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POSITION PAPER:

**Obstacles in the Administrative
Procedures when Preparing and
Developing Renewable Energy Sources
Projects in the Republic of Croatia**



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Introduction

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The macro-economic significance of the energy and energy sector is unquestionable for the economic activity. Its strategic significance is additionally emphasized after the invasion of Ukraine in 2022. The new geopolitical and energy market reality has accelerated the transition to clean energy and efforts to increase Europe's energy independence from unreliable suppliers of fossil fuels. The arguments for a fast transition to clean energy have never been stronger and clearer.

In the first half of last year only, the Croatian Electric Power Organization Company (HEP) spent about 350 million euros more than in the previous year. This company had huge losses due to overtaking the largest part of the financial burden of the measures limiting the prices of electricity and thermal energy, as also prices of household and economy gas. At the same time, Croatia is a net importer of electricity, and in the year 2022, the import of electricity reached the value of over 800 million euros. Croatia may become an electricity exporter with a larger production in its territory by investing in renewable energy sources plants. It may also ensure a safe and quality electricity supply without additional burdens to the state budget within the state support and incentives. With the investments increase in clean energy, the energy balance sheet of the country shall be more positive, there shall be very measurable economic effects, and benefits for the entire community due to a reduction of greenhouse gases and contribute to climate neutrality.

The energy development strategy of the Republic of Croatia by 2030 overlooking 2050, and energy strategies of other member states of the EU, are predominantly oriented towards increasing the number of plants for electricity production from renewable sources. New and even more ambitious aims have been presented within the Fit for 55 and RePowerEU, thus increasing the need for the energy transition. In 2022 only, solar power plants of 41.4 GW power and wind farms of 16 GW power were installed in the EU, about 0.13 GW per million inhabitants. In the same year in Croatia, the development of new renewable energy sources projects was stopped due to the absence of bylaws.

Considering that the only right way for the development and distance from fossil fuels is increasing the energy production amount from renewable energy sources, the Association of the Renewable Energy Sources of the Croatian Chamber of Commerce has prepared a Position Paper in which were analysed the most significant obstacles in the administrative procedures for preparation and development of renewable energy sources projects. Obstacles in obtaining permits and solutions, compliance with regulations, connection to the electro-energy network, spatial planning, and impact on the environment and nature were discussed, and for each area were listed proposals and activities that would enable a faster energy transition in Croatia.

*Development
of new renewable
energy sources
has almost been
stopped due to the
absence of
bylaws in Croatia*

2.

Administrative Procedure Obstacles when Preparing and Developing Projects

2.1. Legal Framework

The Sector for electricity production from renewable energy sources is regulated by two acts: the Act on Electricity Market (ZOTEE, OG 111/2021) and the Act on Renewable Energy Sources and High-Efficiency Cogeneration (ZOIEVUK, OG 138/2021). The aforementioned acts represent the foundation for adopting all other legal regulations and bylaws under the jurisdiction of all other ministries, administrations, and public and legal bodies for electricity production from renewable energy sources. The main reason for adopting these acts in 2021 was to facilitate the procedures of developing renewable energy sources projects and consequently to intensify the investments in the production of "green energy" and reach the aims of the Republic of Croatia regarding renewable energy sources. Another reason was to coordinate the national legal framework with the legal acquis of the EU. However, the new legal framework decelerated the sector's development additionally instead of accelerating it. The key reason for this was not adopting several of foreseen legal acts without which a complete implementation of the laws was not possible. As a result, the absence of implementation regulations led to a complete discontinuation of developing new renewable energy sources projects.

The entire network connection procedure is completely stopped because neither Transmission Network Connection Regulations nor Distribution Network Connection Regulations have been adopted

The most important missing bylaw is the Regulation on the Public Tender Conditions for Issuing Energy Approval. According to the Act on the Electricity Market, the electricity approval (EO) is a central document that is obtained in tender, and which provides the project developer with an unambiguous right for their development and a precondition for all ensuing steps (obtaining a location and building permit as well as resolving the property and legal relations at the land plot owned by the Republic of Croatia). The subject Regulation has not yet been adopted and neither has the public consultation procedure been initiated, even though the deadline for adopting the Regulation expired on 19 January 2022 according to the Article 17 of the Act on the Electricity Market (ZOTEE). The subject Regulation shall define the deadlines for conducting public tenders and

the scoring mechanism of the received tenders. Considering that the Act on Electricity Market (ZOTEE) has not clearly defined if the projects planned on the privately owned land plots require obtaining and paying the electrical approval EO, it is expected that the Regulation shall define in detail the procedures related to their development.

It has to be emphasized that a similar Procedure was supposed to be adopted in 2016 when the first Act on Renewable Energy Sources and High-Efficiency Cogeneration ZOIEVUK. Furthermore, the Ministry of Economy and Sustainable Development (MINGOR) was supposed to conduct tenders for construction and/or easement rights for the construction of production plants of renewable energy sources (OIE) at state land plots twice a year. However, since such bylaw regulation was not adopted, there has not yet been a single tender. Therefore, due to the absence of implementation regulations, the development of renewable energy sources projects has been disabled since 2016.

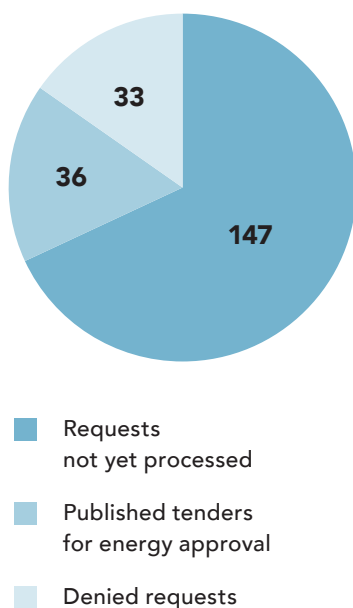
Along with the aforementioned Regulation, neither have the Regulation on the Connection to the Transmission Network nor the Regulation on the Connection to the Distribution Network been adopted. According to Act on the Electricity Market (ZOTEE), these acts were supposed to be made by the competent system operators and verified by the Croatian Energy Regulatory Agency (HERA) with an opinion by the MINGOR within 12 months from the day the new Act entered into force. However, HERA stopped its adoption in November 2022, with the explanation of requiring mutual coordination between the Croatian Transmission System Operator (HOPS) and HEP ODS (Distribution System Operator). The procedure of connecting the projects to the network completely stopped because of that. Namely, the aforementioned Regulation has to define the drafting of the Feasibility Study of the Possibility of Connecting to the Network (EMP), a required document to indicate interest in the Energy Approval (EO). Table 1 shows prominent and important bylaws, the absence of which disables the preparation and development of new renewable energy sources projects in the Republic of Croatia.

