OPTIMIZATION OF IMPLEMENTATION PROCEDURES FOR RES ELECTRICITY GENERATION INFRASTRUCTURE PROJECTS IN THE BALTIC STATES, NO. EM 2021/19

Current situation in the process of implementation of RES electricity generation infrastructure projects in Latvia, Lithuania and Estonia

2021

This research is funded by the Ministry of Economics of the Republic of Latvia, procurement "Optimization of Implementation Procedures for RES Electricity Generation Infrastructure Projects in the Baltic States", procurement No. EM 2021/19

***The current situation in the process of implementation of RES electricity generation infrastructure projects in Latvia, Lithuania and Estonia*, 2021, 232 p.**

Developed by

Riga Technical University, Institute of Energy Systems and Environment

Authors

Dr.sc.ing. Andra Blumberga

Dr.habil.sc.ing. Dagnija Blumberga

P.hD. Ieva Pakere

Mg.iur. Artis Vidžups

M.sc.ing. Krista Laktuka

M.sc.ing. Zane Feodorova

TABLE OF CONTENTS

1. INTRODUCTION

1.1. Solar and wind power in the Baltic States

Renewable energy sources are expanding opportunities for industrial development and can boost economic growth and create new jobs. It is possible to use renewable energy resources cost-effectively in all EU countries. The world is now at the beginning of the global energy transformation. Cost-effective renewable energy technologies provided an opportunity for sufficient development to reach ambitious climate targets of the EU Directive 2018/2001 of the European Parliament and of the Council of 11 December 2018 on promoting the use of energy from renewable sources (European Commission, 2018) /.

Integration of solar and wind power into the power markets of Baltic States continues to rise. Fig.1.1 and Fig 1.2 show the installed capacities of wind and solar power systems and produced solar and wind power in Lithuania, Latvia, and Estonia. Installed solar power capacities have significantly increased in Lithuania from 2012 to 2013, following a slight increase in 2017. Solar power use has also fast grown in Estonia since 2017. However, the integration of wind and solar systems is slower in Latvia.

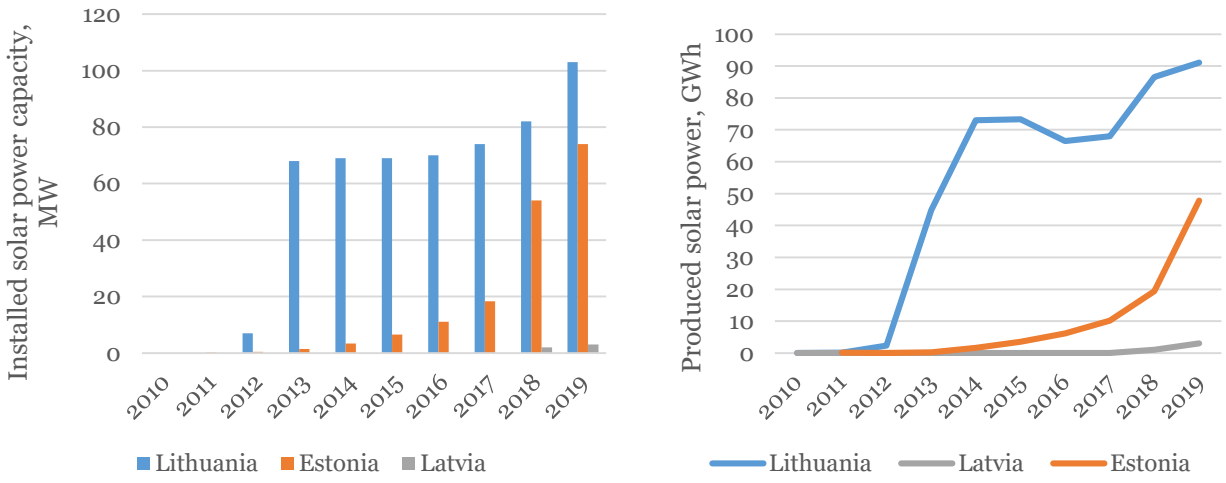


Fig.1.1. Installed solar power capacity and produced solar power from 2010 to 2019 (Mikhel Annus, 2018; Eesti statistika, 2021; Oficiālās Statistikas Portāls, 2021; OSP, 2021)

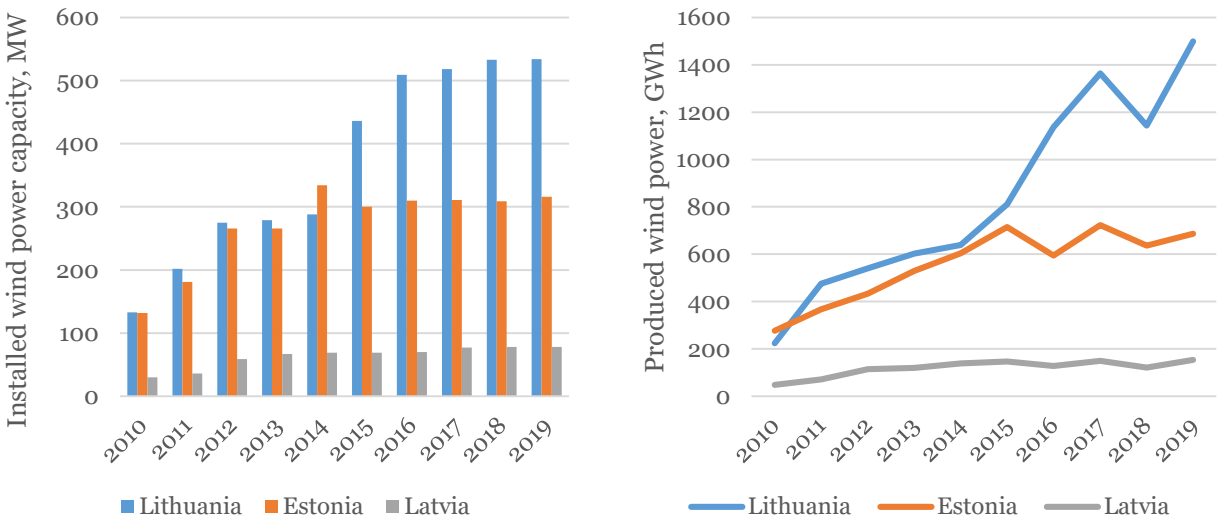


Fig.1.2. Installed wind power capacity and produced wind power from 2010 to 2019

The differences among installed solar and wind power capacities in the Baltic States can be explained by both different support policies in each country and the various barriers arising from the implementation process. Therefore, within this research, the main steps for solar and wind power plant installation in Latvia, Lithuania, and Estonia have been analysed to identify the main bottlenecks that do not allow implementing renewable power projects in a simplified manner.

1.2. Main steps of RES power project implementation

Due to different complexity levels, the installation process and the necessary permits depend on the planned capacity of the renewable power plant and the type of mounting. Therefore, different types of solar and wind power stations have been identified within this study. Figure 1.3 shows the overview of renewable power plant distribution according to installed capacities identifying micro-generation, small-scale, medium-scale, and large-scale projects. The marginal capacities of the groups are different in each country.

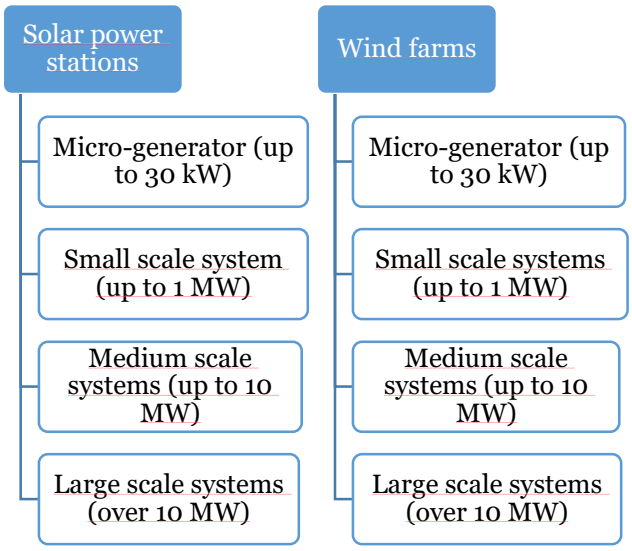


Fig.1.3. Types of solar and wind systems based on installed capacity

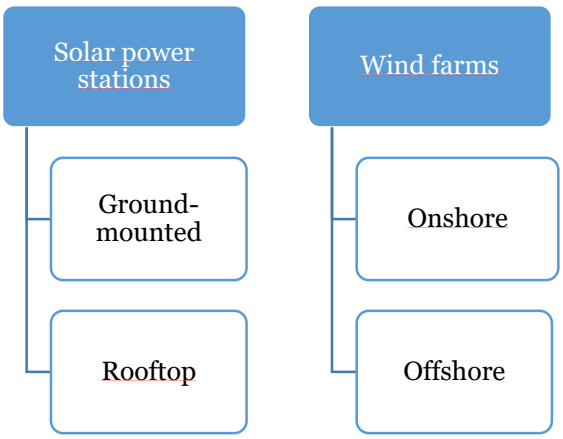


Fig.1.4. Types of solar and wind systems based on the installation place

The approval process also differs when considering different places to install solar or wind power stations (see Fig.1.4.). The installation of ground-mounted or rooftop solar power systems mainly varies in the permits necessary in the construction process. However, the planning of onshore or offshore wind farms has significantly different implementations steps in the feasibility study.

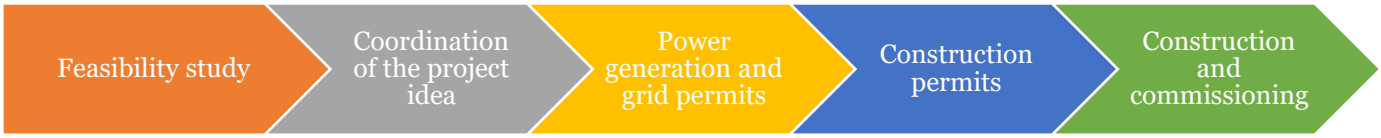


Fig.1.5. General steps for solar and wind power project installation

Fig. 1.5 shows the general steps for implementing solar and wind power, which will be analysed for different systems and countries. The implementation process consists of five main steps –feasibility study, coordination or approval of project idea, submission of necessary power generation and grid permits followed by construction permits, and finally, the construction and commissioning of the station. In different projects, some steps can overlap or be somewhat simplified.

2. LATVIA

Fig.2.1 shows the example of the distribution of solar PV and wind turbines, wind farms by installed capacity in Latvia. Microgeneration equipment with a simplified approval process can be attributed to projects below 11.1 kW (with no environmental impact assessment (EIA) and building permit necessary. Small-scale systems include power stations from 11.1 kW to 0.99 MW, which has a simplified power generation and grid permit receiving procedure from the Ministry of Economics. Power stations with a capacity from 1 MW to 10 MW can be considered medium-scale systems. Latvia's large-scale power systems are attributed to solar plants and wind farms above 10 MW. Wind farms with over 5 MW have to undergo an Environmental Impact Assessment procedure.

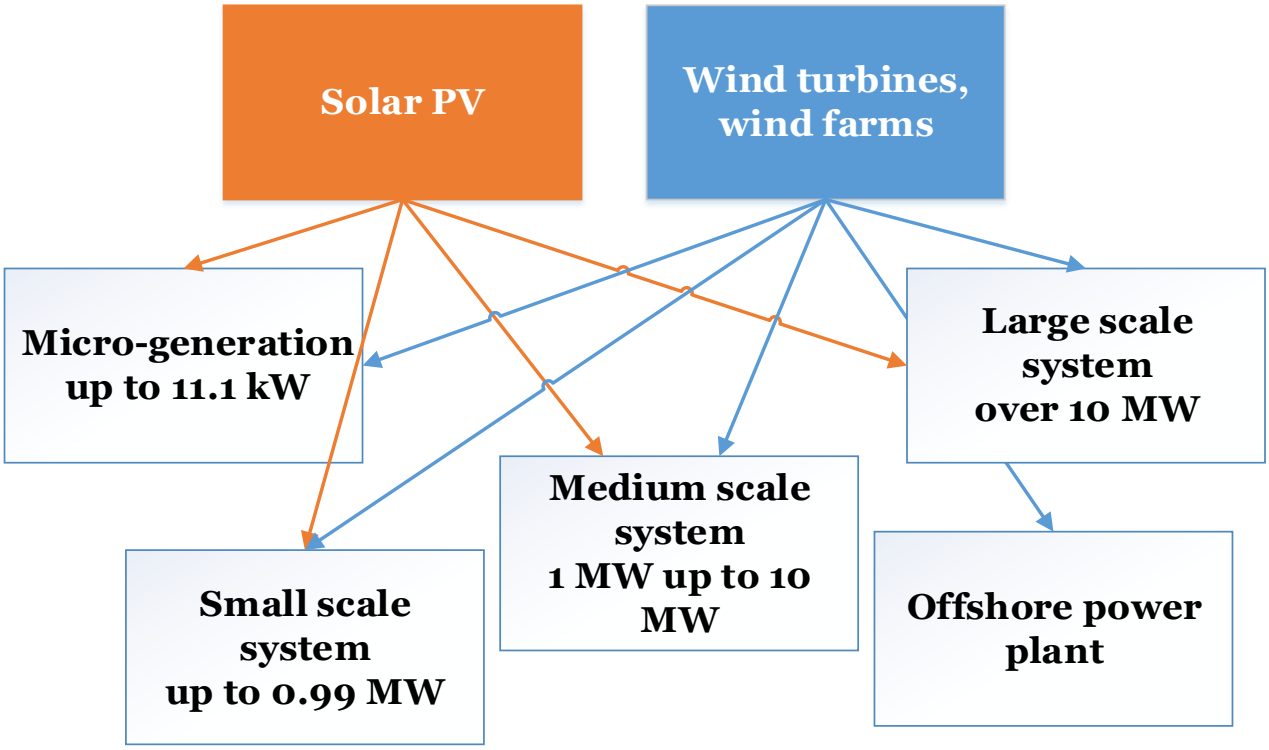


Fig.2.1. Distribution of solar PV and wind turbines, wind farms by installed capacity in Latvia

Section 2.1. and Section 2.2. describes the general implementation process for solar plants and wind power plants in Latvia, while starting from Section 2.3, in-depth legislation analyses have been performed. The following sections briefly describe the main steps the solar PV or wind power plant project developer should undergo to implement the project.

2.1. Main steps for wind power plant implementation

Before installing wind turbines or a wind power plant, a feasibility study related to spatial planning should be carried out. It should be ascertained whether the local municipality's spatial plan or detailed spatial plan includes the construction of a wind power plant on the particular plot of land intended for it. Suppose the general or detailed spatial plan does not permit installing wind turbines on the plot of land in question, based on the functionality intended. In that case, the local municipality should be asked to amend the detailed spatial plan. If the local municipality agrees to make changes to the detailed spatial plan, the new plan or changes that are made shall be approved within one month of applying. Considering the restrictions on the installation of wind turbines above 20 kW mentioned in the Cabinet of Ministers Regulation No.240 "General Regulations on Spatial Planning, Use and Construction" it is presumed that in connection to the spatial planning, no restrictions apply to wind turbines below 20 kW of (Ministru kabinets, 2013).

Figure 2.2. shows an overview of the main steps for the wind farm installation process from the idea to the launching operation. The process description includes the maximum number of steps to set up a wind farm or park, and the time cut-offs are designed to include both the minimum and maximum timeframe for the process.

The process starts with a detailed feasibility study. Due to the complexity of the following steps, the wind farm developers should carefully select the territory for the wind farm by taking into account several criteria – wind speed in the selected area, inviting an expert to preliminary assess possible environmental impacts that the plant could create, will it be possible to connect the wind farm to the closest network and how much will it cost as well as the economic viability of the project. When selecting a site, the distance from military installations and radars should also be considered, as wind turbines of a certain height may not be allowed within the radar range. The duration of the feasibility study phase mainly depends on the developer's schedule and the availability of the necessary experts for assessing the potential environmental impact.

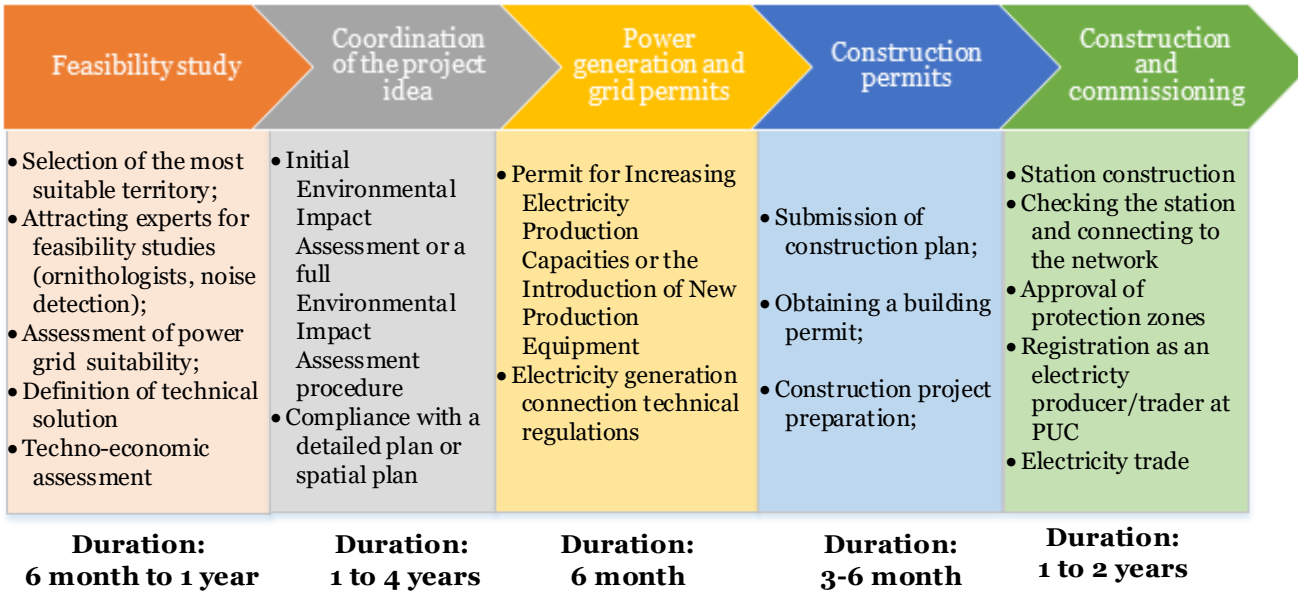


Fig. 2.2. Main steps for large scale wind farm installation and average duration of each step

The next step is to conduct an Initial Environmental Impact Assessment (EIA) procedure described in Section 2.4.1. If applicable, an entire EIA procedure is started, and an EIA report is prepared (Section 2.4.2). The duration of EIA is specific for the particular complexity of the project, availability of experts to conduct the impact assessment, opinions received during the public consultation, and objectives received from the State Environmental Bureau and the public consultation. In addition, compliance with spatial planning documents should be conducted. If the wind farm is not allowed in the particular territory, changes in the municipality's detailed plan should be made, requiring additional time for project implementation. More detailed information about territorial planning can be found in Section 2.3. The EIA process and amendments to the detailed plan are the most time-consuming steps within the implementation process.

If the EIA is successfully done, the next step is receiving a permit for increasing electricity production capacities or the introduction of new production equipment. The conditions and process for obtaining the permit from the Ministry of Economics are described in Section 2.6. The next step for wind farm installation is obtaining a construction permit and starting the construction works. The number of documents to be submitted to the local Construction Board and the length of the process of issuing the construction permit may vary. The State Building Control Bureau is responsible for controlling the construction works for large-scale wind farms.

After the above-mentioned permissions have been received, the construction works can start. The procedure of connecting the power station to the grid is described in Section 2.7. The duration of construction of wind farms and connecting to the network is project-specific and depends on several aspects, such as available financial resources, procurements, project planning etc. After the power plant has been constructed, several test measures should be done to connect it to the power grid. Before starting their activities, electricity producers or traders must register in the register of electricity producers or electricity traders at the Public Utilities Commission. Electricity traders must register regardless of the installed capacity of the equipment. In contrast, a mandatory requirement for electricity producer for registering in the Register of Electricity Producers is if the power plant's installed capacity exceeds 1 MW (see Section 2.7.4.).

Due to the different process steps, the information on the implementation process of offshore wind farms is not included in the overall description of the wind farm implementation. Description of the implementation process for offshore wind farms, see Section 2.8.

The analysis outlines the overall phases of a wind farm deployment, from project planning to grid connection. In the further analysis, the timeframes indicated are approximate and mostly represent only the time units specified in the regulatory and normative acts, without the information about timeframes on the activities to be carried out by the developer - preparation of necessary documents, assessments for various permits, contracting process with the necessary specialists, construction process, etc. The process of approval of documents by the local municipality regarding the spatial planning and building permit may vary depending on the municipality, as well as the municipalities internal regulatory framework regarding the coordination and approval of documents, not exceeding the time limits set out in the "Law on Submissions" and the "Administrative Procedure Law". It should also be noted that the requirements of the distribution network operator or, at higher capacities, the requirements from the transmission network operator may vary depending on the capacity of the wind farm in question and the distance from the electricity transmission lines, as well as the complexity of the connection.

2.2. Main steps for solar power system implementation

Fig.2.3. shows the main steps of large-scale solar PV power station installation from idea to power generation, whereas the description of large-scale power station includes the

maximum number of actions to be taken. The process is similar to the one shown for wind power stations. However, several differences arise.

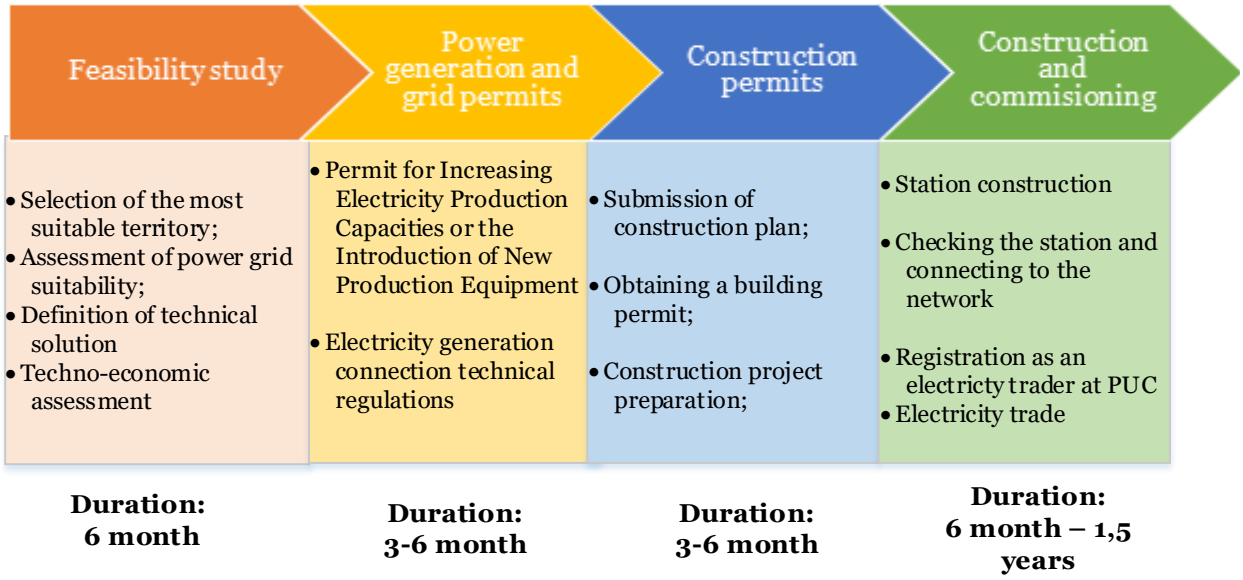


Fig. 2.3. Main steps for large scale solar power station installation and average duration of each step

The feasibility study of solar power plants is mainly related to the techno-economic assessment of the solar power station by analysing the potential costs and benefits from the power trading. The central aspect is the necessary investment costs for solar panels, cabling, and the transmission system. Therefore, the approval and development of the project idea are shorter and less bureaucratised. According to existing legislation, the EIA procedure is not applicable for installing solar power stations. Considering the restrictions mentioned in the Cabinet of Ministers Regulation No.240 "General Regulations on Spatial Planning, Use and Construction" the installation of solar PV panels is not subject to specific restrictions in terms of functional zoning.

The three following steps – power generation and grid permits, construction permits, and construction and commissioning-mostly follow the processes for large-scale solar PV projects. A detailed description can be found in the following sections on legislation analyses. The analysis outlines the overall phases of solar PV plant deployment, from project planning to grid connection. It should also be noted that the requirements from the distribution network operator or, at higher capacities, the transmission network operator, may vary depending on the capacity of the solar PV plant in question and the distance from the electricity transmission lines and the complexity of the connection.

The analysis outlines the overall phases of solar PV deployment, from project planning to grid connection. In the further analysis, the timeframes indicated are approximate and mostly represent only the time units specified in the regulatory and normative acts, without the information about timeframes on the activities to be carried out by the developer - preparation of necessary documents, assessments for various permits, contracting process with the necessary specialists, construction process, etc. The process of approval of documents by the local municipality regarding a building permit may vary depending on the municipality, as well as the municipalities internal regulatory framework regarding the coordination and approval of documents, not exceeding the time limits set out in the "Law on Submissions" and the "Administrative Procedure Law". It should also be noted that the requirements of the distribution network operator or, at higher capacities, the requirements from transmission network operator may vary depending on the capacity of the solar PV plant in question and the distance from the electricity transmission lines, as well as the complexity of the connection.

2.3. Territorial planning

The updated version of the Law on Spatial Development Planning, which entered into force from 01.07.2021, stipulates that the Cabinet of Ministers shall determine the general requirements for spatial development planning - spatial use and construction at the local level; determine the classification of types of spatial use; determine the procedure for development, implementation and supervision of the maritime plan; and approve the maritime plan (Saeima, 2011). Competencies of local municipalities - to prepare and approve the local municipalities' development strategy; development program; spatial plan; local plans; detailed plans, and thematic plans (Saeima, 2011).

Cabinet of Ministers Regulation No.240 "General Regulations on Spatial Planning, Use and Construction" defines the general requirements for local spatial development planning, spatial use, and construction, as well as the classification of types of spatial use. Functional zones are defined in spatial plans, local plans, or detailed plans to show and separate the different functions and characteristics of different areas and define the permitted uses (Ministru kabinets, 2013).

The functional zone, "forest area", is established to ensure conditions for the sustainable development of forests and fulfil the main economic, ecological, and social functions associated with forests. Furthermore, with the changes made on Cabinet of Ministers Regulation No. 240 on 13.10.2020, the location of engineering infrastructure and energy

supply companies, which includes only wind power plants and wind farms, is allowed in the forest area (Ministru kabinets, 2013).

Paragraph 7.9 of the Cabinet of Ministers Regulation "Protection against Noise and Pollution" stipulates that when planning engineering structures that correspond to Group III of the classification of engineering structures set out in the General Building Regulations[1], the spatial plan, local plan, or detailed plan shall additionally provide for:

- measures to mitigate the impact of such facilities on the surrounding areas;
- the organization of traffic flows so that residential and public areas are not affected;
- safety distances to residential and public buildings, with restrictions on the use of the site (Ministru kabinets, 2013).

Cabinet of Ministers Regulation No.240 states that wind farms with a capacity of more than 20 kW are allowed to be located in territories of the following functional zones if it coincides with the provisions of the spatial planning documents:

- in the territory of industrial construction;
- in the area of technical construction;
- agricultural area;
- forest area (Ministru kabinets, 2013).

The spatial plan or local plan may designate areas where the construction of wind power plants is prohibited. Various restrictions must be considered when planning the location of wind power plants and wind farms (Ministru kabinets, 2013):

- for wind power plants with a capacity of between 20 kW and 2 MW, the distance from the nearest planned boundary of the wind power plant and wind park to residential and public buildings must be at least 500 m;
- for wind power plants with a capacity greater than 2 MW, the distance from the nearest planned boundary of the wind power plant and wind farm to residential and public buildings shall be at least 800 m;

[1] Cabinet of Ministers Regulation No.500 "General Building Regulations" defines the division of engineering structures into groups. Energy production, transmission and distribution structures - Power plant structures with a capacity exceeding 20 kW, including a wind power plant (wind park) (Ministru kabinets, 2014d)

- in order to protect bird species or natural values from the impact of wind power plants and wind farms, the conditions and minimum permissible distance for the siting of wind power plants shall be determined by the environmental impact assessment;
- in the zone of visual perception of nationally protected cultural monuments, the impact of wind farms and wind turbines on the landscape shall be assessed, considering the cultural monument's specific situation and specificities.

The minimal distances mentioned of the wind park shall be defined from the outermost tower of the wind farm. These conditions shall also be complied with in the case of new residential or public development planned in the vicinity of existing wind farms and wind parks (Ministru kabinets, 2013).

The next step is to assess whether the location where the wind power plants or wind farm is planned to be built is allowed by the detailed development plan of the municipality concerned, considering the rules and restrictions mentioned above. The municipality concerned may have foreseen the construction of wind power plants or a wind farm on the site in its spatial plan or detailed plan, but it may be the case that no such facilities are foreseen. Suppose the site where the wind power plant or a wind farm is planned to be located corresponds to the functional zoning as defined by Cabinet of Ministers Regulation No. 240 "General Regulations on Spatial Planning, Use and Construction" (industrial area, technical area, agricultural area, forest area) (Ministru kabinets, 2013), but the municipality has not foreseen such an activity. In that case, changes to the local or detailed plan should be made.

According to Cabinet of Ministers Regulation No. 628 "Regulations on Local Government Territorial Development Planning Documents" changes in a municipalities detailed plan may be initiated by the owner of the land unit or his authorised person, submitting the following documents to the municipality (Ministru kabinets, 2014c):

1. an application, indicating the planned area of the detailed plan and describing the development proposal;
   - a notarised authorisation from the owners of all immovable properties in the territory of the detailed plan, if the detailed plan covers several immovable properties;
   - the consent of all the owners, if the land parcel for which the detailed design is planned has several owners;
   - where necessary, other information.

2. the municipality shall decide on the initiation of making changes to the detailed plan, approve the terms of reference and the development manager, or reject the application, giving appropriate reasons.
3. within **four weeks** after adopting the decision, the development manager shall send a notice of the development of the detailed plan to the owners and holders of immovable property in the area of the detailed plan whose existing immovable property borders the area of the detailed plan. The notification shall be placed in the system on the municipality's website, and the information shall be made available in other ways accessible to the public.
4. the municipality shall agree with the proponent on the deadline by which the proponent shall inform the municipality about the developer of the detailed plan and conclude an agreement on the development and financing of the detailed plan.
5. the validity period of the detailed design assignment is **two years**. If the factual and legal circumstances based on which the assignment was issued have not changed, the municipality may decide to extend the validity period of the assignment.

➔Duration of the process	One year and two months
➔ Solar PV	not applicable
➔Wind farm	applies to wind turbines over 20 kW

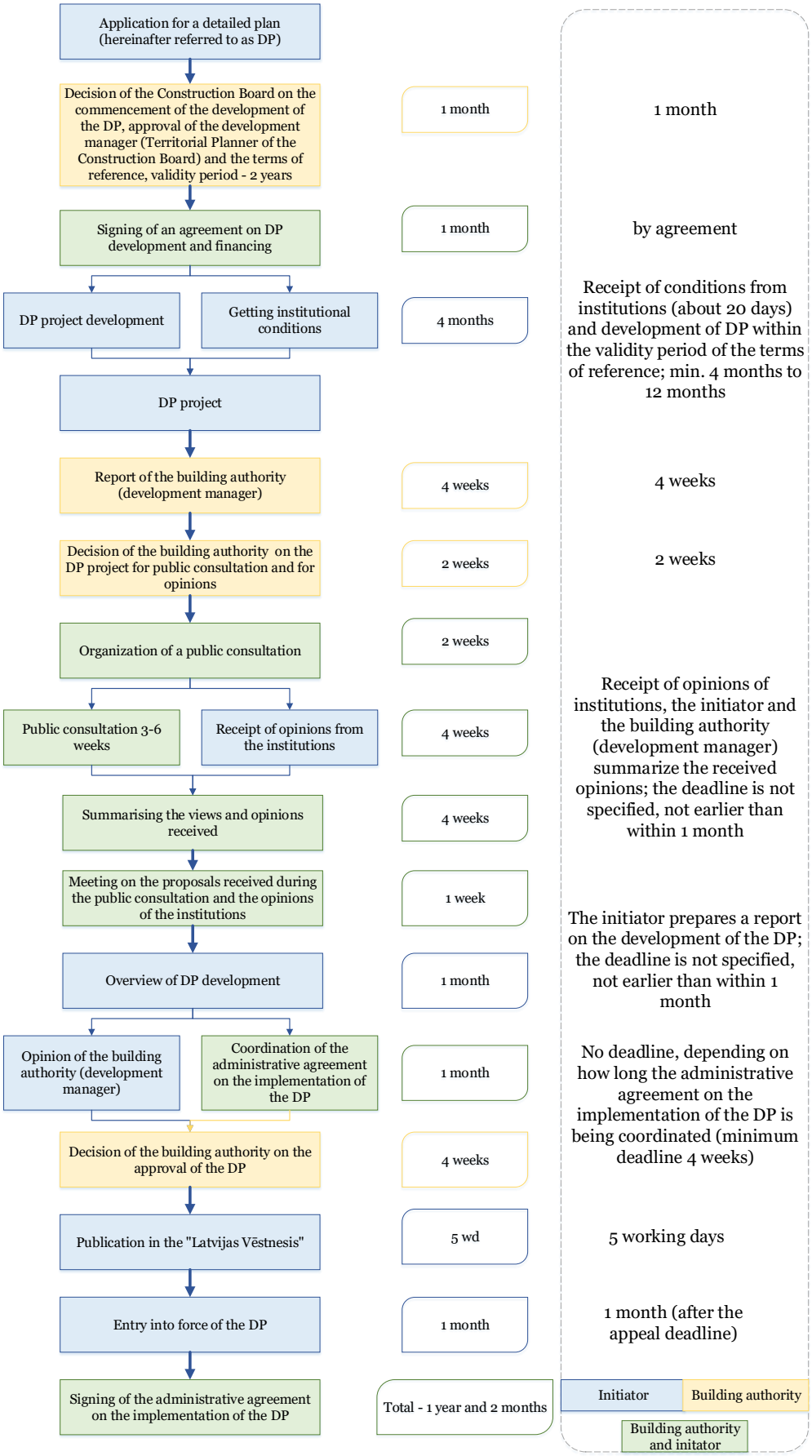


Fig. 2.4. Territorial planning (Riga City Building Authority, no date)

2.3.1. Protection zones and their establishment

The Law regulates the definition and establishment of protection zones on Protection Zones (Saeima, 1997). According to the definition, a protection zone is a defined area designed to protect objects of various kinds (both natural and artificial) from undesirable external influences, ensure their operation and safety, or protect the environment and people from the harmful effects of an object. The Law states that safety protection zones shall be established around wind power plants (Saeima, 1997). The main task of safety zones is to ensure the safety of the environment and people during the operation of these facilities and in case of possible accidents and the safety of the facilities themselves and the facilities in their vicinity (Saeima, 1997).

Safety zones applicable to wind power plants and their establishment (Saeima, 1997):

1. protection zones around wind power plants with a capacity of more than 20 kilowatts shall be established in order to ensure the safety of persons and objects in the vicinity of wind power plants during the operation of wind power plants and in case of possible accidents;
2. the width of the protection zone around wind power plants shall be 1.5 times the maximum height of the wind power plants;
3. the draft methodology for determining the safety protection zones around wind power plants shall be elaborated by the Ministry of Economics in coordination with the Ministry of Health and the Ministry of Environmental Protection and Regional Development;
4. protection zones shall be depicted in spatial plans by the procedure established by normative acts;
5. when proposing the construction (installation) of a wind farm, as well as when proposing the extension of these objects, if it is foreseen that the protective zones will occupy new areas of land, the owner or possessor of the object shall coordinate the construction (installation) of the object with the owner or legal possessor of the land or - in cases specified in normative acts - shall inform the owner or legal possessor of the land whose immovable property is covered by the protective zone, as well as the local municipality about the protective zone or changes to it.
6. the boundaries of protection zones established shall be graphically represented by the procedure established by the Law on Information System of Restricted Territories.

The Law on the Information System for Restricted Territories stipulates a national information system containing data on objects (structures for which a protection zone is established under the Law on Protection Zones) and their boundaries. Owners of wind power plants or responsible authorities provide data for inclusion in the Information System (Saeima, 2009).

In addition to the above, other restrictions in the safety protection zones around wind power plants are determined by this Law (Saeima, 1997):

1. construction of new residential houses or conversion of existing buildings into residential houses is prohibited;
2. it shall be prohibited to construct new buildings and structures which may interfere with the operation of the wind power plant or to convert existing buildings in such a way that they interfere with the operation of the wind power plant;
3. playgrounds and recreation areas shall be prohibited, opening educational establishments;
4. the holding of public events shall be prohibited;
5. it shall be prohibited to locate petrol filling stations, storage facilities for petroleum, petroleum products, hazardous chemicals and products.

Consequently, future development of the terrain around wind farms should be considered when planning the construction of a wind farm.

Cabinet of Ministers Regulation No.982 The Methodology for Establishing Protective Zones for Energy Infrastructure Facilities (Ministru kabinets, 2006) establishes a methodology for establishing protective zones for energy infrastructure facilities - operational and safety requirements for communications and facilities, environmental and human protection requirements, the mechanism for monitoring the maintenance and technical condition of protective zones, information on easements and restrictions related to the relevant facilities, communications and their protective zones, as well as the procedure for establishing and marking protective zones in the field. The Regulations applies to safety protection zones around wind turbines with a capacity greater than 20 kW. The most important points relating to this Regulation for the planning and establishment of protection zones around wind turbines are (Ministru kabinets, 2006):

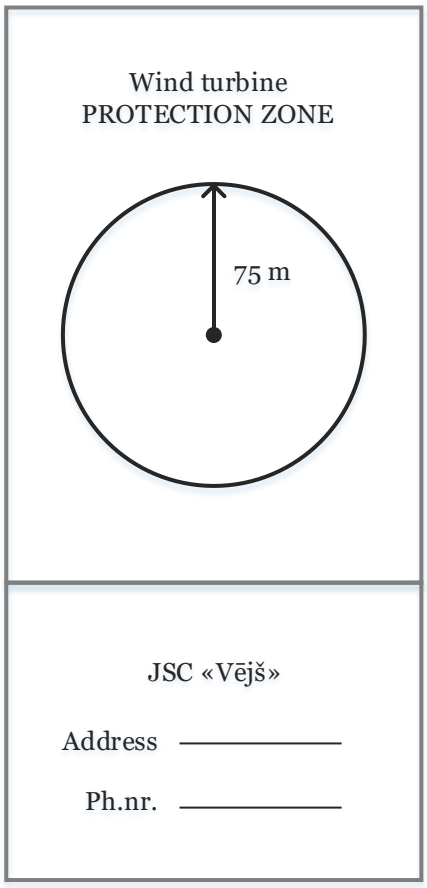
1. planned repair and reconstruction works of a wind turbine in the protection zones along the roads are allowed to start if the time and conditions of their execution are agreed with the State JSC "Latvijas Valsts ceļi". The wind turbine may be repaired

without prior agreement if necessary to prevent an accident. The State Joint Stock Company "Latvijas Valsts ceļi" shall be informed before the work is started;

2. expenses related to the registration of the protection zones in the Land Register by the requirements of the Land Register Law shall be borne by the owner or holder of the wind turbine;
3. if the possession of the wind turbine is transferred to another person/company or the owner or user of the restricted land parcel changes, the restrictions shall remain unchanged;
4. protection zones shall be marked in nature with special information signs (Figure 2.5). The owner or holder of the wind turbine shall be responsible for the placement and maintenance of the information signs at the designated locations;
5. special information signs shall be placed at the height of 1,5-2 metres from the ground to mark the protection zones of wind turbines;
6. the information sign shall bear the inscription "Wind turbine protection zone". The information sign shall include the following information:
   - the width of the protection zone (in metres);
   - the name, address and telephone number of the owner or holder of the wind generator.

➔Duration of the process	*not stated*
➔ Solar PV	not applicable
➔Wind farm	applies to wind turbines over 20 kW

1. The designation of the protection zone must be:



2. Dimensions of the sign – from 200 x 200 mm to 300 x 300 mm

Fig. 2.5. Information sign of the protection zone around wind turbines (Ministru kabinets, 2006)

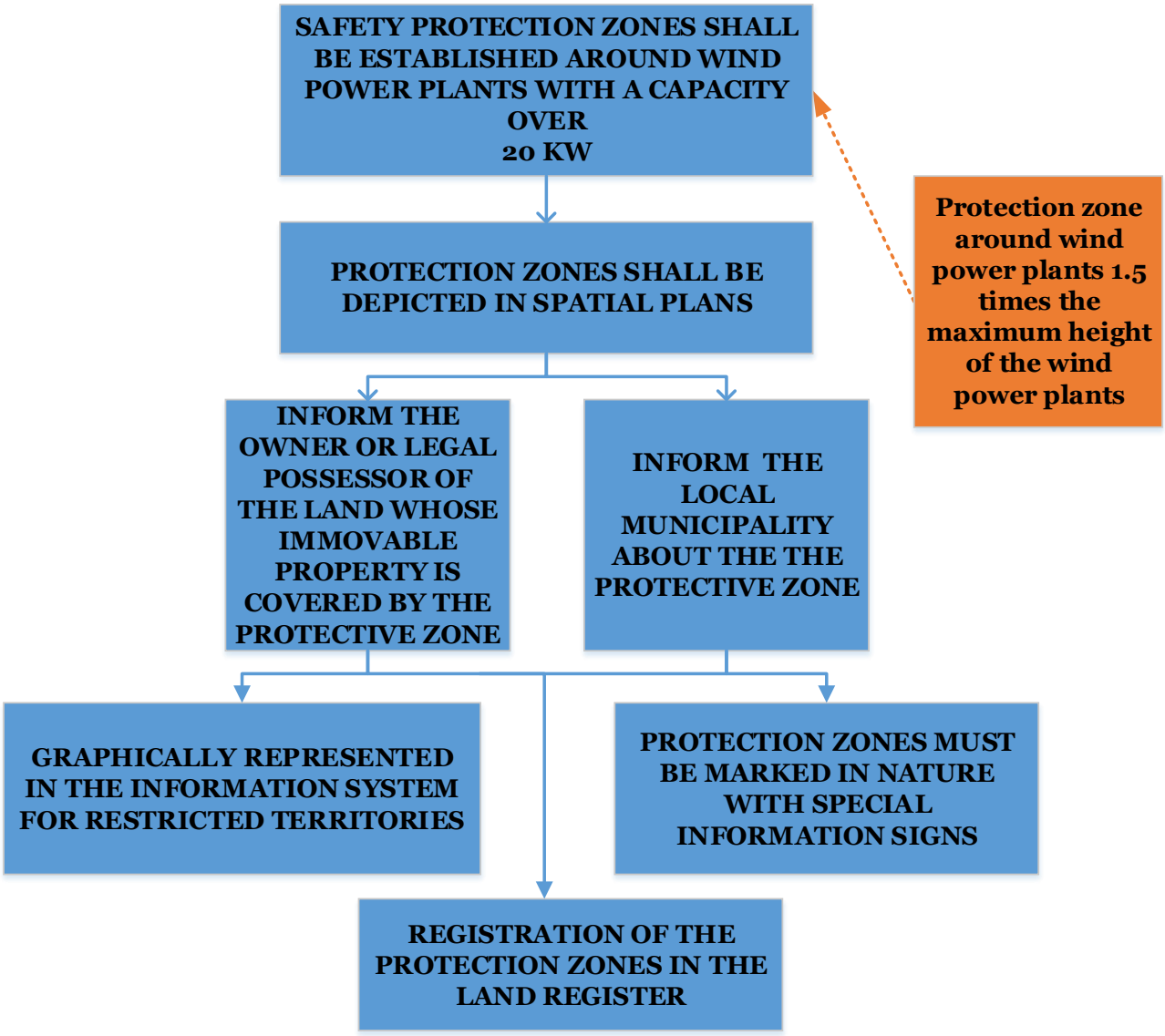


Fig. 2.6. Protection zones

2.4. Environmental impact assessment

The Law on Environmental Impact Assessment aims to prevent or reduce the adverse effects on the environment of activities or planning documents planned by natural and legal persons (Saeima, 1998). Environmental impact assessment is a multi-stage procedure that must be applied before constructing major facilities that may adversely affect the environment. This procedure consists of a set of measures including an investigation of the existing environmental situation in the area to be developed, an environmental impact assessment of the site, the development of proposals to reduce or eliminate adverse impacts and the development of monitoring requirements to observe residual impacts (Vides pārraudzības valsts birojs, 2021).

Annexe 1 of the Law on Environmental Impact Assessment states that an environmental impact assessment is to be carried out if the construction of wind power plants is envisaged and the wind power plant consists of 15 or more turbines or has a total capacity of 15 megawatts or more(Saeima, 1998). Annexe 2 of the same Law determines activities requiring an initial assessment. It states that an initial environmental impact assessment shall be carried out if the construction of wind power plants is envisaged and (Saeima, 1998):

- the number of wind turbines is five or more,
- they have a capacity of 5 megawatts or more,
- it is to be located closer than 500 meters from residential dwellings, except where the wind turbine is intended to supply electricity to a residential dwelling and has a capacity of 20 kilowatts or more,
- the height of the structure exceeds 30 meters, and it is located in a specially protected nature area or closer than 1 kilometre from a specially protected nature area, except for the area of natural monuments such as protected stones and protected trees, or from a micro-reserve established for the protection of specially protected bird species.

The construction of wind power plants in the territorial sea and exclusive economic zone of the Republic of Latvia, regardless of their capacity and number, must be subject to an initial environmental impact assessment (Saeima, 1998).

Environmental Impact Assessment shall be coordinated and supervised by the State Environmental Bureau by the procedure established by this Law. In contrast, Initial Environmental Impact Assessment shall be coordinated and supervised by the State Environmental Service by the procedure established by this Law (Saeima, 1998).

