sense taking into account the peculiarities of PV installations. As a result, some projects are inappropriately slowed down and, eventually, can only be implemented on a smaller scale, which makes the efficient exploitation of the PV potential more difficult (Reščec, 2021).

Too rigid location and building permit content. After environmental impact assessments have already been carried out, it can be disproportionately time-consuming

² <http://oie.mingorp.hr/default.aspx?id=43>

to make even minor technical changes to the project (e.g., the size or number of turbines), as any deviation from the location or building permits already obtained requires a completely new application and the process must therefore be carried out again in full (Reščec, 2021).

Public authorities understaffed. The expertise of public sector employees regarding the development of renewable energies has increased in recent years and is satisfactory. However, it is generally noted that the responsible authorities have too few staff, which ultimately leads to even unproblematic processes taking significantly longer (Pleić, 2021).

Identified good practice

Less procedural steps. Compared to the legal situation 10 years ago, developers today only have to obtain about half of the permits that were necessary to realise the project back then (Pačandi, 2021; Tilošanec, 2009). Numerous preliminary permits (e.g., preliminary energy approval, preliminary electricity assent) were merged into the main application or were abolished without replacement. This has noticeably simplified and accelerated the processes.

Currently, it is also envisaged to make the location permit obsolete so that the building permit entails all the necessary process steps with regard to the building regulations.

Increased use of e-communication. The general willingness of the competent authorities to use IT systems and make communication more digital has increased in recent years.

In the meantime, some processes (spatial planning, EIA, location/building permit) have been significantly accelerated by the fact that, for example, e-conferences can be held and content-related disputes can be discussed with stakeholders in a more concentrated manner. This change can shorten some processes by up to several months (Reščec, 2021; Pleić, 2021). However, despite this positive direction the real potential has not yet been achieved.

2.1.4. Grid connection process

Process flow

The grid connection process is mainly governed by the Energy Act (art. 32 et seq.), the Electricity Assent and Power Grid Connection Decree (2018) and further special by-laws such as the Transmission/Distribution System Network Rules and the Transmission/Distribution Grid Connection Regulation (2018).

Pursuant to the RES Act (2015), privileged producers of electricity from renewable energy sources have priority access to the grid if this does not affect the security of the system (art. 19 par. 2 RES Act).

The grid connection procedure begins with the request of the project developer to the grid operator to prepare a study of the optimal technical solution of the connection (*elaborat optimalnog tehničkog rješenja priključka*, hereinafter: EOTRP). After the study is prepared the project developer has to conclude a grid connection agreement with the system operator and to obtain the electricity assent issued by the system operator.

Besides, wind power developers have to take into consideration the Decision on additional technical conditions for the connection to and operation of wind power plants

on the transmission network (2008) issued by the TSO (Hrvatski Operator Prijenosnog Sustava - HOPS).

EOTRP. After determining the special conditions for obtaining a location permit and before submitting the application for building permit, the project developer is obliged to submit a request to the system operator for issuing the EOTRP (art. 3 par. 1 Electricity Assent and Power Grid Connection Decree). Among others the request needs to entail basic information on the installation such as the capacity, the envisaged grid connection date and the conceptual design.

Grid connection agreement. The request for the issuance of the EOTRP is also considered to be a request for the conclusion of the grid connection agreement (art. 3 par. 2 Electricity Assent and Power Grid Connection Decree). This agreement sets out the contractual relations between the network user and the system operator regarding the financial and further technical conditions and deadlines for the connection.

Electricity assent. The procedure for issuing the electricity assent determines the individual technical conditions for the connection of the installation to the electricity network and needs to be requested by the investor or owner of the installation from the system operator.

Finally, the investor or the owner of the installation is obliged to submit a request for concluding an agreement on the grid use and a formal request for the beginning of the grid use in accordance with the General conditions for network use and electricity supply (2015).

Deadlines

EOTRP. Art. 5 of the Electricity Assent and Power Grid Connection Decree (2018) provides different deadlines for the issue of the EOTRP depending on the capacity of the installation to be connected:

- up to 500 kW: 30 days
- higher than 500 kW up to 5 MW: 60 days
- higher than 5 MW up to 20 MW: 90 days
- higher than 20 MW: 180 days

These deadlines run from the day of payment for the EOTRP (art. 5 par. 4 Electricity Assent and Power Grid Connection Decree).