TABLE 1
Important bylaws as foreseen by the Act on Energy Market (ZOTEE), the absence of which disables the preparation and development of new renewable energy sources projects in the Republic of Croatia. Status on 27 March 2023

Missing documents	The final legal deadline for adoption	Status	Deadline exceeded by (shown in days)
Regulation from the Article 17 of ZOTEE	19 January 2022	Not adopted	>430 days
Connection Prices	20 September 2022	Not adopted	>185 days
Regulation on Connection	22 October 2022	Not adopted	>155 days

Unfortunately, the new Electricity Market Act ZOTEE did not solely disable the development of new projects. The projects in advanced stages of development were also found in the regulatory Limbo of a kind. According to Article 133. as a transitional regulation of the new Electricity Market Act ZOTEE, investors were allowed to submit a request with a statement of interest by 19 January 2022 for the implementation of a public tender for Energy Approval EO without waiting for the Regulation provided they

FIGURE 1
The current situation of finalizing requests for issuing an Energy Approval (EO) according to Article 133. of the Electricity Market Act ZOTEE (on 21 March 2023)



have a location and/or building permit, and/or (previous) electro-energy approval and/or decision on the environmental impact assessment. Together 216 applicants stated interest in the Energy Approval EO in such a manner and the total power of their project exceeded 6 GW. For the comparison, Croatia currently has slightly more than 1,1 GW in wind farms and solar power plants. In over 400 days, only 17.6 percent of requests were processed, and about 15 percent have been denied. The current situation (on 21 March 2023) of finalizing requests for issuing an Energy Approval (EO) according to the Article 133. of the Electricity Market Act ZOTEE is given in Figure 1.

Once the Electricity Market Act ZOTEE entered into force, it placed an administrative burden on the construction of solar power plants on the ground, intended for the energy needs of the facility. The provisions of the aforementioned act dictate that even such energy facilities have to obtain energy approval. These facilities should not be treated in the same way as the solar power plants constructed to sell the electricity in the network (basic purpose building) considering that in such cases the solar power plants are only used as self-supply of the facility. Furthermore, their construction favours achieving the goals of energy transition. In order to resolve this issue, it is necessary to make amendments to the Regulation on Simple Structures and Works to define the integrated and non-integrated solar power plants which are intended for self-supply as simple structures meaning that they do not need to obtain an energy approval.

The timeline for developing the renewable energy sources projects and the missing bylaws required for their realisation is shown in the Figure 2.

Raised issues:

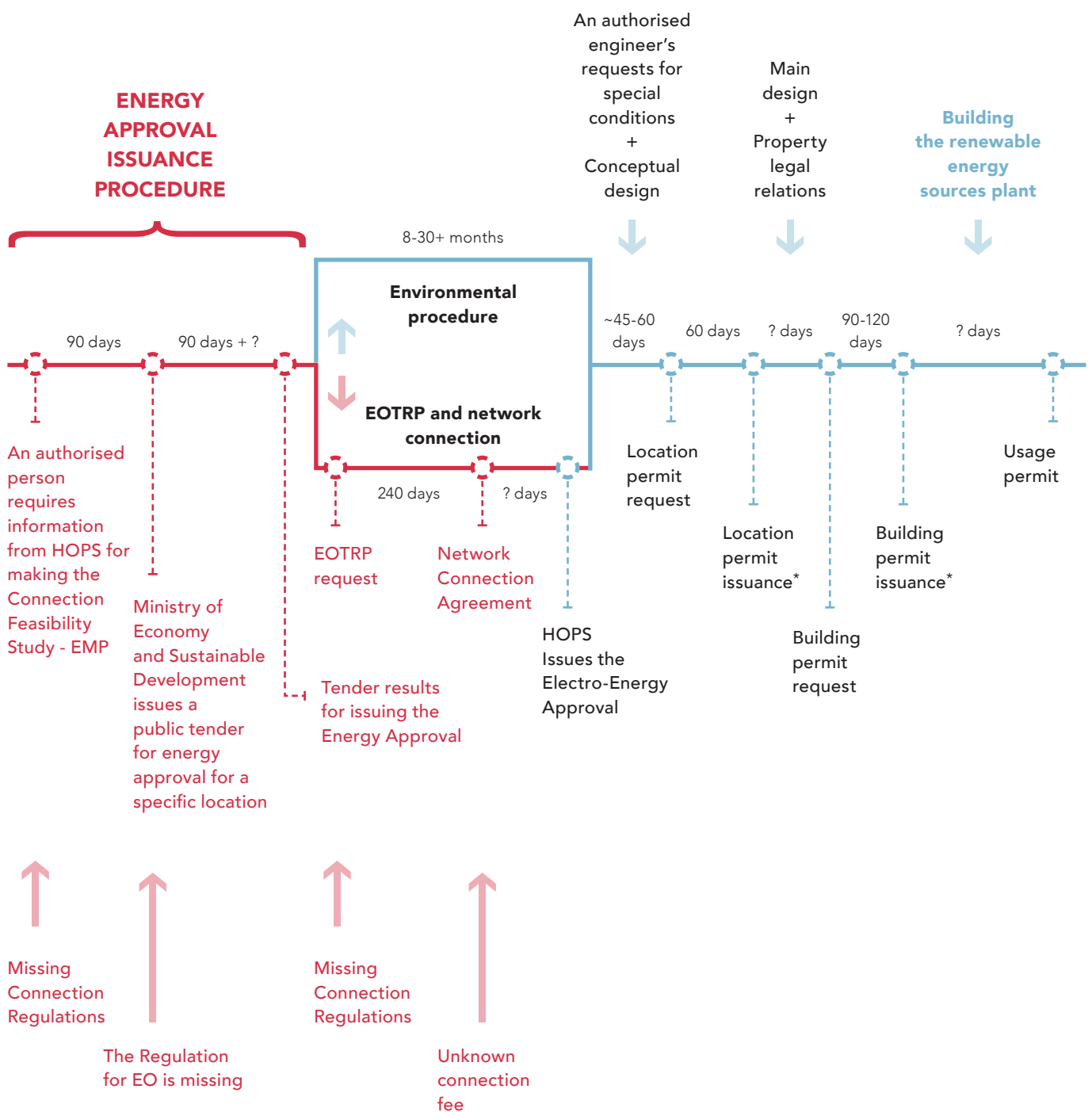
- Lack of bylaws foreseen by the Electricity Market Act (primarily Regulation on the conditions for the Public Tender for Energy Approval Issuance as defined in Article 17 of the Electricity Market Act, Regulation on the Connection to the Transmission and Distribution Network);
- Extremely slow processing of the requests for the energy approval issuance following the transitional provisions of the Electricity Market Act or according to the Article 133;
- Unnecessary administrative burden for the construction of the solar power plants intended for self-supply.