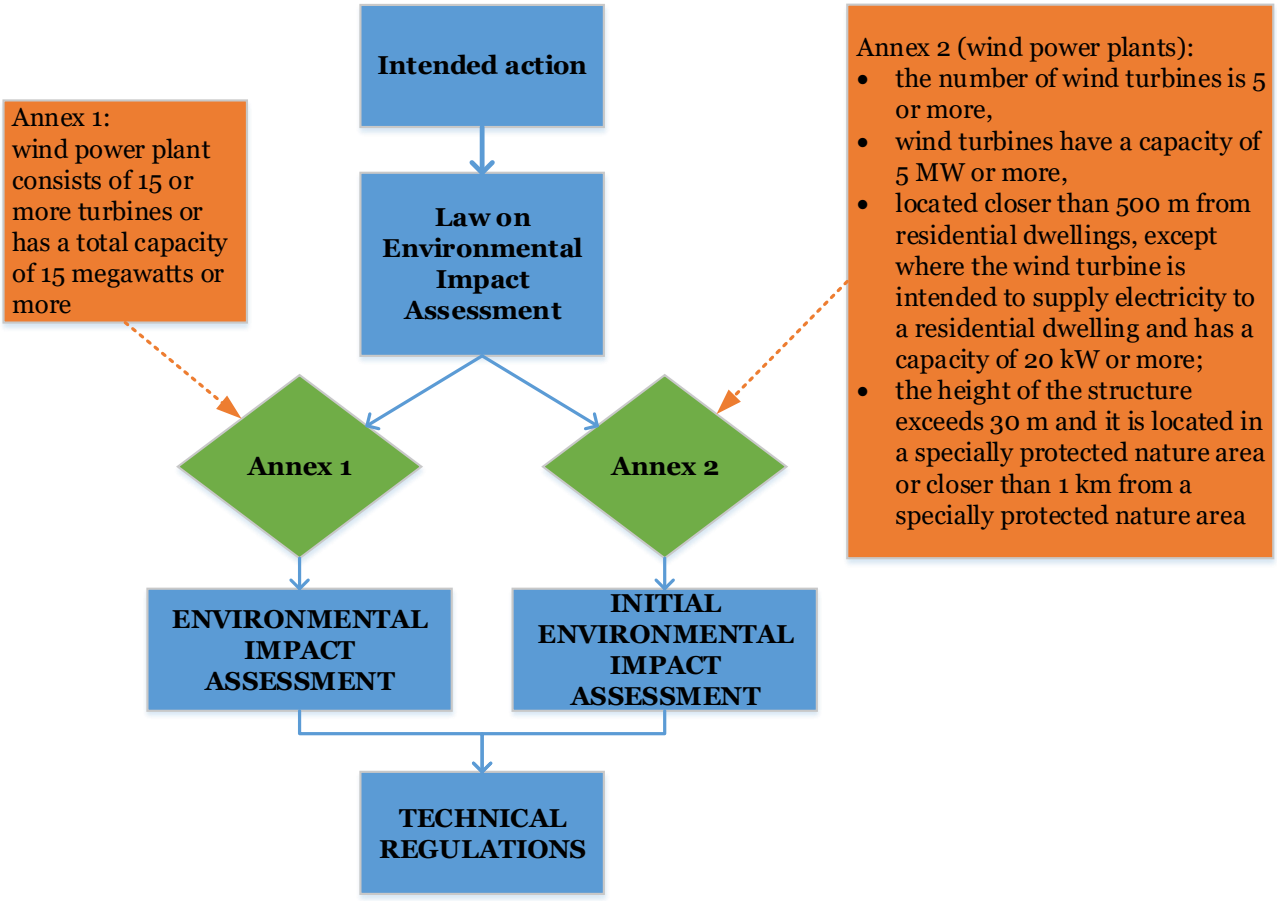


Fig. 2.7. The general process of the environmental impact assessment procedure (Vides eksperti, 2021)

2.4.1. Initial environmental impact assessment

Initial environmental impact assessment (Valsts Vides dienests, 2021)*:*

1. the initial environmental impact assessment of the proposed activity shall be carried out by the Law "On Environmental Impact Assessment" by applying to the State Environmental Service at the local Regional environmental administration;
2. the Regional environmental administration of the State Environmental Service, not later than within **seven working** days after receipt of the application for the proposed activity, request additional information from the applicant if the information provided in the application is not sufficient to carry out the initial environmental impact assessment;
3. the Regional environmental administration of the State Environmental Service, together with the application for the proposed activity, shall send the result of the initial assessment to the Environment State Bureau for decision-making;

4. after receiving the results of the initial assessment, the Environment State Bureau shall adopt a decision on the application or non-application of the environmental impact assessment to the proposed activity and shall notify its decision in writing to the proponent within three working days after the adoption of the decision;
5. By the decision of the Environment State Bureau:
   - if the activity does not require an environmental impact assessment, Regional environmental administration of the State Environmental Service shall issue technical regulations to the applicant within **ten working days** from the date of the decision;
   - if an environmental impact assessment is required, the environmental impact assessment procedure is initiated.

Applications can be submitted both electronically and in person.

Technical regulations are required for activities that do not require an environmental impact assessment by the "Law on Environmental Impact Assessment" after an initial assessment or for activities listed in the Cabinet of Ministers Regulation No 30 of 27 January 2015 "Procedure for the State Environmental Service to Issue Technical Regulations for the Proposed Activity"[2] (Ministru kabinets, 2015b):

- if an application for an initial environmental impact assessment has already been submitted to the Regional environmental administration of the State Environmental Service, an additional application for technical regulations is not needed. If the application for the initial environmental impact assessment was not needed, then an application for receiving the technical regulations must be submitted;
- if the activity has been subject to an initial environmental impact assessment, the Regional environmental administration of the State Environmental Service shall prepare and issue technical regulations within **ten working days** after receiving the decision of the Environment State Bureau that the activity does not require an environmental impact assessment;

[2] Cabinet of Ministers Regulation No 30 of 27 January 2015 "Procedure for the State Environmental Service to Issue Technical Regulations for the Proposed Activity" - 2.1. installation of equipment for the production of electricity, steam and hot water, if the heat input is 0.2 MW or more; 2.2. installation or construction of wind power plants (Ministru kabinets, 2015b)

- if the activity has been subject to an initial assessment and the proposed activity is construction or involves construction, the Environment State Bureau shall issue the technical regulations within **20 days** after receipt of the construction plan documentation, which indicates the location of the planned construction, the size of the construction and the type of use of the construction, as well as the construction permit (copies) (Valsts vides dienests, 2021).

➔Duration of the process	at least 17 days
➔ Solar PV	not applicable
➔Wind farm	applies

2.4.2. Environmental Impact Assessment Programme and Report

The environmental impact assessment process consists of a series of activities, which are determined by the Cabinet of Ministers Regulation No.18 "Procedure for Environmental Impact Assessment and Approval of Proposed Activities" (Ministru kabinets, 2015a):

1. the proponent of the proposed activity shall apply for the proposed activity by applying to the Environment State Bureau or the State Environmental Service by the Law "On Environmental Impact Assessment" (Saeima, 1998);
2. the State Environmental Service shall, within **three working days** of receipt of the application for the proposed activity, prepare an information notice on the proposed activity;
3. the State Environmental Service shall request additional information from the applicant no later than **seven working days** after receipt of the application for the proposed action if all the information has not been provided or if it is insufficient;
4. the State Environmental Service prepares an initial assessment. It decides on the need to carry out an environmental impact assessment or an assessment of the impact on the Natura 2000 sites of the proposed activity. If the State Environmental Service has taken a decision not to apply an environmental impact assessment to the proposed activity, it shall issue technical regulations;
5. if the State Environmental Service has adopted a decision on the application of an environmental impact assessment to a proposed activity, it shall, within **three working days**, post the decision on its website, as well as notify and forward the decision;

6. within **three working days** of receipt of the decision, the Environment State Bureau shall inform the proponent in writing of the conditions for issuing the programme and shall inform the proponent and the municipality whether an initial public consultation meeting will be required;
7. prior to carrying out an environmental impact assessment of the proposed activity, the applicant shall send in writing to the municipality information on the proposed activity, describing the proposed activity;
8. the municipality, having assessed the compliance of the proposed activity with the spatial development planning documents of the municipality, shall, within **15 days** of receipt of a written application from the proponent, provide the proponent with a written opinion on the proposed activity;
9. the applicant shall, after consultation with the municipality and receipt of information about the initial meeting, inform the public about the proposed activity and the opportunity to submit written proposals on the potential environmental impact of the activity:
   - by publishing a notice of the initial public consultation on the proposed activity in at least one newspaper published by the municipality, the municipality's news page or other local newspaper;
   - by individually informing the owners (possessors) of immovable property whose immovable property borders the area of the proposed operation, and indicating where information on the proposed operation and the possibility to participate in the public consultation on the proposed operation will be available in the future;
   - electronically submitting it to the Environment State Bureau and the municipality no later than three working days after the publication of the notice of the preliminary consultation;
   - by posting information on the proposed operation on its website or the website of an authorised person on the Internet, including information on publication in a newspaper;
10. within **three working days** of receipt of the notice of the initial public consultation, the Environment State Bureau and the municipality shall post it on their website, including information on the publication in a newspaper;
11. the applicant shall prepare and display information on the proposed activity and other materials necessary for the initial public consultation in the building of the municipal council and the building of the municipality or town administration no later than

three working days after the publication of the notice. The proponent shall agree with the municipality on the time and place of displaying the materials. The results of the initial public consultation shall be collected by the applicant and submitted to the office and the municipality;

12. the applicant shall submit a written request for the preparation of a programme to the Environment State Bureau no earlier than after the publication of the notice of initial public consultation;
13. the programme shall be drawn up by the Environment State Bureau within **30 days** of receipt of the request and, if the preparation of the programme involves expert opinion, on receipt of payment. The Environment State Bureau shall include in the programme requirements for the preparation of the environmental impact assessment, taking into account the specific activity envisaged, and an indication of the institutions and organisations to be consulted before the report is submitted to the Environment State Bureau;
14. After the preparation of the environmental impact report, the applicant shall:
    - place the report on its website or the website of an authorised person;
    - submit it in paper form and electronically to the municipality;
    - within **three working days** after the submission of the report to the municipality, submit it for publication in at least one newspaper published by the municipality or in another local newspaper;
    - electronically submit the report to the Environment State Bureau;
    - display the notice of the report in public places where the notice will reach as many recipients as possible;
15. any person may, within **30 days** of the publication of the notice of the report in a newspaper published by the municipality, send to the applicant and the Environment State Bureau written proposals or opinions on the report;
16. the applicant shall hold a public consultation meeting on the report not earlier than **seven days** after the publication of the notice on the report in the newspaper published by the municipality, the municipal news page or other local newspaper and not later than ten days before the expiry of the deadline for submission of public proposals;
17. After considering the proposals submitted by the public and other institutions and the results of the public consultation, the applicant shall update the report. The report

shall include an overview of the public participation measures and the proposals submitted by the public;

18. the Environment State Bureau shall, after delivering its opinion on the report:
    - within **three working days**, send the opinion on the report in paper form and electronically to the proponent, the state institutions involved in the environmental impact assessment and the municipality;
    - within **three working days**, place the report and the opinion on the report on its website;
    - publish a notice that an opinion on the report has been given in at least one newspaper or other local newspaper published by the municipality and inform about the possibility of consulting the opinion and the report;
19. in order to approve the proposed activity, the applicant shall submit an application and other related documents to the municipality, unless it is stipulated in normative acts that the proposed activity shall be approved by a state institution or another institution stipulated by law;
20. the state body, municipality or other body established by law shall post a notice thereof on its website within three working days of receipt of the application.

➔ Duration of the administrative process	81 days
➔ Duration of the whole process	12-24 months
➔ Solar PV	not applicable
➔ Wind farm	applicable if the Environment State Bureau decides that a full EIA is obligatory or the law states it

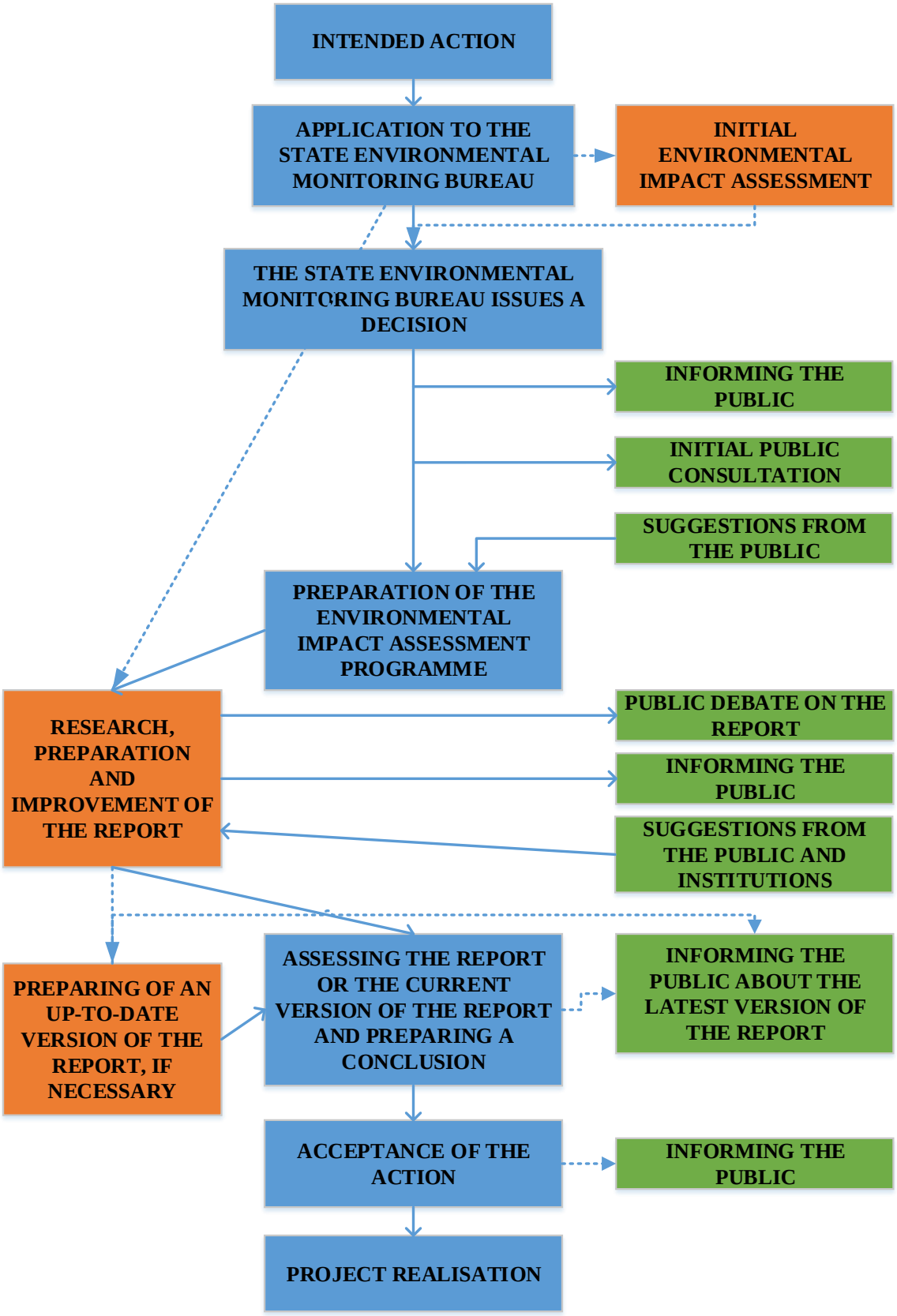


Fig. 2.8. The procedure of the Environmental Impact Assessment (Vides pārraudzības valsts birojs, 2021)

2.5. Construction

The installation of solar panels and wind power plants is a construction process that includes - drawing up a construction project, approval, construction and acceptance for use. First, it is necessary to obtain pre-connection conditions for connecting the equipment to AS "Sadales tīkls" and the technical regulations from other holders of engineering networks to draw up the construction documentation. Based on the design assignment and the technical regulations received, the electricity producer prepares and approves the construction project at the construction authority by the Cabinet of Ministers Regulation of 30 September 2014 No 573 "Construction Regulations for Electricity Generation, Transmission and Distribution Structures" (legislative document will expire on 1 November 2021) (Ministru kabinets, 2014a; Uzlādēts.lv, 2020). For the construction of new power production equipment, when the construction of an electrical installation consists of separate electrical installations - a civil engineering structure located on the site and consists of equipment and structures, which are Group I, II or III structures, the following shall be submitted to local municipality's Construction Board:

- a construction application;
- a construction plan in minimum form (Ministru kabinets, 2014a).

Cabinet of Ministers Regulation No.500 "General Building Regulations" defines the division of engineering structures into groups. Energy production, transmission and distribution structures (Ministru kabinets, 2014d):

- Group I - electricity network with a rated voltage up to 20 kV, including electricity supply switchgear (e.g. metering, relaying, cable switching), switching and protection equipment, and utility access
- Group II- engineering structures not included in group I or III
- Group III - power plant structures with a capacity exceeding 20 kW, including wind power plant (wind park).

For example, a solar PV system up to 20 kW is a category II building, while a system above 20 kW is a category III building (Uzlādēts.lv, 2020). However, it should be taken into account that if no construction works (e.g. reinforcement of load-bearing structures, construction of new internal utilities) are required for the functioning, installation or deployment of solar PV panels, this is not a matter for building regulation. If, on the other hand, construction work is required to ensure the functioning, installation or siting of the installation, then construction regulation applies, depending on the planned construction

work. In the absence of applicable building regulations, the owner of an electricity production facility must comply with the requirements of the local municipality's spatial plan, local plan or detailed plan. The installation and commissioning of a power production system up to 20 kW are carried out on simplified conditions, but for systems above 20 kW, commissioning with the distribution system operator and the building authority is a time-consuming process that can take up to **two three months** after installation. The installation of a power generation system above 20 kW is carried out by completing and submitting a certificate by Cabinet Regulation No 559 "Regulations on permits for increasing electricity generation capacity or introducing new generation facilities". In comparison, the installation of a system below 20 kW is accepted for commissioning by the Construction Board (Uzlādēts.lv, 2020).

The number of documents to be submitted and sequence may vary depending on the technology to be installed and the power generation capacity and communication with the local municipal Construction Board. In theory, the process of obtaining a building permit and construction work should happen according to this scheme (Būvniecības valsts kontroles birojs, 2021):

- to start the construction process, the developer needs to apply at the local municipality's Construction Board with a construction plan, after which the Construction Board will issue a building permit;
- the Construction Board forwards the fourth copy of the construction plan documents to the State Building Control Bureau.

Construction project (Būvniecības valsts kontroles birojs, 2021):

- the Construction Board shall make a note in the building permit on the fulfilment of the design conditions;
- the Construction Board forwards the fourth copy of the construction plan documents to the State Building Control Bureau.

Construction works (Būvniecības valsts kontroles birojs, 2021):

- the Construction Board shall make a note in the building permit on the fulfilment of the conditions for the commencement of construction works;
- the Construction Board shall forward a copy of the construction supervision plan and the building permit to the State Building Control Bureau;
- the Construction Board shall announce its participation in the acceptance of the commissioning of the construction;
- the State Building Control Bureau shall control the construction works;

- the construction board shall inform the State Building Control Bureau of any changes to the construction plan or building permit.

Permission for exploitation:

- the State Building Control Bureau accepts the construction for exploitation;
- the State Construction Inspection Office shall supervise the exploitation of the structure.

➔ Duration of the process	*30 days*
➔ Solar PV	applies
➔ Wind farm	applies

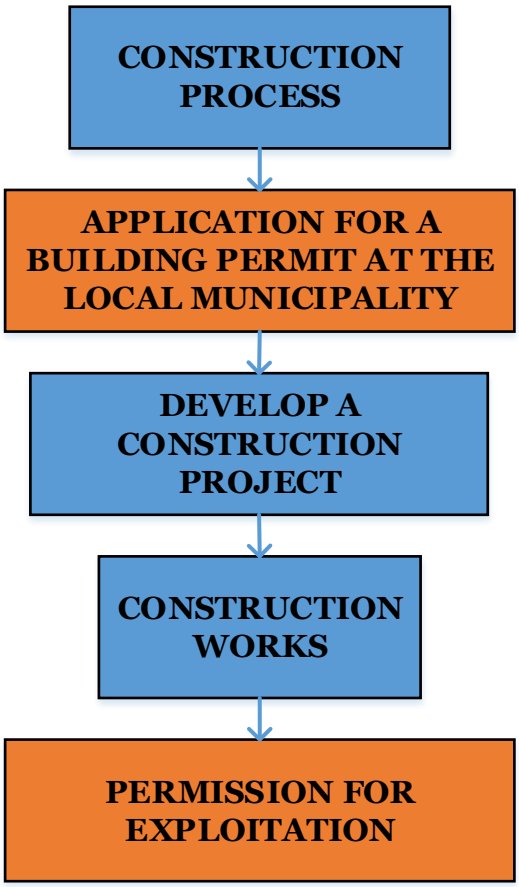


Fig. 2.9. Construction process (Būvniecības valsts kontroles birojs, 2021)

From 1 July 2015, control of construction works by The State Building Control Bureau must be ensured for the construction of wind power plants with a total capacity of 15 MW or more (Saeima, 1998; Būvniecības valsts kontroles birojs, 2021). Construction work may commence after the building authority has made a note in the building permit that all design

conditions contained therein have been met, that the conditions for commencing construction work have been met and that the building permit has become incontestable (Būvniecības valsts kontroles birojs, 2021).

2.6. Permits for Increasing Electricity Production Capacities or the Introduction of New Production Equipment

Cabinet of Ministers Regulation No 559 "*Regulations Regarding Permits for Increasing Electricity Production Capacities or the Introduction of New Production Equipment* " (Ministru kabinets, 2014a) sets out the requirements to be met in order to obtain a permit for increasing electricity production capacities or the introduction of new production equipment, as well as the procedure for issuing, cancelling and extending the validity period of the permit if it is planned to connect an electricity production equipment with a capacity exceeding 11.1 kW to the electricity transmission or distribution system (Cabinet of Ministers, 2020).

To obtain a permit for increasing electricity production capacity or the introduction of new production equipment (Cabinet of Ministers, 2020):

1. the applicant shall fill an application for a permit to increase electricity generation capacity or to introduce new production equipment and submit it to the Ministry of Economics after payment of the security deposit;
2. the Ministry of Economics shall examine the submitted documents, verify the veracity of the information contained therein, adopt a decision on the issue of the permit and inform the system operator to whose system the power plant is to be connected;
3. if the total capacity of the electricity production installation is one megawatt or more, the applicant shall, within **six months** of the date of entry into force of the decision, commence the introduction of the electricity production installation specified in the decision or increase the existing electricity production capacity and shall inform the Ministry of Economics thereof in writing by submitting a certificate;
4. the Ministry of Economics shall verify the veracity of the information provided in the submitted documents and shall have the right to verify whether the introduction of the electricity production installation or the increase of the electricity production capacity in question has started;
5. within **30 days** after the implementation of the activity authorised by the decision, the permittee shall inform the Ministry of Economics thereof in writing by submitting

a certificate of connection of the new electricity production installation to the electricity system or increase in electricity production capacity and a copy of the permit issued by the system operator for connection of the power plant to the system or increase in electricity production capacity.

6. The validity of the authorisation is:
   - **three years** if the Ministry has issued a permit to introduce new electricity production equipment the capacity of which is less than one megawatt or if the existing electricity production equipment capacity is increased by less than one megawatt;
   - **five years** if the Ministry has issued a permit to introduce new electricity production equipment the capacity of which is one megawatt or more or if the existing electricity production equipment capacity is increased by one megawatt or more."

➔Duration of the process	30 days
➔Period of validity of the permit	3-5 years
➔ Solar PV	applies
➔Wind farm	applies

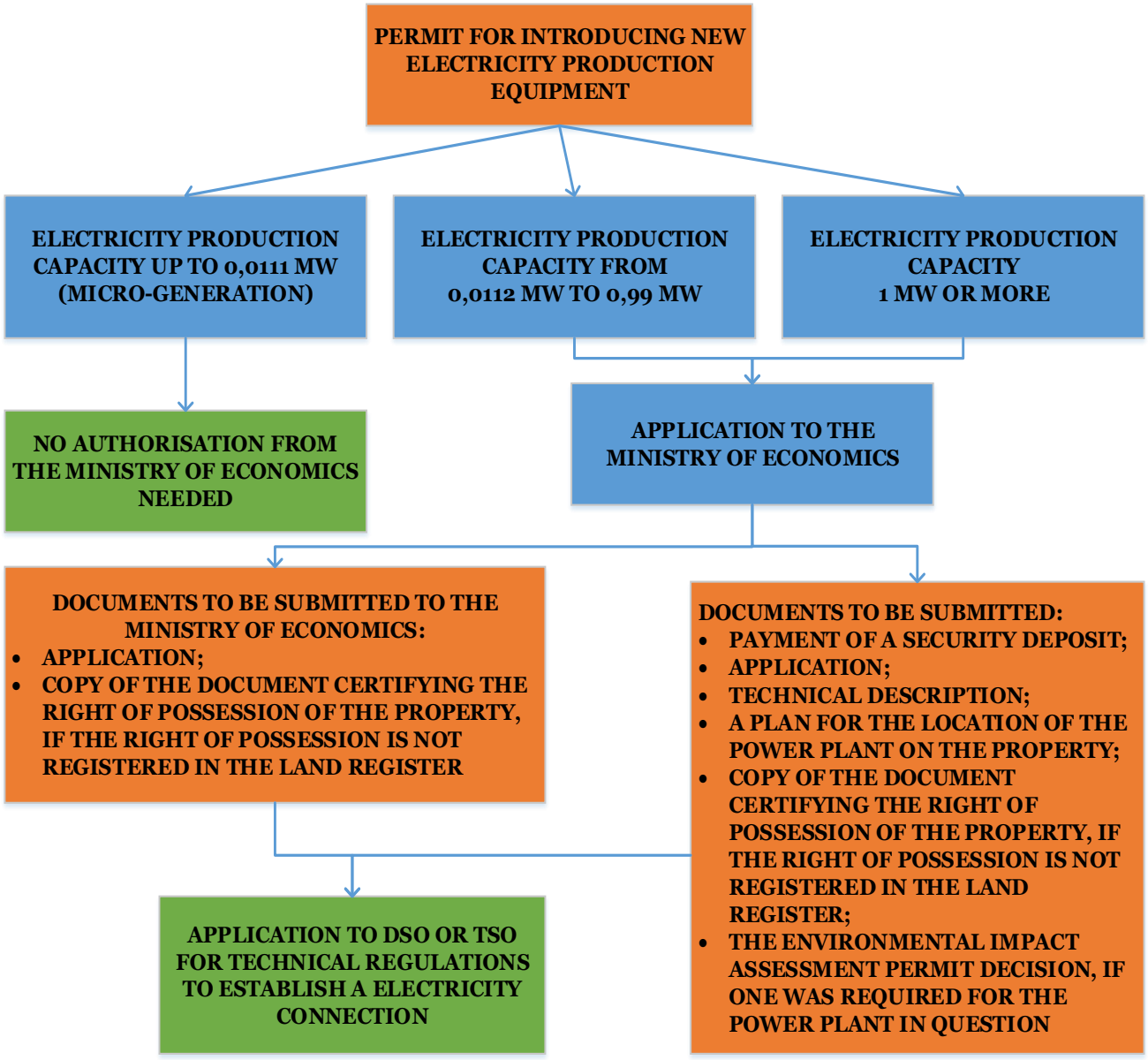


Fig. 2.10. Permit for increasing electricity production capacity or introducing new production equipment (Ekonomikas ministrija, 2020)

2.7. Connection to grid

Transmission system operator JSC "Augstsprieguma tīkls"

JSC "Augstsprieguma tīkls" is an electricity transmission system operator, which ensures uninterrupted, secure and sustainably efficient electricity transmission throughout Latvia (Augstsprieguma tīkls, 2021a). JSC "Augstsprieguma tīkls", as an electricity transmission system operator in the area and timeframe of its license, has an ongoing obligation to provide system participants with the necessary connections to the transmission system or the necessary changes to the permitted load of an existing connection. An end-user

shall have the right to apply for a special connection to the transmission system or an increase in the capacity of an existing connection to the transmission system, by the procedure laid down by the Cabinet of Ministers, if the electricity consumption of that user will increase by not less than 100 000 MW-hours per year after the connection is installed or with a nominal capacity of the connection of not less than 50 MW (Augstsprieguma tīkls, 2021c).

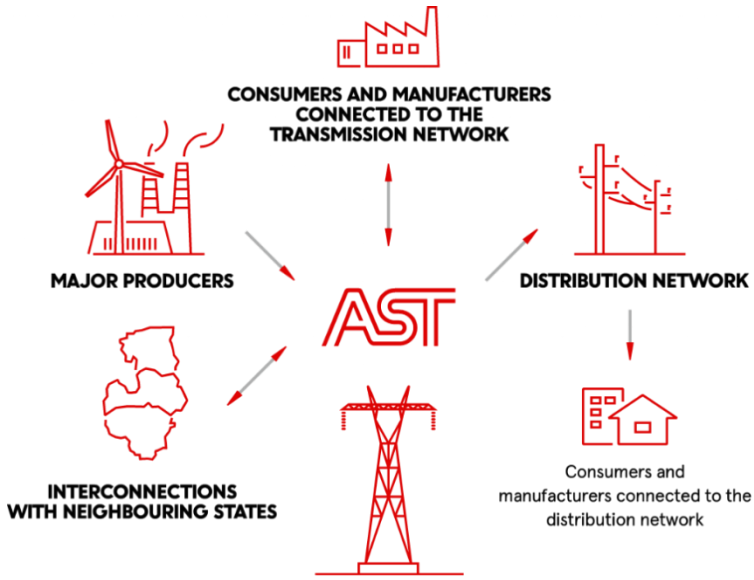


Fig. 2.11. JSC "Augstsprieguma tīkls" courses of action (Augstsprieguma tīkls, 2021a)

Distribution system operator JSC "Sadales tīkls"

Joint-stock company "Sadales tīkls", started its legally independent operation on 1 July 2007. The company is part of the Latvenergo Group, the largest provider of electricity supply services in the Baltic States (Sadales Tīkls, 2021f). "Sadales tīkls" provides electricity to approximately one million customer sites, developing and maintaining the electricity network in Latvia, which covers 99% of the country's territory. The activities of "Sadales tīkls" include (Sadales Tīkls, 2021f):

- operation, renewal and development of the electricity grid;
- construction of new electricity grid connections;
- metering and monitoring of electricity consumption.

In the long term, Sadales tīkls aim is to develop a reliable, intelligent and efficient electricity network to ensure quality electricity supply to its customers and facilitate access to services. The distribution network operator carries out the following business activities (Sadales Tīkls, 2021f):

- distribution of electricity;
- construction of electricity supply and telecommunications systems;

- installation of electrical installations;
- sawing, planning and impregnating;
- education (Sadales Tīkls, 2021f).

Amendments made to Decision No 1/7 of 27 March 2018 of the Public Utilities Regulatory Commission "System connection rules for electricity system participants" by the Decision No 1/8 of the Council of the Public Utilities Regulatory Commission of 03.06.2021 determines the following connection arrangements (Sabiedrisko pakalpojumu regulēšanas komisija, 2021a):

1. in order to connect new electrical installations, including a micro-generator[3], to the system or to change the technical parameters of an existing connection, the system user shall submit to the system operator an application for connection;
2. the system operator shall determine and publish on its website the information to be provided in the application, depending on the connection required by the system user, and shall provide different means for submitting the application and exchanging information related to the connection (customer service point, customer portal, email, post, etc.);
3. the system operator shall, at the request of the system user, advise the system user on the possibilities and procedures for establishing a connection, as well as other matters within the competence of the system operator on other matters related to the provision of the connection;
4. the system operator and the system user shall comply with the provisions of the legislation governing construction in so far as the installation of the connection involves construction (design and construction work);
5. contracts may also be concluded between the system user and the system operator using distance communication. If the system user pays the connection fee in full by the

[3]Micro-generator - a power generation installation and associated protection and conversion equipment (micro-generator inverter) for the production of alternating current electricity with an operating current of up to 16 amperes per phase (3.7 kilowatts for single-phase or 11.1 kilowatts for three-phase connection) (Sabiedrisko pakalpojumu regulēšanas komisija, 2021c)

system operator's invoice, the system user shall be deemed to have agreed to the conditions for the installation of the relevant connection;

---

6. ➔where the provision of the connection involves a construction process, within **20 days** of the application, the system operator shall issue the technical requirements to the system user.
7. where the development of the technical requirements is complex and requires a more extended period, or the user has not provided the system operator with all the necessary information in the application, the system operator shall inform the system user in writing of the deadline for issuing the technical requirements within **20 days** of receipt of the application. The period of validity of the technical requirements shall not be less than **nine months**;
8. after the issue of the technical requirements, the system operator and the system user shall issue:
   - the conditions for the connection process (construction design; the procedure for the preparation of the detailed design, the organisation of the connection process, the procedure for the financing of the connection process, including financial guarantees, if any, for the connection the choice of the supplier of the equipment and materials required):
   - the system user shall organise the development (design) and approval of the construction project if the system user and the system operator agree otherwise;
   - the design costs shall be borne in full by the system user unless otherwise agreed between the system user and the system operator;
   - the number of financial guarantees required by the system operator shall not exceed the connection the estimated costs of the connection in proportion to the load requested by the system user;
9. if, within **60 days** from the date on which the system operator has issued to the system user has not concluded a contract with the system operator, the system operator shall have the right to cancel the application and the technical requirements issued to the system user. The system operator shall give the system user at least ten days' prior written notice of the cancellation of the application and the technical requirements;
10. after the system user has fulfilled the conditions of the said agreement (organisation of the development of the construction project, the progress of the connection, financing arrangements for the connection, including financial guarantees, if any, and

selection of the supplier of equipment and materials necessary for the connection) for the start of the connection, the system operator shall organise the connection. The following conditions shall be observed in the selection of the construction contractor for the energy supply facility:

- the construction contractor shall be selected in a procurement procedure for the execution of the construction works for the installation of a specific connection:
- the selection of the construction contractor (procurement procedure) shall be initiated within **ten days** from the date of the conditions for starting the connection have been fulfilled (organisation of the preparation of the construction project, progress of the connection, financing arrangements for the connection, including financial guarantees if required, selection of the supplier of the equipment and materials necessary for the connection);
- the construction contractor shall be selected within **two months** of the start of the procurement procedure. Suppose the applicable procurement procedures do not allow the selection within two months' construction contractor. In that case, the system operator shall inform the system user in writing of the deadline for selecting the construction contractor.

12. the system operator shall send the connection agreement to the system user within **30 days** after the construction contractor has been identified or the construction project has been received.
13. the system user has the right to submit reasoned objections to the connection agreement to the system operator within **30 days** from the date of dispatch of the connection agreement by the system operator to the system user. The system operator shall assess the system user's objections and shall provide the system user with a written reply within 14 days or send the system user a revised connection agreement if the system user's objections are found to be justified;
14. if, within **30 days** from the date of the system operator's communication to the system user, the system operator has not signed the connection agreement or the updated connection agreement, has not paid the connection fee in the amount specified in the agreement, or has not provided reasoned objections to the connection agreement, the system operator shall have the right to cancel the system user's application. On cancellation of the application, the system operator shall give the system user at least ten days' prior written notice. If the system operator has cancelled

the system user's application, but the system user still wishes to install the relevant connection, the system user shall submit a new application to the system operator, unless otherwise agreed between the system operator and the system user;

15. the system operator shall, by the connection agreement concluded, arrange the connection;
16. the installation of the connection shall be deemed to be completed on the date on which the system operator notifies the system user in writing. The system user's electrical installation shall be connected to the system by the system operator within **ten days** from the date on which the system user's electrical installation is ready to receive voltage unless other regulatory enactments provide for a different procedure for connection of the system user's electrical installation or the system operator and the system user agree otherwise.
17. If the system user's electrical installations are not ready for receiving voltage, the system user and the system operator shall agree on system services conditions until the system user's electrical installations are ready to receive voltage.

---

6. ➔where the provision of a new connection does not involve a construction process, the system operator shall send the connection agreement to the system user within **30 days** of receipt of the application.
7. the system user shall have the right within **30 days** from the contract's dispatch date to submit reasoned objections to the connection agreement to the system operator. The system operator shall assess the system user's objections and shall provide the system user with a written reply within 14 days or send to the system user a revised connection agreement if the system user's objections are considered justified.
8. if, within **30 days** from the date of the system operator's communication to the system user, the connection agreement or the updated connection agreement has not been signed by the system user, the connection agreement has not paid the connection fee in the amount specified in the agreement or has not provided reasoned objections to the connection agreement, the system operator shall have the right to cancel the system user's application. On cancellation of the application, the system operator shall give the system user at least ten days' prior written notice. Where the system operator has cancelled the system user's application, but the system user still wishes to install the relevant connection, the system user shall submit a new application to the system operator, provided that the system operator and the system user agree otherwise;

9. the system operator shall arrange for the connection to the ownership boundary of the electrical installations by the connection agreement. The system user shall ensure the installation and preparation of the electrical installations for the receipt of voltage;
10. the installation of the connection shall be deemed to be completed on the date on which the system operator notifies notified in writing to the system user. The system user's electrical installation shall be connected to the system by the system operator within **ten days** from when the system user's electrical installation is ready for the voltage for the system user's installation.
11. If the system user fails to notify its preparation of the electrical installations for the receipt of voltage, or has not done so, the connection the obligations of the system operator under the connection agreement shall be deemed to have been fulfilled by the moment of completion of the installation without connecting the system user's electrical installation to the system. Suppose the system user's electrical installations are not prepared to receive voltage. In that case, the system user and the system operator shall agree on system services conditions until the system user's electrical installations are ready for receiving voltage.

Connection of a power plant to the network is required if the electricity is to be generated for commercial purposes or the production of electricity for own needs by generating equipment with a total operating current exceeding 16 amperes per phase (3.7 kilowatts in single-phase or 11.1 kilowatts in three-phase) and connected in parallel to the electricity grid of the distribution network (Sadales Tīkls, 2021e). JSC “Sadales tīkls” shall evaluate the connection process for power plants up to 10 MW. To connect power plants with higher capacity, the transmission system operator JSC “Augstsprieguma tīkls” should be contacted (Sadales Tīkls, 2021a). Before installing a new connection or increasing the load, in order to determine the required connection capacity and avoid overpaying for inefficiently used load, it is possible to use the "Sadales tīkls" load calculation calculator for households to get information on how to choose the correct connection capacity or consult a certified electrician or a company providing this type of service (Sadales Tīkls, 2021e).

➔Duration of the process (without construction)	Three months
➔Duration of the process (with construction)	at least nine months
➔ Solar PV	applies
➔Windfarm	applies

2.7.1. Micro-generator (up to 11.1 kW)

In order to ensure that the operation of the micro-generator does not cause disturbances to the electricity grid, the installation of the micro-generator must be approved by JSC “Sadales tīkls”. A micro-generator is a power generating set and associated equipment (inverter) designed to produce alternating current (AC) electricity at a voltage of 1 or 3 phases with an operating current of up to 16A (amperes) (Sadales Tīkls, 2021c). In a 1-phase grid, this corresponds to 3.7 kW and in a 3-phase grid to 11.1 kW. The parallel operation of the micro-generator allows a bidirectional exchange of electricity between the user's electrical installation and the (Sadales Tīkls, 2021c). Micro-generator installations are designed to generate electricity only for their own needs, not for commercial purposes. By starting to generate electricity, households can become members of the NETO billing system (see Section 2.9.2) - transferring the electricity generated but do not used immediately to the grid and using the electricity previously generated and transferred to the grid when the amount of electricity generated is insufficient (Sadales Tīkls, 2021c).

Description of processes for installing a microgeneration plant and connecting it to the grid of JSC "Sadales tīkls" **valid till 30.06.2021** by the Decision of the Council of the Public Utilities Regulatory Commission No.1/7 "Rules for System Connection to the Electricity Transmission System" (Sabiedrisko pakalpojumu regulēšanas komisija, 2018).

- choose a certified micro-generator inverter that complies with European Union standards and is recognised by JSC "Sadales tīkls" (a list of certified micro-generator inverters is available at (Sadales Tīkls, 2021d);
- assess the required electricity generation capacity to be installed;
- consult the local building authority on its requirements for installing the micro-generator.

Once the preparatory work is done, the following steps are (Sadales Tīkls, 2021c):

1. submit an application to JSC "Sadales tīkls" for the connection of a micro-generator to an existing connection;
2. sign the contract. No later than **20 calendar days** after receipt of the application, "Sadales tīkls" shall prepare and send a connection agreement and technical terms and conditions to the system user. If the terms of the contract are acceptable, the system user shall sign the contract within **90 calendar days** (the contract may be signed either on paper or electronically);

3. install the micro-generator and prepare the electrical installations. After signing the contract, the installation of the micro-generator must be carried out according to the technical regulations. The electrical installations must be prepared up to the limit of ownership of the electrical installations as defined in the contract.
4. complete and send the contractual attachments:
   - proof of installation of the micro-generator and its readiness for parallel operation with the low-voltage electricity grid of "Sadales tīkls;
   - a micro-generator inverter set-up report completed by a certified technician;
   - photographic documentation clearly showing the inverter, its technical data plate, protection apparatus and solar panels (Figure 2.12).

Fig. 2.12. Photographic documentation of the installed micro-generator (Sadales Tīkls, 2020)

5. distribution network technicians connect the micro-generator. No later than **ten working days** after receipt of the attachments and photographs, “Sadales tīkls” specialists shall check the compliance of the micro-generator installation with the technical regulations, draw up a certificate of completion and send it to the system user's e-mail address. The report must be signed and sent to “Sadales tīkls” for signing (the report can be signed either on paper or electronically).
6. the micro-generator may only be switched on in parallel operation with the “Sadales tīkls” low-voltage electricity network once a signed act has been received from both parties. The micro-generator may only be connected temporarily to carry out adjustment checks on the micro-generator until then.

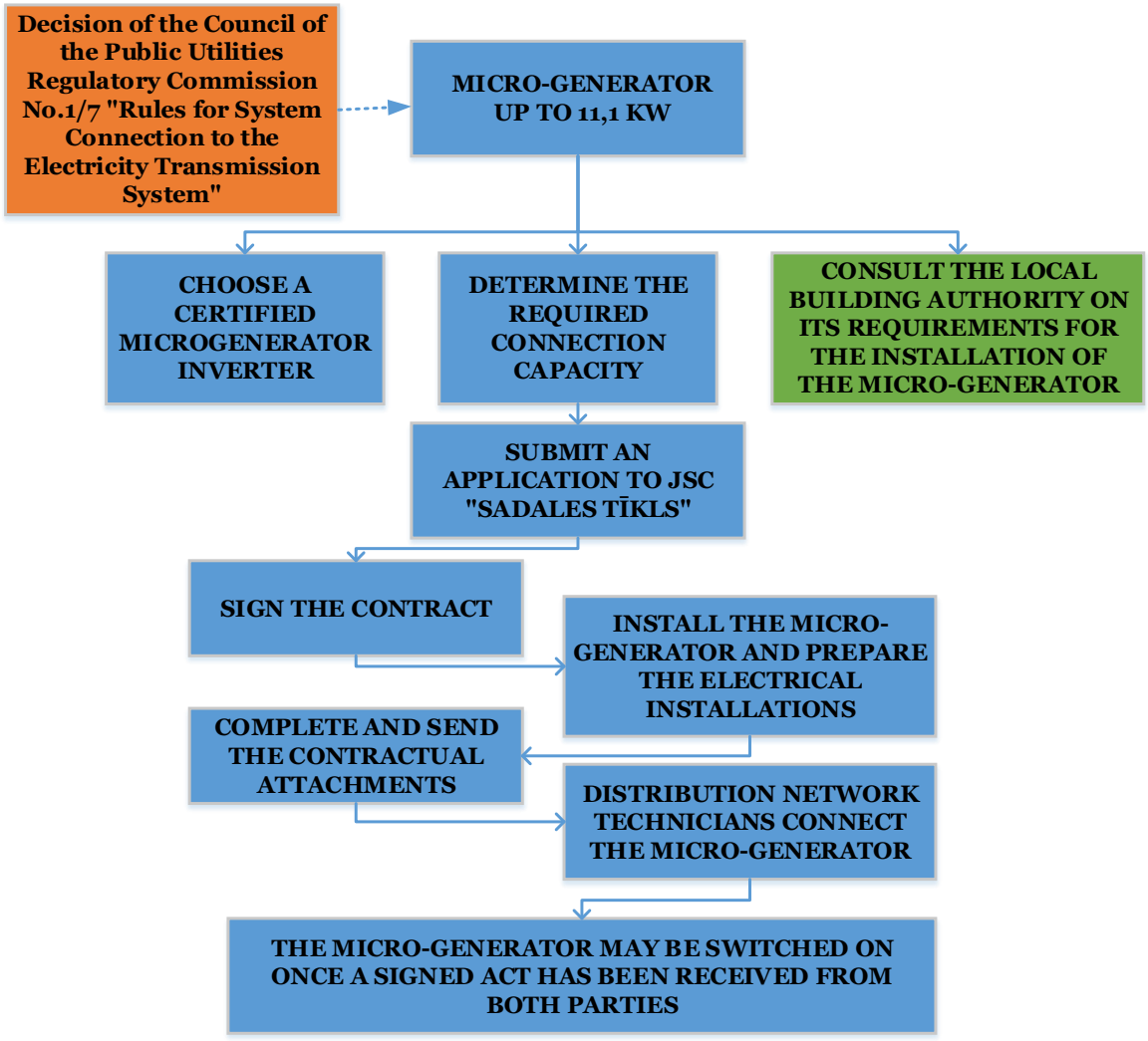


Fig. 2.13. Connection of a micro-generator to the grid of JSC "Sadales tīkls" valid till 30.06.2021 (Sabiedrisko pakalpojumu regulēšanas komisija, 2018)

Description of processes for installing a microgeneration plant and connecting it to the grid of JSC "Sadales tīkls" **valid from 01.07.2021** according to Decision No 1/9 of the Supervisory Board of the Public Utilities Regulatory Commission "Amendments to Decision No 1/7 of the Public Utilities Regulatory Commission of 27 March 2018 "System connection rules for electricity system participants"" (Sabiedrisko pakalpojumu regulēšanas komisija, 2021a):

1. preparatory work to be carried out before connecting to the grid:
   - the required electricity generation capacity to be installed must be assessed;
   - the most suitable choice of solar panel or wind generator, taking into account that only an inverter that is certified and included in the list of inverters recognised by "Sadales tīkls" will be able to work in parallel with the electricity grid;

- consult the local building authority on its requirements for the installation of the micro-generator;

2. apply the “Sadales tīkls” customer portal e-st.lv:
   - if the selected inverter is included in the list of inverters recognised by "Sadales tīkls", an answer will be provided within **three working days** on the possibility to connect the new generation facility to the existing power grid or the need to rebuild the power grid;
   - it will take up to **five additional working days** to assess the inclusion of other inverters in the list of invertors recognised by “Sadales tīkls”;

3. technical requirements and reconstruction work. If the connection of the micro-generator does not require the reconstruction of the electricity network or if the construction work has already been carried out, further actions shall be carried out by the general technical requirements for the connection of the micro-generator (Sadales Tīkls, 2021g):
   - in some cases, the connection of a micro-generator will require a rebuild of the electricity grid and the development of a construction project. Then, within **three days**, “Sadales tīkls” prepares the technical requirements and a rough estimate of the costs of rebuilding the electricity grid, free of charge. (Sadales Tīkls, 2021b);
4. payments. The invoice attached to the micro-generator connection application must be paid via the customer portal e-st.lv. Connection fee: 74.69 EUR incl. VAT. In the case of grid reconstruction, “Sadales tīkls” will send the contract and the invoice for the reconstruction work first, and the micro-generator connection invoice only after the reconstruction work has been completed;
5. installation. A certified building specialist should be selected to carry out the technical work for the installation of the micro-generator and to prepare the inverter set-up report. When the micro-generator is ready to work in parallel with the "Sadales tīkls" electricity grid, make a note on the customer portal e-st.lv. Attach a copy of the building technician's certificate and the completed inverter set-up protocol. It is crucial to meet the deadline set in the general technical requirements;
6. connection permit. Within **five working days**, the submitted documents will be reviewed. A permit will be issued to switch the micro-generator for parallel operation

with AS "Sadales tīkls" power grid. Once the permit has been granted, the micro-generator can be switched on. The generation of electricity can be started using the net billing system.