Grid connection agreement/Electricity assent. The investor or the owner of the installation are obliged to conclude the grid connection agreement and to submit a request for the electricity assent within 270 calendar days of the receipt of the EOTRP (art. 6 par. 4 Electricity Assent and Power Grid Connection Decree).

Grid connection. The deadline for the grid connection runs from the day of the payment of the grid connection fee (art. 7 Electricity Assent and Power Grid Connection Decree). The respective deadline is set bilaterally in the grid connection agreement.

Electricity assent. The system operator shall decide as soon as possible and no later than within 15 calendar days from the day of receipt on the request for the electricity assent (art. 12 par. 1 Electricity Assent and Power Grid Connection Decree). If the request lacks relevant information, the system operator shall ask the applicant to submit the missing documents within 8 days.

The electricity assent for a simple connection is valid for 2 years from the day of issue and for a complex connection it equals the validity of the grid connection agreement (art. 15 par 1 and 2 Electricity Assent and Power Grid Connection Decree). If the electricity assent, however, is an essential element of the location/building permit, the validity period of the permit applies (art. 15 par. 3 Electricity Assent and Power Grid Connection Decree).

Detected barriers

Grid capacity problems. The access to the grid is limited due to the lacking capacity in the grid, therefore the demand is almost 10 times greater than the possibilities that currently exist (Pačandi, 2021). Especially the transmission system has been confronted with a high demand in recent years and due to a lack of finance the grid expansion has only made slow progress in recent years (EIHP, 2016). This problem is also outlined in the Ten-year transmission network development plan 2019-2028 with a detailed elaboration for the first year and the first three-years (HOPS, 2019).

Identified good practice

No good practice related to this process step was identified.

2.1.5. Other

Process flow

Finally, the project developer needs to acquire a use permission (*uporabna dozvola*) pursuant to art. 182 et seq. Building Act (2013). This permit allows using a completed construction.

The developer needs to file the request (art. 137 Building Act) and the competent authority is the same as for the location or building permit (art. 99 Building Act; see above). The request needs to entail among others a photocopy of the building permit, data of the persons involved in the project, a written statement on the construction and maintenance of the installation, final report of the chief engineer on the completion of the construction.

The technical inspection is performed for the purpose of determining whether the construction of the installation is in accordance with the building permit (art. 139 Building Act).

Deadlines

The competent administrative body is obliged to perform the technical inspection of the building within 15 calendar days from the day of receipt of a proper application for the issuance of the use permit (art. 140 Building Act). The use permit for a completed construction shall be issued within 8 calendar days from the day of the performed technical inspection (art. 144 Building Act).

Detected barriers

No barrier related to this process was identified.

Identified good practice

No good practice related to this process was identified.

3. Use of IT systems

In recent years, some steps have been taken in Croatia to make administrative processes more digital, which partly was funded by the EU in order to launch pilot projects in certain fields.

Especially in 2020, due to restrictions caused by the COVID-19 pandemic, it can be observed that the competent authorities have significantly expanded correspondence via e-mail. In addition, the willingness to handle processes digitally, e.g., to accept documents in digital form and to hold meetings or procedurally relevant hearings online has increased considerably (RES power developer, 2020). Beforehand, when using digital communication tools, it was often necessary to additionally submit the corresponding documentation in paper form nonetheless.

There is also a legislation in place that mandates the use of e-mail, e.g., for the submission of the applications for the location permits for the electricity generating installations to the competent Ministry (art. 147 Spatial Planning Act).

Spatial Planning. Spatial planning documents and a visual map display of the existing spatial development related plans can be found in the Spatial Planning Information System (ISPU - *Informacijskom sustavu prostornog uređenja*)³.

Location and building permit. The Ministry for Construction and Spatial Planning has established the online-system 'e-dozvola'⁴ for the issue of administrative acts in the area of construction and spatial planning, i.e., conducting proceedings pursuant to the Spatial Planning Act and the Building Act. It has been implemented at the level of the Republic of Croatia and is applied in all large cities and counties that perform the issuing of permits. After a registration via the platform the user can file an application online and upload the necessary documentation.

The Ministry organises workshops for officials of administrative departments of cities and counties who issue building permits for a better usage of the 'e-dozvola' system.

Several years ago, the Ministry of Economy attempted to digitalise the Energy Approval process, but due to a lack of interest and willingness on the part of the participants, all procedures were switched back to paper (Pačandi, 2021).

Open Data Portal. The Open Data Portal of the Republic of Croatia⁵ is a data platform used for the collection, categorisation and distribution of open data created by the public sector. Among other things the portal also contains geolocation, meteorological and environmental data, which therefore can be easily accessed during every administrative procedure or even already at the stage of site selection.