Solution proposal:

- To make bylaws foreseen by the Electricity Market Act (primarily the Regulation on the Conditions for the Public Tender for Energy Approval Issuance as defined in Article 17 of the Electricity Market Act, Regulation on the Connection to the Transmission and Distribution Network (and connection prices) as per urgent procedure;
- To urgently process the requests for the energy approval issuance according to the Article 133 of the Electricity Market Act;

- Amendments of the Regulation on Simple Structures and Works should define integrated and non-integrated solar power plants intended for self-supply as simple structures. This would also mean that they do not require energy approval.

FIGURE 2
The timeline for developing the renewable energy sources projects



2.2. Connection to the Electro-Energy Network

Apart from the above-mentioned absence of the Regulation on the Connection to the Transmission Network and the Regulation on the Connection to the Distribution Network, a significant obstacle in the development of renewable energy sources projects poses the cost uncertainty of connection to the network. The fee amount was supposed to be defined by Croatian Energy Regulatory Agency (HERA) in September last year. Without this information, it is impossible to plan investments because the network connection comprises a significant portion of the project development cost. Considering that the investors have to pay the energy approval at the very beginning of the project according to the Electricity Market Act (ZOTEE), then transparent and gradual payments must be introduced for the network connection to avoid an unbearable financial burden on the project development at its early stages. Furthermore, it is essential to ensure the co-financing of the future connection expenses for all plants using renewable energy sources.

This way would alleviate the largest risk of renewable energy sources projects and it would ensure the cost-effectiveness of new projects. The key long-term financing sources of network construction are the network fees and connection fees. With the existing structure of network fees, it is not possible to realise the ambitious plan of integrating the renewable energy sources in Croatia. Therefore, the transmission and distribution operators want to rely more on the connection fee. From the Ten-year plan for the development of the transmission network in Croatia 2023-2032 it may be indicated that the investment in the transmission network shall be financed almost entirely by new connections, in other words by high connection fees. This shall greatly increase the cost of renewable energy sources projects which shall not make them competitive among the European countries resulting in an additionally decelerated energy transition.

It is important to introduce transparent and gradual payments of the network connection fee and ensure co-financing of future connection fees for all plants to renewable energy sources

The development of the electro-energy network is the key precondition for implementing the green transition. The construction procedure of the electro-energy infrastructure is significantly long. Therefore, new transmission capacities must be constructed as soon as possible to avoid delays in network development while collecting funds from the connection fees.

Additionally, it is important to establish a publicly available overview of HOPS's infrastructure with clear indicators of its potential capacities or limitations for accepting new production plants or consumers (it is important to digitalise and unify the information on the connection possibilities which HOPS publishes at its web pages). This is not only necessary for the plants of renewable energy sources, but also for all larger investments in the real sector considering the importance of the information on the approximate connection potential (free power of the

substations) for the development of all economic projects (industries, larger consumers and similar).

The procedure of the pre-connection and the connection to the electro-energy network which is foreseen in the above-mentioned and not adopted Regulation on the Connection is extremely long. Diagrams* in Attachment 1 show the expected procedure for the pre-connection and the connection within given deadlines and red colour marks the parts that can be shortened to accelerate the procedure.

*the diagrams refer to the propositions of the Regulation on the Connection which have not yet been approved by the Ministry of Economy and Sustainable Development (MINGOR) and the Croatian Energy Regulatory Agency (HERA)

Raised issues:

- Regulation on the Connection to the Transmission and Distribution Network (HEP-ODS and HOPS) is not drafted. Approvals by the Ministry of Economy and Sustainable Development and by the Croatian Energy Regulatory Agency are being awaited;
- Network Regulations for the Distribution and Transmission System are not drafted. Approvals by the Ministry of Economy and Sustainable Development and by the Croatian Energy Regulatory Agency are being awaited;
- Network connection fee was not defined. The approval by the Croatian Energy Regulatory Agency is being awaited;
- Transmission and distribution operators rely too much on the network connection fee as the source of funds for the electro-energy network construction;
- Long-term procedure of pre-connection and connection to electro-energy network.

Solution proposal:

- To develop Network Regulations for the Distribution and Transmission System as well as the Regulation on the Connection to the Transmission and Distribution Network as per urgent procedure;
- To determine the connection fee for 2023 as per urgent procedure;
- To ensure co-financing of the connection fee at the national level for all production plants using renewable energy sources;
- To start the construction of additional transmission capacities of the electro-energy network as soon as possible;
- To establish a digitally and publicly available browser for HOPS infrastructure with indicators for potential capacity or limitations for the acceptance of the new production plants;
- To speed up the procedure of pre-connection and connection to the electro-energy network.