➔Duration of the administrative process	16 days
➔ Solar PV	applies
➔Windfarm	applies

Once the solar PV or wind generator has started producing energy, the electricity that the producer does not immediately consume is fed into the overall electricity grid. Companies have to agree with the electricity trader to sell all the energy they put on the grid. On the other hand, households automatically become members of the Neto billing system when they start generating electricity but may opt-out of this status and agree with their electricity trader to sell the energy generated and transferred to the grid (Sadales Tīkls, 2020).

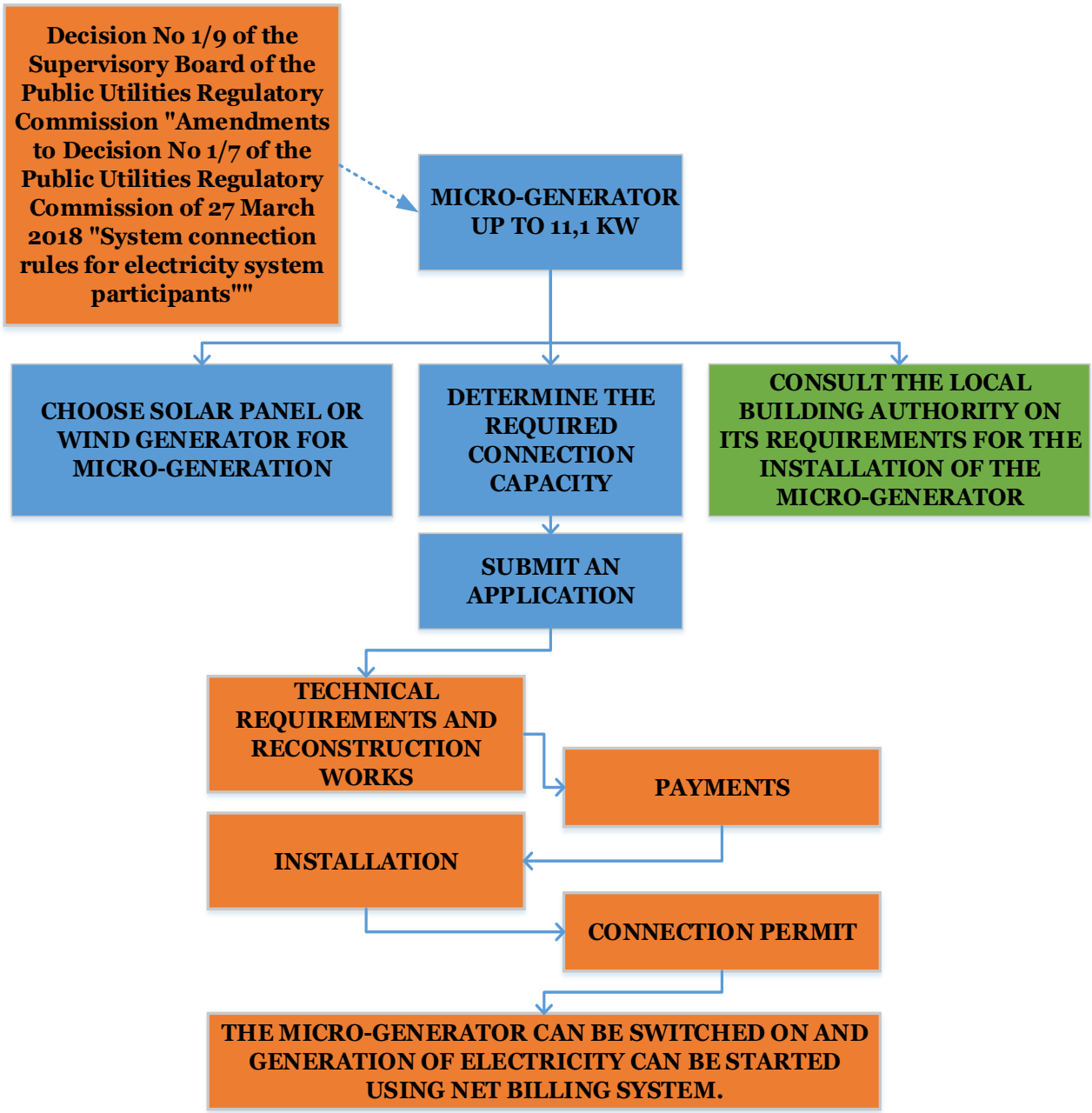


Fig. 2.14. Procedure applicable from 01.07.2021 for connection of a micro-generator to the grid of JSC "Sadales tīkls" (changes that have entered into force with the new procedure are highlighted in orange) (Sadales Tīkls, 2020)

2.7.2. Power Plant Connection (11.2 kW-10 MW)

Before applying JSC "Sadales tīkls":

- apply to the Ministry of Economics and obtain a permit for the increase of electricity generation capacity or the introduction of new generation installations;
- assess the installed electricity generation capacity;

- read terms of the System Connection Rules for electricity producers (Padome, 2012; Sabiedrisko pakalpojumu regulēšanas komisija, 2021a)

1. completing and applying connection to the grid;
2. preparation of technical rules. Within **60 calendar days,** "Sadales tīkls" shall prepare and send technical rules for connecting the power plant to the electricity distribution system. The validity period of the technical regulations is **two years**;
3. connection construction. To certify the continuation of the process, one signed copy of the "Agreement on the organization of the construction design" must be sent to "Sadales tīkls" (in paper or electronically signed);
4. a constructor shall be selected, and the construction work shall be carried out by the technical rules issued (construction planning costs are at the expense of the electricity producer);
5. the construction design shall be submitted to "Sadales tīkls". If a construction design is not required for the connection, the power plant shall be constructed by the technical rules, electrical installations shall be prepared up to the contractually agreed ownership boundary of the electrical installations and an application for readiness to inspect the electrical installations, and the power plant shall be submitted to "Sadales tīkls";
6. selection, contract and invoices. "Sadales tīkls" or the Producer selects construction contractor. After making the decision, the "Sadales tīkls" will send the power plant connection contract and the invoice for the construction of the connection to the electricity distribution system;
7. connection contract and payments. The power plant connection agreement will be sent to the postal address provided in the application. The contract must be signed and a copy sent to "Sadales tīkls". Payment of the invoice.
8. connection. The selected construction contractor shall construct the connection of the power plant to the electricity distribution system.
9. distribution system service contract. "Sadales tīkls" sends the System Service Agreement to the postal address (by then, the construction must be completed, and a certificate of readiness of the facility to receive voltage must be submitted). The electricity producer must sign the contract and send a copy to "Sadales tīkls";
10. application for power plant inspection. Application to "Sadales tīkls" for readiness to inspect the electrical installations and the power plant, as well as the binding

documentation, at least **45 days before** the date of commencement of the inspection. Attached is a list of documentation required prior to the power plant inspection;

11. approval of documentation. “Sadales tīkls” shall review the documentation submitted to verify the power plant. The connection, the test programme, the boundary act, and, if necessary, the inter-operability rules shall be agreed upon. The “Sadales tīkls” shall agree with the manufacturer on time for inspection of the power plant.
12. power plant inspection. “Sadales tīkls” shall carry out a compliance check of the power plant construction by the submitted documentation. The distribution network shall issue a permit for connection of the power plant for an inspection period of not less than 72 hours;
13. power plant testing. The Producer shall organize an inspection of the power plant by engaging an accredited laboratory to conduct voltage quality measurements. Submit to "Sadales tīkls" a certificate of successful completion of the inspection, accompanied by all necessary documents, including the building authority's certificate of commissioning of the power plant structure. A specialist from “Sadales tīkls” shall participate in the verification process when the power plant reaches its maximum capacity according to the verification programme;
14. connecting the power plant to the grid. A deed of acceptance of the power plant for parallel operation with the system shall be prepared by the distribution network and mutually signed. “Sadales tīkls” shall issue a permit for the connection of the power plant for parallel operation with the distribution system.

➔Duration of the process	up to 2 years
➔Validity period of the technical regulations	Two years
➔ Solar PV	applies
➔Windfarm	applies

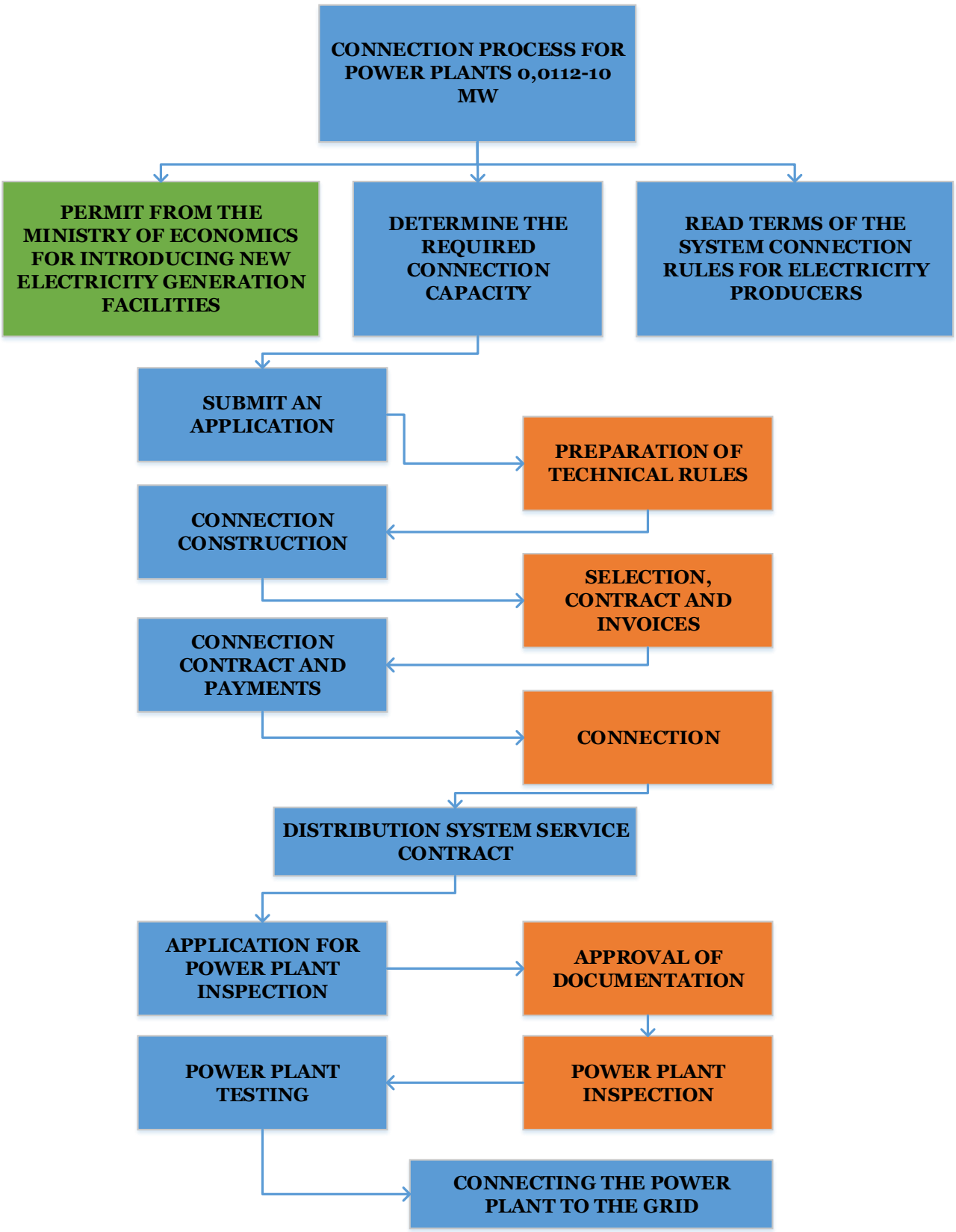


Fig. 2.15. Connection of a power plant 11.2 kW-10 MW to the grid of JSC "Sadales tīkls" (Sadales Tīkls, 2021a)

2.7.3. Connection to the Transmission System Operators network (over 10 MW)

Connection to the Transmission System Operators network (over 10 MW) (Augstsprieguma tīkls, 2021c):

1. before preparing an application, the User or Generator must assess the location of the connection, taking into account the planned capacity in the long term and the cost of electricity based on the connection tariff. Users or Generators with a capacity of up to 10MVA mostly choose to install connections to the electricity distribution system, while a higher capacity connection can be planned to the electricity transmission system;
2. the potential User shall fill in the application "For a new connection to the electricity transmission system or an increase of the permitted load of an existing connection or the "Application for the installation of a dedicated connection of an end-user to the transmission system" for electricity Generators, the “Generator's Application for Connection of a Power Plant to the Transmission System” must be completed;
3. technical regulations shall be issued to Users within **20 days** and to Generators within **60 days** of receipt of the application. If the development of the Technical Rules is complex and requires a more extended period or the User has not provided the System Operator with all the necessary information, the System Operator shall inform the System User/Generator in writing of the deadline for issuing the Technical Rules;
4. the Agreement is a document concluded by the Transmission System Operator with the User or Generator describing the duties and responsibilities of the Transmission System Operator, the User or Generator, who will organise the procurement procedures, who will initiate the construction and what are the payment conditions, as well as describing many other issues to be mutually resolved with the connection (construction rights, equipment specifications, etc.);
5. once the agreement has been concluded, the transmission system operator shall draw up a design assignment for the design work for the transmission system operator part of the connection;
6. the concluded agreement shall carry out all necessary procurement procedures. If the User or the Generator selects the designer, equipment supplier and builder for the transmission system operator part, the technical specifications of the equipment and

the qualification documentation of the contractors (requirements, evaluation, etc.) shall be agreed upon with the transmission system operator;

7. the connection contract shall be concluded once all procurement procedures have been carried out and all costs are known;
8. contracts with the winners of the procurement procedures (the Transmission System operator's part), irrespective of who carried out the procurement procedure, shall be concluded by the Transmission System operator;
9. design, supply and construction of equipment. The concluded contracts shall carry out the design and construction of the connection;

   For Users: after the construction or reconstruction works have been carried out, all necessary inspections shall be carried out, and the facility shall be put into operation after successfully passing the inspections.

   For Generators: after the construction or alteration works have been carried out, all the necessary inspections and tests are carried out by the technical regulations issued and with Decision No 1/4 of the Council of the Public Utilities Regulatory Commission Network Code in the Electricity Sector (Sabiedrisko pakalpojumu regulēšanas komisija, 2013). Acceptance of the connection shall be by Decision No 1/6 of the Council of the Public Utilities Regulatory Commission "Rules for System Connection for Electricity Generators" (Padome, 2012);
10. Concluding the System Service Agreement.

    For Users: A system service contract is concluded before the tests and checks are carried out.

    For Generators: A system service contract shall be concluded prior to the performance of the tests and checks. Tests and inspections shall establish a network code on connection requirements for generators and the Network Code (Sabiedrisko pakalpojumu regulēšanas komisija, 2013).
11. Procedures for the declaration of placing in service (Procedures for conducting tests and inspections).

    Note - a general description of the test and inspection procedure is not publicly available. It can only be obtained by filling in the company information and receiving the test and inspection procedure by e-mail (Augstsprieguma tīkls, 2021b).

➔Duration of the process	*not stated*

➔ Solar PV	applies
➔Windfarm	applies

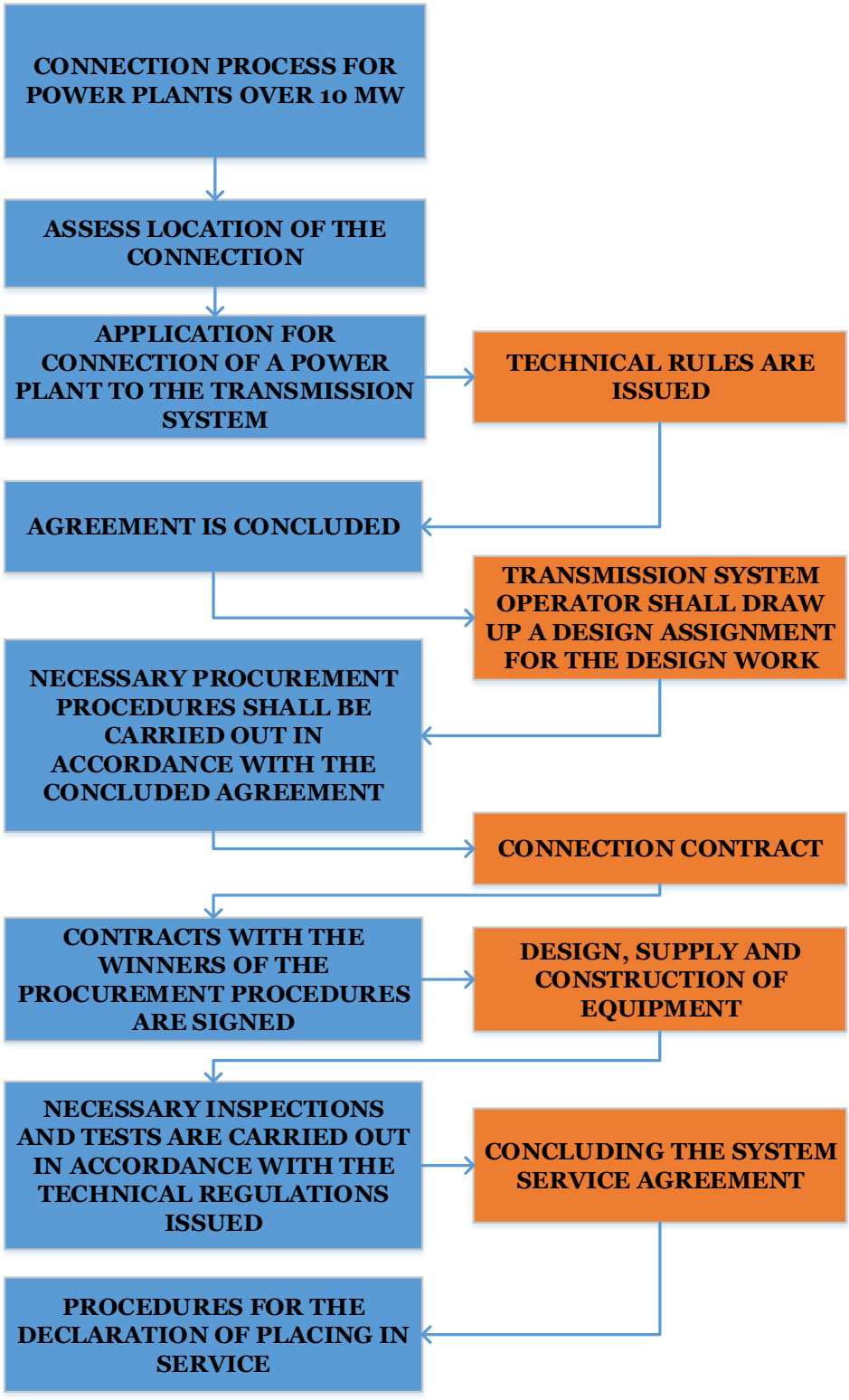


Fig. 2.16. Connection of a power plant over 10 MW to the grid of JSC "Augstsprieguma tīkls" (Augstsprieguma tīkls, 2021c)

2.7.4. Electricity trading

After commissioning and connection to the electricity grid, the power producer must register in the producer register of the Public Utilities Regulatory Commission if the power plant has a capacity of more than one megawatt. If electricity trading is planned, the electricity trader must register with the Public Utilities Commission regardless of the power plant's capacity (Ekonomikas ministrija, 2021).

Before commencing their activities, electricity producers or traders must register in the Register of Electricity Producers or Traders by Regulator's Decision No 1/3 "General Authorisation Rules in the Energy Sector" (Sabiedrisko pakalpojumu regulēšanas komisijas padome, 2019). A trader must register in the Register of Electricity Producers if the installed capacity of its power plant exceeds 1 megawatt. This procedure is provided for in Regulation No 1227 "Regulations on regulated types of public services", issued by the Cabinet of Ministers (Ministru kabinets, 2009). In order to be registered in the Register of Electricity Producers, a trader must send a notification to the Public Utilities Commission. The notification of registration shall be deemed submitted on the date the Public Utilities Commission has received all the required information. The trader shall attach to the notification of registration in the register of electricity generators a document certifying the commissioning of the power plant (Sabiedrisko pakalpojumu regulēšanas komisija, 2021b).

The general procedure and the manner in which a public service provider, a public electricity trader and an electricity system owner shall submit the necessary information to the Regulator shall be determined by the Regulator's Decision No 1/42 "General Rules for Submission of Information" (Sabiedrisko pakalpojumu regulēšanas komisija, 2017).

➔Duration of the registration process	*Three days*
➔ Solar PV	applies
➔Windfarm	applies

2.8. Offshore wind farms

One of the aims of Cabinet of Ministers Regulations No 232 "On the Maritime Planning for the Inland Sea, Territorial Sea and Exclusive Economic Zone of the Republic of Latvia until 2030" (Ministru kabinets, 2019), is to promote the development of offshore wind farms. The Marine Plan identifies research areas suitable for wind farms. Each wind park research

area could theoretically accommodate at least one wind farm with a capacity of up to 800 MW, with the electricity it generates fed into the electricity transmission system (Ministru kabinets, 2019). The wind farm research areas mentioned have been selected based on the following criteria(Ministru kabinets, 2019):

- depth of the sea up to 60 m;
- distance from the coast not closer than 8 km;
- no overlap with existing Natura 2000 sites, military training ranges, hydrocarbon exploration and production license sites and areas of dumped explosives;
- average wind speed at 100 m height starting from 8 m/s.

Priorities for the use of marine space are set by excluding or restricting activities that may cause disturbance or damage to their existence or development. The most suitable areas for development have been identified, considering the natural conditions limiting economic activities, the potential impact on the marine ecosystem, and potential conflicts with other marine use. Specific wind farm exploration zones (E1, E2, E3, E4, E5) are determined where new licences for wind farm installation and related exploration are granted (Ministru kabinets, 2019). All the procedures laid down in the regulatory framework, including an environmental impact assessment, must be carried out before constructing wind power plants (Ministru kabinets, 2019).

The following aspects should be taken into account when granting a licence for a wind farm in the wind farm exploration zone in order to minimize conflicts of offshore wind farms with other sectoral interests and existing uses such as shipping, fishing, mineral extraction, tourism, landscape quality and bird and bat migration, (Ministru kabinets, 2019):

- it is essential to assess the impact of wind farms on the coastal landscape. In particular, negative impacts are expected in areas with natural or little modified landscapes and areas of particular cultural and historical significance. The visibility of wind turbines from the coast may reduce the attractiveness of such areas for tourism, and it is therefore recommended that wind turbines should be sited at least 8 km from the coast, but on steep stretches of the coast (e.g. Jurkalne) a greater distance would be optimal, as visibility increases from higher vantage points and a separate study would be advisable to determine the optimal distance;
- the installation of wind turbines may damage or destroy underwater habitats. Habitats formed on rocky substrates are particularly vulnerable. Therefore, wind

farms should not be installed in areas designated for the protection of underwater habitats or in areas where protected habitats have been found;

- wind farms should also be sited, where possible, outside the wintering areas of migratory birds, their migration routes, and resting and feeding areas during migration;
- the impact on vessel traffic should be assessed when choosing a specific location for wind turbines. Wind farms should be sited outside areas reserved for shipping routes, and their distance from areas reserved for shipping should be assessed separately to avoid shipping. In exceptional cases, there must be justification that the most appropriate location for the wind turbines is directly within the area reserved for shipping routes. In this case, the responsible authorities need to find spatial solutions to ensure the safety of shipping and, if necessary, a shift of the reserved areas for shipping routes if possible;
- fisheries and mineral extraction are restricted in the areas where offshore wind farms are to be located, so the interests of these sectors should also be taken into account in determining the most appropriate location, excluding as far as possible areas that provide significant fish catches or could potentially be used for mineral extraction. Where a mutually beneficial spatial solution cannot be agreed, existing compensation practices should be assessed and applied;
- when selecting a site for a wind farm, the possibility of cooperation with Lithuania or Estonia should be explored in order to attract co-financing for joint wind park development projects;
- in areas where licences have already been issued for exploration and extraction of hydrocarbons and other economic activities, including aquaculture production, a wind farms exploration area cannot be licensed;
- in areas licensed for wind energy, it may be possible to combine wind energy production with wave energy, aquaculture production or other production, if technically feasible.

The Law lays down the general procedure for the use of the sea in Latvia on the Protection and Management of the Marine Environment (Saeima, 2010), which stipulates that the use of the sea shall be by the laws and regulations governing the relevant activity and this Law, taking into account its objectives, environmental protection principles, public interests and the spatial planning of the sea. According to this Law, a permit or licence for the

use of the sea is issued by the Cabinet of Ministers, which determines the area of the permit or licence in the sea from time to time by decree (Saeima, 2010). The successful tenderer shall acquire the right to use a permit or licence area at sea for the right to use the permit or licence area at sea. A permit or licence for the use of a designated permit or licence area at sea shall be issued for a period not exceeding **30 years** (Saeima, 2010; Ministru kabinets, 2019):

Following the Land Management Law entry into force, the municipality owns the coastal waters within the maritime coastal zone. It carries out spatial planning in the water area under its control within 2 km from the coastline (Saeima, 2014). However, any construction activity in the sea up to 2 km from the shoreline, where the initiator of the activity is a public or private operator, must be coordinated with the municipality of the adjacent area. This ensures that objects with visual or environmental impacts, such as bathing water, are not placed along coastal stretches essential for tourism development. Examples of such objects include wind farms, fish aquaculture (Ministru kabinets, 2019).

Construction of offshore energy production or transmission infrastructure shall be carried out by the provisions of regulatory enactments on the protection of the marine environment and offshore construction, according to the Cabinet of Ministers Regulation of 14 October 2014 No. 631 "Construction Regulations for Structures in the Internal Waters, Territorial Waters and Exclusive Economic Zone of the Republic of Latvia " (Ministru kabinets, 2014b), which determine:

- the procedures for determining a licence area in the sea;
- the procedures for organising a tender regarding the right to use a licence area in the sea;
- the procedures for use, suspension or cancellation of the licence for the use of the area in the sea;
- the requirements in respect of the exploitation of structures, and also demolition thereof after complete termination of operation thereof;
- the construction process procedures, the institutions involved in the construction process and the responsible building specialists;
- the documents necessary for the construction process and their content;
- the conditions to be included in the construction permit and other regulations related to the construction process, as well as the periods of guarantees for construction work after a structure, has been accepted for service;

- The Ministry of Economics shall be responsible regarding control and the rule of law of the construction process of structures laid down in this Regulation, by performing functions of the building authority, but in the cases laid down in Section 6.[1], Paragraph one, Clause 1 of the Construction Law - the State Construction Control Office;
- construction intention documentation regarding planned construction shall be submitted to the Ministry of Economics. If construction is planned in internal waters, territorial waters or exclusive economic zone of the Republic of Latvia and in the administrative territory of local government, the construction intention documentation shall be submitted to the Ministry of Economics and relevant building authority, and the construction process shall take place in each territory separately from intention to acceptance into service;
- after approval of the draft, the Ministry of Economics (for structures necessary for energy supply and commercial activities abovementioned, and also for research works necessary for the preparation of the design of such structures and submitted for examination by the laid down procedures regarding the rights to use a licence area in the sea, the Ministry of Economics shall issue the relevant licence, and it shall be registered in the unified register regarding establishment and administration of which the Ministry of Economics is responsible.

The construction of offshore wind power plants in the territorial sea and exclusive economic zone of the Republic of Latvia, regardless of their capacity and number, must be subject to an initial environmental impact assessment (Saeima, 1998).

Determination of area in the sea may be initiated by a merchant, who wants to use the sea for the construction of structures and exploitation thereof, by selecting the corresponding area in the sea in conformity with the technology to be installed (Ministru kabinets, 2014b):

- a merchant shall lodge a submission to the responsible ministry with a proposal to determine an area in the sea. A justification of selection, scheme and plan shall be appended to submission in electronic form by indicating ellipsoidal (geographic) coordinates of the area in the World Geodetic System 1984 (WGS84), area size, distance to coast and location thereof in respect of sea or land territory, that is coordinated with the State stock company "Latvian Maritime Administration" from the point of view of navigation safety;
- within a month from the day of receipt of the submission, the responsible ministry shall examine and evaluate whether the submission, information and documents

appended to it conform to the requirements of this regulation and the laws and regulations in the field of environmental protection and use of the sea. If a submission, information appended to it and documents complies with the requirements of this Regulation and laws and regulations of environmental protection, the responsible ministry shall evaluate it, draw up a draft Cabinet Order **within two months** regarding the determination of the are in the sea and submit it for examination to the Cabinet;

- the Cabinet, taking into account the evaluation provided by the responsible ministry, shall decide to determine the area in the sea or refuse to determine the area in the sea. Within 30 days after taking the Cabinet decision, the responsible ministry shall inform the merchant thereon.
- the responsible ministry **within a month** after the Cabinet has issued the order on determining the area in the sea shall announce the tender for construction of structures in the sea on the areas laid down in the Cabinet Order;
- the responsible ministry, by taking into account the laws and regulations regarding the procedures for accepting intended activity, shall submit a draft to the Cabinet regarding granting the licence for the use of the area in the sea to the winner of the tender, by intending the conditions for the use of the licence therein. After the Cabinet has decided to grant a licence to use the area in the sea or to refuse the relevant draft, the responsible ministry shall inform the merchant and issue a licence to the winner of the tender for research of area in the sea thereon within **30 days.**
- research shall be carried out by a merchant by his or her resources **not more than two years** from the day when the Ministry of Economics has issued a licence for research in the territory indicated in the submission of the merchant;
- a merchant shall, not later than a **month** before the commencement of the relevant works, submit the schedule for performance of works to be performed in the research to the Ministry of Economics, where the planned periods for commencement and completion of the works are indicated;
- a winner of the tender, shall **within a month** after completion of the research, submit to the Ministry of Economics all obtained data, samples and summary of results;
- initiator of the construction (a winner of the tender) after research of a licence area in the sea and environmental impact assessment shall agree with the developer of a building design in the corresponding field of construction designing regarding the

development of the documentation necessary for the relevant construction intention in the cases laid down in the laws and regulations;

- an initiator of the construction work shall append to submission for construction a building design in minimum composition. Upon receipt of a construction submission, the Ministry of Economics shall examine the conformity of the construction intention with the laws and regulations and the relevant licence within the period laid down in Section 12, Paragraph four, Clause 1 of the Construction Law and decide in conformity with Section 14, Paragraph three, Clause 1 of the Construction Law;
- The Ministry of Economics, upon deciding to accept the construction intention by Section 14, Paragraph three, Clause 1 of the Construction Law, shall issue a construction permit;
- conditions included in the construction permit for commencement of construction works shall be carried out **within two years** from the note on the construction permit regarding the performance of designing conditions;
- after receipt of a construction permit, a commissioning party shall organise the performance of the conditions for designing the construction permit. The necessary technical or special regulations shall be requested from the relevant institutions if they are not received when developing a building design in minimum composition;
- The developed building design shall be coordinated with the commissioning party, the Latvian Maritime Administration (from navigation safety), and other persons in conformity with the designing conditions included in the construction permit. The Ministry of Economics shall evaluate the conformity of the developed building design with the conditions of designing included in the construction permit and the laws and regulations. If all designing conditions have been met, the Ministry of Economics shall note in the construction permit the performance of the conditions of designing within the period laid down in Section 12, Paragraph five of the Construction Law. After making the not in the construction permit, one copy of the building design shall be stored in the Ministry of Economics;
- if conditions for commencement of construction works included in a construction permit are performed, and a commissioning party has submitted the documents indicated therein, the Ministry of Economics shall, within the period laid down in Section 12, Paragraph five of the Construction Law by the general building regulations, the building permit shall specify the maximum duration of the construction works up

to which the building permit (construction works) may be extended and up to which the building shall be put into operation;

- preparation of the works shall commence after the building permit has become uncontested and the conditions of the building permit have been complied with;
- before putting into service of the structure, the performer of construction work shall carry out performance measurement of the structure or construction site. At the request of the construction proponent, the institutions that have issued technical or special regulations shall examine and, within **ten working** days of receipt of the request, provide an opinion on the readiness of the structure for operation or demolition of the structure, its compliance with the technical regulations and the requirements of regulatory enactments, according to their competence. The Latvian Maritime Administration shall issue an opinion on the readiness of the structure for operation from the point of view of maritime safety;
- within **ten working days** of receipt of the certificate of readiness for use, the Ministry of the Economy or the bureau shall accept the construction work by deed, in agreement with the client on the date of presentation of the structure or construction site;
- a structure shall be regarded put into service after signing of the deed. The Ministry of Economics shall, within **five working days** after the signing of the deed, issue a licence for the use of structures to the winner of the tender.

➔Duration of the process	*7-10 years*
➔ Licence for research of area in the sea	*valid for two years*
➔ Permit or licence for the use of a designated area at sea	valid for 30 years
➔ Solar PV	not applicable
➔Offshore wind farm	applies

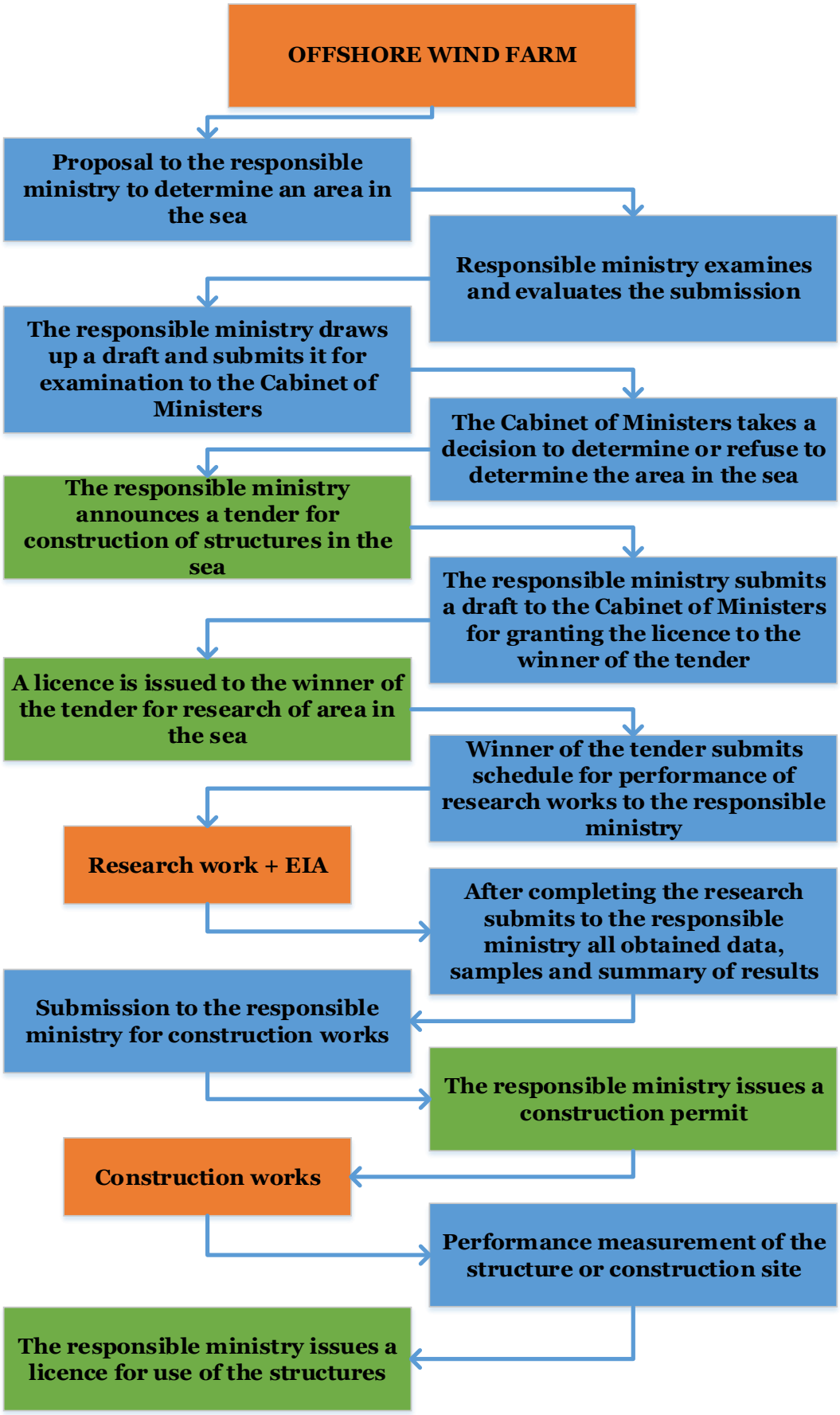


Fig. 2.17. Offshore wind farm project implementation process

2.9. Support mechanisms

2.9.1. Mandatory procurement components

Cabinet of Ministers Regulation No 560 “Regulations on electricity generation using renewable energy sources, as well as on the procedure for setting and monitoring prices” (Ministru kabinets, 2020) sets out the conditions for electricity generation using renewable energy sources and criteria for qualification of producers for the right of mandatory purchase of electricity produced; the procedures for the determination, implementation and monitoring of the amount of electricity to be mandatorily purchased which is produced from renewable energy sources. The mandatory purchase rights acquired by the trader shall not be transferable, alienable, transferable by gift or otherwise. On 15 February 2011, the Cabinet of Ministers approved the draft of the Law of the Republic of Lithuania on Energy from Renewable Sources. The adoption of the Law of the Republic of Lithuania on Energy from Renewable Sources introduced new conditions and support instruments for renewable energy production, including the **suspension of issuing new permits for obligatory procurement components** and the introduction of a time limit for using the existing ones (Saeima, 2020).

As of 1 January 2021, new mandatory procurement components entered into force with the Decision of the Council of the Public Utilities Regulatory Commission No 156 “On mandatory procurement components as of 1 January 2021” (Sabiedrisko pakalpojumu regulēšanas komisijas padome, 2020). For all electricity users, the total payment for the mandatory purchase component consists of two parts (Elektrum, 2021):

- The fixed part (power component) depends on the voltage level of the electricity connection and the consumption group. For example, for a household with a single-phase connection, the power component will be €0.876 (incl. VAT) per month, while for a household with a three-phase connection and a demand of 16 A, it will be €2.262 (incl. VAT). After 1 January 2021, the capacity components remain unchanged.
- Variable part (mandatory purchase component) is calculated in proportion to the electricity consumed. As of 1 January 2021, the mandatory purchase component is EUR 0.01128/kWh (incl. VAT).

2.9.2. NETO billing system

The NETO electricity billing system applies to all households that, by installing a micro-generator, produce electricity for their own needs from renewable energy sources, such as solar PV or wind generators, and meet other criteria set out in the Cabinet of Ministers' Regulations and the Electricity Market Law (Sadales Tīkls, 2020). The monthly electricity costs for every household in Latvia, including those households subject to the NETO billing system, consist of three items (Sadales Tīkls, 2020):

- distribution system operator services;
- the mandatory purchase component (MPPC): a fixed part (according to the connection capacity) and a variable part (renewable, cogeneration);
- the charge for electricity.

Households that produce electricity from renewable sources can save on two of these items – charge for electricity and, from 1 April 2020, the variable part of the mandatory procurement components (Sadales Tīkls, 2020).

2.10. Case study analysis

Construction of wind farm "Laflora" in Līvbērze parish, Jelgava region

Ltd. "Laflora", whose main activity is related to peat extraction and processing, planning further use of land in the peat extraction deposit, intends to establish a wind farm in the territory of the Jelgava region, Līvbērze parish. Considering that in the part of the peat deposit owned by the company, the peat extraction process has been completed or is planned to be completed soon, it is necessary to find solutions for further rational use of this area. One of the possible solutions for land use is constructing a wind farm, producing electricity from renewable resources. "Laflora" wind farm is considering the possibility of installing no more than 22 wind power plants, where the nominal capacity of each plant could reach 6 MW, and their location would cover both the mining area and the adjacent forest lands. (Estonian Latvian & Lithuanian Environment, 2021)

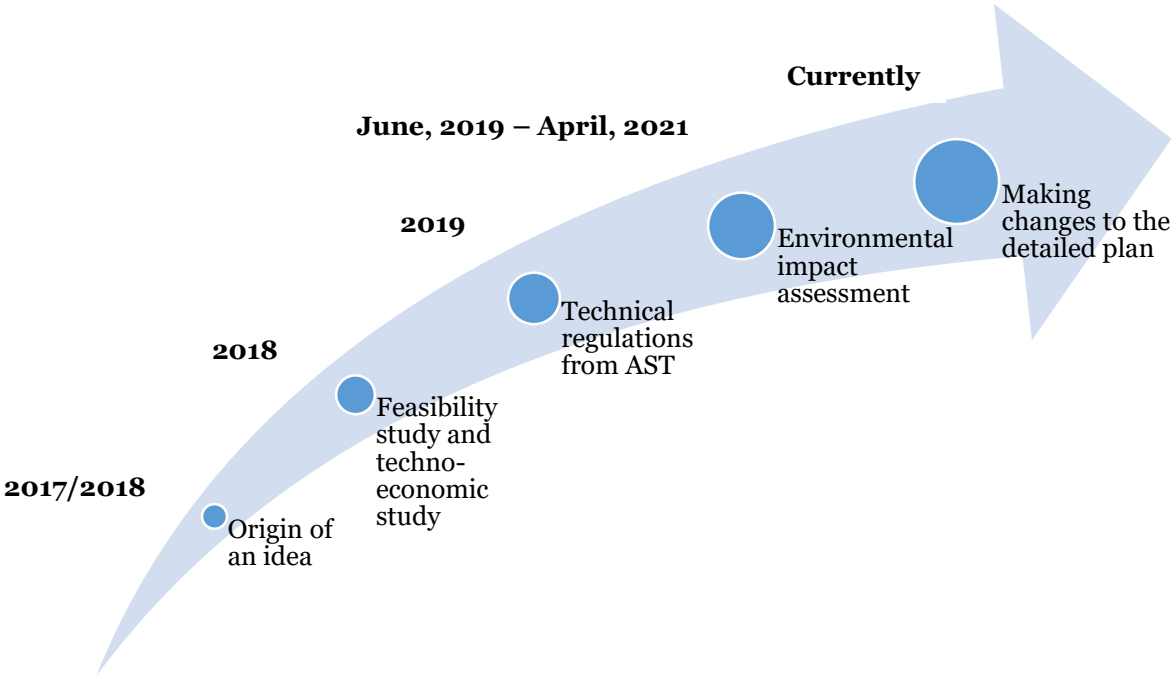


Fig.2.18. The time frame for "Laflora" WPP implementation

The Laflora wind power plant (WPP) planning process started in 2018 and could be tentatively completed in 2024. At the moment, the WPP construction project is about halfway. The project's achievements include the completion of the phases related to the feasibility study and the performance of all necessary activities to prepare and submit the Environmental Impact Assessment Report to the Environment State Bureau. The next stage is submitting a proposal on changes in the spatial plan of the Jelgava region to make it possible to build WPP in certain territories where it has not been planned so far.

In general, WPP construction planning could be divided into five large blocks:

1. Feasibility study (site assessment, wind measurements, feasibility study);
2. Environmental impact assessment *(19 months)*;
3. Changes to the local plan, if necessary *(duration 12 months)*;
4. Engineering research *(process not yet started)*;
5. Technical projects *(process not yet started)*;

According to the information provided by the company, it is possible to choose to perform several actions and perform coordination procedures in parallel with each other, which would be more expensive in monetary terms. You can also act more cautiously and sparingly, making one step at a time. According to the information provided by the project

coordinator **initial feasibility study** of the proposed project is significant. For the particular project, it included:

- site selection;
- wind speed measurements (for techno-economic assessment);
- local government/county territorial planning and detailed planning – whether the regulatory enactments provide for territories for the construction of WPPs;
- whether the selected location and distances from the WPP to the nearest inhabited place comply with the provisions of regulatory enactments, or there are no other restrictions directly related to the construction and operation of the WPP;
- will it be possible to deliver the selected type of wind turbines to the intended location, and how much will it cost;
- identify if there could be any additional barriers.

The next step was **the Environmental Impact Assessment** which was done according to the following steps (Vides pārraudzības valsts birojs, 2019; Estonian Latvian & Lithuanian Environment, 2021):

1. submission to the Environment State Bureau regarding the necessity of EIA;
2. initial public consultation;
3. taking into account that the scope of the planned activity exceeded the norms specified in the Law "On Environmental Impact Assessment", on 4 June 2019, the Environment State Bureau adopted a decision on the application of the EIA procedure for the establishment of the WPP park;
4. the program for evaluation was issued on 2 September 2019, which specifies the amount of information to be provided and the level of detail. The program's content may differ depending on the environmental risks to be assessed. In the case of Laflora, many requirements were identified, and the institutions and organizations to be consulted or to submit a report.
5. the EIA report has been prepared by Ltd "Estonian, Latvian & Lithuanian Environment," involving industry experts who assessed the impact of the proposed activity on ornithofauna, bat populations, specially protected habitats and plant species, cultural, historical values, and landscapes;
6. the report included details of the proposed activity, park planning criteria, and alternative solutions. In addition, the report included comprehensive information

on the current state of the environment and natural values in and around the proposed activity.