4. Complaint procedure

Principally, according to art. 12 of the General Administrative Procedure Act (2009) the party has the right to appeal against a first-instance decision or if the body has not decided on the matter in due time as prescribed by the specific law. However, the possibility to appeal can also be ruled out by law (art. 105 General Administrative Procedure Act). The appeal shall be filed within 15 calendar days (general rule, unless

³ <https://ispu.mgipu.hr/>

⁴ <https://dozvola.mgipu.hr/>

⁵ <http://data.gov.hr/>

otherwise provided by law) from the day of delivery of the decision, unless a longer deadline is prescribed.

Against a negative decision by the first instance the party can file a lawsuit before the administrative court pursuant to the Courts Act (2013) and the Administrative Court Procedure Act (2010). Administrative Courts are established for the territory of one or more counties. The High Administrative Court as Court of Appeal in administrative law matters has its seat in the capital Zagreb.

Art. 8 of the Administrative Court Procedure Act (2010) establishes the principle of efficiency, which foresees that the court will conduct the administrative dispute quickly and without delay and that it passes a judgement in a reasonable time. In practice, no more concrete procedural time can be derived from this principle.

Energy Activity Permit. The applicant may file an objection on the decision of the Ministry of Economy and Sustainable Development (art. 11 par. 3 Energy Activity Permit Regulation). The withdrawal of a permit can also be appealed before the Ministry (art. 23 par. 4 Energy Activity Permit Regulation). The appeal decision of the Croatian Energy Regulatory Agency (CERA) can also be appealed to the administrative court.

Environmental Impact Assessment. The applicant has the legal remedies against a decision of the authority as explained below.

Art. 172 of the Environmental Protection Act foresees that every lawsuit in the field of environmental law is deemed urgent, which enables interim relief.

According to the provisions of the Environmental Protection Act (2013), the public and the interested public must be informed during the decision-making process in a timely and effective manner of their right to participate in the environmental impact assessment procedures. In these proceedings, the interested third parties and the public have the right to express their opinion, file proposals and object to the adoption of decisions or acts of public authorities, in the manner and within the deadlines regulated by the Regulation.

The Environmental Protection Act (art. 167 et seq.) contains the requirements for persons with legitimate legal interests who can have access to the administrative courts in order to legally review the application of the EIA process regulating acts. Any natural or legal person who is likely to be affected due to the location of the project or due to the impact of the project. Persons who have participated in the decision-making process as interested third parties have the right to challenge the relevant administrative act (art. 168 Environmental Protection Act).

Location permit. In case of the refusal to determine special conditions by the local administration, the developer has the right to appeal to the Ministry of Physical Planning and Construction and the decision on the appeal is made within 30 days from the submission of the appeal (art. 82 Building Act).

Building permit. Against the decision of the competent authority on the application for a building permit or the decision on the suspension of the procedure an appeal can be lodged to the Ministry for Spatial Planning and Construction (art. 102 par. 1 Building Act). The negative decision on the appeal against the decision may be appealed to the administrative court, as explained above (art. 102 par. 2 Building Act).

If the competent authority does not act according to the decision of the Ministry, this constitutes a grave violation of the administration's duties, which can be sanctioned with monetary penalties.

Energy approval. Art. 1 par. 3 of the Energy Approval Regulation (2020) affirms that the provisions on the general administrative procedure apply.

EOTRP/Electricity assent. The investor can file a complaint to the Croatian Energy Regulatory Agency (CERA), if he finds himself in disagreement over the conditions of the EOTRP or the electricity assent (art. 20 Electricity Assent and Grid Connection Decree (2018)).

5. Specific features to ease administrative procedure

Table 2 below provides information on the existing specific features to ease administrative procedures in Croatia.

Table 2: Specific features to ease administrative procedures

Specific feature	Existing	Short description
Simultaneous procedures	no	
National contact points and one-stop-shops	no	At the moment there is no such contact point or one-stop-shop, but approx. 10 years ago there was a similar facility, which allowed developers to concentrate different procedures and have a common contact point, which would give support in administrative procedures free of charge for any kind of large or small renewable energy project (Pačandi, 2021). The Croatian government, under the leadership of the Ministry of Economy and Sustainable Development, is currently in the process of drafting a legislative proposal for the implementation of the RED II-Directive.
Application of 2+1 and 1+1 rules	no	
Simple notification procedure	yes	A simple notification procedure exists for simple constructions as described in section 2.1.3. (Pačandi, 2021).
Pre-planning	no	
Pre-application consultation	no	
Project acceptance measures	no	
Measures to streamline litigation by third parties	no	
Other	no	

6. Indicators to measure the performance of the overall process

Table 3 below provides information on the indicators to measure the performance of the overall administrative and grid connection process in Croatia.