2.3. Regulations Compliance

Along with the incomplete regulatory framework, another significant obstacle for the realisation of the renewable energy sources projects is the non-compliance of the new acts with the existing ones. This primarily refers to the non-compliance of the Act on Renewable Energy Sources and High Efficiency Cogeneration (ZOIEVUK) and the Electricity Market Act (ZOTEE) with key acts which regulate the adoption of construction acts: the Construction Act (the Construction Act ZOG, the Official Gazette 153/13, 20/17, 39/19, 125/19) and the Physical Planning Act (the Physical Planning Act ZPU, the Official Gazette 153/13, 65/17, 114/18, 39/19, 98/19). The last amendments of this acts entered into force during 2019, therefore they are not in compliance with the new acts which regulate the field of the renewable energy sources.

The regulation's non-compliance is notably visible in the uneven practice of issuing acts related to plant construction for the production of electricity from renewable energy sources. The Ministry of Physical Planning, Construction and State Assets (MPUGiDI) issued an instruction to all administrative bodies on 20 September 2022 because their actions differed, even though all competent county departments should act equally. This set of instructions prohibited issuing a location or building permit to projects for which there was no tender for the allocation of state property according to the Act on Renewable Energy Sources and High-Efficiency Cogeneration (ZOIEVUK) of 2016, and for which there was no tender for the issuance of the energy approval according to the provisions of the Electricity Market Act (ZOTEE) of 2021. Considering the Ministry of Physical Planning, Construction and State Assets (MPUGiDI) issued instruction even though the legal framework of the Construction Act and the Physical Planning Act does not yet comply with the acts regulating the energy sector (Act on Renewable Energy Sources and High-Efficiency Cogeneration (ZOIEVUK) and the Electricity Market Act (ZOTEE)), there can only be two ways of interpreting this set of instruction. The first interpretation is that all the construction decisions and acts that were issued before the aforementioned instruction are against the law. The second interpretation is that all actions after these instructions are against the Construction Act.

Considering the comprehensiveness of the topic, the correlation between sectors, and to resolve non-compliance fast it is suggested to establish Interdepartmental work teams

A special emphasis has to be put on adjusting the terms and definitions related to the renewable energy sources when the (inevitable) adjustments of regulations is made. Due to a large number of synonyms (they are often misinterpreted by the administrative bodies. For example, it is important to define the term power plant connection power (not installed) with the aim of simple interpretation and actions of all administrative bodies.

Considering the comprehensiveness of the topic, the correlation between sectors, and to resolve non-compliance fast, it is suggested to establish Interdepartmental work teams consisting of representatives from the Ministry of Economy and Sustainable Development (MINGOR), Ministry of Physical Planning, Construction and State Assets (MPUGiDI), HEP ODS (Distribution System Operator), HOPS, Croatian Energy Regulatory Agency

(HERA), Croatian Energy Market Operator (HROTE) and Association of the Renewable Energy Sources of the Croatian Chamber of Commerce to reach conclusion and clear deadlines for regulations compliance within 30 days.

Judging by the existing practice, a comprehensive adjustment of the regulations just for the electricity production sector from renewable energy sources would require multi-annual efforts. This effort, although necessary, may result in additional delays in implanting renewable energy sources projects. The National Plan of Recovery and Resilience (NPOO) defined ambitious goals for realising the renewable energy sources projects, meaning the connection of 1500 new MW by the end of 2024. Therefore, it is suggested to urgently start the procedure of developing *Lex Specialis* for the renewable energy sources sector, along with adopting necessary bylaws. This act may be passed urgently within one calendar year which would enable the faster and simpler realisation of renewable energy sources projects.

Lex Specialis would achieve multiple positive effects on investments, the activation of the Croatian economy, and the energy balance sheet of the country.

Raised issues:

- Non-compliance between the Act on Renewable Energy Sources and High-Efficiency Cogeneration and the Electricity Market Act with the acts defining the construction: Construction Act and Physical Planning Act;
- Non-compliance in the actions at the level of the Ministry of Economy and Sustainable Development and the Ministry of Physical Planning, Construction and State Assets concerning the activities implemented at the level of county administrative bodies;
- Non-existence of *Lex Specialis* for the project preparation and implementation in the sector of electricity production using renewable energy sources.

Solution proposal:

- To implement the amendments of the Construction Act and Physical Planning Act to give priority to solving and processing the requests for the issuance of the construction acts for the electricity production plants using renewable energy sources or projects which contain energy approval as a part of their request;
- To engage capacities needed at the level of the Ministry of Physical Planning, Construction and State Assets to prioritize the requests with energy approvals; through foreseen amendments of the legal framework, criteria should be clearly defined and communicated to the administrative bodies to avoid differences in solving the cases with identical requests and conditions;
- To develop *Lex Specialis* to implement the projects in the sector of electricity production using renewable energy sources.



2.4. Physical Planning

The most common reasons for the long-term development of renewable energy sources projects are problems with physical planning. Non-compliance with the municipal and county plans, uneven understanding of the compliance necessity, as well as very illogical and harmful restrictions regarding the minimum distances of the renewable energy sources from the communities, roads, and the limits in the occupied areas are some of the most prominent problems.

The uneven practice of defining suitable zones for non-integrated solar power plants is especially visible in the physical plans of the coastal counties. For example, the minimum distance of the plant from the construction area of a community (it varies from 500 to 1,000 m) or the distance from the roads (it varies from 100 to 300 m) are often unevenly defined. Furthermore, there are physical plans in some counties which require a distance of 500 m from mineral exploitation fields, whereas in others solar power plants are only allowed within the areas intended for wind farms. What follows is a review of some of the provisions related to the county physical planning which shows a clearly uneven and overly standardized practice for defining suitable areas for the renewable energy sources plants (Table 2).