By the terms of the program issued by the Environment State Bureau, the report provided information on the expected impacts related to the implementation of the planned activity, made proposals for mitigation and further monitoring.

Within the framework of the EIA process, a survey of the inhabitants has been conducted, identifying their attitude towards the planned activity and the most significant environmental and social aspects that concern the society in the context of the planned activity.

The EIA report on the wind farm "Laflora" in Līvbērze Parish, Jelgava Region, is dated April 2021. The EIA procedure from the moment of issuance of the Program for assessment on September 2, 2019, to the preparation of the EIA report in April 2021 lasted approximately 19 months. The report is 303 pages long.

The following factors are mentioned as the main obstacles for time-consuming EIA process:

- due to the emergency and constraints caused by COVID-19, the preparation of the EIA report was delayed (by about six months);
- availability of experts required for the preparation of the EIA report (ornithologists, bat experts)

Significant importance in the project's progress depends on whether the construction of WPP is planned/included **in the spatial plan of the local municipality**. According to the information included in the EIA report (Estonian Latvian & Lithuanian Environment, 2021), it turns out that the territory of the wind farm or its parts belongs to the land units, which in the spatial plan of the Jelgava region in 2011-2023. The type of use permitted for 2007 is:

- Mining areas – 805 ha;
- Production facilities and warehouses – 21 ha;
- Forests – 1647 ha,
- Agricultural land ~ 180 ha,
- Land under the roads.

Following the binding regulation No. 14 of Jelgava municipality of 23 November 2011 "Jelgava municipality spatial plan 2011–2023. Graphic part and regulations for the use and construction of the territory "4.19.3. point wind generators with a maximum capacity of 20kW and more are allowed to be located only outside the village territories by the requirements of regulatory enactments. The municipal spatial plan defines the types of

planned (permitted) use in which the construction of alternative energy production facilities, including WPPs, is possible. Other conditions for the construction of WPPs are not set in the municipal spatial plan. Evaluating the conditions set in the spatial plan of the Jelgava region, it was established that the construction of the selected type of WPP is not possible at the time of compiling the report, as it would conflict with the spatial plan the local municipality. In the context of the construction plan of the planned wind farm, the conditions of the valid municipal spatial plan are considered a limiting factor for implementing the planned activity. Based on the above, it can be concluded that to carry out the construction of the wind farm "Laflora", it is necessary to make amendments to the spatial plan of the Jelgava region (Estonian Latvian & Lithuanian Environment, 2021).

Theoretically, the location of WPPs would correspond to 2013. Cabinet of Ministers Regulations No. 240 "General Regulations for Spatial Planning, Use and Building" if the municipal spatial plan would be amended by allowing the construction of WPPs in the permitted uses of the territory specified by the municipality or by changing the permitted use of the territory to one where WPP construction is possible (Estonian Latvian & Lithuanian Environment, 2021).

In order to make changes in the spatial plan of the Jelgava region, an application must be submitted to the region with a request to make changes in the local spatial plan. After receiving the application, the county or local government decides whether to start making changes or not, followed by a public consultation, the necessary documentation and evaluation—coordination with relevant authorities (duration of the process approximately 12 months). Risk – there is a possibility that during the public consultation, the residents of the area or landowners do not accept such an idea and changes in the local plan is not made, which stops the construction process of the WPP park.

After submitting the EIA report to the Environment State Bureau, one of the following expected stages of the project development is t**o apply to the Local Government Construction Board for a building permit.** The EIA report describes the following planned steps in the construction process (Estonian Latvian & Lithuanian Environment, 2021):

1. Development and coordination of construction documentation:
    - development and submission of the construction project in the minimum composition to the construction board;

- design – receipt of technical regulations, design, coordination of solutions (the process may take a long time – must be coordinated with land reclamation, communication network holders (Distribution Networks, High Voltage Networks, Gas Transmission, Railway – depending on the surroundings), civil aviation (radars));
- receipt of a mark from the construction board regarding the fulfilment of the design conditions;
- notes from the building board on the fulfilment of the start conditions.

1. Construction works:
   - site preparation works;
   - construction of access roads and squares;
   - reorganization of drainage systems;
   - construction of engineering communications;
   - WPP foundation construction;
   - WPP delivery and installation;
   - re-cultivation of the territory.
1. Commissioning.

Activities that can be carried out after changes in the local plan and obtaining a building permit:

- obtain a power generation and grid permit from the Ministry of Economics for the introduction of electricity generation equipment (issued within approximately 30 days);
- land lease agreement (in case it is planned to place the WPP on a land plot owned by another person);
- high voltage networks – can proceed after approval of the EIA report and permission from the Ministry of Economics (approximately 30 days).
- coordination of protection zones;
- installation of a connection for electricity transmission to the network.

Identified obstacles during the WPP construction process:

- It may take several years to carry out the EIA procedure and prepare a report (possibility of in-depth research; lack of resources for further research; lack of

necessary experts to prepare EIA). EIA is mentioned as the most difficult, extensive and time-consuming process. In the case of "Laflora", the EIA report has been prepared in great detail and taking into account all possible risks;

- in municipalities where the development of the spatial plan does not include information that the construction of WPPs is allowed in certain territories, the implementation process of this type of project becomes riskier, and its implementation may take a year longer. This is related to the fact that if the spatial plan does not construct a WPP, changes must be made in the local spatial plan. Changes in the types of use and restrictions of the territory's territory in the functional zoning must be determined. Such a process requires additional research, and there is a risk that the society will oppose such changes during the public consultation;
- delays in connection with the Construction Board and issuance of a building permit may occur in cases when WPPs are built-in municipal territories where wind power plants have not been installed before, and the employees of the Construction Board have not had to go through the construction permit issuance process for this type of object.

3. LITHUANIA

Different conditions apply to power plants of different capacities. For micro-generation equipment (up to 30 kW), the installation and approval process is carried out under simplified conditions, resulting in installation, connection to the grid and generating electricity taking up a much shorter period than for a power plant with a generating capacity of over 30 kW. Legislation of Lithuania does not highlight a specific distinction or different rules for the approval process for the installation of solar PV plants or wind farms because both technologies use renewable energy resources to generate electricity and therefore are subject to the same regulatory framework. However, in the case of wind farms, additional measures must be taken in the form of the environmental impact assessment – screening of the proposed economic activity on the environmental impact assessment must be carried out if a wind power plant with more than three wind turbines and at least one of which is 50 m or more in height are installed and in a case where a wind farm is installed within 1 km of a protected area. Figure 3.1 shows the distribution of solar PV plants and wind farms by installed capacity in Lithuania.

Micro-generation plants up to 30 kW can be installed under simplified conditions. Power generation equipment above 30 kW and up to 500 kW is considered a small scale plant. A power generating system of solar PV or wind turbines is considered medium-scaled if its capacity is 6 MW. Small scale and medium scaled systems for connection to the network must apply to the distribution system operator. For large scale systems over 6 MW person or legal entity usually has to apply to the transmission system operator to connect the equipment to the grid.

Permission for the development of generating capacity and a permit for electricity production is required where the person or legal entity intends to construct or install a power plant with a generating capacity over 30 kW for the production of electricity to supply electricity to electricity networks and become a prosumer or become a manufacturer and sell electricity under market conditions.

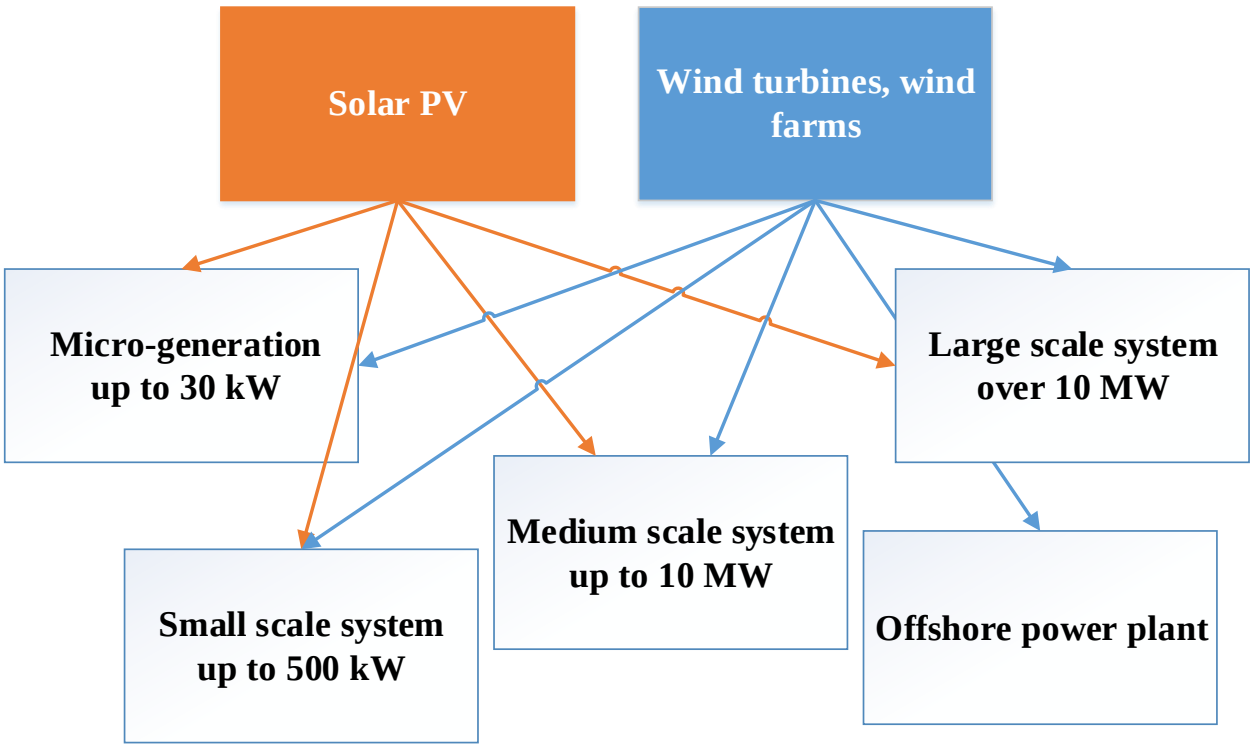


Fig.3.1. Distribution of solar PV and wind turbines, wind farms by installed capacity in Lithuania

Section 3.1. and Section 3.2. describes the general implementation process for wind power plants and solar PV plants in Lithuania, while starting from Section 3.3, an in-depth legislation analysis has been performed. The following sections briefly describe the main steps the solar PV or wind power plant project developer should undergo to implement the project.

3.1. Main steps for wind power plant implementation

Before installing wind turbines or a wind power plant, a feasibility study related to spatial planning should be carried out. It should be ascertained whether the local municipality's spatial plan or detailed spatial plan includes the construction of a wind power plant on the particular plot of land intended for it. Suppose the general or detailed spatial plan does not permit installing wind turbines on the plot of land in question, based on the functionality intended. In that case, the local municipality should be asked to amend the detailed spatial plan. If the local municipality agrees to make changes to the detailed spatial plan, the new plan or changes that are made shall be approved within one month of the date of submission of the application

Figure 3.2. shows an overview of the main steps for the wind farm installation process from the idea to the launching operation. The process description includes the maximum

number of steps to set up a wind farm or park, and the time cut-offs are designed to include both the minimum and maximum timeframe for the process.

The process starts with a detailed feasibility study. Due to the complexity of the following steps, the wind farm developers should carefully select the territory for the wind farm by taking into account several criteria – wind speed in the selected area, inviting an expert to preliminary assess possible environmental impacts that the plant could create, will it be possible to connect the wind farm to the closest network and how much will it cost as well as the economic viability of the project. When selecting a site, the distance from military installations and radars should also be considered, as wind turbines of a certain height may not be allowed within the radar range. The duration of the feasibility study phase mainly depends on the developer's schedule and the availability of the necessary experts for assessing the potential environmental impact.

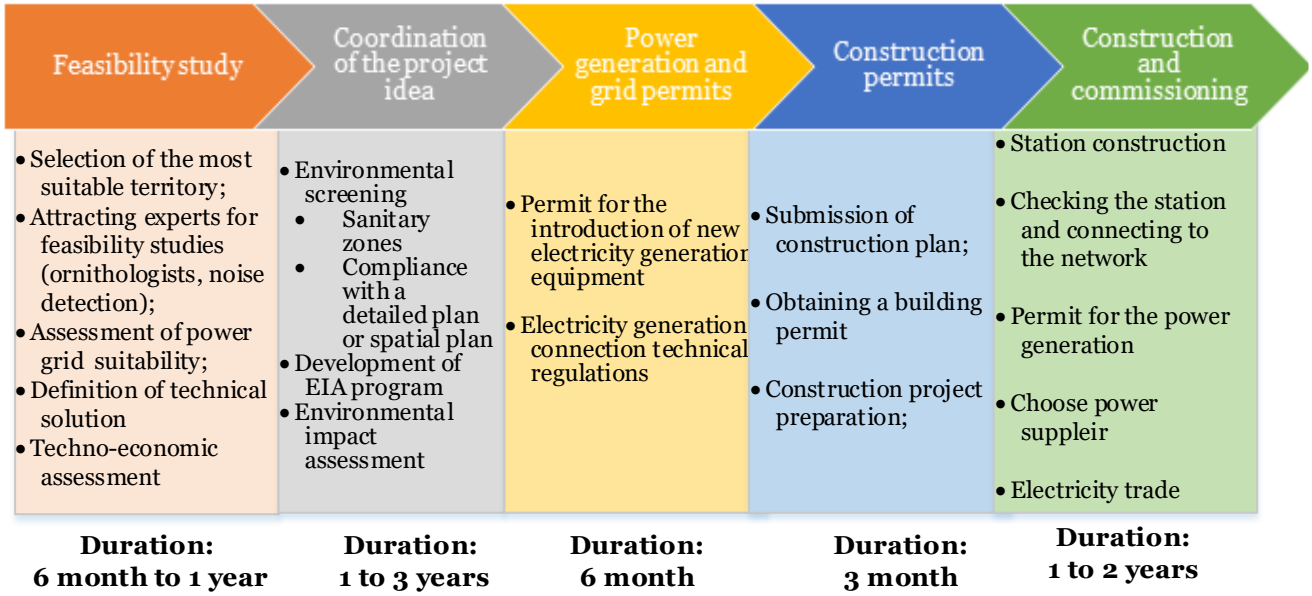


Fig. 3.2. Main steps for wind farm installation and average duration of each step in Lithuania

The next step is to conduct an Environmental Impact Assessment (EIA) screening procedure described in Section 3.5.1. If applicable, an entire EIA procedure is started, for which the first step that the developer must do, is to develop an EIA programme and later conduct an EIA report. The duration of EIA is specific for the particular complexity of the project, availability of experts to conduct the impact assessment, opinions received during the public consultation, and objectives received from the EIA bodies involved in the process. In addition, compliance with spatial planning documents should be conducted. If the wind farm is not allowed in the particular territory, changes in the municipality's detailed plan

should be made, requiring additional time for project implementation. Simplified spatial planning conditions are applied for small scale systems under 500 kW using renewable energy sources. There is no need for detailed spatial plans and no need to change the primary land use, provided that it does not conflict with the regulations on local management and use. More detailed information can be found in Section 3.4.

Suppose the responsible authority approves the prepared EIA report. In that case, the following steps are to receive permission to develop energy generating capacities (Section 3.7.1) and receive a construction permit (Section 3.6). The number of documents to be submitted may vary depending on the location and the size of the power plant. The Law on Construction does not mention the specific deadline for issuing the building permit. As a result, the municipality and the municipal Construction Board likely set the timeframe for issuing a building permit, depending on the project's complexity.

Further, the developer should apply the connection conditions to the distribution system operator. The procedure and conditions for the connection of the wind power plant to the grid are described in Section 3.8. The duration of construction works is project-specific and depends on several aspects, such as available financial resources, procurements, complexity for establishing a network connection, project planning etc. After the station has been constructed, several test measures should be done to connect it to the power grid. Permission for electricity generation must be obtained (Section 3.7.2) from the National Energy Regulatory Council. The developer should choose an independent electricity supplier for power purchasing and start the power generation.

The legislative framework for offshore wind farms is regulated by the Law of the Republic of Lithuania on Energy from Renewable Sources, which determines that a specific plan must be adopted and a strategic environmental assessment of the specific plan must be organised. Later pre-connection conditions shall be issued, and a tender shall be organised. As a next step, a building permit must be obtained by the winner of the tender within three years from the date of receiving the development and occupancy permit. Within six years from the date of receipt of the development and operation permit, a permit for electricity production must be obtained. More detailed information about developing offshore wind parks can be found in Section 3.9.

The analysis outlines the overall phases of a wind farm deployment, from project planning to grid connection. The process of approval of documents by the local municipality regarding the spatial planning and building permit for wind farms above 500 kW may vary depending on the municipality and the municipalities' internal regulatory framework

regarding the coordination and approval of documents. It should also be noted that the requirements from the distribution network operator or, at higher capacities, the transmission network operator, may vary depending on the capacity of the wind farm in question and the distance from the electricity transmission lines and the complexity of the connection.

3.2. Main steps for solar power system implementation

Figure 3.3. shows the main steps of large-scale solar PV power station installation from idea to power generation. The process is similar to the one shown for wind power stations. However, several differences arise – the construction of solar PV plants do not require an environmental impact assessment and are often not constrained by the municipality's spatial planning.

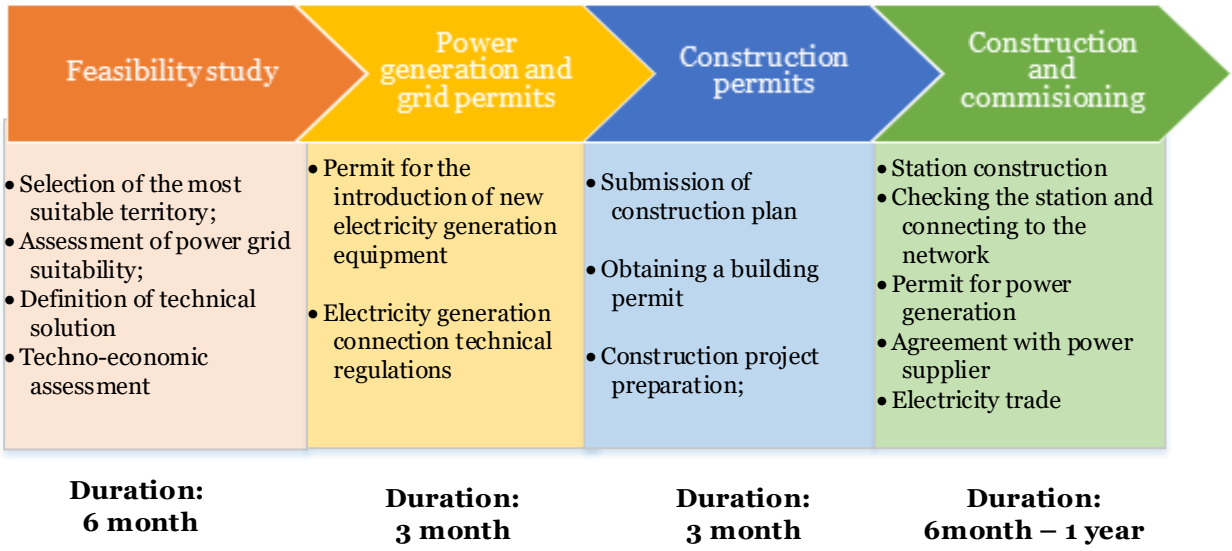


Fig. 3.3. Main steps for large scale solar power station installation and average duration of each step in Lithuania

The feasibility study of solar power plants is mainly related to the techno-economic assessment of the solar power station by analysing the potential costs and benefits from the power trading. The central aspect is the necessary investment costs for solar panels, cabling, and the transmission system. Therefore, the approval and development of the project idea are shorter and less bureaucratised.

The three following steps – power generation and grid permits, construction permits, and construction and commissioning-mostly follow the processes for large-scale wind

projects. The detailed description can be found in the following sections on legislation analyses. The analysis outlines the overall phases of solar PV plant deployment, from project planning to grid connection. The process of approval of documents by the local municipality regarding the spatial planning and building permit for wind farms above 500 kW may vary depending on the municipality and their internal regulatory framework regarding the coordination and approval of documents. It should also be noted that the requirements from the distribution network operator or, at higher capacities, the transmission network operator, may vary depending on the capacity of the solar PV plant in question and the distance from the electricity transmission lines and the complexity of the connection.

3.3. Law of the Republic of Lithuania on Energy from Renewable Sources

The Law of the Republic of Lithuania on Energy from Renewable Sources (Consolidated version July 1st, 2021 to December 31st, 2021 of), No XI-1375 as of May 12, 2011 (Lietuvos Respublikos Seimas, 2011b). The Law of the Republic of Lithuania on Energy from Renewable Sourcesestablishes the legal framework for the state management, regulation, supervision and control of the renewable energy sector of the Republic of Lithuania, as well as for the organisation of activities in the renewable energy sector, and establishes the state regulation and supervision of the activities of operators of energy grids and producers of energy from renewable resources, as well as the relationship between them and the institutions exercising control. (Lietuvos Respublikos Seimas, 2011b)

The purpose of this Law is to ensure the sustainable development and integration of the use of renewable energy resources into the energy system, to promote the further development and introduction of new technologies and the consumption of the energy produced, in particular in the light of the Republic of Lithuania's international obligations, environmental protection, conservation of fossil energy resources, reduction of dependence on fossil energy resources and reduction of the energy import, the costs of integrating renewable energy sources into the energy system, the stability and reliability of the operation of the energy system and other objectives of the State energy policy, taking into account the requirements of security and reliability of energy supply, as well as the principles of ensuring the protection of consumers' rights and legitimate interests in the availability, adequacy and sufficiency of renewable energy sources, and the principles of the stability of financial support for the producers of energy from renewable sources. (Lietuvos Respublikos Seimas, 2011b)

The legislative act states that state and municipal authorities, bodies and undertakings shall, within their competence, prepare, provide and publish information on the procedure for issuing permits, licences or certificates, on the procedure for examining applications for certification relating to renewable energy installations and on the assistance provided to applicants. As well as the institutions mentioned before shall, within their competence, draw up, provide and make publicly available information on support schemes for the use and production of renewable energy sources. The Lithuanian Armed Forces must provide information on territories where special land use conditions are applied, taking into account national security requirements according to the procedure established by the Government. (Lietuvos Respublikos Seimas, 2011b)

The public body Lithuanian Energy Agency shall prepare, provide and make publicly available information on systems and installations using renewable energy resources, their benefits, costs and the efficiency of their use. State authorities and bodies shall have the right to obtain from municipalities, institutions and enterprises the necessary information on the areas to be allocated for the construction of renewable energy production facilities and the use of renewable energy sources to perform their functions. (Lietuvos Respublikos Seimas, 2011b)

3.4. Territorial planning

According to the Law of the Republic of Lithuania on Energy from Renewable Sources, requirements for the design and construction of projects of energy production facilities and structures using renewable energy sources are prepared. Construction works are carried out by the procedure and requirements established by the Law on Environmental Protection of the Republic of Lithuania, the Law on Environmental Impact Assessment of Planned Economic Activities, the Law on Territorial Planning, the Law on Construction and other legal acts. Given the limited size and potential impact of low-capacity power plants (up to 500 kW) using renewable energy sources and in order to avoid disproportionate financial and administrative burdens, the responsible authorities shall ensure that the design and construction of these plants are subject to simplified requirements (Lietuvos Respublikos Seimas, 2011b):

- without the need for detailed plans and without the need to change the primary land use, provided that it does not conflict with the regulations on local management and use;

- in rural areas, the construction of individual wind farms and/or solar PV power plants with an installed capacity of 500 kW or less do not require a change of the mainland use, the preparation of detailed plans, or changes to the master plan, provided that it does not conflict with the local management and use regulations (Lietuvos Respublikos Seimas, 2011b).

As well as wind farms, solar photovoltaic power plants with an installed capacity of less than 30 kW are exempted from the land use compliance requirements, the environmental impact assessment procedure, the need for a construction permit and the need for a public health impact assessment (Lietuvos Respublikos Seimas, 2011b). However, wind farms must be located on the land so that the shortest distance to the land boundary is greater than the length, width or height of the installation, whichever is the greatest of these three dimensions (Lietuvos Respublikos Seimas, 2011b). These installations shall be installed by the installation and operating rules of the manufacturer of the installations concerned.

The locations for constructing wind power plants in the territories are considered national security issues. The special land use conditions set out in the Law on Special Land Use Conditions of the Republic of Lithuania shall be coordinated with the Commander of the Lithuanian Armed Forces and other institutions in advance, during the spatial planning process, by the procedure set out in the laws and other legal acts. (Lietuvos Respublikos Seimas, 2011b)The noise level of the wind farm on adjacent residential plots shall comply with the noise limit values set by the Minister of Health of the Republic of Lithuania regulation "On approval of the Lithuanian Hygiene Standard HN 33:2011 "Noise Limit Values in Residental and Public Purposes in Buildings and their Environment" from June 13, 2011, No. V-604 (Lietuvos Respublikos Seimas, 2011a, 2011b).

The locations for constructing wind power plants in the territories are considered national security issues. The special land use conditions set out in the Law on Special Land Use Conditions should be coordinated with the Commander of the Lithuanian Armed Forces and other institutions during the spatial planning process by the procedure set out in the laws and other laws legal acts. Wind farm sites shall not be approved if the disturbance caused by the planned wind farms cannot be avoided by additional measures (Lietuvos Respublikos Seimas, 2011b).

Spatial planning is a process carried out by the requirements of this and other laws, as well as their implementing legal acts, aimed at sustainable development of territories and includes the identification of land use priorities, environmental, public health, heritage and

other measures, housing, production, engineering and creation of social infrastructure systems, creation of conditions for the regulation of employment and development of activities of the population, reconciliation of public and private interests (Lietuvos Respublikos Seimas, 1995). According to the Spatial Planning Law (Lietuvos Respublikos Seimas, 1995) in Lithuania, two spatial planning documents are integrated territorial planning and particular territorial planning documents. Types of spatial planning documents (Lietuvos Respublikos Seimas, 1995):

1. documents of integrated territorial planning;
    - the general plan of the territory of the state and the general plans of the parts of the territory of the state (prepared at the state level);
    - general plans of municipalities (prepared at the municipal level) or parts thereof (prepared at the local level);
    - detailed plans (prepared at the local level);
2. special territorial planning documents:
    - special territorial planning land management documents – land management schemes, rural development land management projects;
    - forest management schemes;
    - documents of special territorial planning of protected areas – schemes of the system of protected areas or parts thereof, plans of boundaries of protected areas, planning schemes of protected areas (boundary and management plans), plans of management of protected areas;
    - special territorial planning documents for the protection of immovable cultural heritage;
    - engineering infrastructure development plans;
    - subsoil use plans.

A general plan 83so n integrated spatial planning document, in which the spatial structure of the planned territory and the mandatory provisions, requirements or regulation and protection principles of the territory use are determined according to the level and objectives of the spatial planning (Lietuvos Respublikos Seimas, 1995). A detailed plan is a comprehensive spatial planning document for an urbanised or urbanising area at the locality level, which establishes the regulations governing the use of the area. (Lietuvos Respublikos Seimas, 1995). Land managers and users shall follow the lowest level integrated spatial planning documents valid in the planned territory and non-urbanized and non-urbanising

territories – special spatial planning documents (Lietuvos Respublikos Seimas, 1995). Land managers and users of areas designated for national defence purposes shall follow the local level general plan solutions if it has not been prepared, the municipal level general plan solutions, and the special territorial planning documents in non-urbanized and non-urbanising areas. Territories intended for large projects shall be developed in accordance with the planning documents of territories of projects of state importance or the solutions of the general plan at the local level if it has not been prepared - the solutions of the general plan at the municipal level (Lietuvos Respublikos Seimas, 1995).

Institutions authorized by the Government organize the preparation of the following territorial planning documents (Lietuvos Respublikos Seimas, 1995):

- state-level territorial planning documents;
- territorial planning documents of important state projects;
- special territorial planning documents for protected areas;
- special territorial planning documents specified in other laws.

The preparation of municipal level and local level territorial planning documents shall be organized by the director of the municipal administration, except in cases when other laws establish other organizers of special territorial planning (Lietuvos Respublikos Seimas, 1995).

Article 6 of this Law states that natural persons, legal persons or their subdivisions may, by the procedure and conditions established by the Government, submit proposals to the municipality or other territorial planning organizers preparation, amendment or adjustment and (or) financing of territorial planning documents, in the cases specified in Paragraph 7 of Article 28 of this Law – regarding the adjustment of the general plan at the municipal level (Lietuvos Respublikos Seimas, 1995):

- the director of the municipal administration or the organizers of special territorial planning established by other laws must decide to satisfy the proposal or reject the proposal with a reason **within ten working days** from the date of receipt of this proposal;
- the director of the municipal administration shall, within **five working days** of receipt of the proposal from the Ministry of National Defence or the body authorised by it and within **15 working days** of receipt of the proposal from the Ministry of Economic Affairs and Innovation or the body authorised by it, either decide to initiate the adjustment of the relevant master plan and the planning objectives or shall reject it on the grounds for reasons.

- The decision to accept the proposal, together with the draft decision of the planning organiser on the preparation of the spatial planning document and the spatial planning objectives, shall be made public by the procedure laid down in Article 31(4) of this Law. The planning initiator shall be informed of the reasoned decision to reject the proposal. The decision shall be published on the municipality's websites or other organisers of special spatial planning established by law.
- After deciding to prepare, change or adjust the proposed territorial planning document, the planning initiators shall enter into a territorial planning process initiation agreement with the director of the municipal administration or a special territorial planning organizer providing for the preparation, amendment, adjustment and/ or financing of a territorial planning document. The agreement on the initiation of the territorial planning process shall be published on the website of the special territorial planning organizer established by the municipality or other laws and in the information system for the preparation of territorial planning documents and state supervision of the territorial planning process;
- planning initiators agree with the director of the municipal administration or the organizer of special territorial planning established by other laws by the procedure and conditions established by the Government before approving the territorial planning document. The agreement on the implementation of the decisions of the territorial planning document enters into force upon approval of the territorial planning document and is published on the website of the special territorial planning organizer established by the municipality or other laws and in the state supervision information system of territorial planning documents and territorial planning process;
- when the development of engineering and (or) social infrastructure is required to implement the solutions of the territorial planning document, the planning initiator, by the Law on Municipal Infrastructure Development of the Republic of Lithuania, undertakes to enter into a municipal infrastructure development agreement. When the decisions of the territorial planning document provide for the development of the infrastructure of the priority municipality;
- the planning organizers shall select the organizers of territorial planning documents by the procedure established by the laws of the Republic of

Lithuania, except for the cases when the planning initiator selects the preparer of territorial planning documents when agreeing on initiation of the territorial planning process;

- municipal level and local level territorial planning documents shall be prepared at the expense of the municipality, unless otherwise provided by other laws of the Republic of Lithuania or if the financing of the preparation of territorial planning documents is agreed otherwise by the planning initiator with the director of the preparation of spatial planning documents may be financed from the European Union funds.

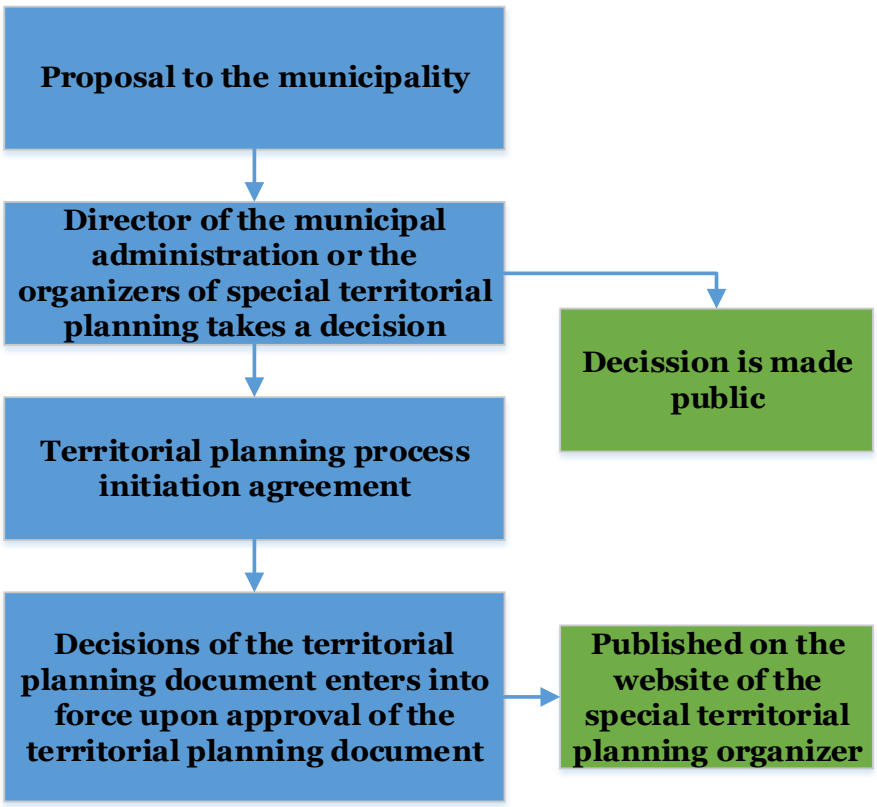


Fig. 3.4. Process of preparation, amendment or adjustment of territorial planning documents

According to Article 28 of this Law, modification and adjustment of integrated territorial planning documents can be made following this procedure (Lietuvos Respublikos Seimas, 1995):

- Integrated territorial planning documents shall be amended by a decision of the state or municipal institution that has adopted that territorial planning document regarding the amendment of the document by the requirements of

the territorial planning process established in this Law and applying the same document approval procedure. Natural persons, legal persons or their subdivisions, other organizations or their subdivisions have the right of initiative to propose to the planning organizer to amend the local level integrated territorial planning document by the procedure established in Paragraphs 3 and 4 of Article 6 of this Law.

- The planning organiser shall adjust the complex territorial planning document and the planning objectives. Natural persons, legal persons or their subdivisions, other organizations or their subdivisions have the right of initiative to propose to the planning organizer to adjust the local level integrated territorial planning document by the procedure established in Paragraphs 3 and 4 of Article 6 of this Law. The Ministry of National Defense or its authorized institution, as well as the Ministry of Economy and Innovation or its authorized institution, have the right of initiative to propose to the planning organizer to adjust the general plan at the municipal level by Article 6 (3) and (4) of this Law.
- The procedure for the preparation, coordination, inspection, approval and entry into force of the Comprehensive Spatial Planning Documents is established in this Law and the Rules for the Preparation of Comprehensive Spatial Planning Documents. A decision shall approve the correction of a complex territorial planning document of the entity approving the territorial planning document and registered by the procedure established by this Law.
- Integrated spatial planning documents are changed when the state or municipal institutions that have decided to prepare that spatial planning document decides to prepare a new (replacing) integrated spatial planning document of the same level for a previously planned or larger territory that includes a previously planned territory (except in cases where area decreases as the boundaries of administrative units or residential areas change).
- The integrated spatial planning document must be amended when the planned solutions of the integrated spatial planning document do not comply with the spatial planning conditions issued during the preparation of the approved spatial planning document. All new spatial planning conditions must be applied for in the whole previously planned territory and/or all mandatory provisions for the use of the territory, mandatory requirements or a

mandatory regulation for the use of the territory established in the valid integrated spatial planning document according to the level of spatial planning. The integrated spatial planning document must also be amended when the monitoring report on implementing the solutions of this document indicates that it needs to be amended.

- Integrated spatial planning documents, if they do not have to be amended by paragraph 5 of this Article, may be corrected by correcting technical errors, changing the decisions of the integrated spatial planning document, establishing additional decisions or when a court decision that the integrated spatial planning document decision (s) is (are) illegal (illegal) unless the court decision justifies the annulment or amendment of the integrated spatial planning document.
- At the initiative of the Ministry of National Defense or its authorized institution and the Ministry of Economy and Innovation or its authorized institution, municipal and local level master plans shall be adjusted when territorial development necessary for ensuring national defence or development of large projects is not provided for in municipal or local level master plans. In these cases, the adjustment of the general plan at the municipal and local level shall be financed from the state budget appropriations allocated to the Ministry of National Defense or the Ministry of Economics and Innovation, respectively.
- In order to change the solutions of a higher or the same level integrated spatial planning document, except for the solutions of those spatial planning documents of which the planning organizer is himself, the planning organizer shall submit to the planning organizer of the integrated spatial planning document the motivated proposal to change or adjust the document. The planning organizer of the complex territorial planning document to be changed or adjusted, after evaluating the submitted proposal, within ten working days from the date of submission of the proposal: 1) decide the adjustment of a valid integrated territorial planning document or reject the proposal with reasons; 2) forward the proposal to the state or municipal institution that has decided to prepare that integrated territorial planning document, and the latter shall, within one month, make a decision regarding the amendment of the valid integrated territorial planning document or reject the proposal with reasons.

- In the detailed plans (or in the general plans at the site level, which determine the regulation of the use of the detailed plan area), the construction zone of buildings, construction boundary and construction line, boundaries of territories and (or) communication corridors required for engineering and social infrastructure, the specific layout of buildings and public spaces without changing the type of construction and reducing the area of these spaces, location of parking lots, afforested part of the territory the methods of provision of the territory with engineering networks and the principles of the layout of communications, the need for easements required for their functioning may be adjusted by the decision of the entity approving these territorial planning documents, provided that it does not violate the requirements of laws and or environmental impact. Prior to this, this adjustment of the complex territorial planning document must be approved in writing by all land plot managers and users and the Territorial Planning Commission. Information to the public on the adjustment of the integrated territorial planning document specified in this Part shall be published on the website of the planning organizer and in the information system of state supervision of the preparation of territorial planning documents and the territorial planning process.
- The solutions referred to in paragraph 9 of this Article (or the site-level master plan the change procedure does not apply if the planned solutions of the adjusted detailed plan (or site-level general plan establishing the detailed plan land use regulation) do not comply with the spatial planning conditions (part thereof) issued for the approved spatial planning document referred to in this Part and new site planning conditions. In addition, the adjustment of the detailed plan (or the site-level master plan laying down the detailed plan for the use of the site) referred to in paragraph 9 shall not infringe or prejudice the rights and legitimate interests of third parties guaranteed and protected by law more than before the adjustment is made or shall be written approvals (agreements) of these persons have been received regarding the change of the decisions of this plan referred to in this Part.
- Decisions of special territorial planning documents (except for special territorial planning land management documents) approved by the municipal council and recognized by the municipal council as a component of the general

municipal plan shall be registered as corrections of the relevant territorial planning documents.

- Information regarding the adjustment, publication and registration of a complex spatial planning document, except for the cases specified in this Part, shall be published by the general procedure for the publication of spatial planning documents established by the Government. The general procedure for publicity procedures of territorial planning documents established by the Government shall not apply in the cases specified in Paragraph 9 of this Article when the simplified procedure for publicity of territorial planning documents established by the Government applies and in cases of correction of technical errors in a complex territorial planning document. Upon submitting an explanatory note to correct the technical error and the graphic part of this document, if the technical error was made in the graphic part.

The public interest in territorial planning is implemented through a regulated public territorial planning process, which is obligatory for all planning organizers, establishing measures for the use and protection of the territory, mandatory or possible activities and their restrictions in the decisions of territorial planning documents. Public interest in territorial planning consists of several aspects, including protection and rational use of the landscape, natural and immovable cultural heritage, agricultural land with fertile soil, forests, subsoil resources, other natural resources, sustainable formation of the cultural landscape and informing the public and its participation in decision-making about planned amendments to territorial plans (Lietuvos Respublikos Seimas, 1995).

Local-level general plans are prepared for the priority development territories specified in the municipal level general plans – cities, their parts, towns, rural and single-sea areas or after the municipal council has decided to prepare a general plan for the relevant part of the municipality. Objectives of general plans at the municipal and local level are (Lietuvos Respublikos Seimas, 1995):

- to form the directions of the functional and spatial development of the territory corresponding to the planning level;
- to optimize the urban structure, social, and engineering infrastructure of the planned territory, to envisage measures to strengthen their resistance to extreme climatic phenomena;

- to envisage measures for the rational conservation and use of subterranean resources, agricultural land, forests and other natural resources, mitigation of the effects of climate change, formation of the natural framework, preservation of natural and immovable cultural heritage, landscape and biological diversity, optimal landscape structure;
- to detail the solutions of the relevant higher-level integrated territorial planning documents.

The general plans at the municipal and local level set out the mandatory requirements for the use of the territory and principles of development of engineering and social infrastructure (or requirements for its layout) (Lietuvos Respublikos Seimas, 1995).

Decisions of special territorial planning documents at the municipal or local level (except for special territorial planning land management documents) approved by the municipal council specify the decisions of the general municipal plan. By special decision of the municipal council, the special territorial planning documents are recognized as an integral part of the general municipal plan. In non-urbanized and non-urbanized areas, site-level special spatial planning land use documents and subsoil use plans prepared and approved shall be binding on the approved entities, land managers and users, as well 91so n all natural and legal persons or other organizations operating in the planned area (Lietuvos Respublikos Seimas, 1995). A special spatial planning document or a land holding project may change the primary land use. The primary land use change does not contradict the general municipal plan (Lietuvos Respublikos Seimas, 1995). The objects of special territorial planning are territories with functional commonality (Lietuvos Respublikos Seimas, 1995):

- territories intended for agriculture, forestry, use of subsoil resources and cavities or other activities;
- engineering infrastructure systems or parts of these systems;
- the system of protected territories and their parts, areas of immovable cultural heritage and their protection zones, complex objects of immovable cultural heritage and their protection zones.

Tasks of special territorial planning according to the type of special territorial planning documents is to create conditions for the rational use of land, forests, subsoil resources and cavities, as well as to develop engineering networks, energy systems and other engineering infrastructure necessary for the needs of the society and to provide for the territories necessary for their development. To provide for measures for the protection of the landscape, nature and biological diversity and to establish heritage protection requirements and

boundaries of the territories for the protection and development of immovable cultural heritage in immovable cultural heritage areas, complex immovable cultural heritage objects and their protection zones;

The Law on Territorial Planning states that special engineering structures and renewable energy facilities with a **height of 30 m** and higher must be provided for territorial planning documents, except for the cases in the Law on Renewable Energy (Lietuvos Respublikos Seimas, 1995).

➔Duration of the process	*One month*
➔ Solar PV	could be applicable over 500 kW
➔Wind farm	could be applicable over 500 kW

The obligation of detailed planning does not arise automatically but depend on whether the municipality considers that the existing infrastructure of the municipality is insufficient and needs to be planned for the envisaged solutions (Aušra Mudėnaitė, Simonas Skukauskas and Julius Raškauskas, 2021). There are no clear criteria for when infrastructure needs to be planned in detailed plans and when it can be designed immediately together with the developer's planned building or structure (Aušra Mudėnaitė, Simonas Skukauskas and Julius Raškauskas, 2021). There is a grey area where different interpretations are possible, so municipalities must have clear rules that apply equally to all developers when a project is "sent" to detailed planning and when the municipality considers that no additional infrastructure planning is needed (Aušra Mudėnaitė, Simonas Skukauskas and Julius Raškauskas, 2021).

3.4.1. Protection zones and their establishment

The Law for Special Land Use Conditions, No. XIII-2166 from June 6 2019, establishes special land use conditions, specifies the territories in which these conditions are to be applied, regulates the establishment of these territories and establishes the rights and obligations of persons participating in this process. The purpose of this Law is to ensure the safety of public health, protection of the objects or activities specified in this Law from negative factors or effects, state security, protection of the environment and public interest in the territories specified in this Law. This Law defines a protection zone as an area intended for the protection of the objects specified in this Law, in which the special land use conditions established by this Law must be applied. (Lietuvos Respublikos Seimas, 2019)

According to the Law for Special Land Use Conditions, Sanitary protection zones are areas around a stationary pollution source or several sources. Due to the possible negative impact of the planned or carried out economic activity on public health, the special land use conditions established by this Law apply. The protection zones specified in this Law shall be established from the external partitions, walls or boundaries of the territory, structure or installation for the protection of which the protection zone is established unless otherwise provided by this Law. (Lietuvos Respublikos Seimas, 2019)

The law defines the basics of establishing **sanitary protection zones**:

1. the size of sanitary protection zones is specified in this Law or determined by choice of the person planning and (or) carrying out economic activities - in this case, this size is determined by public health impact assessment in the public health impact or environmental impact assessment documents of the proposed economic activity. Suppose a public health impact assessment has been performed. In that case, the size of the sanitary protection zone determined by the public health impact assessment documents shall be applied in determining the sanitary protection zone.
2. sanitary protection zones shall be established around stationary pollution sources located in buildings and/or installations or groups thereof or in the territories intended for them, where economic activities and/or facilities are planned or carried out, or around buildings or installations containing pollution sources referred to, external barriers or boundaries. Sanitary protection zones are established around stationary pollution sources of these objects, emitting ambient air pollutants, odours, noise or other physical factors. (Lietuvos Respublikos Seimas, 2019)

The Law for Special Land Use Conditions Article 67 “Special land use conditions in cultural reserves”, Article 69 „Special land use conditions in nature and complex reserves”, Article 77 “Special land use conditions in ornithological reserves”, Article 84 „Special land use conditions in state parks” and Article 86 “Special land use conditions in biosphere reserves” of this Law prohibits to build wind power plants in the territories mentioned. An exception for construction of wind farms is mentioned for Article 69, 84, 86 – it is allowed to install a wind turbine up to a height of 25 meters (measured to the highest point of the structure) in the homestead or next to the existing outbuildings if the planned activity will not harm the landscape, natural and immovable cultural heritage of the reserve. Articles 69, 84, 86 accounts for installing solar light power plants on the roofs and/ or facades of buildings that are cultural heritage objects. (Lietuvos Respublikos Seimas, 2019)

Article 135 “Special land use conditions in areas subject to construction restrictions by national security requirements” of the Law for Special Land Use Conditions prohibits to build, reconstructing or installing wind power plants in territories where taking into account national security requirements, construction restrictions are applied without the approval of the project by the Commander of the Lithuanian Armed Forces and other institutions ensuring national security. The Commander of the Lithuanian Armed Forces disapproves of the project if the planned wind power plants at the specified construction sites will impede the monitoring, control and defence of airspace, other national security institutions - if the planned wind power plants at the specified construction sites hinder their direct functions related to national security. The conditions for coordinating construction sites of wind power plants with the Commander of the Lithuanian Armed Forces and other institutions ensuring national security are established in the Law on Renewable Energy Sources. (Lietuvos Respublikos Seimas, 2019)

Special land use conditions	
➔ Solar PV	could be applicable
➔Wind farm	could be applicable

3.5. Environmental Impact Assessment

The Law on Environmental Impact Assessment of Proposed Economic Activities defines Environmental Impact Assessment (EIA) of a planned economic activity as the process of identifying, characterising and concluding on the potential environmental impacts of a planned economic activity. (Lietuvos Respublikos Seimas, 2017) EIA includes:

1. to determine, describe and assess the potential direct and indirect effects of the proposed economic activity on the following elements of the environment: soil, land surface and subsurface, air, water, climate, landscape and biodiversity, focusing in particular on species and natural habitats of Community interest, also on other species protected by the Law of the Republic of Lithuania on the Protected Species of Fauna, Flora and Fungi, material assets, immovable cultural properties and the interrelationship between these elements;
2. to identify, describe and assess the potential direct and indirect effects of biological, chemical and physical factors caused by the proposed economic activity on public

health, also on the interrelationship between elements of the environment and public health;

3. to determine the potential impact of the proposed economic activity on the elements of the environment referred to in point 1 of this Article and on public health by the risk of the vulnerability of the proposed economic activity due to emergency events and/or potential emergencies;
4. to determine the measures to be taken in order to prevent envisaged significant adverse impact on the environment and public health, to reduce it or, if possible, to offset it;
5. to determine whether the proposed economic activity, having assessed its nature, location and/or effect on the environment, meets the requirements of environmental protection, public health, immovable cultural heritage protection, fire and civil protection legislation.
6.