Table 3: Performance indicators to assess administrative and grid connection processes

Performance indicator	Description
Average response time by the competent authorities	N.A.

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and TSO/DSO for grid connection procedures	
Process duration	<p>Energy activity permit: The process is accomplished within the foreseen 1 month (Koštić Ćurić, 2021).</p> <p>Spatial planning: Depending on the public acceptance and the political willingness for the project, the spatial planning process can take up to several months (RES Power Developer, 2020; Rešćec, 2021).</p> <p>Building permit: On average, the building permit is acquired faster than the location permit, but again, depending on the particular project circumstances, it can also take several years especially for larger projects like wind farms and ground-mounted PV systems (Pleić, 2021).</p> <p>Use permit: Usually, the use permit is granted within the legal deadlines of less than a month (Rešćec, 2021).</p> <p>In general, the process duration for onshore wind power plants depending on the capacity can take from 1-2 years up to 10 years, which makes a general indication difficult (RES Power Developer, 2020; Pleić, 2021; Rešćec, 2021). On average administrative procedures take 5 years and the grid connection procedures take 2 years. The duration of court procedures can take up to 3 years (Wind Europe, 2020).</p>
Project approval rates	N.A.
Costs of administrative processes	<p>Energy activity permit. The Decision on the fee amount for the regulation of energy activities (2008) foresees a fee of HRK 20,000 (EUR 2,641.23) for the request of issuing the energy activity permit.</p> <p>Costs for spatial planning are borne by the public bodies. The costs for the location and the building permit differ greatly depending on the project, i.e., process length and the necessary procedural steps.</p> <p>Energy approval. The price lists of non-standard services of the system operators regulate the costs for the energy approval, which amounts to HRK 2,500 (EUR 330.15) for the TSO (HOPS).</p> <p>Grid connection. The costs for preparing the EOTRP is determined by the price lists of non-standard services of the system operators (art. 5 par. 3 Energy Approval and Power Grid Connection Decree (2018)). The DSO (HEP-ODS) provides costs (including VAT) for the preparation of the EOTRP in the amount of HRK 1,050 (EUR 138.67). The TSO (HOPS) provides that the 'real costs', i.e., HRK/h will be charged. Furthermore, the price lists also include several other possible costs that may be incurred during the process.</p> <p>Art. 3 of the Methodology for determining the fee for the connection to the electricity network of new network users and for increasing the connection capacity of existing network users (2017) foresees that the new grid user, which can be a new electricity producer, pays the costs for the grid connection to the TSO/DSO. The decision on the amount of the fee for connection to the electricity network and for increasing the power capacity (2006) provides a fee (excluding VAT) of 1,350 HRK/kW (178.28 EUR/kW) for the entire territory of the Republic of Croatia with the exception of the City of Zagreb, where the fee amounts to 1,700 HRK/kW (224.56 EUR/kW).</p>

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	Use permit. The investor bears all costs also for the technical inspection, if the procedure takes place outside the area of the competent authority (art. 147 Building Act).
Share of permits that are legally challenged	The prospect of success of an appeal is generally considered to be low and thus tends to be rarely chosen as a realistic alternative to a renewed application (Reščec, 2021; Pleić, 2021).
Share of legal challenges that are overruled	N.A.
Stakeholder interests	<p>It can be observed that the organisation of public participation opportunities has become more professional and experienced over the years, so that the interests of individual interest groups are better taken into account during spatial planning processes and the location/building permit procedure. Nevertheless, NGOs argue that the existing participation rights are still too modest and that the interests of investors are given preference in the total picture.</p> <p>Especially in administrative procedures concerning environmental protection, the Decree on the information and participation of the interested public in matters of environmental protection (2008) has led to an improvement in the involvement of stakeholder interests.</p> <p>Since 2020, many participation opportunities have been switched to an online procedure, which did not necessarily lead to a worse involvement of the public, but in some cases even to easier participation due to the more convenient organisation and the possibility of participation over a large distance, since many interest group organisations have their seat in Zagreb, whereas public hearings and discussions take place elsewhere.</p>

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