TABLE 2
Provisions related to the country's physical planning show a clearly uneven and overly standardized practice for defining suitable areas for the planning of solar power plants. (CPP = County Physical Planning)

	Dubrovnik-Neretva CPP	Šibenik-Knin CPP	Zadar CPP	Split-Dalmatia CPP	Lika-Senj CPP
DISTANCES	Distance of 500m from the borders of communities' construction area and tourist zones.	Distance from the construction area is 500m, from the railroad, highway and freeway 300m, and other public roads 100m.	Distance of 1000m from the communities and other facilities.	Distance from the communities and tourist zones of 500m. Distance from the high-level roads (highway, motorway) is 200m as the crow flies. Distance from other roads of 100m. Distance from the airport of 800m.	Construction area 1000m, roads and infrastructure facility 150m, cultural goods 500m, ore exploitation fields 500m.
SIZE OF THE SOLAR POWER PLANT	In the event of large solar power plants, it is necessary to divide the land plot into multiple fields to enable a wildlife corridor for animals.	/	/	/	The area of a solar park is limited to 2km ² , with an interval spacing of min 1km. Maximum coverage of the field with elements of solar parks cannot exceed 25%.
LOCATION/VISIBILITY	The size and the location of the plant shall be defined according to the analysis of visual impact. Selecting the locations which shall not prevent the expansion of the community and shall not interfere with the specific contours of the community.	They are primarily planned at the locations where an infrastructure already exists. Cannot be planned on fields with a slope greater than 15% of the natural terrain.	Solar panels may only be planned within the wind farms. Outside of zones exposed to the view of valuable scenery, as well as from the sea and main roads. Coordinating the location of the wind farms and with that the solar power plants with the telecommunication facilities.	Infrastructural facilities planned on the islands and in the coastal area cannot be visible from the coast or the coastal water area. The size location of the surfaces shall be defined according to the analysis of visual impact.	/

Missing a State Plan, the Republic of Croatia could accelerate project preparation by adopting a temporary Renewable Energy Sources Regulation to define the unified provisions on renewable energy sources physical planning

The majority of physical plans use the same distances for wind turbines and the solar power plants, even though those technologies do not have the same impact on the environment and people. Necessary distances from the occupied homes (but not communities) should be defined for wind farms for safety reasons, noise, and possible shading, even though there is no need to burden the textual parts of physical planning with that since this issue is part of the environmental impact assessment. Furthermore, all physical plans allow solar power plants to be installed on roofs, but for some reason non-integrated solar panels have to be 500 and more metres from the subject roof. A special issue in the physical planning is the distance between the power plants and the limits of the communities, and even more so from the construction area of a community because these borders include stone houses which have been abandoned for decades and for them it is extremely difficult (if not impossible) to obtain deletion from the physical planning. Similarly, physical plans are often crossed with road and rail corridors planned long ago, and which remain forever inscribed even though they shall not be realised. As long as such corridors exist in the physical plans, it is important to distance the renewable energy sources plants by 300m. Prior to making new physical plans or making amendments, it is necessary to request opinion from competent authorities or companies which suggested the registration of these infrastructural facilities about the planned construction of such facilities and to delete them if these authorities do not respond to the request.

Furthermore, it is important to clearly define the wind farm, solar power plant or any other renewable energy sources plant as an energy facility which consists of a production plant, transformer, and connection power lines. Considering that the electro-energy network connections are defined via network operator, they are subject to changes and should be defined exclusively in textual provisions of the physical plans, and not in diagrams. Contrarily, the operator may decide to change the connection location and then changes to physical plans would have to be implemented again.

To resolve this issue, while lacking a State Plan, the Republic of Croatia could accelerate the project development by adopting a temporary Regulation for renewable energy sources to adjust these criteria and define unified provisions on physical planning of the renewable energy sources (by different technologies).

Along with the aforementioned issues, it is important to emphasize the need for legislative regulation of agro-solar power plants. A clear set of rules should be included in the physical planning documents because there are no clear instructions on planning the agro-solar power plants. The public consultation on the Act on the Amendments of the Physical Planning Act (late 2022) defines agro-solar power plants as well as the spatial limitation for their planning, however, the adoption of the act has been delayed due to numerous objections. To apply this innovative concept for electricity production while continuing agricultural activities in Croatia, it is necessary to urgently adopt the Act on the Amendments of the Physical Planning Act.

Raised issues:

- Along with, in some cases, a very doubtful process of determining the borders for the renewable energy sources usage in physical plans, in the areas with the greatest potential (wind and sun at the coast), questionable restrictions additionally limit surfaces that are available for the construction of the renewable energy sources plant;
- Abandoned communities and roads corridors that shall not be constructed limit the development of renewable energy sources projects;
- Clearly define a wind farm, solar power plant, or any other renewable energy plant;
- The term agro-solar power plant is not recognized nor is how such plants may be planned in physical plans.

Solution proposal:

- Temporary Regulation on renewable energy sources with instructions that would unify the practice and definitions through lower-level plans;
- Clear deserted villages and road corridors that shall not be realised from the physical plans;
- Clearly define a wind farm, solar power plant, or any other renewable energy source plant. The connections to the electro-energy network should be defined exclusively in textual regulations of physical plans, not graphically;
- To set a clear definition of agro-solar power plants in the Act on the Amendments of the Physical Planning Act or in a temporary Regulation by the Government of the Republic of Croatia and to clarify how agro-solar power plants may be planned in physical plans.



2.5. Environment and Nature Impact

Because renewable energy sources are an answer to the increased threat to the environment, it is paradoxical that environmental protection is the longest procedure in the complete process of obtaining the permits for renewable energy sources projects.

There are three most common procedures regarding environmental protection in renewable energy sources: the procedure of the Evaluation of the Need for the Environmental Impact Assessment (OPUO), Main Intervention Acceptability Assessment for the Ecological Network (GO), and Environmental Impact Assessment (PUO). The procedures Main Intervention Acceptability Assessment for the Ecological Network (GO) and Environmental Impact Assessment (PUO) require a previous year-long monitoring which extends the duration of all required actions to obtain the permit along with the administrative time. The total duration of the environmental impact assessment of the plants with the electricity production from the renewable energy sources is shown in the following table (Table 3).