The Law on Environmental Impact Assessment on planned economic activities states that an EIA shall be carried out for a planned economic activity likely to have significant effects on the environment because of its nature, scale or particularities of its intended location and the planned economic activity is included in the list of types of planned economic activity for which environmental impact assessment is required in Annex 1 or Annex 2 to this Law. (Lietuvos Respublikos Seimas, 2017) Annexe 2 of this Law "List of Types of Planned Economic Activity Subject to Screening for Environmental Assessment" lists:

"Article 3 "Energy":

3.8. installation of wind farms where:

3.8.1. the installation of 3 wind turbines, at least one of which is 50 m or more in height (measured to the highest point of the structures);

3.8.2. a wind farm is installed within 1 km of a protected area, except where no more than one wind farm is installed on a farmstead or outbuilding and the height of the wind farm is not more than 25 m (measured to the highest point of the structure)" (Lietuvos Respublikos Seimas, 2017).

Information on the Environmental Impact Assessment published on the Lithuanian Ministry of the Environment website states that since November 1, 2017, screening for environmental impact assessment is no longer an integral part of the Environmental Impact Assessment process. Screening for environmental impact assessment and Environmental

Impact Assessment are two separate processes, which are described in detail in the Description of the Procedure for Screening of the Proposed Economic Activity on the Environmental Impact Assessment (Lietuvos Respublikos aplinkos ministerija, 2017a) and the Description of the Procedure for the Environmental Impact Assessment (Lietuvos Respublikos aplinkos ministerija, 2017b) of the Proposed Economic Activity approved by orders of the Minister of the Environment of the Republic of Lithuania. These descriptions regulate the content of the required mandatory documents and the requirements for their execution, the implementation of screening and Environmental Impact Assessment procedures, the relations between their participants and the disclosure of information. (Lietuvos Respublikos aplinkos ministerija, 2021)

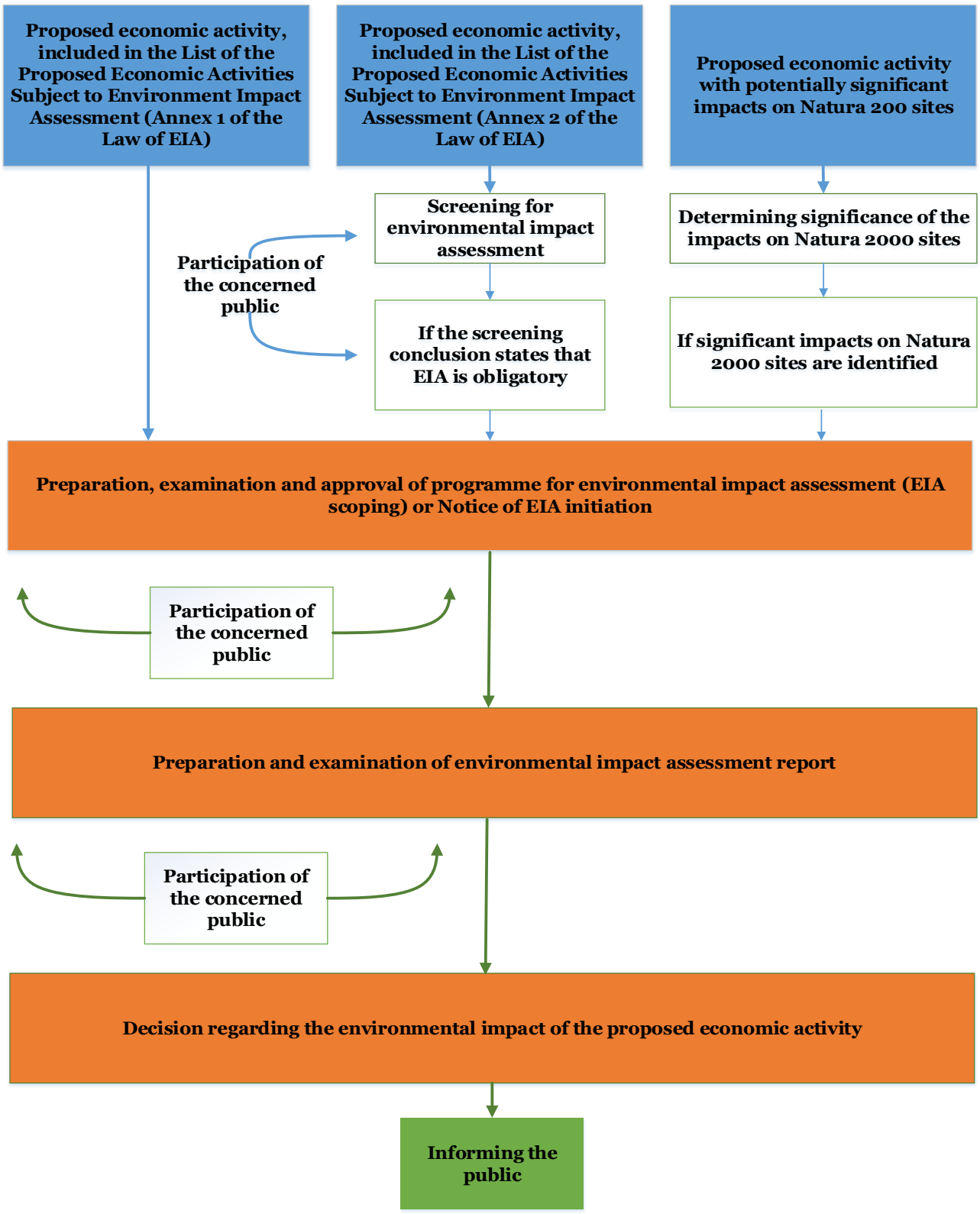


Fig. 3.5 Procedure of the overall EIA process

3.5.1. Description of the Procedure for Screening of the Proposed Economic Activity on the Environmental Impact Assessment

Screening for environmental impact assessment shall have the objective of determining whether a specific proposed economic activity is subject to environmental impact assessment. The procedure shall be conducted regarding the proposed economic activity included in the List of the Proposed Economic Activities Subject to Screening for Environmental Impact Assessment (Annex 2 to this Law) (Lietuvos Respublikos Seimas, 2017). In the cases when the proposed economic activity included in the List of the Proposed Economic Activities Subject to Screening for Environmental Impact Assessment is to be pursued in a Natura 2000 site or the surrounding environment of the site, the organiser (developer) of the proposed economic activity shall, prior to commencing the preparation of the screening information or during its preparation, refer, by the procedure established by the Minister of Environment, to an institution of protected areas for determining the significance of the impact of the pursuit of the proposed economic activity on these sites (Lietuvos Respublikos Seimas, 2017). If the institution of protected areas determines, by the procedure established by the Minister of Environment, that the pursuit of the proposed economic activity included in the List of the Proposed Economic Activities Subject to Screening for Environmental Impact Assessment (Annex 2 to this Law) may affect Natura 2000 sites and this impact may be significant, an environmental impact assessment of this proposed economic activity shall be performed without screening for environmental impact assessment. Description of the Procedure for Screening of the Proposed Economic Activity on the Environmental Impact Assessment consists of such stages (Lietuvos Respublikos Seimas, 2017):

1. the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment shall prepare information for screening for environmental impact assessment in compliance with the Methodological Instructions for Screening of the Proposed Economic Activity (hereinafter: the 'Screening Methodological Instructions') approved by the Minister of Environment;

2. the competent authority shall perform a screening for environmental impact assessment by assessing the screening information prepared by the organiser (developer) of the proposed economic activity or the drafter of environmental impact assessment documents in compliance with the Screening Methodological Instructions as submitted to it and having regard to:

- the size, nature of the proposed economic activity, its interaction with other economic activities being pursued and/or the development of economic activities in adjacent areas approved by the requirements of legal acts; the exploitation of natural resources, such as water, land (it's surface and subsurface), soil and biodiversity; waste generation; the potential impact of the proposed economic activity on soil, surface and subsurface, air, water, climate, landscape and biodiversity, with a focus on species and natural habitats of Community interest, also on other species protected by the Law of the Republic of Lithuania on the Protected Species of Fauna, Flora and Fungi, material assets, immovable cultural properties and the interrelationship between these elements; the potential impact of the biological, chemical and physical factors caused by the proposed economic activity on public health and the risk of occurrence of emergency events and/or emergencies;
- the environmental sensitivity of a locality which is likely to be affected by the proposed economic activity, characteristics of the ecosystem, the nature of areas of used land, natural and subsurface resources of the locality, their abundance, quality and regenerative capacity; the absorption capacity of the natural environment, with a focus on protected areas, also the environmental protection purposes of a Natura 2000 site, densely populated areas, wetlands, forest areas, protection zones, data of performed environmental monitoring, the territories where the permissible level of pollution has been exceeded or the territories of historical, cultural or archaeological significance;
- the size and extent of the impact of the proposed economic activity, its probability and nature, magnitude, complexity, duration, frequency, reversibility, transfrontier nature, the combined effect with the economic activity being pursued or planned to be pursued at that location and the possibilities to avoid or to prevent the effect.

3. the competent authority shall, by the procedure laid down by the Minister of Environment, inform entities of environmental impact assessment and the public about the receipt of the screening information received and the possibility of submitting proposals regarding the screening information and/or the environmental impact assessment of the proposed economic activity not later than within three working days from the receipt of such information. The entities of environmental impact assessment within ten working days from

the receipt of such information and the public concerned – from the date of publication of the information shall submit to the competent authority proposals regarding the screening information and/or the environmental impact assessment of the proposed economic activity. Suppose no proposals regarding the screening information and/or the environmental impact assessment of the proposed economic activity are submitted to the competent authority within the specified time limit. In that case, it shall be considered that the entities of environmental impact assessments and the public concerned do not have any proposals regarding the screening information and/or the environmental impact assessment of the proposed economic activity.

4. the competent authority shall, upon examining the screening information submitted by the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment, proposals of entities of environmental impact assessment, the public concerned and based on the requirements set out in paragraph 5 of Article 7, adopt within **20 working days** from the receipt of the screening information specified in paragraph 5 of Article 7 a screening conclusion on whether an environment impact assessment is obligatory and shall submit it in writing to the organiser (developer) of the proposed economic activity, the drafter of the documents of environmental impact assessment and the entities of environmental impact assessment or may request the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment to submit supplementary information required to perform a screening for environmental impact assessment. In such cases, the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment shall supplement the screening information and re-submit it to the competent authority, which shall, within **ten working days** from the receipt of the supplemented screening information, adopt a screening conclusion. The Minister of Environment shall specify the content of the screening conclusion.

5. the competent authority shall make an adopted screening conclusion public by the procedure established by the Minister of Environment. The screening conclusion shall become effective the next day following its publication and shall be **valid for three years**. Upon the expiry of the validity of the screening conclusion, unless a permit referred to in Article 3(3) of this Law has been issued on the basis thereof, the procedure of screening for environmental impact assessment shall be repeated.

6. the competent authority may, by the procedure established by the Minister of Environment, decide to extend the validity of a screening conclusion for a period not longer

than three years within ten working days from the receipt of a reasoned request of the organiser (developer) of the proposed economic activity for extension of the validity of the screening conclusion, provided that the organiser (developer) of the proposed economic activity has submitted the reasoned information indicating that the proposed economic activity, the conditions of its pursuit and location based on which the screening conclusion had been adopted have not changed. The competent authority shall publish a decision regarding the extension of the validity of the screening conclusion by the procedure established by the Minister of Environment.

7. where the proposed economic activity is subject to the provisions of Article 9(1) of this Law, the time limit for the adoption of a screening conclusion as referred to in paragraph 7 of this Article shall not apply. The competent authority shall adopt the screening conclusion within **five working days** from receiving a response from an affected state indicated in Article 9 of this Law regarding transboundary environmental impact assessment.

8. the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment may commence an environmental impact assessment without the procedure of screening for environmental impact assessment.

➔Duration of the process	5-30 days
➔ Screening conclusion	valid for three years
➔ Solar PV	not applicable
➔Wind farm	applicable if the installation of 3 wind turbines, at least one of which is 50 m or more in height or a wind farm is installed within 1 km of a protected area (except where no more than one wind farm is installed and the height of the wind farm is not more than 25 m) is planned

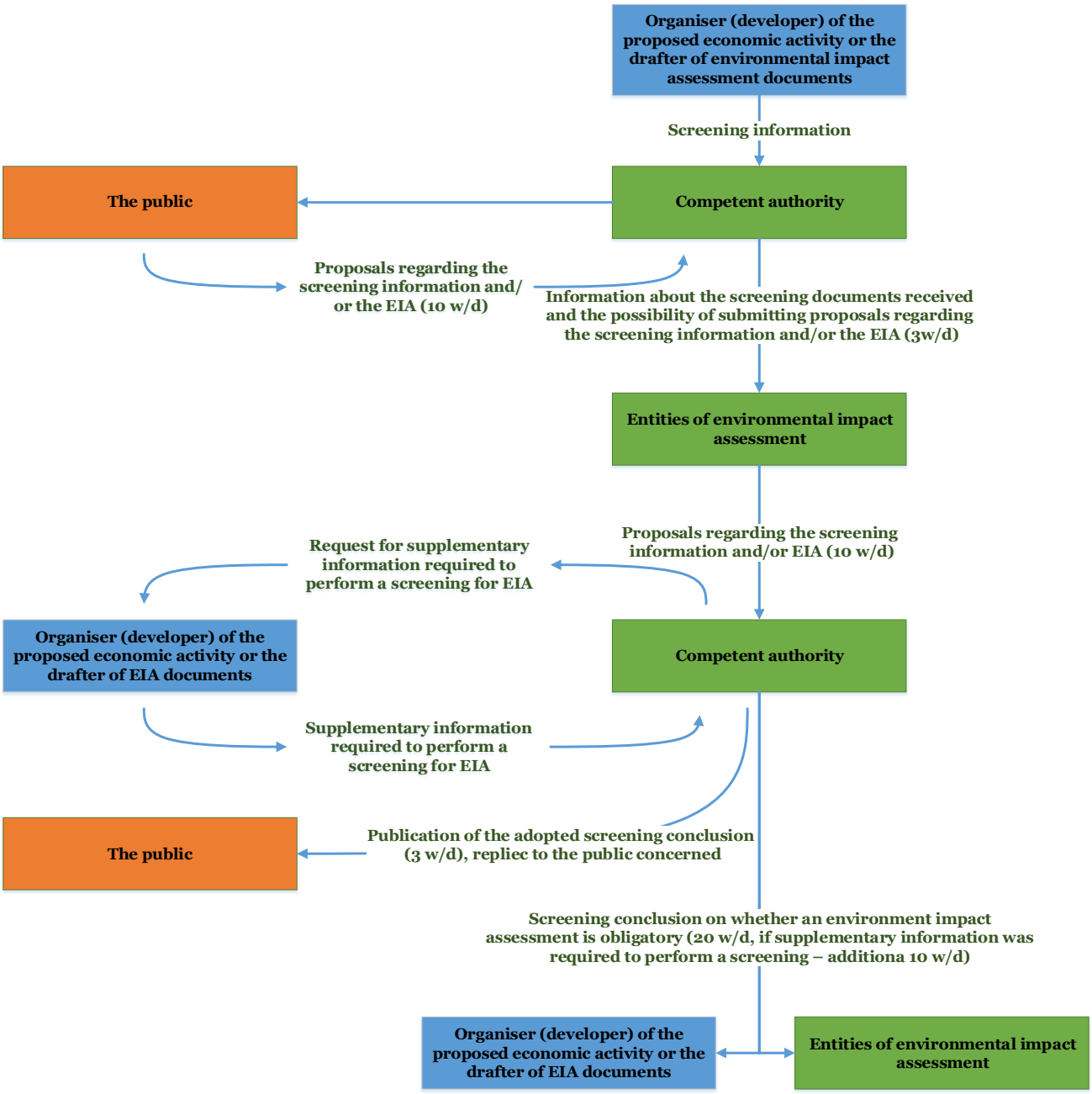


Fig. 3.6. Procedure for Screening of the Proposed Economic Activity on the Environmental Impact Assessment

3.5.2. Description of the Procedure for the Environmental Impact Assessment Programme

Article 8. Programme for environmental impact assessment:

1. In the cases indicated in Article 3(1) of this Law, the organiser (developer) of the proposed economic activity shall have the right to decide whether to prepare a programme or to prepare a notice of the commencement of environmental impact assessment (Lietuvos Respublikos Seimas, 2017).

2. A programme shall be prepared by the drafter of environmental impact assessment documents in compliance with the Regulations of Preparation of a Programme and a Report on Environmental Impact Assessment approved by the Minister of Environment. The programme shall establish the content of a report and the issues to be considered therein (Lietuvos Respublikos Seimas, 2017).

3. The drafter of documents of environmental impact assessment shall submit a prepared programme to entities of environmental impact assessment for conclusions and inform, by the procedure established by the Minister of Environment, the public and the competent authority, which shall publish the information within three working days from the receipt thereof by the procedure established by the Minister of Environment. The date of receipt of the information on the programme by the competent authority shall be considered the commencement of environmental impact assessment, except for the cases where a notice of the commencement of environmental impact assessment has been received by the procedure laid down in Article 8^1 of this Law prior to the receipt of this information by the competent authority (Lietuvos Respublikos Seimas, 2017).

4. Entities of environmental impact assessment shall examine a programme, evaluate the information contained therein, and, within ten working days from the receipt thereof, provide reasoned conclusions to the drafter of environmental impact assessment documents. Having taken account of the size, nature or location of the proposed economic activity, the entities of environmental impact assessment responsible for fire and civil protection and protection of immovable cultural properties shall have the right to indicate, when presenting conclusions on the programme whether they will examine a report. Where the entities of environmental impact assessment responsible for fire and civil protection and protection of immovable cultural properties indicate that they will not examine the report, the report shall not be submitted to it (Lietuvos Respublikos Seimas, 2017).

5. If, prior to the approval of a programme, but not later than within **20 working days** from the receipt of the programme by an executive institution of a municipality, the council of the municipality on the territory of which the proposed economic activity is to be pursued takes a reasoned negative decision regarding the feasibility of the proposed economic activity, the procedures of environmental impact assessment may not be continued during the period of validity of the reasoned negative decision taken by the municipal council, except for the cases when the proposed economic activity is of national importance. Its pursuit is provided for in the state strategic plans approved by the Government. The proposed economic activity is necessary to implement a project of national importance or a project of regional

importance. The municipality's administration shall immediately, within three working days, inform the competent authority and the organiser (developer) of the proposed economic activity about the reasoned negative decision taken by the municipal council and shall present the reasoned negative decision of the municipal council. Upon receiving this municipal council's decision, the competent authority shall provide information thereon to the public by the procedure established by the Minister of Environment (Lietuvos Respublikos Seimas, 2017).

6. Entities of environmental impact assessment shall have the right to present reasoned requests for the drafter of environmental impact assessment documents to supplement or revise a programme. In such cases, the drafter of documents of environmental impact assessment shall supplement or revise the programme and shall resubmit it to the entities of environmental impact assessment, which shall, within five working days from the receipt thereof, examine the programme, evaluate the information contained therein and present their reasoned conclusions to the drafter of documents of environmental impact assessment (Lietuvos Respublikos Seimas, 2017).

7. If entities of environmental impact assessment or the council of the municipality on the territory of which the proposed economic activity is to be pursued fail to submit conclusions on a programme within the time limit specified in paragraphs 4, 5 or 6 of this Article, the programme shall be deemed to have been approved (Lietuvos Respublikos Seimas, 2017).

8. The drafter of documents of environmental impact assessment shall submit an evaluation of proposals of the public concerned prepared in conjunction with the organiser (developer) of the proposed economic activity, conclusions of entities of environmental impact assessment and a programme to the competent authority for examination (Lietuvos Respublikos Seimas, 2017).

9. Upon examining and evaluating a programme and an evaluation of proposals of the public concerned accompanying it and based on conclusions of entities of environmental impact assessment, the competent authority shall, within ten working days from the receipt of the programme, approve the programme or submit reasoned requests to the drafter of documents of environmental impact assessment to supplement or revise the programme. The competent authority shall publish information on the approved programme by the procedure established by the Minister of Environment. The programme shall remain effective for **three years** from its approval. A report shall be submitted to entities of environmental impact

assessment before the expiry of the validity of the programme (Lietuvos Respublikos Seimas, 2017).

10. If the competent authority has submitted, in compliance with paragraph 9 of this Article, reasoned requests to revise or supplement a programme, the competent authority shall, upon examining and evaluating the programme, approve it within five working days from the receipt of the revised or supplemented programme (Lietuvos Respublikos Seimas, 2017).

Article 8[1]. Notice of the commencement of environmental impact assessment (Lietuvos Respublikos Seimas, 2017)**:**

1. A notice of the commencement of environmental impact assessment shall be obligatory. The environmental impact assessment of the proposed economic activity is obligatory under provisions of Article 3(1) of this Law, and a programme is not prepared.

2. A notice of the commencement of environmental impact assessment shall be prepared by the organiser (developer) of the proposed economic activity or the drafter of environmental impact assessment documents. The format and content of the notice of the commencement of environmental impact assessment shall be approved by the Minister of Environment.

3. The organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment shall, not later than **within 15 working days** before the provision of information to the public on the public access to a report by the procedure laid down in Article 10(3) of this Law, submit a notice of the commencement of environmental impact assessment to entities of environmental impact assessment and the competent authority (which shall publish the received information within three working days from the receipt of the notice of the commencement of environmental impact assessment) and inform the public by the procedure established by the Minister of Environment. The date of receipt of the notice of the commencement of environmental impact assessment by the competent authority shall be considered the date of the commencement of environmental impact assessment.

4. The competent authority and entities of environmental impact assessment shall have the right to submit reasoned proposals to the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment within **ten working days** from the receipt of a notice of the

commencement of environmental impact assessment. The public concerned shall have the right to submit proposals to the organiser (developer) of the proposed economic activity or the drafter of documents of environmental impact assessment and the competent authority within ten working days from the publication of the received notice of the commencement of environmental impact assessment by the competent authority. Together with the organiser (developer) of the proposed economic activity, the drafter of environmental impact assessment documents shall present an evaluation of the proposals received in a report.

5. A report shall be submitted to entities of environmental impact assessment not later than within three years from the submission of a notice of the commencement of environmental impact assessment to the entities of environmental impact assessment and the competent authority.

6. Where the proposed economic activity is subject to transboundary environmental impact assessment procedures, further environmental impact assessment procedures shall be carried out according to the procedure laid down in Article 9 of this Law.

➔ Duration of the process	at least 20 days
➔ Solar PV	not applicable
➔ Wind farm	applicable if the Environmental Protection Agency decides that a full EIA is obligatory after evaluating the Screening information

3.5.3. Description of the Procedure for the Environmental Impact Assessment Report

Article 10 of this Law, Report on environmental impact assessment (Lietuvos Respublikos Seimas, 2017)**;**

1. A report shall be drawn up by the drafter of documents of environmental impact assessment based on a programme approved by the competent authority or having regard to the proposals received, where a notice of the commencement of environmental impact assessment has been submitted, and in compliance with the Regulations of Preparation of a Programme for and a Report on Environmental Impact Assessment approved by the Minister of Environment.

2. The drafter of environmental impact assessment documents may use the up-to-date information received in the performance of a strategic environmental impact assessment or other assessment performed by the requirements of other legal acts.

3. The drafter of environmental impact assessment documents shall, not later than **20 working days** before granting access to a report, inform the public about granting access to the report by the procedure established by the Minister of Environment.

4. The drafter of documents of environmental impact assessment together with the organiser (developer) of the proposed economic activity shall evaluate proposals of the public concerned and, based thereon, revise a report, which shall be submitted to entities of environmental impact assessment together with the evaluation of the proposals of the public concerned.

5. Entities of environmental impact assessment shall examine and evaluate a report, and an evaluation of proposals of the public concerned enclosed in addition to that and, within **20 working** days from the receipt thereof, submit to the drafter of documents of impact assessment their reasoned conclusions regarding the report and the environmental impact of the proposed economic activity. In the reasoned conclusions, the entities of an environmental impact assessment must indicate: motives as to the approval or disapproval of the proposed economic activity based on requirements of legal acts; the specific alternative which is subject to the approval or disapproval, provided that alternatives have been considered in the report; the conditions to be met before the commencement of the activity, provided that such conditions can be determined by the requirements of the legal acts, and provide a reasoned opinion on the evaluation methods, results, the quality of the report and the measures envisaged to reduce and/or offset envisaged significant adverse environmental impact.

5^1. If a programme has not been prepared and if, prior to the taking of a decision regarding the proposed economic activity, but not later than within **20 working days** from the receipt of a report by an executive institution of a municipality, the council of the municipality on the territory of which the proposed economic activity is to be pursued takes a reasoned negative decision regarding the feasibility of the proposed economic activity, the procedures of environmental impact assessment may not be continued during the period of validity of the reasoned negative decision taken by the municipal council, except for the cases when the proposed economic activity is of national importance. Its pursuit is provided for in the state strategic plans approved by the Government, or the proposed economic activity is necessary to implement a project of national importance or a project of regional importance.

The municipality's administration shall immediately, within three working days, inform the competent authority and the organiser (developer) of the proposed economic activity about the reasoned negative decision taken by the municipal council and shall present the reasoned negative decision of the municipal council. Upon receiving this municipal council's decision, the competent authority shall provide information thereon to the public by the procedure established by the Minister of Environment.

6. Entities of environmental impact assessment shall have the right to present reasoned requests for the drafter of environmental impact assessment documents to supplement or revise a report. The drafter of environmental impact assessment documents must supplement or revise the report and resubmit it to the entities of environmental impact assessment. The latter shall examine the report and, within ten working days from the receipt thereof, provide reasoned conclusions on the report and the environmental impact of the proposed economic activity to the drafter of documents of environmental impact assessment.

7. If entities of environmental impact assessment fail to submit conclusions on a report and the environmental impact of the proposed economic activity within the time limit outlined in paragraph 5 or 6 of this Article, it shall be deemed that they approve of the report.

8. The drafter of documents of environmental impact assessment shall submit to the competent authority a report revised and/or supplemented by conclusions of entities of environmental impact assessment, conclusions of the entities of environmental impact assessment on the report and the environmental impact of the proposed economic activity and an evaluation of proposals of the public concerned.

9. Within three working days from receiving a report, the competent authority shall publish to the public notice on the report and access to it by the procedure established by the Minister of Environment. The public concerned shall have the right to submit to the competent authority, within ten working days from the publication of the notice, written proposals on the environmental impact assessment of the proposed economic activity and the report.

10. If a report is substantially amended, revised or supplemented (new locations, technological alternatives are proposed) due to the reasoned conclusions received from entities of environmental impact assessment and/or the reasoned requests received from the competent authority to revise or supplement the report, the competent authority must obligate the drafter of documents of environmental impact assessment to grant to the public access to the report repeatedly.

11. If after the repeated granting to the public of access to a report or comments of the competent authority, the report is substantially amended, revised or supplemented, the drafter of documents of environmental impact assessment shall be required to receive new conclusions of entities of environmental impact assessment by the procedure outlined in paragraphs 4, 5 and 6 of this Article.

Article 11. The decision regarding the environmental impact of the proposed economic activity (Lietuvos Respublikos Seimas, 2017)**;**

1. Upon examining an evaluation of proposals of the public concerned, the proposals received in writing from the public concerned, upon examining and evaluating a report and based on conclusions of entities environmental impact assessment on the report and the environmental impact of the proposed economic activity, the competent authority shall, within 25 working days from the receipt of the report:

1) provide reasoned requests to revise or supplement the report, or

2) adopt a decision regarding the environmental impact of the proposed economic activity. The content of the decision regarding the environmental impact of the proposed economic activity shall be established by the Minister of Environment.

2. Where, according to Article 6(1)(3) of this Law, the competent authority involves consultants to examine a report, the said authority shall, upon performing the actions referred to in paragraph 1 of this Article and based on conclusions of the consultants, submit reasoned requests to revise or supplement the report or adopt a decision regarding the environmental impact of the proposed economic activity within 50 working days from the receipt of the report. The competent authority shall adopt a reasoned decision to involve consultants and submit it to the organiser (developer) of the proposed economic activity and the drafter of environmental impact assessment documents within five working days from the receipt of the report. The time limit for adopting a decision regarding the environmental impact of the proposed economic activity may be extended once for up to 25 working days for objective reasons beyond the control of the competent authority. The competent authority must give notice of the adopted decision to extend the time limit not later than five working days before the expiry of the time limit to the organiser (developer) of the proposed economic activity and the drafter of documents of environmental impact assessment and indicate grounds for extending the time limit.

3. The competent authority submits reasoned requests to revise and/or supplement a report. The drafter of environmental impact assessment documents must supplement or

revise the report and resubmit it to the competent authority. The competent authority shall examine the report and, within 15 working days from the receipt of the report, adopt a decision or, without prejudice to provisions of Article 6(7) of this Law, resubmit reasoned requests to revise or supplement the report.

4. Where a transboundary environmental impact assessment of the proposed economic activity has been performed by provisions of Article 9 of this Law, the drafter of documents of an environmental impact assessment must prepare and, before the adoption of a decision regarding the environmental impact of the proposed economic activity, submit to the competent authority an evaluation of proposals of another Member State of the European Union and/or a foreign state likely to be significantly affected.

5. When the proposed economic activity is subject to provisions of Article 9 of this Law or provisions of paragraph 8 of this Article regarding consultations with the European Commission, the time limit for the adoption of a decision regarding the environmental impact of the proposed economic activity referred to in paragraph 1 of this Article shall not apply. The competent authority shall have regard to the results of transboundary consultations, decide the environmental impact of the proposed economic activity not later than within ten working days after the completion of the procedures of transboundary environmental impact assessment upon submission by the drafter of documents of environmental impact assessment an evaluation of proposals of another Member State of the European Union and/or a foreign state likely to be significantly affected. Suppose the European Commission has been consulted by paragraph 8 of this Article. In that case, the competent authority shall decide the environmental impact of the proposed economic activity not later than within ten working days after the completion of the consultations.

6. When the conclusions of entities of environmental impact assessment regarding the environmental impact of the proposed economic activity conflict with each other and/or a conclusion of an entity of environmental impact assessment on a report and the environmental impact of the proposed economic activity do not meet the requirements outlined in Article 10(5) of this Law and/or the competent authority has received proposals of the public concerned by Article 10(9) of this Law, the competent authority shall, before adopting a decision regarding the environmental impact of the proposed economic activity, invite the organiser (developer) of the proposed economic activity, the drafter of documents of environmental impact assessment, entities of environmental impact assessment to consider their conclusions and/or the proposals of the public concerned. In addition, the

representatives of the public concerned who have submitted their proposals shall also be invited.

7. If the organiser (developer) of the proposed economic activity, the drafter of documents of environmental impact assessment, an entity of environmental impact assessment and/or a representative/representatives of the public concerned, having been informed of consideration by the procedure established by the Minister of Environment, fail to appear at the consideration of conclusions of entities of environmental impact assessment and/or proposals of the public concerned without valid reasons, the competent authority shall consider the received proposals in the absence thereof.

8. If it is established that the pursuit of the proposed economic activity will cause significant adverse effects to Natura 2000 sites and there are no alternative solutions for the proposed economic activity, the competent authority shall adopt a decision regarding the environmental impact of the proposed economic activity, except for the decision referred to in paragraph 11 of this Article, only in the cases when it must be pursued for imperative reasons of overriding public interest, including social or economic reasons. When adopting the decision, the imperative reasons of overriding public interest, including social or economic reasons, shall be deemed to exist when it has been proved that the proposed economic activity is necessary due to the actions or plans the purpose of which is to protect the fundamental values of citizens' life (health, safety, the environment) or due to the implementation of central state and public policy programmes or due to the pursuit of economic or social activities and provision of public services. In such cases, the measures for repopulation of natural habitats, habitats of species or species or improvement of these habitats in a part of the same area, an extended area, another area, or a new area to be included in the indicated ecological network or other compensatory measures whose compensatory effect would be proportional to the damage caused by the pursuit of the proposed economic activity shall be envisaged and implemented in order to preserve the integrity of Natura 2000. The compensatory measures shall be envisaged and implemented so that their impact would emerge earlier than the damage caused by the pursuit of the proposed economic activity. An institution of protected areas shall inform the European Commission of these compensatory measures by the procedure established by the Minister of Environment. When the relevant Natura 2000 site hosts a priority natural habitat type and/or a priority plant or animal species, the only considerations which may be raised shall be those related to human health or public safety or beneficial consequences of primary importance for the environment. Regarding the possibility to adapt the considerations related

to other imperative reasons of overriding public interest than indicated, it shall be necessary, by the procedure established by the Minister of Environment, to refer to the European Commission for its opinion on such a matter.

9. The competent authority shall present a decision regarding the environmental impact of the proposed economic activity to entities of environmental impact assessment and the organiser (developer) of the proposed economic activity in writing. The competent authority's decision regarding the environmental impact of the proposed economic activity, including the conditions specified therein, shall be binding on the organiser (developer) of the proposed economic activity in pursuing the proposed economic activity.

10. A decision regarding the environmental impact of the proposed economic activity adopted by the competent authority shall be valid for five years from the adoption, except the decision referred to in paragraph 11 of this Article. The competent authority may, by the procedure established by the Minister of Environment, decide to extend the validity of a decision regarding the environmental impact of the proposed economic activity for a period not exceeding five years within 15 working days from a reasoned request of the organiser (developer) of the proposed economic activity for extending the validity of the decision, provided that the organiser (developer) of the proposed economic activity has submitted the reasoned information indicating that the proposed economic activity, the conditions of its pursuit and location based on which the decision regarding the environmental impact of the proposed economic activity had been taken have not changed. By the procedure established by the Minister of Environment, the competent authority shall publish to the public a decision regarding the extension of the validity of the decision regarding the environmental impact of the proposed economic activity.

11. If the competent authority takes a decision regarding the environmental impact of the proposed economic activity and states that the activity does not meet the requirements of legal acts of environmental protection, public health, protection of immovable cultural heritage, fire safety and civil protection, a permit referred to in Article 3(3) of this Law shall not be issued. This proposed economic activity may not be pursued.

12. The competent authority shall, by the procedure established by the Minister of Environment, publish to the public a decision regarding the environmental impact of the proposed economic activity and grant it access to it. When the proposed economic activity has been subject to transboundary environmental impact assessment procedures by provisions of Article 9 of this Law, the competent authority shall, by the procedure established by the Minister of Environment, provide information on the decision to the

institution authorised by the Minister of Environment, which shall inform thereof an affected state participating in the process of transboundary environmental impact assessment.

➔ Duration of the administrative process	at least 103 days
➔ Preparation of EIA	3 - 5 years
➔ Solar PV	not applicable
➔ Wind farm	could be applicable

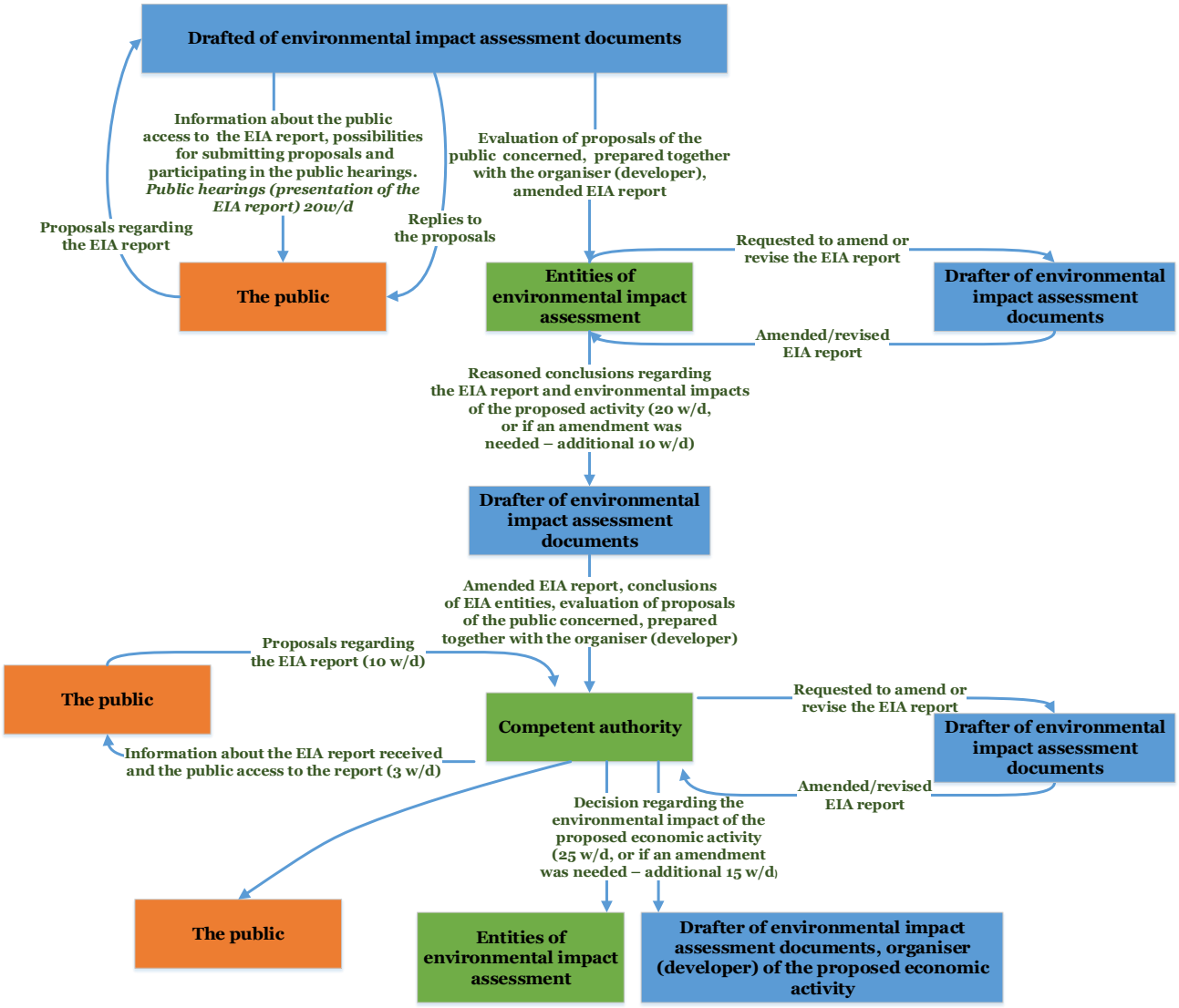


Fig.3.7. Environmental impact assessment report

3.6. Construction

According to the Law of the Republic of Lithuania on Energy from Renewable Sources, Article 49 “Requirements for the design and construction of energy production installations using energy from renewable sources” determines that:

1. designs and construction works for renewable energy production facilities and structures shall be prepared and carried out by the procedures and requirements established by:
   - the Law on Environmental Protection of the Republic of Lithuania;
   - the Law on Environmental Impact Assessment of Planned Economic Activities;
   - the Law on Spatial Planning;
   - the Law on Construction;
   - other legal acts. (Lietuvos Respublikos Seimas, 2011b)
2. The Government or its authorised bodies shall ensure that all descriptions and rules regulating the permitting, certification and licensing procedures apply to installations for the production of electricity produced from renewable sources, shall be objective, transparent, proportionate and necessary, non-discriminatory between applicants, and shall take full account of the specific characteristics of the renewable energy technologies concerned. (Lietuvos Respublikos Seimas, 2011b)
3. Taking into account the limited size and potential impact of small-scale power plants (up to 500 kW) using renewable energy sources, and in order to avoid disproportionate financial and administrative burdens, the responsible authorities shall ensure that the design and construction of small-scale power plants are subject to simplified requirements, without the need for detailed plans and without the need to change the primary land use, provided that it does not conflict with the regulations on local management and use. (Lietuvos Respublikos Seimas, 2011b)
4. In rural areas, the construction of individual wind farms and/or solar photovoltaic power plants with an installed capacity of 500 kW or less does not require a change of the primary land use, the preparation of detailed plans, or changes to the master plan, provided that it does not conflict with the local management and use regulations. (Lietuvos Respublikos Seimas, 2011b)
5. Wind farms and solar photovoltaic power plants with an installed capacity of less than 30 kW shall be subject to the following simplified requirements:

- solar PV power plants are exempted from the land use compliance requirements, the environmental impact assessment procedure, the need for a construction permit and the need for a public health impact assessment;
- wind farms must be located on the land so that the shortest distance to the land boundary is greater than the length, width or height of the installation, whichever is the greatest of these three dimensions. These installations shall be installed by the installation and operating rules of the manufacturer of the installations concerned. They are exempt from land use compliance requirements, the environmental impact assessment procedure, the need for a construction permit, and a public health impact assessment. The wind farm noise level on adjacent residential plots shall comply with the noise limit values set by the Minister of Health. (Lietuvos Respublikos Seimas, 2011b)

6. Solar photovoltaic power plants and wind power plants with an installed capacity of up to 30 kW, not exceeding the noise level laid down in the legislation, shall be installed on buildings or integrated into buildings without a building permit. (Lietuvos Respublikos Seimas, 2011b)
7. Wind farm sites shall not be approved if additional measures cannot avoid the disturbance caused by the planned wind farms. Suppose it is established that the disturbance caused by the planned construction of wind power plants can be avoided by using additional measures. In that case, the wind power plant sites shall be approved on condition that the person planning to construct or install the wind power plant submits an approved construction project to the authority specified in the coordination conclusion no later than prior to the issuance of a construction permit and signs an agreement with that authority on the payment of compensation for part of the investments and other costs necessary for the performance of national security functions, as well as a guarantee of fulfilment of this obligation. (Lietuvos Respublikos Seimas, 2011b)

The Law on Construction states that in addition to it, it is obligatory to follow other laws, legal acts and normative documents of safety and purpose of the building, approved by the established procedure, which performed (Lietuvos Respublikos Seimas, 1996):

- environmental protection and environmental impact assessment of the planned economic activity;

- protection of protected areas, landscape, immovable cultural heritage values and their territories;
- civil protection;
- health protection and public health care;
- safety and health of employees, the safety of public health;
- nuclear safety and technical safety of energy facilities and equipment;
- maintenance of potentially dangerous equipment;
- maintenance of the structure;
- social security of persons.

Article 14 of this Law sets general obligations and rights of the builder (developer) who shall (Lietuvos Respublikos Seimas, 1996):

- submit to the designer of the structure the mandatory documents for the preparation of the structure;
- to organize (or instruct the designer of the structure to do so) the construction surveys established by the normative construction technical documents of the building construction plot, construction site and adjacent structures and plots which may be adversely affected by construction and to create conditions for the researcher to perform them;
- have a design of the structure prepared and approved (when mandatory) by the established procedure; to organize the expertise of the construction project when it is mandatory or on its initiative (it is prohibited to entrust the expertise of the construction project to the designer of the construction);
- to obtain a construction permit by the procedure established by this Law;
- to organize and perform technical supervision of the construction of the structure;
- to organize supervision of the implementation of the construction project when it is mandatory or on its initiative;
- to order (or instruct the contractor to do so) to perform geodetic photographs of the constructed structure or constructed engineering networks and communications by the established procedure;
- to organize construction completion procedures by the procedure established in Article 28 of this Law.
- when the construction of a structure does not require a construction permit, to obtain the written consents (agreements) of the co-owners of the land plot or the written consents of the owners or managers of the adjacent land plots, if legal acts require such consents (agreements);

- not to commence construction until information on the commencement of construction has been submitted;
- when the construction of a structure does not require a construction permit, prior to the commencement of construction due to the construction of the structure in protection zones of other structures or other territories where regulatory distances to other structures or other restrictions on construction of other (existing) structures the consents of the owners or managers of those structures, when they are authorized to grant such consents.

Documents permitting construction, except for the documents specified in Paragraph 3 of this Article and other laws of the Republic of Lithuania, shall be issued by the director of the municipal administration or a civil servant of the municipal administration authorized by him (Lietuvos Respublikos Seimas, 1996). A building permit is a permit for the construction of a new structure - for the construction of a new special and non-special structure (except for a new non-special structure to be constructed in the territories intended for national defence purposes); for the construction of a new simple structure in the city (except for a new simple structure to be constructed in territories intended for national defence purposes), in a priority area of conservative protection or a complex protected area, in other territories in cases determined by the Minister of the Environment; for the construction of a new simple structure in the territory of a cultural heritage object, in the protection zone of a cultural heritage object, in the area of a cultural heritage object and its protection zone in cases determined by the Minister of Culture and the Minister of the Environment (Lietuvos Respublikos Seimas, 1996).

Some of the documents which might be asked to be submitted for the receipt of a construction permit (Lietuvos Respublikos Seimas, 1996):

- an application;
- the relevant construction project;
- screening conclusion regarding the environmental impact assessment of the proposed economic activity or the decision regarding the possibilities of the planned economic activity and the publicity of the selection conclusion or decision when the environmental impact assessment procedures of the planned economic activity are to be performed by the provisions of the Law on Environmental Impact Assessment;

- a decision of the responsible authority regarding the assessment of the impact of the possibilities of the planned economic activity on public health and determination of the boundaries of the sanitary protection zone when the public health impact assessment is performed by the Law on Public Health Care of the Republic of Lithuania;
- a plan of the boundaries of the sanitary protection zone or another drawing in which the boundaries of the sanitary protection zones are marked, when the boundaries of the sanitary protection zone must be determined by the requirements of legal acts due to the economic activities carried out or planned to be carried out by the builder;
- the consent of the owner of the land plot, the state or municipal land trustee regarding the entry of the territories specified in the Law on Special Land Use Conditions in which the special land use conditions apply in the Real Estate Register, Real Estate Cadastre, when this plot is planned, or the activities of these territories must be determined, or the written consent of the state or municipal land trustee, when these activities result in restrictions on state or municipal land;
- written approvals of the entities specified in the technical construction regulations for the construction project in the cases specified in the technical construction regulations.