TABLE 3
Environmental impact assessment duration of the plants with the electricity production from the renewable energy sources

Renewable energy source category	Foreseen procedure	Legally defined procedure duration	Average procedure duration
Solar power plant up to 100 MW	OPUO	2 months	8-12 months
Solar power plant over 100 MW	PUO	6 months	24 months
Wind farm up to 20 MW	OPUO	2 months	8-12 months
Wind farm over 20 MW	PUO	6 months	24 months

According to the current legal framework, the competent authority may issue a decision that either the Main Intervention Acceptability Assessment for the Ecological Network (GO) or the Environmental Impact Assessment (PUO) has to be implemented for any renewable energy source project regardless of its size. Consequently, there is no method for planning the required duration of project development. This poses a significant risk to the investor. However, the most concerning fact is that the aforementioned procedures last four to six times longer than legally prescribed. Therefore it is important to urgently increase personnel to accelerate the subject processes and their resolutions by reasonable deadlines because insufficient administrative capacities are usually underlined as the reason for extending deadlines by competent authorities.

One of the reasons for the duration of the administrative procedures of issuing a decision on the environmental acceptability of the intervention is the large number of cases. On top of that, the procedures are not digitalized which additionally slows down the management of the cases

in such a heavily burdened system. To achieve greater system efficiency, certain cases for which the experience proves that they have not had a significant impact on the environment, should not have to do the environmental protection procedures. More precisely, the implementation of the Evaluation of the Need for the Environmental Impact Assessment (OPOU) for solar power plants with a connected power of up to 10 MW that are outside the Natura 2000 ecological network could be abolished.

The requirement for the implementation of the environmental impact may be eliminated in certain cases of project amendments, the application of newer technology due to technological advances or finding a better/optimal technical solution, or increasing the plant installed power. For the amendments to the location permit, the Ministry of Physical Planning, Construction and State Assets (MPUGiDI) is obliged to demand compliance issued by the Ministry of Economy and Sustainable Development (MINGOR) (more specifically the Department for the Environment and Nature Protection) on the suggested amendments according to current regulations. If the physical planning conditions remain unchanged, the Ministry of Physical Planning, Construction and State Assets (MPUGiDI) should be able to decide on the amendments to the location permit independently, and the Ministry of Economy and Sustainable Development (MINGOR) would have to implement certain adjustments with the best practice and overwhelming interest. For example, increasing the wind turbine rotor by <10% or shifting in the approved scope within 1x of the total height of the wind turbine should not result in a new intervention assessment procedure. The same goes for solar power plants in the event of increased module power, construction height, or changes within the intervention scope. The act amendments for such procedures should be urgently issued to enable the realisation of the newest technology which is also the most acceptable for the environment and nature. This approach would additionally unburden the system and the processes. Therefore, the construction of additional capacities of renewable energy sources would be enabled within the consumed spatial units.

Administrative assessment procedures of the environmental impact of electricity production plants from renewable energy sources last four to five times longer than legally defined

Raised issues:

- Insufficient number of employees working on the large number of cases in the competent administrative bodies and lack of content standardization concerning case solutions in the intervention description, which often leads to the case amendments;
- Focus on the administrative form (instead of real environmental protection);
- Duration of the procedure implemented by public and administrative bodies concerning the issuance of the opinion within the procedures of Evaluation of the Need for the Environmental Impact Assessment (OPOU), Main Intervention Acceptability Assessment for the Ecological Network (GO), and Environmental Impact Assessment (PUO);
- Non-existence of priority requests – relevant, national projects are mixed with a small local project without any prioritizing. The procedures

of the Evaluation of the Need for the Environmental Impact Assessment are disregarded due to a large number of other requests.

Solution proposal:

- To improve work organization and introduce digitalization in the entire administrative procedure:
 - » Digitalization enables reminders to be sent automatically to the bodies which failed to provide their opinion as well as reminders for an open case,
 - » If the public and legal body fails to provide its opinion in time, the opinion is automatically considered as positive, and the procedure of issuing the solution for the subject case is initiated,
 - » The system enables greater work standardization and monitoring of the efficiency of certain officials; therefore, it provides the possibility of awarding the most efficient ones,
 - » The requests to initiate the procedure are submitted online together with all the necessary annexes; therefore, there is no paperwork, and there are no lost papers,
 - » If an official is absent, the system automatically awards the case to an available official,
 - » The system determines the chronology of dealing with the cases once all requested opinions are received or after the expiry of 30 days from the date when the opinions of the public and legal bodies were requested; at that point, the case is awarded to an official to be solved;
- Increase the number of employed officials to implement these important procedures with care which is suitable for the protection of national interests – primarily environmental protection until digitalisation is introduced;
- To amend the regulations and acts to give priority to renewable energy sources projects, to decrease the number of cases going through different procedures, to determine situations that require intervention amendments, and for a certain number of officials to specialize in renewable energy sources projects;
- By amending the Regulation on the Environmental Impact Assessment (OG 61/14 and 3/17), it is necessary to change the limit for the implementation of the Evaluation of the Need for the Environmental Impact Assessment to refer only to the solar power plant of over 10 MW of connection power if such interventions are located outside Natura 2000 ecological network;
- To define cases that do not require new procedures of the Need for the Environmental Impact Assessment, Environmental Impact Assessment, and Main Intervention Acceptability Assessment for the Ecological Network.

3. Conclusion

The energy sector, especially the electricity production from renewable energy sources, represents a key sector in the strategic politics of the European Commission and the Republic of Croatia. The European Commission adopted the RePowerEU plan in 2022 in response to the difficulties and disturbances caused by the Russian invasion of Ukraine in the global energy market. The transformation of the European energy system is urgent for two reasons: to end the EU's dependence on Russian fossil fuels, which are being used as an economic and political weapon and which has annually cost European taxpayers almost 100 billion euros, and to tackle the climate change crisis. RePowerEU expects these two problems to be solved by accelerating and largely increasing energy production from renewable sources. This shall enable energy independence, encourage the green transition, and in time lower the cost of electricity.