Special and non-special building construction is completed by drawing up a construction completion act (Lietuvos Respublikos Seimas, 1996). After completion of construction procedures, the building and property rights to it must be registered in the Real Estate Register not later than within three months from the date of receipt of the construction completion certificate, approval and registration of the construction completion declaration or signing of the construction completion declaration (when it is not approved and not registered) (Lietuvos Respublikos Seimas, 1996).

➔ Duration of the process	*28 days*
➔ Solar PV	Up to 30 kW – exempted from the need for a construction permit and the need for a public health impact assessment
➔ Wind farm	Up to 30 kW –Exempt from the need for a construction permit and the need for a public health impact assessment. The noise level of the wind farm on adjacent residential

	plots shall comply with the noise limit values set by the Minister of Health;

Order of the Minister of the Environment of the Republic of Lithuania "Of the Technical Regulation of Construction STR 1.01.03: 2017 approval of "Classification of Structures" No. D1-713 from 27 October 2016 (Lietuvos Respublikos aplinkos ministerija, 2016) defines structures according to their intended use. Production, industrial buildings - energy buildings (energy production and production buildings, buildings used for energy transmission or distribution) are non-residential buildings according to their purpose. Special structures include structures where potentially dangerous equipment is located or potentially dangerous works are performed, a structure of complex construction and complex technologies. (Lietuvos Respublikos aplinkos ministerija, 2016)

List of Buildings in the Category of Special Structures (Lietuvos Respublikos aplinkos ministerija, 2016)

Buildings	**Characteristics and technical parameters of structures**
	Non - residential buildings
Energy buildings	structures with electricity and heat production of 5 MW and/or more
Other non - residential buildings	20 m and higher
	Buildings, regardless of their intended use
Wind turbines	30 m and higher

Simple buildings are divided into the following groups:

- Group I simple buildings;
- Group II simple structures. (Lietuvos Respublikos aplinkos ministerija, 2016)

List of Simple Structures (Lietuvos Respublikos aplinkos ministerija, 2016)

Engineering structures		Features and technical parameters of engineering structures	
		Group I.	Group II
Other engineering structures	wind farms	power ≥ 0.5 kW, ≤ 10 kW	power> 10 kW, ≤ 30 kW

Engineering structures		Features and technical parameters of engineering structures	
		Group I.	Group II
Other engineering structures	solar power plants, solar thermal collectors	-	power ≤ 30 kW

3.7. Permission for the introduction of new electricity production installations and to produce electricity

The Law on Renewable Energy Resources, Article 16 “Issuing of permits for the development of electricity production capacity and permits for the production of electricity from renewable energy sources”, determines that:

1. existing electricity production capacities from renewable energy sources may be developed, or new electricity production capacities from renewable energy sources may be installed on a new site after obtaining a permit for the development of electricity production capacities from renewable energy sources by the procedure laid down in the Law on Electricity, except for the cases provided for in the Law on Electricity, where such a permit is not required. (Lietuvos Respublikos Seimas, 2011b)
2. Permits for developing electricity production capacity and permits for producing electricity from renewable energy sources shall be issued by the State Energy Regulatory Council. The procedure and conditions for issuing these permits, their validity periods and the procedure and conditions for extending their validity periods shall be laid down by the Electricity Law. (Lietuvos Respublikos Seimas, 2011b)
3. Permits for the development of electricity production capacity from solar energy in the Curonian Spit shall be issued by way of a tender procedure by the procedure established by the Government or authority authorised by it, taking into account the general requirements for the promotion of the generation of electricity from renewable energy sources laid down in this Law and accordance with objective and non-discriminatory principles and the decisions of the applicable spatial planning documents. (Lietuvos Respublikos Seimas, 2011b)

The Law of the Republic of Lithuania on Energy from Renewable Sources, Article 44 “Licences, permits and certificates” that it shall be prohibited to carry out renewable energy activities without a licence, permit or attestation if any. It shall be prohibited to carry out the licensed activity when the validity of the licence, permit or certificate is suspended. (Lietuvos Respublikos Seimas, 2011b)

The Electricity Law of the Republic of Lithuania, 20 July 2000 No VIII-1881 establishes the regulatory framework for the production, transmission, distribution and supply of electricity in the Republic of Lithuania, taking into account the requirements of European Union law, establishes relations between electricity service providers and consumers and conditions for the development of competition in the electricity sector. The electricity market

shall be organised based on bilateral contracts between generators, suppliers, free users, and other methods set out in the Electricity Trading Rules, with the regulated principle of third-party participation to transfer purchased electricity. (Lietuvos Respublikos Seimas, 2000)

The Law states that any legal or natural person and any undertaking without legal personality may become an electricity producer after obtaining a permit. The State shall encourage consumers to purchase electricity produced from renewable and waste energy sources. Article 14. of this Law describes the procedure for granting permits for the expansion of production capacity and the creation of new production capacity:

1. existing generation capacity may be expanded, and new production capacity may be created only with a permit;
2. permits shall be granted to all-natural and legal persons and undertakings without legal personality who apply and satisfy the following conditions:
   - security and reliability of electricity, installations and related equipment;
   - environmental protection;
   - land use and construction site selection. (Lietuvos Respublikos Seimas, 2000)
3. Permits for the creation of new electricity production capacity shall be issued, or a reasoned written refusal to issue a permit shall be submitted to the applicant no later than **30 days** from the date of receipt of all the documents referred to in the Procedure for the Issuance of Permits for the Creation of New Electricity Production Capacity - Regulation on approval the rules for issuing permits for activities in the electricity sector August 7, 2019 No 829 (Lietuvos Respublikos Vyriausybė, 2019).
4. The requirements for the design and construction of new electricity production capacities shall be laid down by the Construction Law and other legal acts. (Lietuvos Respublikos Seimas, 2000)

Procedure for the Issuance of Permits for the Creation of New Electricity Production Capacity - Regulation on approval the rules for issuing permits for activities in the electricity sector August 7, 2019, No 829 lists the following permits issued for activities in the electricity sector:

- permission to develop electricity production capacity;
- permit to produce electricity;
- permission to build a direct line. (Lietuvos Respublikos Vyriausybė, 2019)

Holders of permits specified above are permitted to carry out activities regulated by a permit in the electricity sector. A separate permit shall be issued for each type of activity regulated by the permit and for the performance of such activities by operating separate, technologically unrelated electricity objects. (Lietuvos Respublikos Vyriausybė, 2019)

Permission to develop electricity production capacity shall be issued to a person who intends to:

- to construct (install) a new energy object (power plant);
- to increase the installed capacity of existing electricity generation facilities by reconstructing or replacing existing or constructing additional electricity generation facilities
- to reconstruct the existing electricity generation facilities, adapting them to the use of other types of fuel (fossil fuels or renewable energy sources);
- to expand electricity generation capacity over the installed capacity specified in the previously issued permit;
- the electricity generating equipment used (intended to be used) for their own needs and for the needs of the household to connect to the operator's electricity network;
- to expand (supplement) or change the territory specified in the previously issued permit. (Lietuvos Respublikos Vyriausybė, 2019)

A permit to produce **electricity shall be issued to a person who**:

- built a new energy facility (power plant) for electricity production by the valid permit to develop electricity generation capacity;
- Increased the installed capacity of existing operating electricity production facilities by the valid permit to develop electricity production capacity. (Lietuvos Respublikos Vyriausybė, 2019)

A direct line permit shall be granted only in the event of refusal by the network operators to grant access to the transmission or distribution networks or the initiation of a dispute settlement procedure by the procedure laid down in the Electricity Law in respect of the network operator's action or inaction in deciding on access to the transmission or distribution networks. (Lietuvos Respublikos Vyriausybė, 2019)

3.7.1. Description of the administrative procedure for issuing permission to develop energy production capacities

Within **30 calendar days** of receipt of the necessary data and documents, the Council shall issue a permit or provide a reasoned refusal in writing to issue a permit. (VERT, 2019) If a response is not made to a duly submitted application for the issue of permission within the specified time limit, a positive decision to issue the permission is deemed to have been taken. (VERT, 2019)

A permit to develop electricity production capacities shall be granted for **36 months**. In the case of development in the technical qualities of electricity production, which objectively result in more extended construction and installation periods, upon presentation by the person of documents justifying the construction and installation terms beyond the period of validity of the permit, The National Energy Regulatory Council shall authorize the development of electricity production capacity, except the development of electricity production from renewable energy sources for a period exceeding 36 months. The period of validity of permissions granted for the development of generating capacities shall be extended in such cases (Lietuvos Respublikos Vyriausybė, 2020) (Lietuvos Respublikos Seimas, 2000):

- Once for six months when the developer proves that more than 50% of implementation works were done and submits building permit (if such is required) and

an unlimited number of times in case of existence of the state, third parties actions and force majeure circumstances for the period of existence of such actions or circumstances. A person or legal entity seeking to obtain a permit for the development of electricity production capacities must apply and present the following documents:

1. A copy of the power plant pre-conditions for connection to the power grid issued by the network operator and a copy of a letter of intent to connect the power plant to the power grid or approval by the transmission or distribution system operator of the possibility of connecting electrical equipment to the transmission or distribution system in cases where a person participated in the auction for the allocation of promotional allowances and was not successful but was provided with electricity and bandwidth reserved for auction, or documents justifying the planned connection to an existing direct line, or submit an application for permission to construct a direct line hereto. (VERT, 2019)

The requirement to provide a copy of the letter of intent to connect the power plant to the grid signed with the grid operator is not applicable if the individual is seeking to become a generating user or is planning to produce electricity for his use and the needs of the household and intended to supply to the electricity grid the remaining electricity that is not consumed for own use and for farm use, where the installed power of the power plant is not more than 500 kW and not more than the permissible power of the person's object, as well as persons who intend to produce electricity only for their own needs and for household needs without supplying electricity to the electricity grid. (VERT, 2019)

2. An application in a free form indicating the date and number of registration of the valid decision of the responsible authority regarding the possibilities of the proposed economic activity when planned procedures for assessing the environmental impact of economic activities shall be performed by the procedure established by the Law on Environmental Impact Assessment of the Proposed Economic Activity; where the proposed economic activity is not subject to the requirements regarding the environmental impact assessment of the proposed economic activity, the person shall indicate this in the application for the permit for the development of electricity generation capacity. (VERT, 2019)
3. The registration number and date of the decision of the public health body of the county that the proposed economic activities comply with the requirements of the public health safety legislation when an assessment of the impact of the proposed economic activity on public health is performed by the procedure established by the Government or its authorized institution; when the proposed economic activity is not subject to the requirements for the assessment of the proposed economic activity for public health, the person shall indicate this in the application for the permit to develop electricity production capacity. (VERT, 2019)
4. Documents certifying the requirements for the land use and for the selection of the site for the construction of power generation equipment (power plant) and associated equipment: a document (a spatial planning document, a topographic photograph or a map of the area), which graphically presents the solutions for the energy object (power plant) to be built or to develop the position of the power generating equipment, the position about the nearest transmission and/or distribution networks, the planned connection of the energy object (power plant) to the electricity grid and the boundaries

of the land plot agreed with the electricity network operator in the initial conditions of the power plant connected to the power grid. (VERT, 2019)

5. Documents justifying technological, financial and managerial capacity to perform activities subject to permission: a written confirmation that the technological and financial capacity available enables the installation of electrical equipment, their connection to the electricity grid or the direct line, as well as the planned commercial production of electricity; the requirement to confirm available technological capacity is not applied to the planning of the construction of electrical equipment using renewable energy sources, where the person submits to the Council for approval a copy of the protocol on the connection of the power plant to the grid signed with the grid operator. When an applicant is a legal person, a written confirmation of the appointment of an employee or employees to carry out regulated activities and reporting, informing and consulting consumers, investigating complaints about the operating conditions, or copies of contracts with entities providing these services. (VERT, 2019)

Permission for the development of generating capacity shall not be required where the person intends to construct or install generating capacity less than or equal to 30 kW for the production of electricity solely for his use and for the needs of the household, without supplying electricity to electricity networks, and if the person seeks to become a prosumer and intends to build or install a capacity for the production of electricity from renewable energy sources with an installed capacity not exceeding 30 kW. Such person shall inform the network operator and obtain from the network operator the conditions for connection of the power plant to the energy networks by the procedure established by law. (VERT, 2019)

➔Duration of the process	30 days
➔Period of validity of the permit	Three years
➔ Solar PV	applies
➔Wind farm	applies

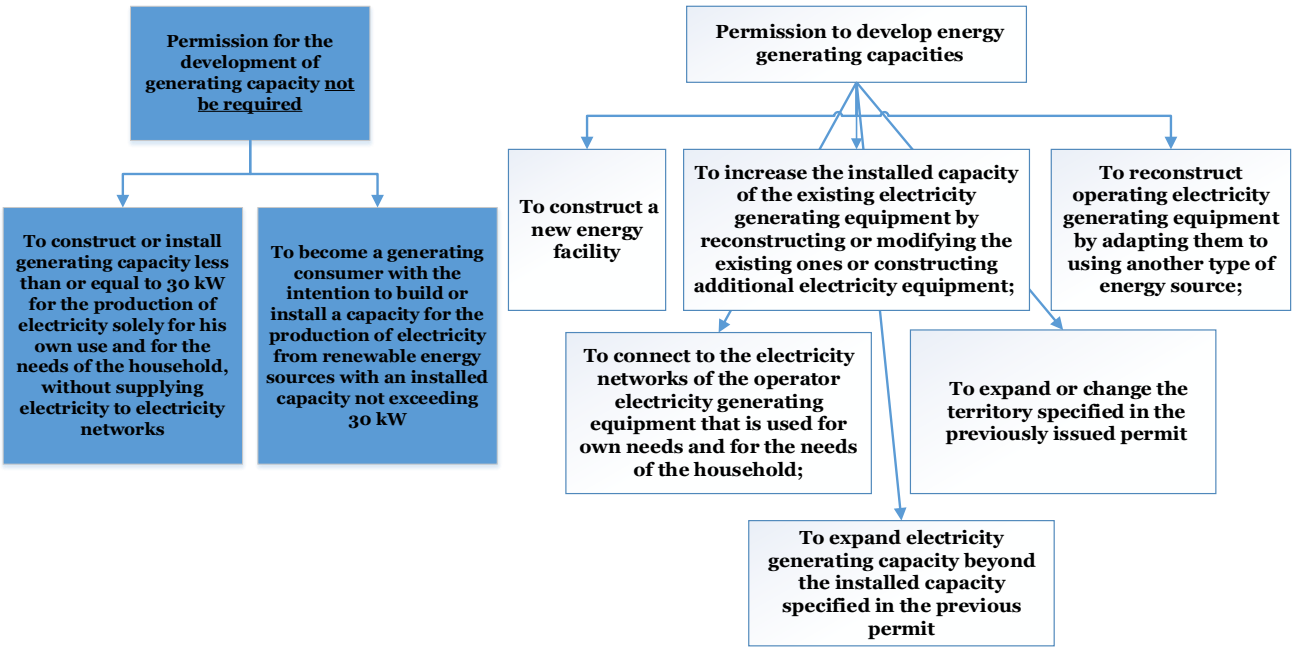


Fig. 3.8. Permission to develop energy generating capacities

3.7.2. Description of the administrative procedure for issuing the permission for the production of electricity

Within 30 calendar days of receipt of the necessary data and documents, the National Energy Regulatory Council shall issue a permit or provide a reasoned refusal in writing to issue a permit. If a response is not made to a duly submitted application for the issue of permission within the specified time limit, a positive decision to issue the permission is deemed to have been taken. (VERT, 2019)

Permission for electricity production shall be granted for an unlimited period (VERT, 2019). Permits for Electricity Production at Power Plants in the territorial sea of the Republic of Lithuania or the exclusive economic zone of the Republic of Lithuania in the Baltic Sea shall be issued based on a valid permit issued by the Law of the Republic of Lithuania on Energy from Renewable Sources Article 22 shall remain valid until the expiry permit to operate a part of the territorial sea for development and operation (Lietuvos Respublikos Vyriausybė, 2012; VERT, 2019).

A person or legal entity seeking to obtain a permit for the development of electricity generation capacities must apply and present the following documents:

1. an application form;2. the construction completion certificate or the construction completion declaration made by the procedure established by the Law on Construction of the Republic of Lithuania and its implementing legislation, when the construction of a new energy facility (power plant) for the production of electricity or the reconstruction

of an existing energy facility (power plant) for the production of electricity is completed, except when it is not mandatory to list the construction after the completion of the construction or reconstruction of the completion act or declaration of completion of construction

(VERT, 2019).

A permit for electricity production shall not be required if the person intends to produce electricity only for his use and for household needs, without supplying electricity to the grid, with an installed capacity of 30 kW or less, likewise, if the person meets the definition of prosumer and produces electricity from renewable energy sources and intends to produce electricity in installations for the production of electricity not exceeding 30 kW. Suppose a person intends to supply the produced electricity to the electricity grids. In that case, they shall obtain a permit to develop electricity generation capacity and produce electricity. (VERT, 2019)

➔Duration of the process	30 days
➔Period of validity of the permit	unlimited period
➔ Solar PV	applies
➔Wind farm	applies

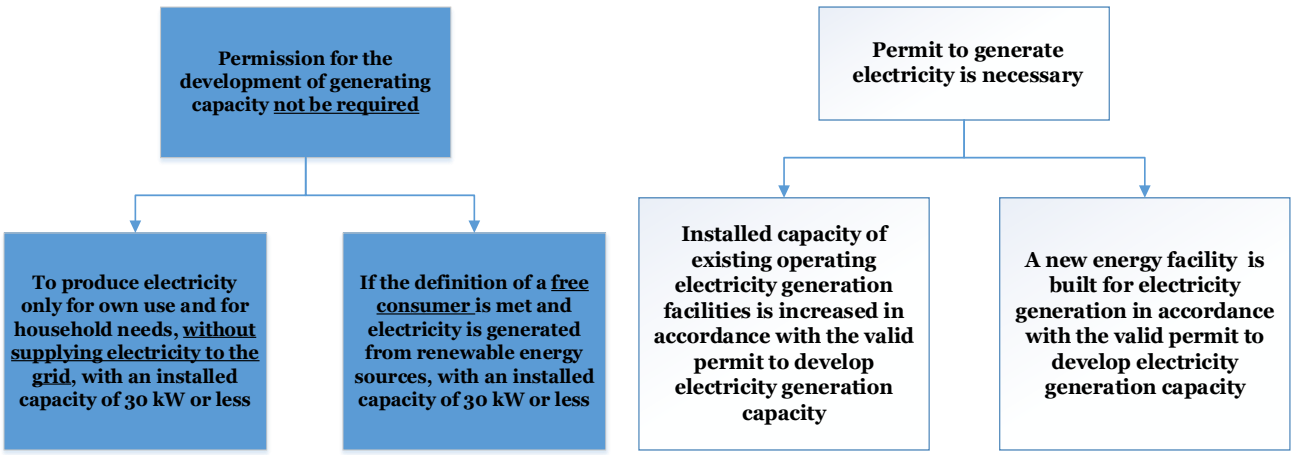


Fig. 3.9. Permission for the generation of electricity

3.8. Connection to the Network

The Law of the Republic of Lithuania on Energy from Renewable Sources, Article 14 “Connecting power stations to the electricity grid” states that (Lietuvos Respublikos Seimas, 2011b):

1. The electricity network operator must, not later than **within 22 months** or during the period during which the person planning to build or install the power plant undertakes to build the power plant if that period is longer than 22 months, which corresponds to the required voltage level and is the closest power plant to be built if other electricity networks are not technologically and economically more suitable for the connection point of the power plant. The specified priority right of connection of the power plant under construction to the electricity networks is to connect other persons' electrical equipment using non-renewable energy sources to the electricity networks. The period of connection to the electricity networks is calculated from the date of signing the contract for the connection of the power plant to the electricity networks between the person planning to build or install the power plant and the electricity network operator. The moment of connection of the power plant to the electricity networks is considered the power plant's connection for technological tests in the electricity networks (start-up adjustment works). The electricity network operator, by the requirements established by legal acts, prepares and publishes standard terms and conditions of the power plant connected to the electricity network service contract, which applies equally to all persons planning to build and install the power plant on a non-discriminatory basis, taking into account special requirements.

2. The electricity network operator must also connect the power plant under construction to the electricity networks when such connection is possible only after the technical renewal of the electricity networks, optimization, expansion of the electricity networks, increase the capacity of the electricity networks or other reconstruction. In this case, the power plant shall be connected to the electricity grids within a reasonable period agreed by the parties, taking into account the need for renewal or development of the electricity networks to the extent reasonably necessary for the connection of the power plant.

3. The deadlines for connecting a power plant to the electricity networks referred to in Paragraphs 1 and 2 of this Article may be extended in cases where the electricity network operator cannot connect the power plant within the set deadlines for technological tests in the electricity networks. For reasons beyond the control of the electricity network operator. In each specific case, the term of connection of the power plant to the electricity networks shall

be extended for the period for which the permit for the development of electricity generation capacity has been extended. The connection of a power plant to the electricity networks shall be extended by an agreement between the electricity network operator and the person constructing or installing the power plant by the procedure established in the contract for connection to the electricity network.

4. The electricity network operator shall prepare and, in coordination with the State Energy Regulatory Council, make publicly available a description of the procedure for using electricity networks under the conditions established by the State Energy Regulatory Council. The procedure for access to the electricity grid shall be based on objective, transparent and non-discriminatory principles, which consider all benefits and costs related to the connection of the power plants to the electricity grid. (Article 14. (7))

5. The electricity network operator shall, no later than within 30 calendar days from the date of submission of the application by the person planning to construct or install the power plant to issue preconditions for connection to that person, provide all information on the actions to be taken by that person. The terms of the extension work and, if necessary, to perform the actions specified in Article 18 of this Law before the connection of the power plant. In all cases, the electricity network operator and the person planning to build or install the power plant shall exchange all technical and other information necessary to connect the power plant to the electricity networks. The preconditions for connection shall comply with the Procedure for the use of Electricity Networks description specified in Paragraph 7 of this Article. The pre-connection conditions may not contain requirements other than those necessary to ensure the reliable, safe and adequate operation of the electrical installation and the electricity system. The preliminary connection conditions shall be published on the website of the electricity network operator. (Article 14. (8))

➔Duration of the process	up to 22 months
➔ Solar PV	applies
➔Wind farm	applies

Connection works of a power plant in a part of the electricity network operated by the electricity network operator, including the installation of electricity metering devices, shall be carried out by the electricity network operator or, on its behalf, by any other person selected by the procedure established by law. The electrical equipment to be connected to the electricity network, the connection works to be carried out, and the equipment necessary to

ensure the safety of the electricity network shall comply with the requirements of technical normative documents and other legal acts (Lietuvos Respublikos Seimas, 2011b).

The Electricity Law, 20 July 2000 No VIII-1881 (Lietuvos Respublikos Seimas, 2000) states that the transmission networks' legal entity is the transmission system operator. It is responsible for the operation, maintenance, management and development of transmission networks in the territory of Lithuania and interconnectors with other systems, reducing transmission network restrictions and taking into account the needs of transmission network users. The transmission system operator must ensure that the conditions for producers, distributors and consumers are non-discriminatory. (Lietuvos Respublikos Seimas, 2000)

Section five of this Law regulates the rights and obligations of the transmission system operator. The transmission system operator shall have the right to (Lietuvos Respublikos Seimas, 2000):

- to receive from producers, distribution network operators and consumers whose equipment is connected to the transmission networks, readings and other information necessary for the performance of long-term development planning, balancing function and other duties specified in this Law;
- to receive from transmission network users information that is necessary for third parties to use transmission networks;
- by the technical normative documents for the operation of electricity networks, to determine the operating conditions of distribution networks, producers 'and consumers' electrical equipment connected to the transmission networks, which would ensure the safety, stability and reliability of the electricity system;
- to be the sole representative of the balancing and regulatory energy trade of the Republic of Lithuania with the electricity systems of other states, to organize trade in balancing and regulating electricity, reserve power in auctions in the electricity system of the Republic of Lithuania.

The transmission system operator must (Lietuvos Respublikos Seimas, 2000):

- to provide the transmission network users with the electricity transmission service through transmission networks, creating equal and non-discriminatory conditions for all network users;
- to operate, maintain, manage and develop transmission networks and interconnectors, to take into account the safety and reliability of the electricity

system, environmental protection requirements, development plans and requirements for intelligent energy networks and intelligent energy accounting systems, and economic conditions;

- to connect the electrical equipment of consumers, distribution network operators and producers to the transmission networks by the requirements of the relevant technical, regulatory documents;
- to ensure that the transmission networks in the territory of the Republic of Lithuania operate efficiently, reliably and safely from the point of view of environmental protection;

Section six of this Law regulates principles for distribution activities and the rights and obligations of the distribution system operator. The distribution system operator shall be responsible for the distribution networks belonging to it from the point of connection of transmission network equipment to the point of connection of customers or producers and for their security, reliability, operation, maintenance, management and development according to the needs of distribution system users, distribution networks, the quality of transmitted electricity and the accounting and implementation of transmitted electricity (Lietuvos Respublikos Seimas, 2000). The distribution network operator must (Lietuvos Respublikos Seimas, 2000):

- to provide electricity transmission service to distribution network users through distribution networks;
- to reconstruct the existing and install new distribution networks, taking into account the development plans and requirements for intelligent energy networks and intelligent energy accounting systems;
- to technically operate, maintain, manage and develop its distribution networks and interconnectors with other electricity networks, ensuring reliable operation of distribution network equipment, efficient and safe supply in compliance with environmental protection requirements

to connect consumer and producer electrical equipment located in the territory specified in the distribution activity license to the distribution networks by the procedure and conditions established by the Ministry of Energy by relevant technical regulations and technical conditions and to provide detailed information on distribution network installation costs. Public electricity supplier is each company that owns the distribution networks and is responsible for supplying electricity to consumers in the area served by the distribution

company. Distribution network operators are responsible for organizing the measurement and metering of electricity supplied. (Lietuvos Respublikos Seimas, 2000)

Regulation of the government of the Republic of Lithuania "On the approval of the description of the procedure for the promotion of the use of renewable energy sources for energy production" from July 4, 2012 No. 827 sets an obligation to electricity grid operators to reserve the capacity of the electricity grids under their control to the extent necessary to connect power plants using renewable energy sources and to transmit the electricity generated from that place (Lietuvos Respublikos Vyriausybė, 2012).

3.8.1. Connection to the Network for a micro-generator

AB "Energijos Skirstymo Operatorius" (ESO) belongs to the state-owned Ignitis Group, and it started its operations on January 1, 2016, when AB "LESTO" and AB "Lietuvos Dujos" were merged. ESO is one of the largest energy companies in the Baltic States, which serves 1.6 million customers throughout Lithuania. The area served by the company in square kilometres amounts to 65.3 thousand. km² (ESO, 2021a). ESO distributes electricity and gas, maintains distribution networks, implements intelligent solutions to make networks reliable and efficient, takes care of their troubleshooting, and connects new customers. ESO's licensed activities are the distribution of electricity and natural gas. The main functions are guaranteed supply of electricity and gas, the introduction of electricity and gas, operation, maintenance, management and development of electricity and gas distribution networks, ensuring their security and reliability. (ESO, 2021a)

Prosumer

According to ESO's web page, a prosumer produces and uses electricity in the same place where the installed meter keeps track of the amount of electricity supplied to the grid and the amount taken. The electricity that is consumed immediately during production is not accounted for. (ESO, 2021b)

A remote producing consumer consumes electricity at one point and produces it at a power plant in another location. These two points can also be adjacent plots or be in different parts of the country (ESO, 2021b). All electricity supplied to the grid by a remote prosumer and recovered elsewhere is charged for the use of the grid. It is subject to the same accounting principles as the average producer in all other cases. Customers can distribute and assign their power plants to other consumption objects. The amount produced by a small power plant is allocated to each consumption object separately, in proportion to the pre-allocated

power plant capacity allocated to the object. When power plant power is assigned, the generated kilowatt-hours are stored separately and cannot be transferred from one facility to another. Prosumers may assign part of the power plant only to other objects under their ownership. Producers may assign part of a power plant to other facilities with a power supply contract, regardless of the facility's ownership. Suppose it is desired to transfer the power plant's power to another person. In that case, this requires a production permit issued by National Energy Regulatory Council, and this is allowed only for new power plants. (ESO, 2021b)

Connection to the network for a prosumer **(up to 30kW)**

1. An application to ESO for connection to the electricity network.
   As soon as AB "Energijos Skirstymo Operatorius" (ESO) receives the application, they will send a prepayment invoice to prepare the connection conditions. As soon as the payment is received, ESO will evaluate the application within **three days** and prepare the connection conditions within **three days**. Following documents need to be submitted with the application:
   - consent of co-owners if several persons manage the property;
   - a copy of the passport or identity card of the Republic of Lithuania, if the application is filled in at the customer service centre;
   - notarized power of attorney if the prosumer represents a private or legal entity. (ESO, 2021d)
2. ESO will prepare the connection conditions, the agreement, and the connection fee calculation.
   ESO will start the connection works in the ESO electricity network upon receipt of the connection agreement signed and the payment made by the prosumer. Once the connection agreement has been approved, the connection conditions are valid for the same period as the agreement. After signing and paying for the contract, ESO will perform the work:
   - within 20 calendar days if the project is not required or;
   - within 60 calendar days if necessary to design and reconstruct the ESO network. (ESO, 2021d)

The prepared connection conditions are valid for 90 calendar days, and after signing the contract, the prosumer has to install the power plant within 20 calendar days. (ESO, 2021d)

3. Install a power plant.

   Installation of a power plant should be done by a person who has the necessary qualification. In this case, a prosumers declaration that the requirements of legal acts have performed the power plant installation works, the equipment has been harmonized and tested. It complies with the requirements of the Electrical Equipment Installation Rules. Upon receiving the prosumers declaration, ESO will install a remotely readable meter with the controller within two working days. (ESO, 2021d)

4. Start generating electricity.

   If the facility is supplied with electricity and the prosumer has an electricity purchase and sale agreement with a supplier or a public supplier, it is unnecessary to conclude or sign an additional agreement. (ESO, 2021d)

   Suppose the facility's equipment is connected to the ESO network for the first time. In that case, there is no electricity supply. The prosumer does not have an electricity purchase and sale agreement with the supplier. The consumer can agree with the selected supplier before connecting the equipment to the ESO network. A list of independent suppliers can be found on the web page of the National Energy Regulatory Council (VERT, 2021). (ESO, 2021d)

➔Duration of the process	48-66 days
➔ Solar PV	applies
➔Wind farm	applies

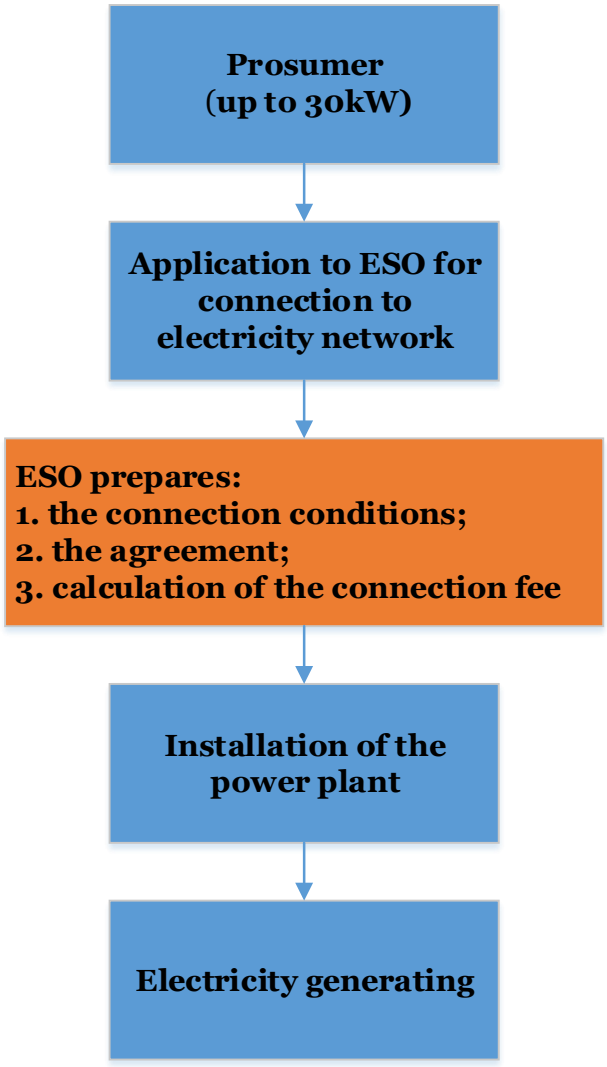


Fig. 3.10. Prosumer up to 30 kW

3.8.2. Connection to the network for a prosumer (over 30kW)

1. Apply for pre-connection conditions to ESO for connection to the electricity network.
   As soon as AB "Energijos Skirstymo Operatorius" (ESO) receives the application, they will send a prepayment invoice to prepare the connection conditions. As soon as the payment is received, ESO will evaluate the application within three days and prepare the connection conditions within three days. Indicate in the application the capacity and address of the power plant to be installed. (ESO, 2021e)
   Pre-connection conditions are issued **within 15 working days**. (ESO, 2021e)
2. Application and the necessary documents to the State Energy Regulatory Council for permission to develop electricity generation capacity must be submitted. (ESO, 2021e)
3. After receiving all the necessary documents, ESO will decide and issue a permit to develop electricity capacity. (ESO, 2021e)

4. Apply for connection conditions. Fill out the application on the ESO website. Indicate in the application the capacity and address of the power plant to be installed. The following documents must be attached when completing the application:
   - a copy of the permit to develop electricity generation capacity;
   - other documents specified at the stage of the application for preconditions, if they have not been submitted with the application for preconditions or the data in them have changed. (ESO, 2021e)
5. Upon receipt of the application, ESO will send a prepayment invoice to prepare the connection conditions. After receiving the payment, ESO will prepare the connection conditions within **five working days**. (ESO, 2021e)
6. Preparation of a project for connecting the power plant to the electricity grid. The designer of the consumer's choice has to prepare and agree with the responsible authorities on the connection design according to the connection conditions. The digital version of the prepared project must be placed on the ESO web page. (ESO, 2021e)
7. Sign the connection service agreement and pay the connection fee.
   Apply to ESO for a contract for the manufacturer's electrical equipment connection service. Sign the contract and return it to ESO. Pay a connection service fee identical to the price specified in the contract. (ESO, 2021e)
8. ESO will prepare and submit a draft agreement **within five working days** of receiving prosumers request. ESO will start the connection works to the ESO electricity network upon receipt of the contract signed by the prosumer and the payment made. (ESO, 2021e)
9. Prepare the power plant's internal power supply for connection. Install the power plant's internal power grid. Entrust these jobs to a person/company who has the necessary qualifications. (ESO, 2021e)
10. Get a permit to generate electricity. To obtain a permit to generate electricity, apply to the State Energy Regulatory Council. Upon receiving all the necessary documents, a decision will be made and a permit issued to produce electricity by law's prescribed procedure. (ESO, 2021e)
11. Choose an independent electricity supplier. Suppose the facility's equipment is connected to the ESO network for the first time. In that case, there is no electricity supply. The prosumer has no electricity purchase and sale agreement with the supplier. The consumer can agree with the selected supplier before connecting your equipment to the ESO network. (ESO, 2021e)

If the facility is supplied with electricity and the prosumer has an electricity purchase and sale agreement with a supplier or a public supplier, it is unnecessary to conclude or sign an additional agreement. (ESO, 2021e)

13. Get acquainted with the typical conditions of prosumers. (ESO, 2021e)

➔Duration of the process	85 days
➔ Solar PV	applies
➔Wind farm	applies

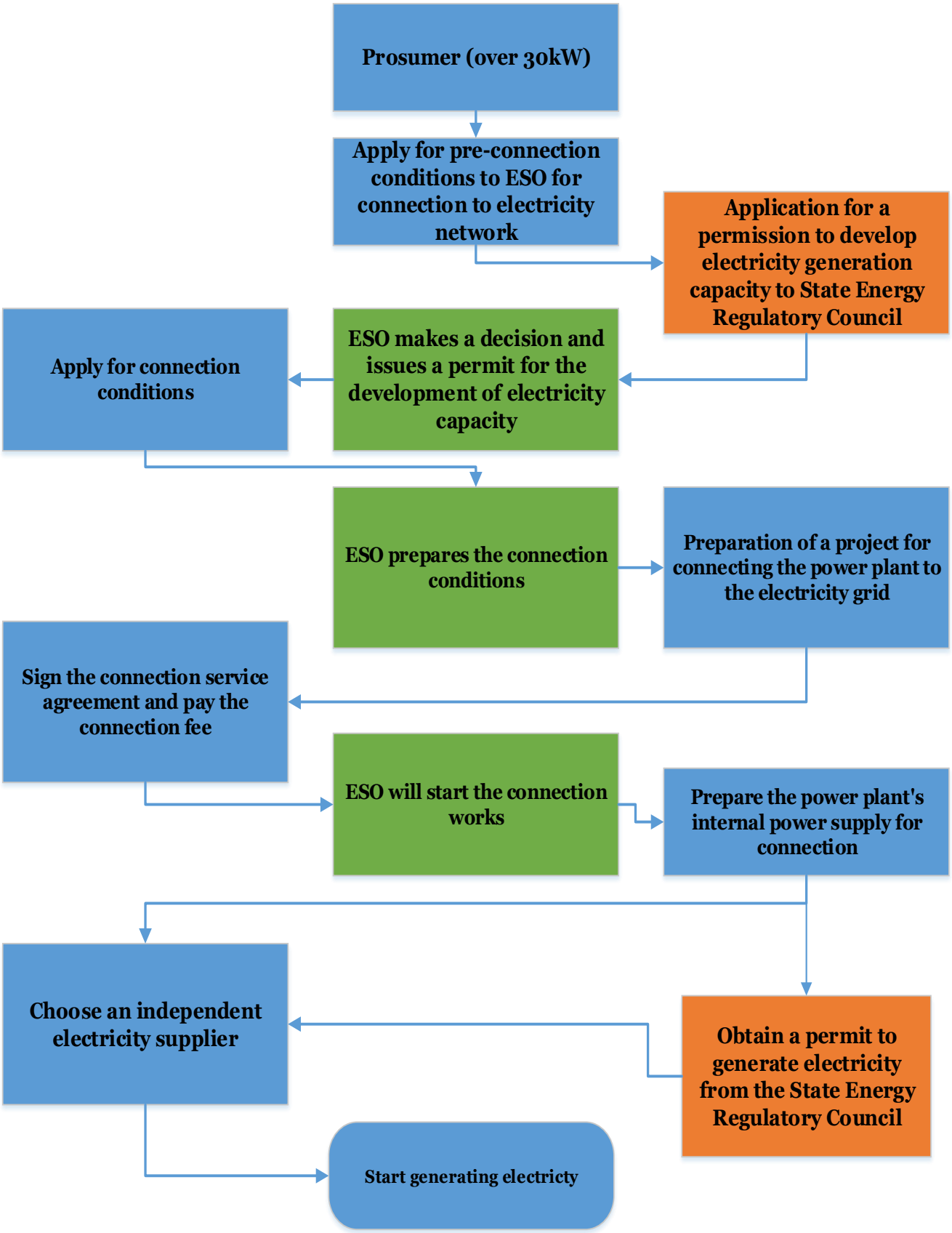


Fig. 3.11. Prosumer (over 30 kW)

Billing

The balance of the electricity supplied and taken to the grid is calculated every month. If the quantity produced is greater than the quantity consumed, the balance shall be carried over to the following month. In this way, the amount of electricity is stored throughout the year from April 1 to March 31. The previously accumulated reserve is used if the quantity consumed is more significant than that produced. If this is not enough, electricity is purchased from the supplier in the usual way. The electricity accounting of all producing consumers is automated. Customers can find their hourly readings of the amount of electricity supplied to and recovered from the networks at the ESO self-service. (ESO, 2021b)

Electricity supplied to the networks and subsequently withdrawn is billed according to one of four payment methods:

1. Paid for each kilowatt-hour produced and subsequently recovered;
2. Paid a fixed amount per month depending on the electrical power;
3. There is a charge for both the kilowatt-hours recovered and for the power of the power plant, but both charges are twice as low;
4. Payment is made in kilowatt-hours produced, is less than the number of kilowatt-hours produced is recovered. (ESO, 2021b)

The accounting of the electricity quantities of prosumers can be performed in two and four-time zones. The calculation is relevant when the amount generated by the end of the month is not enough, so choosing the most favourable time zone tariff plan for the purchased electricity is possible. With multiple time zones, the amount of electricity supplied to the grids is stored in a one-time zone, and the missing amount of electricity will be purchased in the same proportion between the time zones as was used in the current month. (ESO, 2021b)

3.8.3. Connection to the network for a manufacturer to sell electricity under market conditions

1. Apply for pre-connection conditions.

   Suppose a power plant construction is in the plan, the electricity generated will be transferred to the distribution network. In that case, it is recommended to review the free power of existing transformers. (ESO, 2021c)

   ESO will prepare the preconditions for you within **15 working days**
2. Compilation of a letter of intent.

   A letter of intent or an intent protocol is an agreement between the Operator and the Manufacturer, which among other things, the manufacturer shall undertake within a

specified period to prepare its facilities connected to the grid, and the operator - within the prescribed period to connect the original object before they manage the power grid. Sample for the letter of intent can be found on the website of the State Energy Regulatory Council. (ESO, 2021c)

An application for drawing up a letter of intent and additional documents that need to be filled in can be found on ESO's web page. In addition to the documents mentioned, confirmation from the municipality's administration (where the construction and installation of the power plant are planned) that the installation or construction of the specified power plant is possible by the valid territorial planning documents. The conclusion of the Lithuanian Armed Forces and/or another institution ensuring national security is that taking into account national security requirements. It is possible to design and build wind power plants in the territories. A requirement has been established for producers of renewable resources to submit a confirmation from the Lithuanian Armed Forces that there are no restrictions on the design and construction of wind power plants in the territories where it is planned to build wind power plants. (ESO, 2021c)

This provision shall not apply to prosumers and electricity producers to produce electricity for their own needs and needs of the holding and planning to supply to the electricity grid the remaining electricity not consumed for own needs and needs of the holding when the installed capacity of the power plant does not exceed 500 kW and does not exceed than the capacity allocated to the generating installation and where those producers do not intend to participate in the auctioning of incentive allowances, producers planning to produce electricity solely for their use and the needs of the holding, without supplying electricity to electricity grids and renewable energy communities (Lietuvos Respublikos Seimas, 2000). (ESO, 2021c)

3. Obtain permission to develop electricity generation capacity.
   - Submit an application and the necessary documents to the State Energy Regulatory Council for permission to develop electricity generation capacity;
   - ESO must be informed about the intention to get permission. Upon learning from the Manufacturer about obtaining a permit, ESO will provide information to the State Energy Regulatory Council on the projected lack of generated transmission capacity or restrictions related to your application for a permit.

- Having received all the necessary documents, the State Energy Regulatory Council shall decide and issue a permit to develop electricity capacity by the procedure provided by law. (ESO, 2021c)

4. Apply for connection conditions.

   Fill out the application on the ESO self-service website. Attach the following documents when completing the application:

   - a copy of the permit to develop electricity generation capacity,
   - other documents specified at the stage of the application for preconditions, if they have not been submitted with the application for preconditions or the data in them have changed. (ESO, 2021c)

   ESO will prepare the connection conditions for you within **eight working days**. (ESO, 2021c)

5. Prepare a project for connecting the power plant to the operator's electrical networks:

   - the Manufacturer must select an electrical network designer;
   - the designer of the Manufacturers choice must prepare and coordinate the project according to the connection conditions.
   - Three paper copies of the agreed project and a digital copy of the project on CD in PDF format must be submitted to the customer service centre or sent by mail;
   - application for a contract to connect the Manufacturer's electrical equipment to the operator's electrical network service must be made. (ESO, 2021c)

   ESO will prepare and submit the contract - within **30 calendar days** from the request to prepare the contract.

6. Sign the connection service agreement and pay the connection fee.

   The connection service agreement must be signed within **one month** and returned to ESO. The connection service must be paid for. (ESO, 2021c)

   After the contract is signed and paid, ESO will start the connection works in the ESO electricity network. (ESO, 2021c)

7. Prepare the power plant's internal power supply for connection

   The power plant's internal power grid must be installed. It can be installed independently of the work performed by ESO. Companies or individuals with the necessary qualifications to install the internal power grid must be contracted. (ESO, 2021c)

   After completing the installation of the internal network, a certificate of inspection of the technical condition of energy equipment must be ordered, which is issued by the

State Energy Regulatory Council. Manufacturers who have applied for installing an internal network after 01.01.2019 do not need this document. The contractor prepares the contractor's deed and submits it to ESO. (ESO, 2021c)

ESO, we will notify the Manufacturer when the certificate of inspection of the technical condition of energy equipment issued by the State Energy Regulatory Council is received. (ESO, 2021c)

8. Get a permit to generate electricity.

   Application to the State Energy Regulatory Council must be submitted to obtain a permit to generate electricity. (ESO, 2021c)

   Having received all the necessary documents, the State Energy Regulatory Council will decide and issue a permit to produce electricity by the procedure provided by law. (ESO, 2021c)

9. Choose an independent electricity supplier.

   Currently, regulated electricity prices apply only to private customers. However, from 2021 household consumers, consuming more than 5,000 kWh of electricity per year will have to purchase electricity from an independent supplier of their choice. Consumers consuming less electricity will be able to enter the "free market" gradually by 2023 (Valstybinė energetikos reguliavimo taryba, 2020). All business customers must choose an independent electricity supplier. Failure to select an independent supplier will guarantee a guaranteed electricity supply price. (ESO, 2021c)

   Notification to ESO of the selected independent supplier before connecting the equipment to ESO's electricity grids must be sent, but no later than the day of installation of the electricity meter. (ESO, 2021c)

10. Conclude electricity transmission and electricity purchase agreements.

    The Manufacturer must get acquainted with the electricity tariff plans and choose the most suitable one. (ESO, 2021c)

    Within **30 days** of completing the electrical equipment connected to the mains, the Manufacturer must enter into an electricity transmission contract. In the absence of a contract, a power fee will be charged. (ESO, 2021c)

    ESO will inform the Manufacturer about the preparation of the electricity transmission contract. Connection of the electrical equipment to the ESO network will be made within **five working days** after the return of the signed contract.