This analysis established the biggest obstacles in the administrative procedures when developing renewable energy sources projects in the Republic of Croatia, due to which it is currently not possible to prepare or realise new production plants. In this analysis, the emphasis is put on five significant obstacles in the administrative procedures (obtaining permits and decisions; connection to the electro-energy network; regulations compliance, physical planning, and the impact of the production plants on the environment and nature).

The Sector for electricity production from renewable energy sources is regulated by two acts: the Act on Electricity Market (ZOTEE, NN 111/2021) and the Act on Renewable Energy Sources and High-Efficiency Cogeneration (ZOIEVUK, NN 138/2021). The aforementioned acts represent the foundation for adopting all other legal regulations and bylaws under the jurisdiction of other ministries, administrations, and public and legal bodies for electricity production from renewable energy sources. The main reason for adopting these acts in 2021 was to facilitate the procedures of developing renewable energy sources projects and consequently to intensify the investments in the production of "green energy" and reach the aims of the Republic of Croatia regarding renewable energy sources. Another reason was to coordinate the national legal framework with the legal acquis of the EU. However, the new legal framework decelerated the sector development additionally instead of accelerating it. The key reason for this was not adopting several foreseen bylaws, without which a complete implementation of the Act was not possible.

Increasing energy production from renewable energy sources shall increase the energy independence of the country, encourage green transition and reduce electricity costs over time

The Regulation of the Electricity Market Act (ZOTEE), which is to define the methods for awarding energy approval, is the first and most important document in developing renewable energy sources projects, the Regulation on the Connection to the Network, Regulation on the Connection to the Distribution Network, Network Regulations, and the fee for the connection to the electro-energy network are the acts and regulations the adoption of which is 150 to 430 days late (on 27 March 2023). It is currently impossible to develop renewable energy sources projects without the above-mentioned acts and regulations. Additionally, the new legislative framework has disabled the development of projects in advanced stages because they had to express interest in the implementation of a public tender for energy approval according to the transitional provisions of the new Electricity Market Act (ZOTEE Article 133). Therefore, it is emphasized that bylaws have to be adopted urgently and the requests for the issuance of energy approval (according to the Article 133 of the Electricity Market Act) have to be processed urgently.

Along with the abovementioned bylaws, a significant obstacle to the development and planning of renewable energy sources projects is the fact that cost is still unknown for the connection to the electro-energy network which is the responsibility of the Croatian Energy Regulatory Agency. Without this piece of information, it is not possible to plan investments because the network connection makes a significant cost in the project development. Furthermore, it is important to ensure the component of co-financing of future connection costs for all the connections to renewable energy sources to alleviate the greatest risk of the project and ensure that the projects are competitive.

Non-compliance with the regulations, along with the absence of bylaws, additionally complicates further project development in the electricity production field from renewable energy sources. The Construction Act (ZOG-the Construction Act, the Official Gazette 153/13, 20/17, 39/19, 125/19) and the Physical Planning Act (ZPU- the Physical Planning Act, the Official Gazette 153/13, 65/17, 114/18, 39/19, 98/19) represent two key acts which regulate the adoption of construction acts. The latest amendments to these acts entered into force in 2019. Therefore, their regulations do not comply with the valid regulations of the Act on Renewable Energy Sources and Cogeneration (ZOIEVUK) and the Electricity Market Act (ZOTEE). A prominent issue related to the regulation's non-compliance is evident in the uneven actions and understanding of the requests by the legal bodies for the implementation of acts at the county level, as well as uneven actions at the levels of the Ministry of Economy and Sustainable Development (MINGOR) and the Ministry of Physical Planning, Construction and State Assets (MPUGiDI) in comparison to the actions at the level of the county legal bodies.

To solve this issue of non-compliance with the regulations, it is suggested that amendments are made to the Construction Act and the Physical Planning Act as well as employing required capacities at the level of the Ministry of Physical Planning, Construction and State Assets (MPUGiDI) to increase the dynamics of processing requests. Considering the

comprehensiveness of the topic, the correlation between sectors, and to resolve regulations non-compliance, it is suggested to establish Interdepartmental work teams consisting of representatives from the Ministry of Economy and Sustainable Development (MINGOR), Ministry of Physical Planning, Construction and State Assets (MPUGiDI), HEP ODS (Distribution System Operator), HOPS, HERA, HROTE and Association of the Renewable Energy Sources of the Croatian Chamber of Commerce to reach conclusion and clear deadlines for regulations compliance within 30 days. A systemic measure is an urgent initiation of making the Lex Specialis for the implementation within the electricity production sector using renewable energy sources.

The most common reason for the long-term development of renewable energy sources projects is the problems with physical planning. Non-compliance with the municipal and county plans, uneven understanding of the compliance necessity, as well as very illogical and harmful restrictions regarding the minimum distances of the renewable energy sources from the communities, roads, and the limits in the occupied areas are some of the most prominent problems. The uneven practice of defining suitable zones for non-integrated solar power plants is especially visible in the physical plans of the coastal counties. This analysis defines the need of adopting a temporary Provision of Renewable Energy Sources which would define the guidelines for understanding the physical planning at the county and local levels, as well as the need to define the agro-solar power plants in the Act on the Amendments of the Physical Planning Act.

Because renewable energy sources are the response to the increased threat to the environment, it is paradoxical that precisely environmental protection is the longest procedure in the complete process of obtaining the permits for renewable energy sources projects. The duration of environmental impact procedure lasts up to 6 times longer than prescribed by law. This analysis determined that there is an insufficient number of employees in the administrative bodies and the standardization of the case decision contained in the description of the intervention is missing. This often leads to too long procedures of the Evaluation of the Need for the Environmental Impact Assessment (OPUO), Main Intervention Acceptability Assessment for the Ecological Network (GO), and Environmental Impact Assessment (PUO). To resolve the abovementioned issues, it is inevitable to raise the work organisation and digitalize the entire legal process, increase the number of employed officials, and train a certain number of employees for renewable energy sources projects. Additionally, the regulatory amendments should enable assigning priority to the renewable energy sources projects, reduce the number of cases that have to go through the environmental protection procedures, and clearly define which situations do not require intervention amendments. The administrative procedures of obtaining the intervention acceptability decision are obstructed by an excessive number of cases. To unburden them, certain interventions and obligations should be excluded in the amendments of the Regulation on the Environmental Impact Assessment such as solar power plants up to connection power of 10 MW located outside the Natura 2000 ecological network.