11. Enter into an electricity purchase agreement.

➔Duration of the process	178 days
➔ Solar PV	applies
➔Windfarm	applies

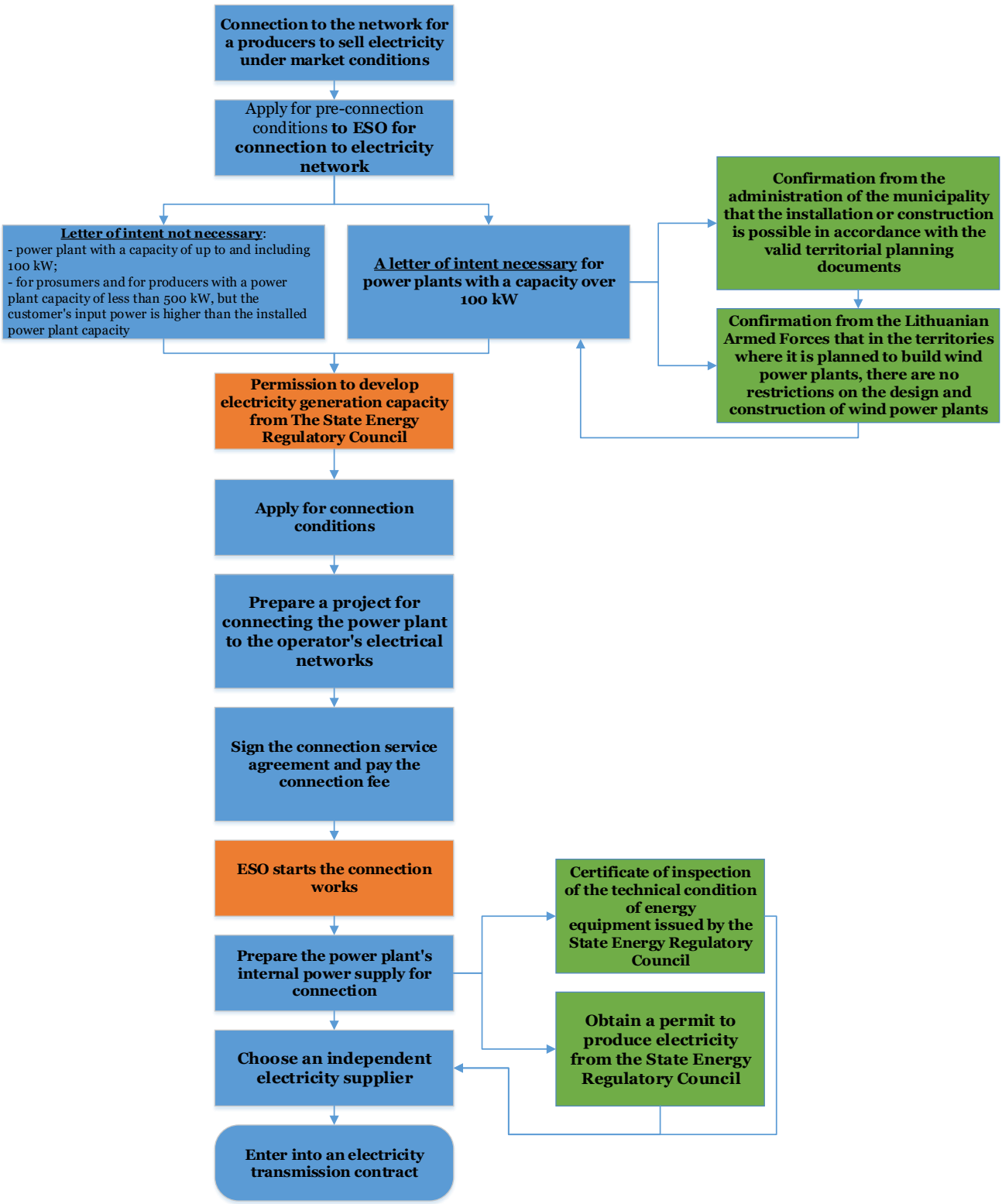


Fig. 3.12. Connection to the network for a producer to sell electricity under market conditions

3.8.4. Connection to the Transmission System Operators network

Lithuanian electricity transmission system operator is Litgrid AB. Their main tasks are to maintain the stable operation of the national power system, control electricity flows, and

enable competition in an open domestic electricity market. Litgrid is responsible for integrating the national power system into the European power infrastructure and electricity market (Litgrid, 2021).

Steps required to connect to the electricity transmission network of Litgrid AB:

1. Apply to the transmission system operator Litgrid for pre-connection conditions;
2. Submit a request to sign a letter of intent;
3. Submit a guarantee to the transmission system operator for the fulfilment of the producers' obligations;
4. Submit a request to the State Energy Regulatory Council and obtain a permit to expand electricity generation capacity;
5. Submit a request to the transmission system operator for connection conditions;
6. Prepare and agree on a technical project;
7. Conclude a connection service agreement with the transmission system operator;
8. Obtain a building permit;
9. Trial operation and construction completion procedures. (Litgrid, 2021)

➔Duration of the process	*within 22 months*
➔ Solar PV	applies
➔Windfarm	applies

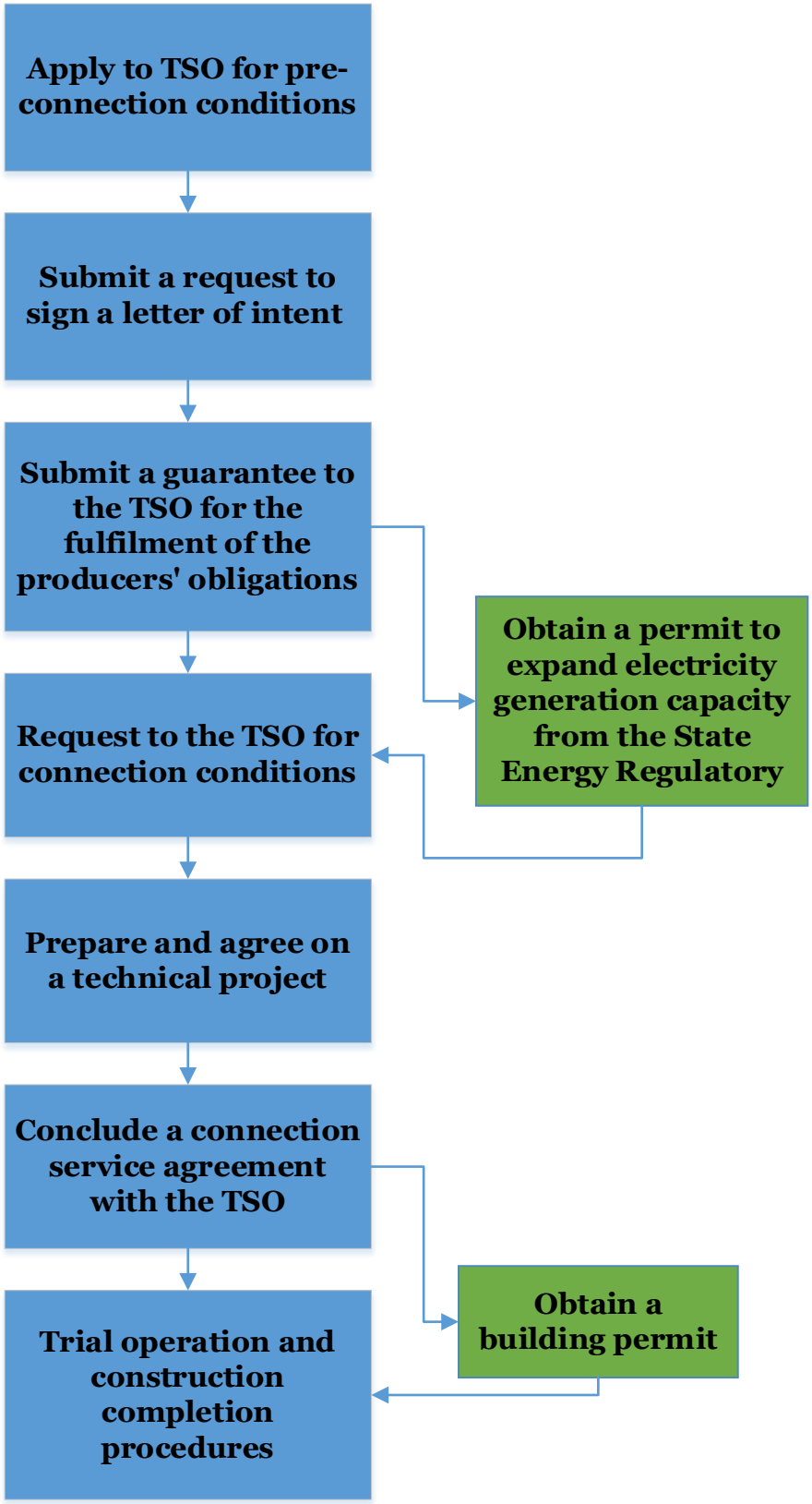


Fig. 3.13. Connection to the network of the transmission system operator

3.9. Offshore wind farms

A regulation for implementation projects for offshore wind farms is under modification now. A new law draft will be considered in Parliament in autumn session 2021. The draft of the upcoming law foresees regulation for offshore plants support and model to connection to on-shore grids. The Law of the Republic of Lithuania on Energy from Renewable Sources sets the regulatory framework for offshore wind farms. Article 22, "Use of renewable energy resources for the production of electricity in the territorial sea of the Republic of Lithuania and/or in the exclusive economic zone of the Republic of Lithuania in the Baltic Sea" states that (Lietuvos Respublikos Seimas, 2011b):

1. The authority authorised by the Government shall carry out surveys of the territorial sea of the Republic of Lithuania and the exclusive economic zone of the Republic of Lithuania in the Baltic Sea and take other actions necessary for the adoption of the Government resolution on the determination of the parts of the territorial sea of the Republic of Lithuania and/or the exclusive economic zone of the Republic of Lithuania in the Baltic Sea in which it is appropriate to organize a tender for the development and operation of power stations using renewable resources. On the determination of the installed capacity of these power stations, the following must be done:
   - preparation of a specific plan;
   - strategic environmental assessment of the specific plan;
   - an environmental and public health impact assessment;
   - an assessment of the feasibility of connection to the onshore electricity transmission grid;
   - the assessment of balancing options;
   - a cost assessment;
   - carry out other actions necessary to assess the permissibility and feasibility of electricity production from renewable energy sources. (Lietuvos Respublikos Seimas, 2011b)
2. Part(s) of the territorial sea of the Republic of Lithuania and/or the exclusive economic zone of the Republic of Lithuania in the Baltic Sea shall only be used for the development and operation of power plants using renewable energy resources with a permit issued by an authority authorised by the Government. This permit shall be issued for **35 years** without the possibility of renewal. (Lietuvos Respublikos Seimas, 2011b)

3. Permits for the development and operation of power plants using renewable energy resources in the territorial sea of the Republic of Lithuania and/or part(s) of the exclusive economic zone of the Republic of Lithuania in the Baltic Sea shall be issued by way of a tender. (Lietuvos Respublikos Seimas, 2011b)
4. Pre-connection conditions shall be issued, the tender organised and the permit for development and operation shall be issued not earlier than the adoption of a Government Resolution on the parts of the territorial sea of the Republic of Lithuania and/or the exclusive economic zone of the Republic of Lithuania in the Baltic Sea where it is expedient to organise a tender for the development and operation of power plants using renewable energy resources and on the determination of the installed capacity of these power plants. (Lietuvos Respublikos Seimas, 2011b)
5. The tender may be initiated by anyone who meets the requirements by applying to the Government-authorised body. The tender may be organized not earlier that the Government adopts resolution on the territory for the development of offshore plants and their capacities within **six months** from the date of receipt of the tender application for the determination of the shares and installed capacities provided in the Government Resolution provided. The winner of the tender shall be determined by the procedure laid down in the Rules of Procedure for the Organisation of Tenders and the Issuing of Permits, based on objective, transparent and non-discriminatory principles. (Lietuvos Respublikos Seimas, 2011b)
6. The fees of the successful tenderers shall reimburse the costs incurred in carrying out the studies and other actions. The amount of the bidder's fee shall be determined considering the installed capacities of the power plants established in the Government Resolution provided and shall be allocated in proportion to the installed capacity of the power plants to be allocated in the tender. The bidder's fee shall be paid to the authority authorised by the Government. (Lietuvos Respublikos Seimas, 2011b)
7. Bidders shall, by the Rules of Procedure for the Organisation and Authorisation of Tenders, submit to the electricity grid operator a performance bond that guarantees the electricity grid operator the bidder's commitment to developing a renewable energy power plant project after winning the tender. (Lietuvos Respublikos Seimas, 2011b)
8. In the event that the development and operation permit is revoked, the electricity network operator shall have the right to use all the security provided by the person concerned for the fulfilment of its obligations. Suppose the successful tenderer installs

a power plant with a capacity lower than that provided for in the development and operation permit during the validity of the development and operation permit. In that case, the electricity grid operator shall be entitled to benefit from the proportion of the submitted performance security that is proportional to the uninstalled capacity. (Lietuvos Respublikos Seimas, 2011b)

9. When the installed capacities of the power plants referred to in the Government Resolution are reached and/or the need for the development of additional electricity generation capacities arises, the Government-authorised authority shall assess the advisability of their installation and, if necessary, review or update the results of the studies and other actions and submit proposals to the Government for the amendment to the Government Resolution. (Lietuvos Respublikos Seimas, 2011b)
10. Permits for development and exploitation shall be issued, by the procedure and under the conditions established by this Law, to natural persons with the right of residence in the Republic of Lithuania, or legal persons established in the Republic of Lithuania, or to branches of legal persons or other organisations of other Member States established in the Republic of Lithuania:
    - who have been recognised as winners of the tender;
    - which have fulfilled their obligations relating to the payment of taxes, including social security contributions;
    - which undertakes to bear the costs of connection to the onshore transmission grid and balance costs from its resources. (Lietuvos Respublikos Seimas, 2011b)
12. The procedure for assessing the requirements shall be laid down in the Schedule to the Procedure for the Organisation of Competitions and the Issuing of Permits.
13. A person who has obtained a development and operation permit shall not have the right to authorise other persons to carry out the activities referred to in the permit or to delegate to them this right by contract or otherwise, and shall be bound by the conditions for these activities:
    - obtain a building permit within **three years** from the date of obtaining the development and operation permit;
    - within **six years** from the date of receipt of the development and operation permit, obtain a permit for the production of electricity;
    - to provide the Government-authorised authority with information on the regulated activities specified in the development and operation permit,

- not to increase (expand) the installed capacity and area of the power plant provided for in the development and operation permit. (Lietuvos Respublikos Seimas, 2011b)

According to the Law of Construction, construction permits in the territorial waters of the Republic of Lithuania, the exclusive economic zone and the continental shelf, as well as in the implementation of projects of particular state importance and permits to continue suspended construction, shall be issued by the State Territorial Planning and Construction Inspectorate under the Ministry of Environment. Construction permits for the construction of new special and non-special structures in the coastal zone shall be issued by the State Territorial Planning and Construction Inspectorate under the Ministry of Environment by the procedure established by the Law on the Coastal Zone of the Republic of Lithuania and the Minister of Environment (Lietuvos Respublikos Seimas, 1996).

➔Duration of the process	Six years
➔ Permit for the development and operation of power plants using RES in the territorial sea of the Republic of Lithuania	valid for 35 years
➔Offshore RES plants	applies

3.10. Support mechanisms

The Law of the Republic of Lithuania on Energy from Renewable Sources, Consolidated version July 1st, 2021 to December 31st, 2021 of, No XI-1375 as of May 12, 2011 sets out the support mechanisms applicable to the production of electricity from renewable energy sources (Lietuvos Respublikos Seimas, 2011b). Article 3 of this Law states the planned promotion to the development of the use of renewable energy sources:

1. the use of renewable energy sources shall be promoted by the procedure and under the conditions laid down in this Law and other legal acts. (Lietuvos Respublikos Seimas, 2011b)
2. the use of renewable energy sources shall be promoted using a defined support scheme consisting of one or more incentive measures. The following shall be considered as incentive measures:
   - price supplement;
   - preferential transmission of energy from renewable sources;

- exemption of electricity generators with a power plant below 500 kW from the responsibility for balancing the electricity produced and/or reserving the generation capacity of the power plant during the promotion period;
- exemption from liability for balancing the electricity produced and/or reserving the generating capacity of the power plant for electricity generators carrying out pilot projects for wind power plants with an installed capacity of not more than 3 MW or pilot projects for wind power plants where the power plant consists of not more than three generating units;
- requirements for the mandatory use of renewable energy sources for energy production and/or the mandatory use of energy from renewable sources as well as biofuels;
- support for investments in renewable energy technologies;
- other statutory incentives;
- the development of environmentally friendly technologies using renewable energy sources for energy production may be granted the status of a pilot project by government decree. (Lietuvos Respublikos Seimas, 2011b)

Article 20 "Promotion of the use of renewable energy sources for electricity generation", states that:

1. the production of electricity from renewable energy sources and the balancing of such electricity produced by electricity generators with a power plant of less than 500 kW in operation, carried out by the procedure laid down by the Government or authority authorised by the Government, shall constitute services of public interest;
2. the production of electricity from renewable energy sources shall be promoted using a payment to the producer by the procedure established by the Government:
   - the price supplement won at the auction when the sum of the hourly price of the next day's trading on the Lithuanian zone of the electricity exchange and the price premium won at the auction is lower than or equal to the maximum price set by the State Energy Regulatory Council;
   - a portion of the price supplement won in the auction, which shall be calculated as the difference between the maximum price set by the State Energy Regulatory Council. The hourly price of the next day's trading on the Lithuanian zone of the electricity exchange, which may not be higher than the price premium won in the auction when the sum of the hourly price of the next day's trading on the electricity exchange in the Lithuanian zone of the electricity exchange and the

price premium won in the auction is higher than the maximum price set by the State Energy Regulatory Council. (Lietuvos Respublikos Seimas, 2011b)

3. By the procedure established by the Government, the price supplement won in the auction shall not be paid to the producer for the period during which the hourly price of the next day's trading on the Lithuanian zone of the electricity exchange is higher than or equal to the maximum price and/or for the period during which the hourly price of the next day's trading on the electricity exchange in the Lithuanian zone of the electricity exchange for 6 hours or more is lower than or equal to zero. (Lietuvos Respublikos Seimas, 2011b)

   The producer shall also not be paid a price supplement from the month. The amount of electricity produced and fed into the electricity grid reaches the annual electricity production volume allocated to the producer in the auction. (Lietuvos Respublikos Seimas, 2011b)

4. The right to the price supplement shall also be acquired for the production of electricity from renewable energy sources by persons other than persons seeking to become generators independently or through others, persons whose share of the power plant is owned or otherwise legally owned by prosumers and persons planning pilot projects, in order to achieve the amount of electricity production, shall be distributed by auction. The Republic of Lithuania and other Member States have the right to participate in the auctions as natural and /or legal persons and /or other organizations or entities. The auctions must be organized no later than within 180 calendar days from publishing the information about the planned auction on the State Energy Regulatory Council website. (Lietuvos Respublikos Seimas, 2011b)

Costs incurred by network operators about the connection of the electrical equipment of a prosumer or a person seeking to become a prosumer to the electricity network shall be allocated as follows:

- when connecting electricity consumption and production facilities, vulnerable consumers shall pay 20 per cent of the costs of the distribution network operator, and other consumers shall pay 50 per cent of the costs of the distribution network operator, or shall pay a tariff calculated based on this amount and approved by the State Energy Regulatory Council;
- where electricity generation facilities are connected, and electricity consumption facilities are connected to the distribution network, consumers shall pay 50 per

cent of the distribution network operator's costs or a tariff calculated by this amount and approved by the State Energy Regulatory Council;

- where electricity generation facilities are connected where the point of connection to the electricity network is not the same as the point of connection of the point of consumption of electricity, consumers shall pay 100 per cent of the costs of the distribution network operator or a tariff calculated by this amount and approved by the State Energy Regulatory Council. (Lietuvos Respublikos Seimas, 2011b)

The Law of the Republic of Lithuania on Energy from Renewable Sourcesdefines Renewable Energy Communities and the rules these communities should be operating on:

1. the status of a renewable energy community shall be granted to a public body established by the procedure established by the Law on Public Bodies of the Republic of Lithuania and this Law, the activities of which shall be based on the open and voluntary participation of the shareholders who meet the requirements. A public body shall acquire the status of a renewable energy community at the time of the issuance of a permit for electricity production by the State Energy Regulatory Council. (Lietuvos Respublikos Seimas, 2011b)
2. The shareholders of a public body seeking to acquire the status of a renewable energy community may be natural persons, small or medium-sized enterprises as defined in the Law on the Development of Small and Medium-sized Enterprises of the Republic of Lithuania, and/or municipalities. (Lietuvos Respublikos Seimas, 2011b)
3. A renewable energy community shall have the right to sell to its members the energy produced by the energy production facilities owned or otherwise controlled by it at a price set out in the contract for the sale and purchase of electricity from renewable energy sources may be zero. The members of the renewable energy community shall use the electricity for their use and their economic needs. (Lietuvos Respublikos Seimas, 2011b)
4. A renewable energy community may also sell the electricity produced in energy production facilities owned or otherwise controlled by it according to the procedure and the methods set out in the Electricity Trading Rules. (Lietuvos Respublikos Seimas, 2011b)
5. Municipalities shall assess and publish on their websites information on land plots and other sites owned by them on which renewable energy community energy production facilities may be built or installed. (Lietuvos Respublikos Seimas, 2011b)

6. The renewable energy community and/or its shareholders shall not pay for services of public interest in the electricity sector for the amount of electricity that has been produced in the renewable energy community's energy production facilities, fed into the electricity grid and then consumed by the renewable energy community and/or its shareholders for the purposes and economic needs of the renewable energy community and/or its shareholders. (Lietuvos Respublikos Seimas, 2011b)

4. ESTONIA

Different conditions apply to power plants of different capacities. For micro-generation equipment, the installation and approval process is carried out under simplified conditions, resulting in the installation, connection to the grid and generating electricity taking up a much shorter period than for a plant with a generating capacity of over 15 kW (Consultare OÜ, 2020). Fig. 4.1 shows the distribution of solar PV and wind turbines, wind farms by installed capacity in Estonia. The Estonian legislation does not highlight a specific distinction and different rules in the approval process for installing solar PV and the approval process for installing wind turbines or wind farms. Although, the most visible difference in the installation process is in wind farms. Additional measures must be taken in the form of the environmental impact assessment - a preliminary assessment must be carried out if a wind power plant with more than five wind turbines with a total capacity of more than 7.5 megawatts is built on land (Consultare OÜ, 2020). Mandatory environmental impact assessment needs to be carried out before installing wind farms in water bodies. However, it is possible that a preliminary environmental impact assessment could be required for the construction of a solar PV plant as a part of the construction permit granting process if the municipality concerned where the installation is planned decides that the activity could have a negative impact on the environment (Consultare OÜ, 2020).

Micro-generation equipment (up to 15 kW) can be installed under simplified conditions. A person or legal entity with installed production equipment above 15 kW and up to 1000 kW is considered a small producer (Eesti Energia AS, no date). A power generating system of solar PV or wind turbines is considered medium-scaled if its capacity is 10 MW. Small scale and medium scaled systems for connection to the network must apply to the distribution system operator. For large scale systems, over 10MW person or legal entity has to apply to the transmission system operator to connect the equipment to the grid (Eesti Energia AS, no date). Typically, home or business production equipment has a capacity of less than 200 kW. However, suppose the capacity of production equipment is more than 200 kW. In that case, a person or legal entity must apply for an activity license (permit for electricity generation) from the Competition Authority to produce electricity (Eesti Energia AS, no date).

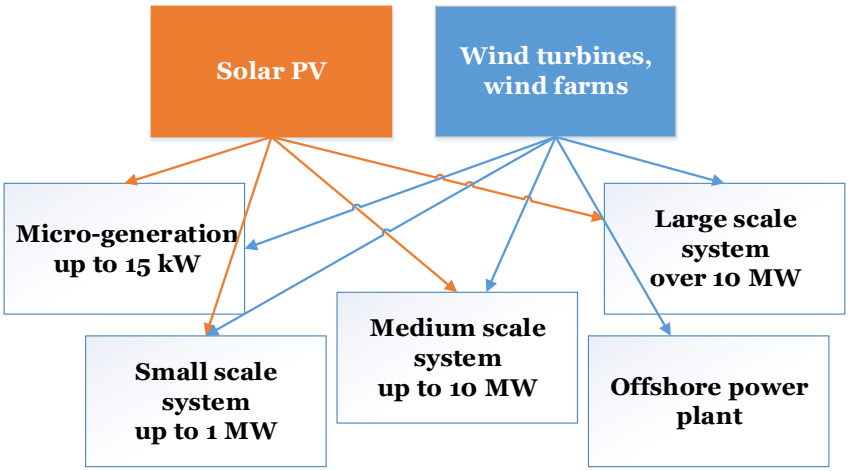


Fig. 4.1 Distribution of solar PV and wind turbines, wind farms by installed capacity (Consultare OÜ, 2020)

Section 4.1. describes the general implementation process for solar PV and wind power plants in Estonia, while starting from Section 4.2, an in-depth legislation analysis has been performed. The following sections briefly describe the main steps that the solar PV or wind power plant project developer should undergo, from selecting the most appropriate site to connecting the power plant to the grid and generating electricity.

4.1. Main steps for solar PV and wind power plant implementation

Before installing solar PV and wind turbines, a feasibility study related to spatial planning should be carried out. It should be ascertained whether the local municipality's spatial plan or detailed spatial plan permits the construction of this type of facility on the particular plot of land intended for the plant. Suppose the county-wide or detailed spatial plan does not allow installing solar PV or wind turbines on the plot of land in question by its functionality. In that case, the local authority should be asked to amend the detailed spatial plan. If the local authority approves the need for changes to the detailed design, it should be taken into account that the procedure may take up to 3 years overall (Consultare OÜ, 2020).

Fig. 4.2. shows an overview of the main steps for the wind farm installation process from the idea to the launching operation. The process description includes the maximum number of steps to set up a wind turbine or wind farm, and the time cut-offs are designed to include both the minimum and maximum timeframe for the process.

The process starts with a detailed feasibility study. Due to the complexity of the following steps, the wind farm developers should carefully select the territory for the wind farm by taking into account several criteria – wind speed in the selected area, inviting an

expert to preliminary assess possible environmental impacts that the plant could create, will it be possible to connect the wind farm to the closest network and how much will it cost and economic viability of the project (Consultare OÜ, 2020). When selecting a site, the distance from military installations and radars should also be considered, as wind turbines of a certain height may not be allowed within the radar range. The duration of the feasibility study phase mainly depends on the developer's schedule and the availability of the necessary experts for assessing the potential environmental impact.

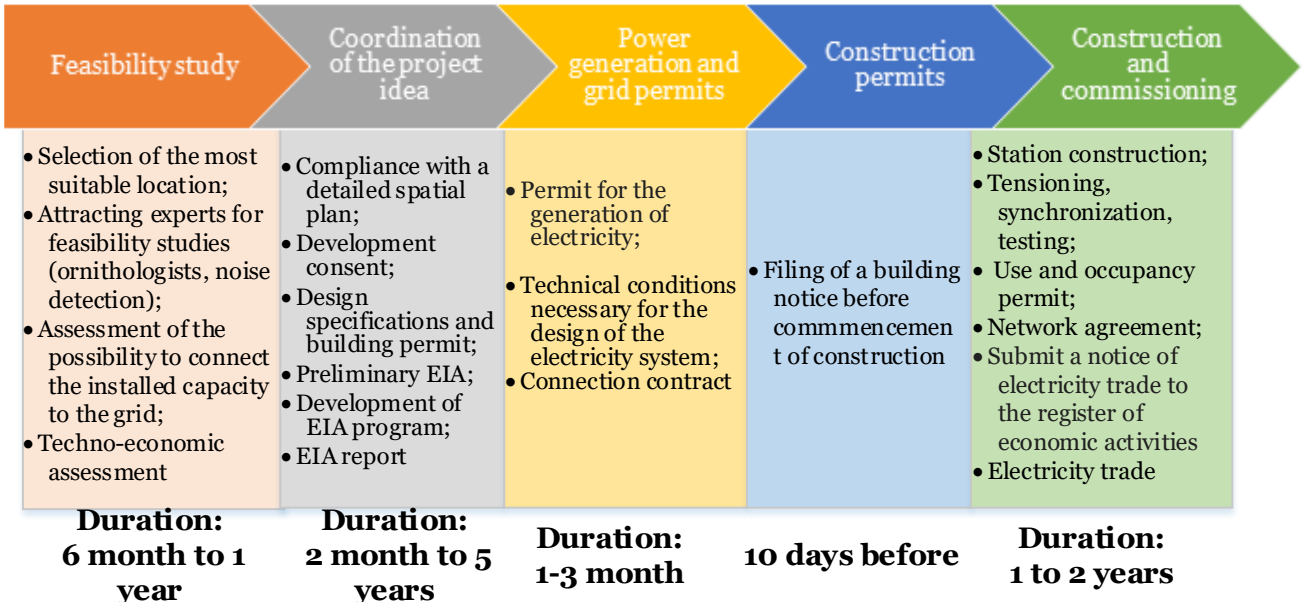


Fig. 4.2. Main steps for solar PV and wind farm installation and duration of each step in Estonia

Where possible, the environmental impact assessment procedures are combined with the procedures established in the Building Code. Requirements established for both procedures must be met. Both power generation facilities with a generation capacity that exceeds 100 kW as well as power generation facilities with a generation capacity of up to 100 kW need to obtain a “building permit” (Consultare OÜ, 2020). Before issuing a building permit, the competent authority checks if the design documentation of the civil engineering works conforms to the requirements established in legislation and decides whether to initiate or not the EIA process.

The competent authority may initiate a preliminary EIA to assess whether an entire EIA procedure is needed. The procedure of conducting a preliminary EIA is described in Section 4.3.1 and assessing the compliance with the spatial planning documents. Further, if applicable, the EIA procedure is started. The first step is to prepare an EIA programme, a process done by the developer and a licensed expert or group of experts. The process for

preparing the EIA programme depends on the different environmental aspects needed to be assessed. However, it should not take longer than 18 months. After receiving the EIA programme, the competent authority will assess the programme's compliance with the requirements set out in the legislation and decide if an EIA report can be prepared. The EIA report can be prepared if the competent authority accepts the programme. The developer must submit an EIA report to the decision-making authority for a public display within two years after making the decision. After a public display of the EIA report and reviewing it, a decision is made whether to approve it or not.

The decision-making authority must consider the relevance of the environmental impact assessment, the results of the environmental impact assessment, and the environmental measures contained in the report upon deciding to grant or refuse to grant development consent. After obtaining the building permit, the developer can prepare for construction works. The local authority must be informed at least ten days before construction work. In parallel with the equipment installation process, it must be agreed with the distribution network operator or, in the case of a power plant with a larger capacity - the transmission network operator, on the pre-connection conditions and a connection agreement must be concluded so that a connection to the network can be established. The overall procedure for connecting electricity generation equipment with lower capacities to one of the 33 distribution network operators operating in Estonia is described in Section 4.6.1. electricity, connection to the grid for power plants with higher capacities (over 10 MW) shall be connected to the network operated by the transmission network operator by the procedure described in Section 4.6.2. The duration of construction works is project-specific and depends on several aspects, such as available financial resources, procurements, complexity for establishing a network connection, project planning etc. After the station has been constructed, several test measures should be done to connect it to the power grid.

When the construction work is nearing completion, a permit must be obtained to generate electricity. For a more detailed description of cases where you need to obtain a permit to generate electricity, see Section 4.5. In the same section, information can be obtained on the need to submit a notice about planned economic activities to the Register of Economic Activities if a person or legal entity wants to operate as a seller of electricity.

After the power station is constructed and connected to the network, all power generation facilities with a generation capacity up to or exceeding 100 kW need to obtain a “use and occupancy permit” issued by the local authority. After obtaining the use and occupancy permit, the developer should conclude a permanent network contract.

Estonian legislation allows the possibility to build and transmit electricity via a direct line without connecting to the transmission network. This option is particularly advantageous in the case of power generation installations in industrial areas. For more information on the legislative framework for setting up a direct line, see Section 4.7.

The legislative framework for offshore wind farms is still under development. Currently, the Water Act and the Electricity Market Act regulate only the procedure of issuing superficies licence and the building permit. Information on the procedures determined can be found in Section 4.8.

The analysis outlines the overall phases of solar PV and wind farm deployment, from project planning to grid connection. In the further analysis, the timeframes indicated are approximate and mostly represent only the time units specified in the regulatory and normative acts, without the information about timeframes on the activities to be carried out by the developer - preparation of necessary documents, assessments for various permits, contracting process with the necessary specialists, construction process, etc. The process of approval of documents by the local municipality regarding the spatial planning and building permit may vary depending on the municipality and the municipalities' internal regulatory framework regarding the coordination and approval of documents. It should also be noted that the requirements from the 33 distribution network operators' operating in Estonia or, at higher capacities, the requirements from the transmission network operator may vary depending on the capacity of the solar PV plant or wind farm in question and the distance from the electricity transmission lines and the complexity of the connection.

4.2. Territorial planning

Before starting the construction planning process, it is crucial to determine whether the national or county spatial plans allow the installation of solar panels or wind turbines in the designated area. Sites for large-scale electricity generation are likely to be identified in national spatial plans. In contrast, sites for medium and small-scale plants are likely to be regulated by county-wide and detailed plans.

The Estonian planning system is hierarchical. Spatial planning is divided into four main types. These are national planning, county-wide planning, comprehensive planning and detailed planning documents (Planeerimine, no date b). When drawing up a more detailed plan, it is necessary to follow the more general established plan's provisions to ensure consistency and continuity of spatial development. In addition to the four main types, it is also possible to draw up special plans in Estonia. The preparation of a specific plan is a two-

stage process, starting with a preliminary selection of a site, together with a more general environmental impact assessment, and ending with preparing a detailed solution (Planeerimine, no date b).

The planning documents drawn up at the national level are the national plan, the special national plan and the county plan. The primary purpose of national planning is to plan the infrastructure and settlement pattern that is appropriate to meet the country's needs as a whole by expressing its functioning and spatial development needs. The current national plan "Estonia 2030+" aims to ensure the best possible quality of life for people in the existing settlement system, the maximum use of the development potential of different regions and the smooth functioning of the settlement network (Planeerimine, no date b).

As a national thematic plan, the entire Estonian maritime area is underway, i.e. the plan is being prepared for the inland sea, the territorial sea and the economic zone (Planeerimine, no date b). Maritime spatial planning aims to agree on the long-term use of Estonia's maritime space to promote the maritime economy and contribute to achieving and maintaining the good environmental status of the marine environment (Planeerimine, no date b).

The regional spatial view is put together in county plans to define the principles and trends for the spatial development of a county, part of a county or other region. In the past, regional plans in Estonia were drawn up by county governors. As of 1 January 2018, all county governments have ceased to exist, and their tasks have been transferred to other designated state authorities or local authorities. The responsibility for drawing up county plans has been given to the Department of Regional Administration under the Ministry of Finance. Each county's tasks are carried out by the county department of the Regional Administration Division of the Ministry of Finance. Between 2017 and 2019, county-by-county planning was completed in all fifteen counties. Additional information about county plans can be found on the website of the Ministry of Finance. (Planeerimine, no date b).

Local authorities have extensive planning autonomy to draw up comprehensive, detailed and special plans for their territory or part of it. At the same time, drawing up plans for spatial development is an obligation and a public service. The purpose of a comprehensive plan is to define the principles and trends for the spatial development of the whole territory of a municipality or city. (Planeerimine, no date b).

According to the common understanding, a local government is an administrative body that establishes a complete spatial solution in its territory. It lays down the rules of land use and construction, which landowners and everyone else can follow when exercising the right

of ownership (Planeerimine, no date a). The Estonian planning system stipulates that most land use and construction decisions are made at the local government level, given the opportunity to prepare comprehensive plans, local government special plans, and detailed plans. Information on each plan prepared by the local government can be obtained from the local government of the location. The comprehensive plan is the basis for preparing the local government's special plan and detailed plan and the granting of design conditions (Planeerimine, no date a). Thus, more detailed planning and construction occur according to the rules of the general plan. If the preparation of a detailed plan is required, the preparation of the detailed plan must be based on the provisions of the general plan. A detailed plan is first and foremost a tool for implementing the general plan, which supplements and specifies the general conditions of land use and construction set in the general plan (Planeerimine, no date a). The general plan must also be followed when granting design conditions if there is no obligation to prepare a detailed plan.

The local government prepares the detailed plan primarily to implement the general plan and is the basis for construction activities in the coming years (Planeerimine, no date a). The preparation of detailed plans is not necessary for the entire territory of Estonia. However, the areas and cases specified in the laws and the general plan prepared by the local government are prepared for the detailed plan. (Planeerimine, no date b).

Planning Act defines a spatial plan as an inclusive spatial solution prepared for a particular land area. The cases provided in law establish the area's land use and building conditions (Riigikogu, 2019). The planning proceedings are public. The authority that organizes planning work must inform the public of the planning procedures in understandable terms, provide sufficient invitation to the public to participate in the proceedings and, in the course of the preparation of the spatial plan, arrange public displays and public discussions of the plan in order to introduce the plan to the public. (Riigikogu, 2019)

National designated spatial plans aim to erect a construction worker with a significant spatial impact, and whose chosen location or functioning elicits significant national or international interest (Riigikogu, 2019). A national designated spatial plan is prepared, above all, to express interests that transcend the boundaries of individual counties in the fields of national defence and security, energy supply, the transport of gas, waste management or for the expression of such interests in public water bodies and the exclusive economic zone. A national designated spatial plan must be prepared in respect of the territory of Estonia or a part thereof in order to power station whose nominal electricity generation capacity exceeds

150 megawatts, and any construction works required for the functioning of such installations, provided the construction works meet the criteria set out (Riigikogu, 2019).

A county-wide spatial plan aims to define the principles and directions of the spatial development of the entire county or a part thereof or another region. A county-wide spatial plan is prepared primarily to express interests that transcend the boundaries of individual local authorities and balance national and local needs and interests regarding spatial development. A county-wide spatial plan may be prepared concerning a tract of land as well as concerning public water bodies except for internal waters and the territorial sea (Riigikogu, 2019):

- to define balanced and sustainable settlement concerning the planning area, including the statement of conditions significant for the functioning of the network of centres and for influencing the distribution of communities, and to determine the principles for the planning of centres;
- to define general principles for the use of public water bodies;
- to state the general conditions of use for the preservation of cultural heritage;
- to state the general conditions of use for the preservation of valuable agricultural land, landscapes and natural biotic communities;
- to state the general conditions of use for ensuring the functioning of the green network;
- to define the location of areas serving national defence purposes and of areas impacted by such areas and to state the general conditions of use for such areas;
- to formulate directions for the preparation of comprehensive plans. (Riigikogu, 2019)

The preparation of a county-wide spatial plan and the conduct of the strategic environmental assessment is initiated by the Government of the Republic. When the strategic environmental assessment report results are incorporated in the county-wide spatial plan, the Government of the Republic decides on accepting the county-wide spatial plan.

A comprehensive plan aims to define the principles of and directions in the spatial development of the entire territory of a rural municipality or city or a part of such territory (Riigikogu, 2019). By agreement between the corresponding local authorities, a comprehensive plan may be prepared for the territory of several rural municipalities or cities, among other things, to implement the county's development strategy. The functions of comprehensive plans are (Riigikogu, 2019):

- to determine the general location of utility lines and civil engineering works related to such lines and the restrictions resulting from such utility lines and civil engineering works;
- to select the location of construction works that have a significant spatial impact;
- to determine the general requirements concerning the building, in a public water body, of construction works that have a permanent connection to the shore or that are functionally connected to the shore, and their location;
- to specify the conditions to ensure the functioning of the green network and to determine the restrictions resulting from such network;
- to designate natural objects to be protected at the local authority level and to state the conditions for their protection and use;
- to designate valuable agricultural land, green areas, landscapes, individual features of landscapes and natural biotic communities and to state the conditions for their protection and use;
- to designate built-up areas of cultural and environmental value and to assign the status 'valuable' to individual objects and to state the conditions for their protection and use;
- to determine the measures to preserve locally significant cultural heritage and the general conditions for the use of such heritage;
- to determine the general use and building conditions of the planning area, including the conditions for issuing design specifications, to determine the principal purpose of land use, the maximum built-up floor area, the height limit for buildings and the requirements for the planting of vegetation;
- to define land areas that serve national defence purposes and to specify the boundaries of the land areas defined in the county-wide spatial plan as serving national defence purposes;
- to determine the location of leisure and recreation areas and the restrictions resulting from such areas;
- to define the categories of standard noise levels;
- to fulfil other functions about the functions listed in this subsection.

A local government comprehensive spatial plan is prepared to erect a construction work with a significant spatial impact and whose location has not been determined in the comprehensive plan (Riigikogu, 2019).

A detailed spatial plan is prepared for a part of the territory of a local authority and, where necessary, to plan construction works that have a permanent connection to the shore or that are functionally connected to the shore. The purpose of the detailed spatial plan is, above all, to implement the comprehensive plan and to create an inclusive spatial solution for the planning area (Riigikogu, 2019). The detailed spatial plan forms the basis for the building work conducted soon. Restrictions may be imposed on the immovable property based on the detailed spatial plan. Where a detailed spatial plan exists or where the preparation of a detailed spatial plan is mandatory, the detailed spatial plan forms the basis for the preparation of building design documentation. Suppose the planning area contains a heritage conservation area, an immovable monument or the protection zone of such an area or monument. In that case, the special conditions of heritage conservation for the detailed spatial plan are considered in the preparation of that plan, regarding the provisions of the Heritage Conservation Act (Riigikogu, 2019). The authority that arranges the preparation of detailed spatial plans is the local authority (Riigikogu, 2019).

Functions of detailed spatial plans (Riigikogu, 2019):

- to divide the planning area into plots;
- to define the buildable area of the plot;
- to determine the building rights in respect of the plots;
- to determine the possible location of any construction works necessary for the functioning of buildings and civil engineering works, including the location of utility lines and of any civil engineering works related to such lines and of any roads to provide access to roads designated as public roads;
- to determine the requirements concerning the building of the envisaged construction works;
- to determine the requirements concerning the architectural solution and appearance of the envisaged construction works;
- to determine the relevant clearances;
- to establish the requirements to ensure observance of standard levels of noise, vibration, pollution risk and insolation, and other environmental parameters;
- to assign locally protected status to natural objects and determine the relevant protection zones;
- to define built-up areas of cultural and environmental value, to assign the status ‘valuable’ to individual objects and areas of arable land, and to determine the conditions for the protection and use of such areas and objects, provided such

areas or objects have not been defined or assigned as valuable in the comprehensive plan;

- where this is warranted by the circumstances, to establish requirements concerning construction works whose building is not subject to the preparation of a detailed spatial plan.

The building rights of a plot are determined (Riigikogu, 2019):

- the intended purpose, or purposes, of use of the plot;
- the maximum authorized number of buildings, or civil engineering works of significant public interest, on the plot, or the absence of such buildings or civil engineering works;
- the maximum ground projection area of buildings or civil engineering works of significant public interest;
- the maximum authorized height of buildings or civil engineering works of significant public interest.

The detailed spatial plan is prepared in cooperation with the government agencies whose area of government the issues addressed by the plan fall. The persons whose rights the detailed spatial plan may affect, as well as persons who have expressed an interest in being invited to participate in the preparation of the detailed spatial plan, are invited to participate in the preparation of the plan (Riigikogu, 2019). Any person whose interests the detailed spatial plan may affect may be invited to participate in the preparation of the detailed spatial plan (Riigikogu, 2019):

1. The local authority initiates the preparation of the detailed spatial plan. Initiation of the preparation of the detailed spatial plan is foregone above all where:
   - it is evident that the initiation of the preparation of the detailed spatial plan is contrary to the comprehensive plan;
   - it is evident that future implementation of the plan to be initiated is impossible, above all where the authority arranging the preparation of the plan lacks the means to bear the costs of constructing, according to the plan, the roads designated as public roads, together with the related civil engineering works, vegetation and street lighting, or the costs of constructing, according to the plan, the technical infrastructure that serves public interests, and the party interested in the preparation of the detailed plan refuses to bear such costs;
   - this is dictated by other reasons based on imperative public interest;

- the implementation of the plan would result in a disproportionate encroachment on the rights of a third party.

2. the decision on initiating or refusing to initiate the preparation of the detailed spatial plan is taken within **30 days** from receiving the application seeking initiation of the preparation of the plan (Riigikogu, 2019). Where valid reasons are present, above all those emanating from the size of the planning area, the need to conduct surveys or investigations, from the ascertainment of the facts prerequisite to the conclusion of the relevant administrative contract or a contract to assign the obligation to bear the costs connected to the commissioning of the preparation of the plan, or from the large number of the parties to be invited to participate or cooperate, the time-limit mentioned above **may be extended to 90 days**;
3. the initiation of the preparation of the detailed spatial plan is announced within **30 days** of the initiation in the local newspaper of the city or rural municipality. Notice concerning the initiation of the preparation of the detailed spatial plan is published in the Official Announcements and on the website of the authority arranging the preparation of the plan within **14 days of the initiation;**
4. preparation process of the detailed spatial plan (*no time frame given*);
5. the detailed spatial plan is submitted for approval to the persons and bodies concerned and are notified of the opportunity to present their opinion regarding the plan. If the body or person to whom the detailed spatial plan was submitted for approval or who was invited to present an opinion regarding the plan has not, **within 30 days of** receiving the plan, refused to approve the plan or presented an opinion or applied for an extension of the time-limit, the plan is deemed to have been tacitly approved;
6. when the detailed spatial plan has received the requisite approvals, the authority that arranged the preparation of the plan resolves the acceptance of the detailed spatial plan;
7. after it has accepted the detailed spatial plan, the authority that arranged the preparation of the plan arranges at least one public display of the detailed spatial plan. The duration of the public display of a detailed spatial plan is **at least 14 days**. The duration of the public display of a detailed spatial plan that modifies the comprehensive plan and of a detailed spatial plan that is not based on the adopted comprehensive plan is at least 30 days;

8. the time and place of public display of the detailed spatial plan is announced at least **14 days** before the commencement of the public display;
9. **within 30 days** after the end of the public display of the detailed spatial plan, the authority arranging the preparation of the plan communicates to the persons who submitted written opinions during the time of the public display its reasoned position concerning those opinions together with the time and place of the public discussion;
10. the authority arranging the preparation of the detailed spatial plan arranges a public discussion of the plan within **45 days** from the end of the public display. The holding of the public discussion is not mandatory if no written opinions were submitted concerning the detailed spatial plan during the time it was on public display or if all written opinions have been followed;
11. based on the public display and discussion results, the necessary modifications are made to the detailed spatial plan. If written opinions were submitted during the public display of the detailed spatial plan, the information concerning the results of the public display and public discussion is published within 30 days of the holding of the public discussion;
12. the detailed spatial plan is submitted for ratification to the Ministry of Finance. This does not apply if the detailed plan has been prepared according to the comprehensive plan. No opinions were submitted concerning the plan during the public display or if all written opinions submitted during the public display have been taken into account. Within **60 days** of the submission of the detailed spatial plan, the minister responsible for the area or the official authorized by the minister ratifies the plan or refuses to ratify it;
13. The city or rural municipality administration adopts the detailed spatial plan. The decision to adopt the detailed spatial plan or refuse to do so is made at the latest when **three years have elapsed since the initiation of the plan**. Notice concerning the adoption of the detailed spatial plan is published within **30 days** of the adoption of the plan.