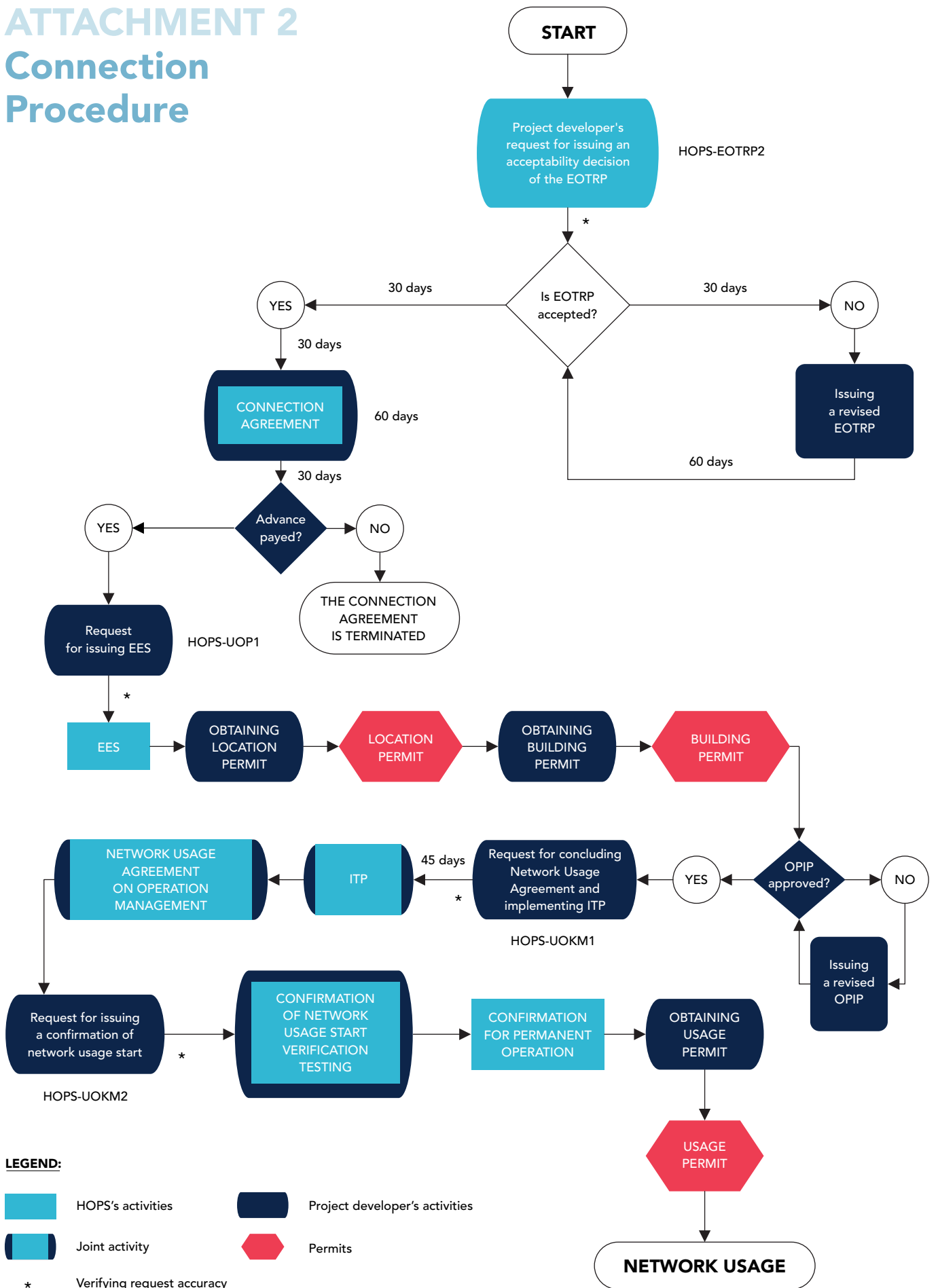
Due to the need for comprehensive regulation compliance as a systemic measure, Lex Specialis should be urgently made for the preparation and implementation of electricity production from renewable energy sources

The development of the renewable energy sources sector was not led in a planned manner from the very beginning. Therefore, it is high time Government assumed a more active role and urgently provided a plan for developing renewable energy sources plants by the year 2030.

Resolving the abovementioned administrative procedures obstacles shall enable the preparation and fast implementation of building new renewable energy sources plants in the Republic of Croatia. This shall create a more positive investment climate and the energy transition towards a climate-neutral economy.

ATTACHMENT 2

Connection Procedure



Glossary and meaning of abbreviations

EES	Electro-energy approval
EMP	Connection Feasibility Study
Energy	Electricity
EOTRP	Study on Optimal Technical Solution of the Connection
EO	Energy Approval
EZO	Study on the Environment Protection
GO	Main Intervention Acceptability Assessment for the Ecological Network
HERA	Croatian Energy Regulatory Agency
HEP	Croatian Electric Power Organization Company
HEP ODS	Distribution system operator in the Republic of Croatia
HOPS	Transmission system operator in the Republic of Croatia
Integrated SE	one being built on existing buildings, houses, or halls and supplying energy to the building or delivering it to the grid
Non-Integrated SE	one being built on an undeveloped land for the purpose of supplying energy to the grid
NPOO	National Plan of Recovery and Resilience
MINGOR	Ministry of Economy and Sustainable Development
MPUGiDI	Ministry Physical Planning, Construction and State Assets
OIE	Renewable energy sources
OPUO	Evaluation of the Need for the Environmental Impact Assessment
PUO	Environmental Impact Assessment
SE	Solar power plant
VE	Wind farm
ZOG	Construction Act
ZOIEVUK	Act on Renewable Energy Sources and High Efficiency Cogeneration
ZOTEE	Electricity Market Act
ZPU	Physical Planning Act



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