➔Duration of the process	up to 3 years
➔ Solar PV	could be applicable
➔Wind farm	could be applicable

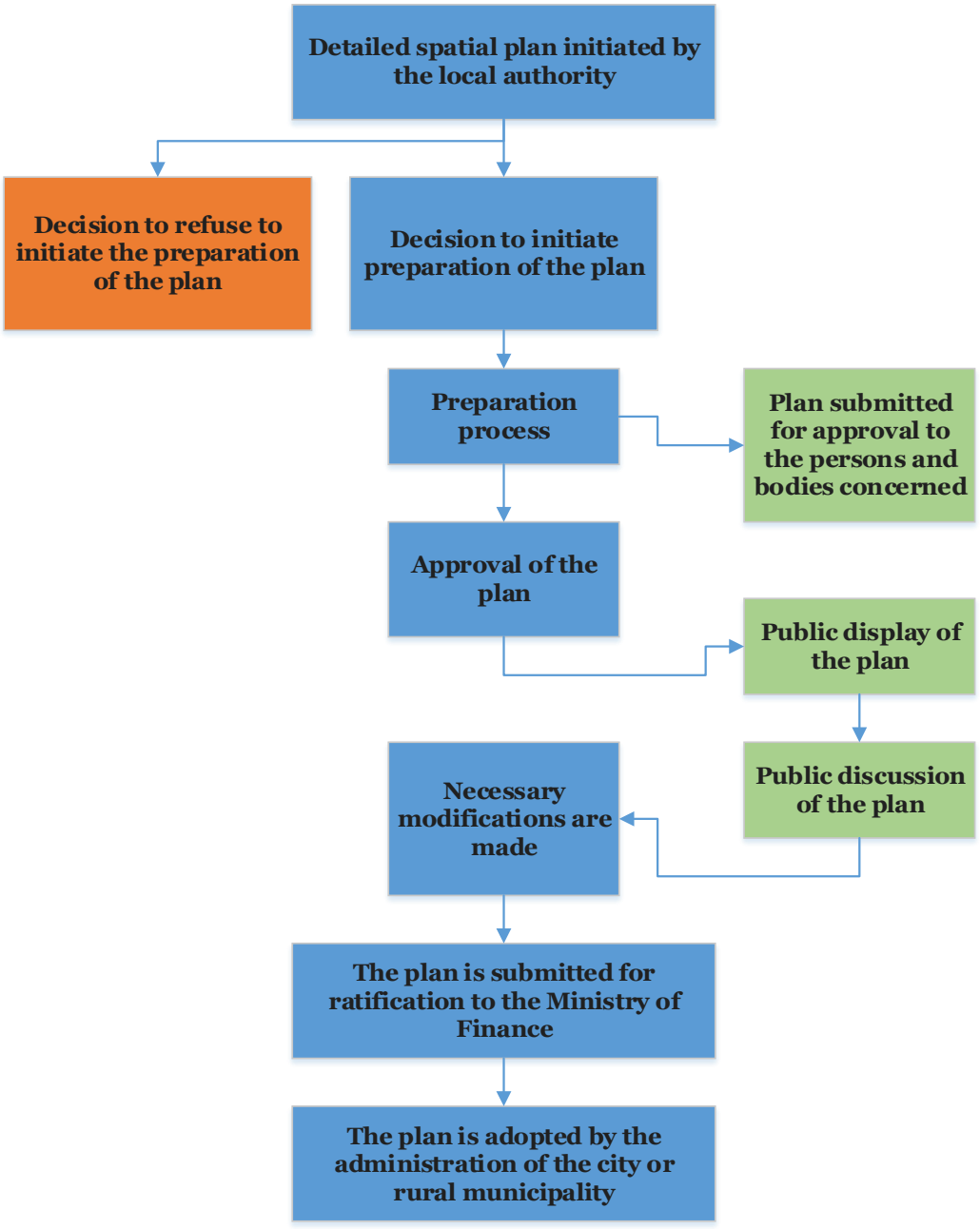


Fig. 4.3. Detailed plan (Riigikogu, 2019)

Protection zones and their establishment

Regulation of "Extent of the protection zone of the building, the procedure for operating in the protection zone and the requirements for the marking of the protection zone" stipulates that if appropriate, a structure with a protection zone shall be marked on the landscape if the owner of the protection zone or the owner of the immovable deems it necessary, and in particular, if the protection of the protection zone is high or likely to result in damage to human life or health or disruption of vital services (Majandus- ja taristuminister, 2015). The designation of a protection zone shall be durable, considering local environmental

conditions. The designation of the protection zone must be such that the persons operating in the protection zone are informed about the existence of a building with a protection zone. A protection zone extends 2 meters from fences, walls or, in their absence, from equipment to substations and distribution equipment (Majandus- ja taristuminister, 2015).

4.3. Environmental impact assessment

Environmental Impact Assessment and Environmental Management System Act provides legal grounds and procedure for the assessment of preliminary environmental impact, organisation of the environmental management and audit scheme and legal grounds for awarding the eco-label in order to prevent environmental damage and establishes liability for violation of the requirements of this Act (Riigikogu, 2005b). For this Act, "environmental impact" means any potential direct or indirect effect of a proposed activity or implementation of a strategic planning document on the environment, human health and well-being, cultural heritage or property.

Depending on the nature of the strategic planning document or the proposed activity, the authorities specified include the Ministry of Defence, the Ministry of the Environment, the Ministry of Culture, the Ministry of Economic Affairs and Communications, the Ministry of Rural Affairs, the Ministry of Finance, the Ministry of the Interior, the Ministry of Social Affairs and governmental authorities in their area of government, the local authority, and other authorities concerned (Riigikogu, 2005b).

Environmental impact assessment proceedings consist of the following stages (Riigikogu, 2005b):

1. the making of a decision to initiate or not to initiate environmental impact assessment, and notifying of the decision;
2. the drawing up of an environmental impact assessment programme, including determining the scope of the environmental impact assessment;
3. the assessment of the potentially significant environmental impact arising from the proposed activity and drawing up a report;
4. asking the authorities concerned for an opinion on the environmental impact assessment programme and report, and publishing the programme and the report, taking into account the characteristics of environmental impact assessment in a transboundary context;

5. verifying the compliance of the environmental impact assessment programme and report with requirements, making decisions to declare these compliant with requirements, and notification of the decisions;
6. Taking the environmental impact assessment results into account upon deciding whether to grant or not to grant development consent and notifying of the decision.

The issuer of development consent makes a preliminary estimate of whether the activities carried out in the energy industry have a significant environmental impact, and an entire EIA process must be carried out (Riigikogu, 2005b). Installation of wind farms in water bodies is defined as an activity with a significant environmental impact is (Riigikogu, 2005b).

According to "Specified list 1 of areas of activity for which a preliminary assessment of the necessity of an environmental impact assessment must be provided", which specifies the list of areas of activity set out in the Environmental Impact Assessment and Environmental Management System Act in which a preliminary assessment of the necessity of an environmental impact assessment must be given (Vabariigi Valitsus, 2020). It states that a preliminary assessment of the necessity of an environmental impact assessment shall be provided in the case of the following activity - construction of a wind power plant with more than five wind turbines with a total capacity of more than 7.5 megawatts on land (Vabariigi Valitsus, 2020).

4.3.1. Preliminary estimate

1. To make a preliminary estimate, the developer submits the following information along with the development consent application (Vabariigi Valitsus, 2020):
    - the purpose, nature and physical indicators of the activity, and a description of the required demolition work, where relevant;
    - a description of the location of the activity, including the sensitivity of the area that will presumably be affected;
    - a description of the environmental elements that will presumably be significantly affected;
    - the information available on significant environmental impact presumably arising from the activity, taking into account the presumably generated residues, emissions and waste generation, where any, and the use of natural resources, in particular, soil, earth, mineral resources and water, and the impact thereof on natural diversity;

- other relevant information based on requirements established;
- optionally, information on the characteristics of the proposed activity or the environmental measures to be taken, aiming to avoid or prevent the potential adverse environmental impact that may emerge otherwise.

For this Act, "development consent" means (Vabariigi Valitsus, 2020):

- a building permit or a use and occupancy permit of a building;
- An integrated environmental permit or an environmental permit within the meaning of the General Part of the Environmental Code Act or a superficies licence.

2. The decision-making authority makes the preliminary estimate based on the information submitted by the developer and other relevant information, the proposed activity, the location thereof and the estimated environmental impact (Vabariigi Valitsus, 2020).
3. Detailed requirements for the preliminary estimate are established by regulating the minister responsible for the field.

Initiation of and refusal to initiate environmental impact assessment (Vabariigi Valitsus, 2020):

1. the developer submits an application for development consent to the decision-making authority in the events and accordance with the procedure provided for in legislation.
2. In the event of:
   - an activity with significant environmental impact, the decision-making authority reviews the application and decides to initiate or refuse to initiate environmental impact assessment within the statutory time limit established for application proceedings;
   - while in the event of an activity that needs a preliminary estimate as to whether the activity has a significant environmental impact, the decision-making authority reviews the application within the statutory time limit established for application proceedings, but not later than by the ninetieth day following the receipt of the information listed in subsection

3. Where a decision to initiate or refuse to initiate an environmental impact assessment of a proposed activity is made based on an activity that needs a preliminary estimate

as to whether the activity has a significant environmental impact, the statutory time limit established for application procedures, and the deadline of deciding to initiate or refuse to initiate the environmental impact assessment may by written notice to the developer be extended where the circumstances warrant the extension.

4. Before deciding where the environmental impact assessment is necessary, the decision-making authority must ask for the opinion of all the authorities concerned, submitting the preliminary estimate and the draft decision to initiate or not to initiate environmental impact assessment so that they could formulate an opinion.
5. In an activity with a significant environmental impact, an environmental impact assessment of the proposed activity is initiated without providing the reasons.
6. Where the proposed activity potentially results in significant environmental impact, the decision-making authority does not initiate the environmental impact assessment of the proposed activity where the preliminary estimate indicates that the environmental impact of the proposed activity has already been adequately assessed in the course of environmental impact assessment or strategic environmental assessment and the decision-maker has sufficient information for granting the development consent.
7. Where an application for two or more development consents required for the proposed activity is submitted to one decision-making authority, the decision-making authority may join the proceedings regarding environmental impact assessment of the proposed activity with the developer's consent, unless this violates the rights of third parties.
8. Only one environmental impact assessment is initiated in the proceedings of an application for the same development consent.
9. The decision-making authority may submit a decision to refuse initiation of environmental impact assessment of the proposed activity as a part of the decision to grant or refuse to grant development consent.
10. Where the proposed activity may potentially affect a Natura 2000 site, protected area, particular conservation area, habitat of a protected species or individual protected natural object, the decision-maker obtains approval for the draft decision to refuse initiation of environmental impact assessment of the proposed activity with the manager of the specified protected natural feature.

11. Where environmental impact assessment of the proposed activity is initiated, the application proceedings of development consent are suspended until the official publication *Ametlikud Teadaanded*.
12. Before applying development consent, the developer may address the decision-making authority to obtain an opinion concerning the type of information the developer must submit during the environmental impact assessment. Before providing an opinion, the decision-making authority whom the developer addressed must consult with the developer and the authorities concerned. Providing an opinion does not prevent the decision-maker from demanding further information during the environmental impact assessment.

➔Duration of the process	*not stated*
➔ Solar PV	could be applicable
➔Windfarm	could be applicable

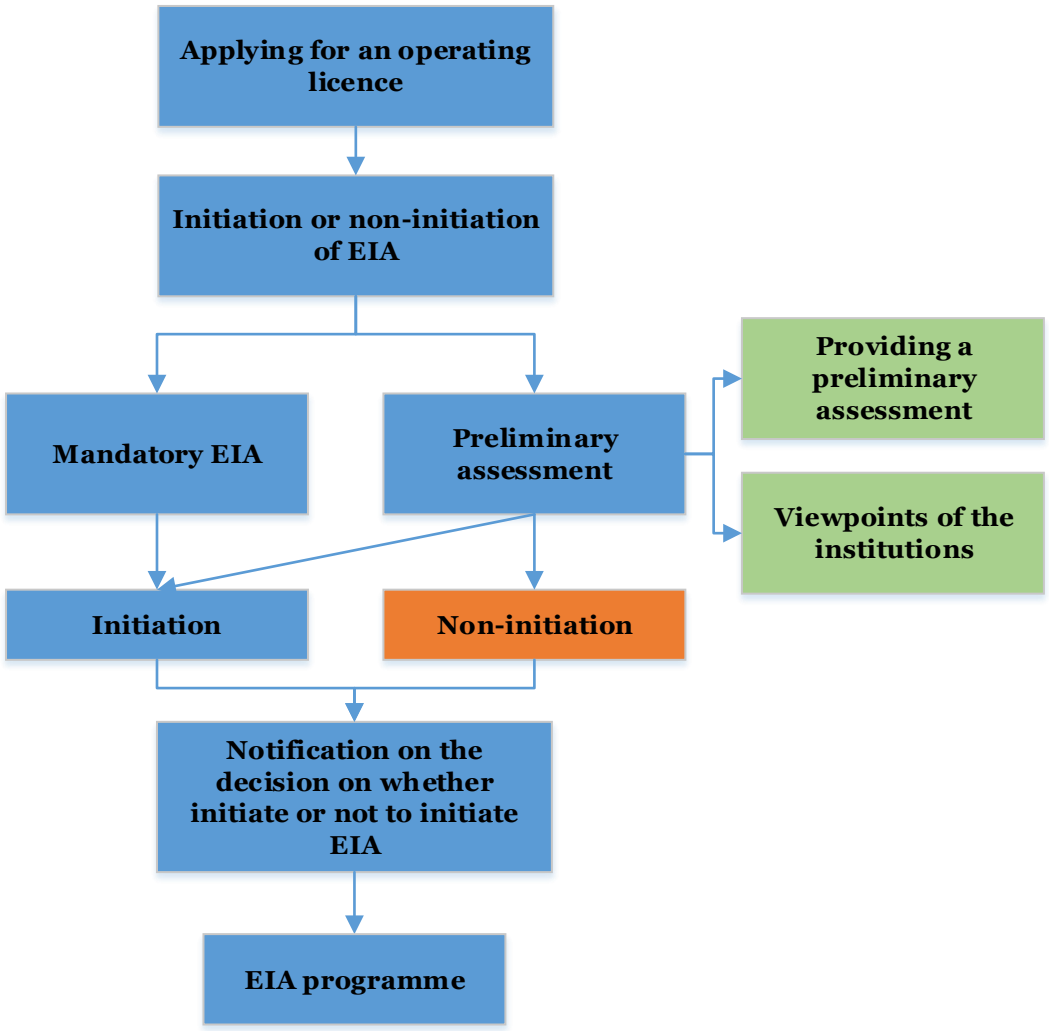


Fig. 4.4. EIA initiation phase (Vabariigi Valitsus, 2020)

4.3.2. The environmental impact assessment programme

After deciding to initiate the environmental impact assessment of a proposed activity, the leading expert or an expert group under the supervision of the leading expert, jointly with the developer, prepare an environmental impact assessment programme which sets out (Vabariigi Valitsus, 2020):

1. the purpose and exact location of the proposed activity;
2. a brief description of the proposed activity and reasonable alternatives, therefore;
3. a description of the environment likely to be affected;
4. the connection between the proposed activity and strategic planning documents;
5. information on the likely significant environmental impact of the proposed activity and reasonable alternatives therefore as well as information on the potential sources of impact, the size of the impact area and the affected environmental elements;

6. a description of the methods of assessment used upon environmental impact assessment, including information on surveys required for environmental impact assessment;
7. a schedule of environmental impact assessment of the proposed activity and reasonable alternatives therefore and the schedule for the publication of the results of the assessment;
8. information on the developer and the name of the leading expert or the composition of the expert group, indicating the areas and the impact that each member of the group is to assess and stating the reasons thereof;
9. the list of the authorities concerned along with the reasons for involving them in the proceedings;
10. a copy of the application for the development consent or a copy to initiate an environmental impact assessment.

Environmental impact is assessed, or environmental impact assessment is directed by a natural person who holds a licence for environmental impact assessment or a legal person through an employee holding a relevant licence (hereinafter *leading expert*) (Vabariigi Valitsus, 2020). The leading expert must involve specialists in environmental impact assessment where the qualifications of the leading expert are not sufficient for environmental impact assessment.

Asking for an opinion on the environmental impact assessment programme (Vabariigi Valitsus, 2020):

1. Before publishing an environmental impact assessment programme, the decision-making authority must ask for an opinion on the programme's content from all the authorities concerned. To ask for the opinions, the developer must submit the environmental impact assessment programme to the decision-making authority;
2. the decision-making authority checks the compliance of the programme with the requirements within **14 days** as of the receipt of the environmental impact assessment programme and submit it to the authorities concerned for the submission of an opinion;
3. where the environmental impact assessment programme does not comply with the requirements provided, the decision-making authority returns it to the developer along with the reasons and correction proposals;

4. within **30 days** from the receipt of the environmental impact assessment programme, the authority concerned, based on its field of competence, submits to the decision-making authority an opinion, among other things, on the adequacy and sufficiency of the programme. Upon examination of the documentation, the authority must verify the sufficiency of the composition of the expert group;
5. the decision-making authority examines the opinions within **14 days** as of the receipt of the opinions of the authorities concerned and submits to the developer and the leading expert its opinion on the adequacy and sufficiency of the environmental impact assessment programme, taking into account the opinions submitted by the authorities concerned;
6. the leading expert or the expert group, jointly with the developer, corrects and modifies the programme and explains why the opinions were taken into account or disregarded. The developer submits to the decision-making authority a modified environmental impact assessment programme. Copies of the letters of the authorities concerned are added to the programme;
7. within **14 days** after receiving the programme, the decision-making authority examines the corrected and modified environmental impact assessment programme, including whether the opinions of the authorities concerned have been taken into account or not, thereby involving in the proceedings the authority concerned whose position was not taken into account, where necessary.

Publication of environmental impact assessment programme (Vabariigi Valitsus, 2020)**:**

1. the decision-making authority organises a public display of an environmental impact assessment programme with a duration of not less than **14 days**. After that, the developer organises a public consultation of the environmental impact assessment programme in cooperation with the decision-making authority;
2. within **14 days** after learning the results of the examination, the decision-making authority gives notice of the public display of and public consultation regarding an environmental impact assessment programme;
3. within **14 days after** learning the results of the examination, the decision-making authority by electronic means, by regular mail or by registered mail gives notice of the public display of and public consultation regarding an environmental impact assessment programme at least:

- the local authorities into the territory of which the environmental impact of the proposed activity may extend;
- the authorities concerned;
- the Environmental Board where the decision-making authority is not the Environmental Board;
- the manager of the protected natural object that is potentially significantly affected by the proposed activity;
- non-governmental environmental organisations through organisations uniting them;
- other parties to the proceedings.

4. everyone has the right to access an environmental impact assessment programme and other relevant documents at the time of the public display of and the public consultation regarding the programme, submit proposals, objections and questions regarding the programme and obtain responses to it;
5. the decision-making authority publishes an environmental impact assessment programme, among other things, on its own or another webpage and ensures to the public the possibility to examine the programme at least until the end of the term for submission of proposals, objections and questions.

Taking account of results of public display of and public consultation regarding environmental impact assessment programme (Vabariigi Valitsus, 2020):

1. an agency to whom, during the public display of an environmental impact assessment programme, proposals, objections and questions were submitted regarding the programme forwards the specified proposals, objections and questions to the developer;
2. jointly with the developer, the leading expert or, under the supervision of the leading expert, an expert group, based on the proposals and objections submitted regarding the environmental impact assessment programme during the public display of the programme, makes the necessary amendments to the programme, explains why proposals and objections are taken into account and state the reasons why they are not taken into account and respond to the questions;
3. within **30 days** after the public consultation, the developer, by electronic means, by regular mail or by registered mail, sends an explanation or state the reasons as to why

the proposals or objections regarding the environmental impact assessment programme were taken into account or disregarded and respond to the questions of the persons.

Verification of compliance of environmental impact assessment programme with requirements (Vabariigi Valitsus, 2020):

1. after the public consultation regarding an environmental impact assessment programme, the developer submits the programme along with the proposals, objections and questions submitted regarding the programme, copies of letters and reports of the public consultation to the decision-making authority for verification of its compliance with the requirements;
2. based on the opinions of the authorities concerned, which were submitted previously, the decision-maker verifies the following within **30 days** as of the receipt of the environmental impact assessment programme:
   - the compliance of the programme with the requirements provided;
   - the adequacy and sufficiency of the programme for assessing the environmental impact of the proposed activity;
   - the taking into account or disregarding proposals and objections submitted regarding the programme.
3. the decision-making authority decides to declare the environmental impact assessment programme compliant with the requirements;
4. the decision-making authority informs the persons and other parties to the proceedings and publish a notice in the official publication *Ametlikud Teadaanded* within **14 days** after making a decision specified;
5. where the decision-making authority finds that the environmental impact assessment programme does not comply with the requirements verified, the developer must submit to the decision-maker a modified programme to verify compliance with the requirements;
6. where the developer has not, within **18 months** from the initiation of the environmental impact assessment, submitted to the decision-making authority the environmental impact assessment programme to verify compliance with the requirements, the decision-making authority does not review the development

consent application serving as the basis for the initiation of the environmental impact assessment and returns it to the developer;

7. The developer fails to submit an environmental impact assessment report to the decision-making authority for a public display within two years after making the decision. The programme expires, and a new programme must be prepared to assess the environmental impact.

➔ Duration of the process	at least 188 days
➔ EIA programme	valid for two years
➔ Solar PV	applicable if the competent authority decides that a full EIA is obligatory
➔ Windfarm	applicable if the competent authority decides that a full EIA is obligatory

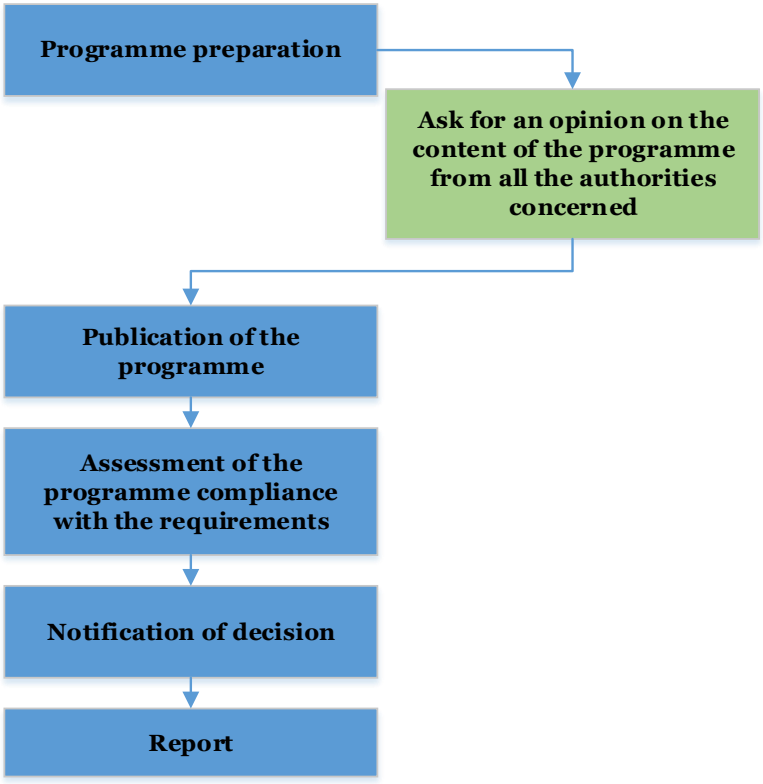


Fig. 4.5. EIA programme phase (Vabariigi Valitsus, 2020)

4.3.3. Environmental impact assessment report

Based on an environmental impact assessment programme that has been declared compliant, the leading expert or an expert group, jointly with the developer, prepare an

environmental impact assessment report that contains a description and a comparison of the proposed activity and its real alternatives, a description of the environment potentially significantly affected by the proposed activity, and a description of the potentially significant environmental impact arising from that place and of the environmental measures (Vabariigi Valitsus, 2020). More detailed requirements for the contents of an environmental impact assessment report are established by a regulation of the minister responsible for the field. The generally recognised knowledge of environmental impact, methodology, and results of previous relevant assessments must be considered (Vabariigi Valitsus, 2020).

Asking for an opinion on environmental impact assessment report (Vabariigi Valitsus, 2020):

1. the opinion of the authorities concerned is asked on the environmental impact assessment report;
2. within **21 days** from the receipt of the environmental impact assessment report, the decision-making authority verifies the compliance of the report with the requirements established in and based on this Act, the adequacy and sufficiency of the report, and the consideration or disregarding of the opinions of the authorities concerned.
3. an environmental impact assessment report is published. The publication results are taken into account by the procedure provided in this Act, except for the time limit of the public display of the report, which must be at least 30 days.

Verification of compliance of environmental impact assessment report with requirements (Vabariigi Valitsus, 2020):

1. within **six months** after the public consultation of an environmental impact assessment report, the developer submits the report to the decision-making authority for verification of the compliance with the requirements;
2. the decision-making authority submits the environmental impact assessment report to the authorities concerned for approval;
3. the authority concerned, based on its field of competence, approves or refuses to approve the environmental impact assessment report within **30 days** from the receipt of the report. The authority specified assesses, among other things, the compliance of the report with the requirements established in and based on this Act;
4. the authority concerned does not approve an environmental impact assessment report where:
   - there is a direct conflict with a legal instrument;

- the report contains insufficient information that influences the conclusions of the report. As a result, a significant adverse environmental impact may arise from implementing the proposed activity.

5. based on the approvals of the authorities concerned, the decision-making authority verifies the following within **30 days** from the receipt of the environmental impact assessment approvals:
   - the compliance of the report with the environmental impact assessment programme;
   - compliance of the report with the requirements established in and based on this Act;
   - the adequacy and sufficiency of the report for granting development consent;
   - the taking into account or disregarding proposals and objections submitted regarding the report.

6. the decision-making authority decides to declare the environmental impact assessment report that contains, among other things, the conclusions of the environmental impact assessment report on the significant environmental impact arising from the implementation of the proposed activity compliant with the requirements;
7. the decision-making authority informs the persons and other parties to the proceedings and publishes a notice in the official publication *Ametlikud Teadaanded* within **14 days** after making a decision;
8. where the decision-making authority finds that the environmental impact assessment report does not comply with the requirements verified, the developer must within the time limit set by the decision-making authority submit to the decision-making authority a modified report to verify compliance with the requirements;
9. where warranted by circumstances, the decision-making authority may demand that additional information not included in the environmental assessment report has been declared compliant according to the requirements.

Grant of development consent and refusal to grant development consent (Vabariigi Valitsus, 2020):

1. upon deciding to grant or refuse to grant development consent, the decision-making authority must take into account the relevance of the environmental impact

assessment, the results of the environmental impact assessment and the environmental measures contained in the report:

- where the decision-making authority identifies as a result of an assessment that the environmental impact assessment report is not relevant for granting the development consent, decision-making authority has, where warranted by circumstances, the right to demand that the developer submit an additional expert assessment that is added to the environmental impact assessment report;
- a leading expert must give an expert assessment;
- the time limit of the application proceedings is extended by the time spent on making the expert assessment to make expert assessment;
- the decision to grant development consent must contain the conclusions of the environmental impact assessment report and the environmental measures and, where relevant, the expert assessment.

2. where, upon deciding to grant or refuse to grant development consent, the decision-maker fails to take into account the results of environmental impact assessment or disregards the environmental measures contained in the report, the decision-making authority must state the reasons for the decision to grant or refuse to grant development consent;
3. the decision-making authority refuses to grant development consent where the developer is not able to comply with the environmental measures which are determined upon granting the development consent;
4. the decision-maker informs the parties to the proceedings, including the authorities concerned and the public, of the granting or refusing development consent.

➔ Duration of the process	1-2 years
➔ Solar PV	applicable if the competent authority decides that a full EIA is obligatory
➔ Windfarm	applicable if the competent authority decides that a full EIA is obligatory

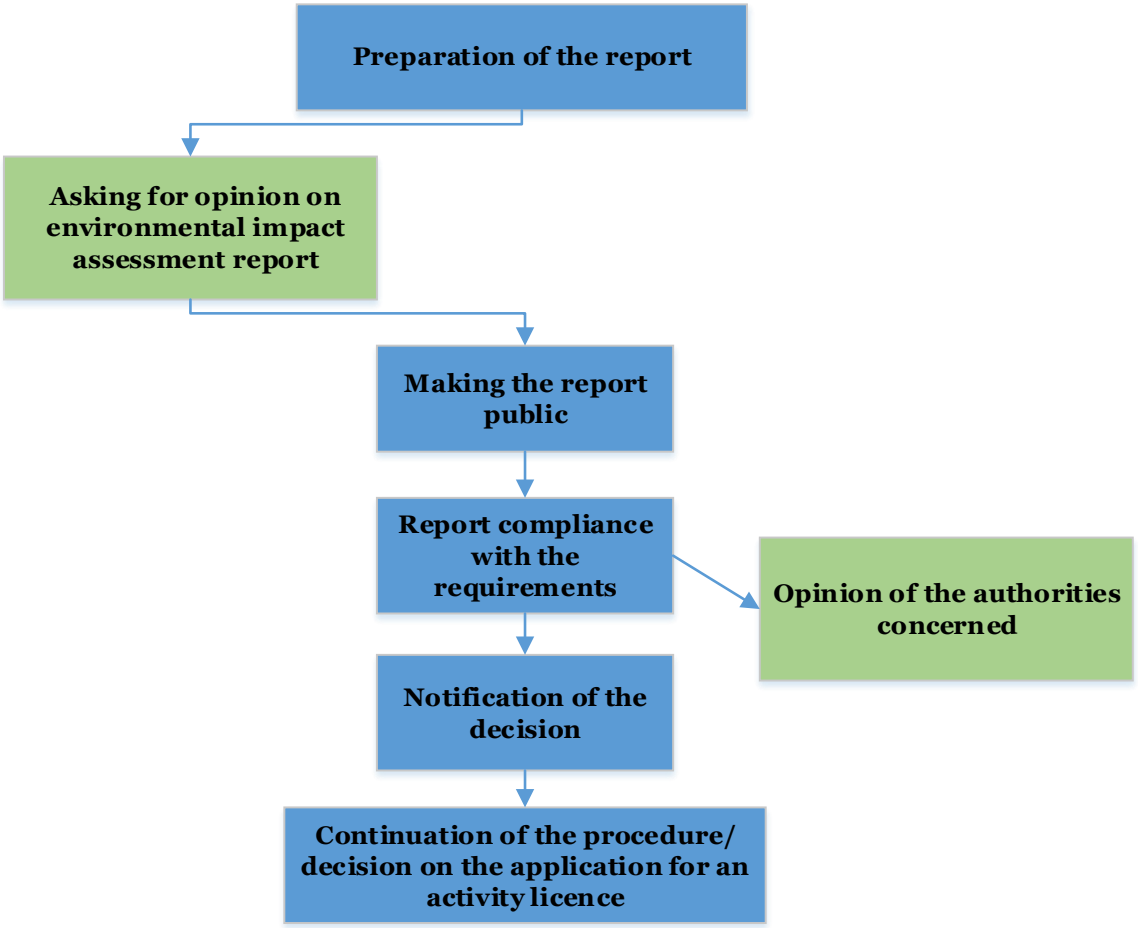


Fig.4.6. EIA report phase (Vabariigi Valitsus, 2020)

Ex-post evaluation of environmental impact assessment (Vabariigi Valitsus, 2020):

1. the Environmental Board carries out the ex-post evaluation of environmental impact assessment based on the results of environmental monitoring;
2. the decision-making authority is required to forward the results of environmental monitoring within 30 days after receipt of the results to the Environmental Board for ex-post evaluation;
3. where it becomes evident in the course of ex-post evaluation that the results of environmental monitoring refer to a violation of the requirements provided for in legislation or the development consent, the decision-making authority, on a proposal

of the Environmental Board, initiates proceedings for the amendment of the conditions of the development consent.

Environmental impact assessment before the submission of application for development consent (Vabariigi Valitsus, 2020):

1. the environmental impact of the proposed activity may be assessed based on the application for the initiation of an environmental impact assessment submitted by the developer before the submission of an application for development consent, taking into account the variations arising from this section;
2. in this case, the decision-making authority is the authority granting the development consent for the proposed activity;
3. where two or more development consents need to be applied for the proposed activity whereby the decision-making authority differ, an application for the initiation of an environmental impact assessment is submitted to one decision-making authority;
4. the decision-making authority initiates the environmental impact assessment within 30 days after receiving the application for the initiation of the environmental impact assessment;
5. an application for the initiation of an environmental impact assessment must contain all the information known to the developer about the proposed activity;
6. where, based on the information known to the decision-making authority, the proposed activity lacks prospects of success, the decision-making authority returns the application for the initiation of an environmental impact assessment.

4.3.4. Strategic Environmental Impact Assessment

Environmental Impact Assessment and Environmental Management System Act, Article 6 determines such activities with significant environmental impact for which a Strategic environmental assessment must be carried out (Riigikogu, 2005a):

"(1) Activities with a significant environmental impact are **5) erection of a wind power plant in a body of water".**

Further, the Environmental Impact Assessment and Environmental Management System Act states (Riigikogu, 2005a):

"For this Act, a strategic environmental assessment is an assessment carried out with the participation of the public and relevant agencies to identify significant environmental impacts, identify alternatives and

mitigate adverse effects, the results of which are taken into account in preparing the strategic planning document.

§ 36 [1] Asking for a position on the Strategic Environmental Assessment program

1) Before publishing a strategic environmental assessment program pursuant to § 37 of this Act, the organizer of the preparation of a strategic planning document shall ask all relevant agencies for an opinion on the content of the program. In order to ask for views, the preparer of the strategic planning document shall submit a strategic environmental assessment program to the organizer of the preparation of the strategic planning document.
2) The organizer of the preparation of a strategic planning document shall verify the compliance of the strategic environmental assessment program with the requirements provided for in subsection 36 (2) of this Act **within 14 days** after receipt of the strategic environmental assessment program and forward it to the relevant agencies for submission.
3) If a strategic environmental assessment program does not comply with the requirements provided for in subsection 36 (2) of this Act, the organizer of preparation of the strategic planning document shall return the strategic planning document to the preparer of the strategic planning document together with justifications and proposals for amendments.
4) **Within 30 days** after receipt of the strategic environmental assessment program, the relevant authority shall submit to the organizer of the preparation of the strategic planning document an opinion on the program based on its area of competence, including an assessment of the programme's relevance and adequacy. When reviewing the dossier, the authority must also check the adequacy of the composition of the expert group.
5) **Within 14 days** as of the receipt of the views of the relevant authorities, the organizer of the preparation of the strategic planning document shall review the views and provide the strategic planning document preparer and lead expert with their views on the relevance and adequacy of the strategic environmental assessment program.
6) A leading expert or group of experts together with the preparer of a strategic planning document shall, if necessary, make corrections and additions to the program on the basis of subsection (5) of this section, explain the consideration of positions or justify non-consideration. The preparer of the strategic planning document shall submit an updated strategic environmental assessment program to the organizer of the preparation of the strategic planning document. Copies of the letters from the relevant authorities will be attached to the program.
7) The organizer of the preparation of a strategic planning document shall control the revised and updated strategic environmental assessment program, including taking into account or not taking into account the views of the relevant authorities, involving the relevant authority whose views have not been taken into account.

§ 37. Disclosure of strategic environmental assessment program

1) The organizer of the preparation of a strategic planning document shall notify the agencies and persons specified in clause 36 (2) 6) of this Act of the public display and public discussion of the strategic environmental assessment program **within 14 days** after receipt of the program in the Official Gazette, newspaper and on its website. , an organization uniting non - governmental environmental organizations and the agencies specified in subsection 36 [1] (1) of this Act.

2) The organizer preparing a strategic planning document shall organize the public display and subsequent public discussion of the strategic environmental assessment program. The public display lasts at least **14 days**.

3) (6) **Within 30 days** as of the public hearing, the preparer or organizer of the preparation of a strategic planning document shall send electronically, by ordinary or registered letter, an explanation or justification for disregarding proposals or objections to the strategic environmental assessment program and answers to questions to persons:
1) who have submitted their a proposal, objection or question in writing;
2) whose proposal, objection or question submitted orally at the public hearing remained unanswered at the public hearing.

§ 39. Verification of compliance of strategic environmental assessment program with requirements:

1) After a public discussion of an environmental impact assessment program, the preparer of the strategic planning document shall submit the program together with proposals, objections and questions and copies of letters specified in subsection 37 (6) of this Act and the minutes of the public discussion to the organizer of preparation of the strategic planning document.

2) Based on the opinions of the relevant agencies submitted according to § 36 [1] of this Act, the organizer of preparation of strategic planning documents shall verify **within 30 days** after receipt of the strategic environmental assessment program:
   - compliance with the requirements provided for in subsection 36 (2) of this Act;
   - the relevance and sufficiency of the program for the assessment of the environmental impact accompanying the implementation of the strategic planning document;
   - consideration or non-consideration of proposals and objections submitted regarding the program.

3) The organizer of preparing a strategic planning document shall declare the strategic environmental assessment program compliant with the requirements of subsection (2) of this section.

4) The organizer of preparation of a strategic planning document shall notify the participants in the proceeding and persons who may be expected to be affected by the proposed activity based on the strategic planning document or who may have a justified interest therein **within 14 days** of making the decision and publish the notice in Ametlike Teadaanded.

5) The notice specified in subsection (4) of this section shall contain at least:
   - the name of the organizer and founder of the preparation of the strategic planning document and the name and contact information of his or her contact person;
   - a brief description and purpose of the activities planned by the strategic planning document;
   - the time and place for examining the strategic environmental assessment program and the decision specified in subsection (3) of this section.

6) If the organizer of preparing a strategic planning document establishes that the strategic environmental assessment program does not comply with the requirements to be inspected according to subsection (2) of this section, he or she shall return the program to the preparer of the strategic planning document.

§ 40 [1]. Asking for an opinion on the Strategic Environmental Assessment Report

1) The opinion of the relevant agencies concerning the strategic environmental assessment report is sought according to the procedure provided for in § 36 [1 of] this Act.
2) The organizer of the preparation of a strategic planning document shall verify the compliance of the strategic environmental assessment report with the requirements provided for in § 40 of this Act and the relevance and sufficiency of the report **within 21 days** after receipt of the strategic environmental assessment report.

§ 41. Disclosure of strategic environmental assessment report

The strategic environmental assessment report shall be disclosed, and the results of the disclosure shall be taken into account according to § 37 of this Act, except for the term of public display of the report, which is the same as the public display of the draft strategic planning document, but not shorter than **21 days**.

§ 42. Verification of compliance of strategic environmental assessment report with requirements and establishment of monitoring measures:

1) After a public discussion of a strategic environmental assessment report, the preparer of a strategic planning document shall submit a report to the organizer of the preparation of the strategic planning document for verification of compliance.
2) The organizer preparing a strategic planning document shall forward the strategic environmental assessment report to the relevant agencies for approval.
3) Proceeding from its area of competence, the relevant agency shall approve or refuse to approve the strategic environmental assessment report **within 30 days** as of the receipt of the report. According to subsection 2 3 (2) of this Act, the agency shall, among other things, assess the compliance of the report with the requirements of subsection 40 (4) of this Act.

5) Based on the approvals of the relevant agencies, the organizer of preparation of a strategic planning document shall verify **within 30 days** after receipt of the approvals:

- compliance of the report with the strategic environmental assessment program declared complaint according to subsection 39 (3) of this Act;
- the compliance of the report with the requirements provided for in § 40 of this Act;
- the relevance and sufficiency of the report for the establishment of the strategic planning document;
- consideration or non-consideration of proposals and objections submitted concerning the report.

6) The organizer preparing a strategic planning document shall decide to declare the strategic environmental assessment report complaint based on subsection (5) of this section.

7) The organizer of preparation of a strategic planning document shall notify the participants in the proceeding and persons who may be expected to be affected by the proposed activity based on the strategic planning document or who may have a justified interest therein **within 14 days** of making the decision and publish the notice in Ametlike Teadaanded".

➔ Duration of the process	at least 276 days
➔ Windfarm	mandatory for offshore wind farms

4.4. Construction

The Building Code aims to promote sustainable development and ensure the built environment's safety, purposeful functionality, and usability (Riigikogu, 2021a). Provisions of the Environmental Impact Assessment and Environmental Management System Act apply to assessing the environmental impact of building work. Where possible, the environmental impact assessment procedures are combined with the procedures established in this Code. In that case, the requirements established for both procedures must be met.

A construction work that is being built and, where relevant, the corresponding building work must conform to the restrictions and spatial plans rendered operative by the location of the construction work (Riigikogu, 2021a). Without a detailed spatial plan, the construction work built must conform to the comprehensive plan. The obligation to obtain design specifications applies to the design specifications. In the situations provided for in the Planning Act, the construction work that is being built must conform to the national or local special spatial plan.

According to Annex 1 of the Building Code "Tabulated overview of the obligation to file the building notice or building design documentation and to apply for building permit" and Annex 2 ", a Tabulated overview of the obligation to file the use and occupancy notice or building design documentation and to apply for use and occupancy permit" power generation facilities with a generation capacity that exceeds 100 kW, as well as Power generation facilities with a generation capacity of up to 100 kW, need to obtain a "building permit" and a "use and occupancy permit" (Riigikogu, 2021b, 2021c).

"Construction work" means a structure that is created as a result of human action and that is attached to or supported by the ground underneath and whose purpose of use, aim, manner of use or durability make it distinguishable from other structures (Riigikogu, 2021a). Construction work is either building or civil engineering work. A building is a construction work with an interior space separated from the external environment by the roof and other building envelope parts. Civil engineering work is any construction work other than a building.

Building design specifications must be issued in cases where the preparation of a detailed spatial plan is not mandatory (Riigikogu, 2021a):

1. design specifications are required for the preparation of building design documentation of buildings subject to building permit requirement or of civil

engineering works of significant public interest in cases where the preparation of a detailed spatial plan is not mandatory;

2. the competent authority issues design specifications;
3. concerning the building or significant civil engineering work, the design specifications establish, where relevant:
   - its purpose of use;
   - the maximum number permitted to be built in a land area;
   - its location;
   - the maximum ground projection area that the building or significant civil engineering work may occupy;
   - its height and, where relevant, depth;
   - the requirements concerning the architectural solution, building work and appearance;
   - the possible location of the construction work required to service the construction works situated in the land or water area;
   - the need for site investigations;
   - the principles for planting vegetation, for street-side maintenance and traffic arrangements.

Issuing design specifications in cases where a detailed spatial plan exists (Riigikogu, 2021a):

1. where a detailed spatial plan exists, the competent authority may, if the circumstances warrant this, issue design specifications for the preparation of the building design documentation of a building subject to building permit requirement or of a significant civil engineering work if:
   - more than five years have passed since the adoption of the detailed spatial plan;
   - since the adoption of the detailed spatial plan, new important facts have emerged, or the area governed by or influenced by the plan has significantly changed, due to which the detailed spatial plan can no longer be fully implemented, or
   - After adopting the detailed spatial plan, the relevant legislation has been amended, or spatial plans have been adopted that significantly affect the implementation of the detailed spatial plan.

2. when issuing design specifications, consideration must be given to (Riigikogu, 2021a):

- the environment that has become established around the building or significant civil engineering work, including the types of building characteristic of the area;
- the avoidance of breaches of legislation or harm to the rights of persons or the public interest;
- the requirements established in the comprehensive plan;
- special conditions of heritage conservation are provided in the detailed spatial plan if required under the Heritage Conservation Act.

3. where relevant, the design specifications specify, in respect of the building or significant civil engineering work, the provision made in the detailed spatial plan regarding (Riigikogu, 2021a):
   - its purpose of use; this includes specifying the proportions of the plot's land use purposes that serve as the basis for the use of the residential or office building, provided both land-use purposes have been previously prescribed in the detailed spatial plan;
   - the definition of the area to be occupied by buildings, including increase, decrease, rotation or movement of the area, but not over 10% of the original solution;
   - a change in its height or, if needed, depth, but not over 10% of the original solution;
   - the requirements concerning the architectural solution, building work and appearance;
   - the possible location of a construction work required to service the construction works situated in the land area;
   - the need for site investigations;
   - the types of building allowed in the area governed by the plan; this includes the boundaries of the plots in the area provided the matter of boundaries is connected to the building of a complex of construction works, and provided that the building rights initially granted in the area governed by the plan remain unchanged.

Design specifications are issued by the local authority unless otherwise provided by law (Riigikogu, 2021a):

1. the application for design specifications and the related documents are filed electronically with the competent authority via the register of construction works;

2. when the competent authority receives an application for design specifications, it checks its conformity to the requirements. If it is evident that the issuing of design specifications is impossible, the competent authority refuses to consider the application and returns it, stating the reasons for the refusal;
3. the competent authority draws up proposed design specifications and, primarily by electronic means, arranges the gathering of opinions and the giving of approvals concerning the proposed specifications and issues the design specifications within **30 days** from the filing of the application. If the competent authority decides to conduct open proceedings, the design specifications are issued within **60 days** from the filing. The competent authority sets a time limit of up to ten days to give its approval or express an opinion;
4. design specifications are valid for **five years**. Where the circumstances warrant this, the competent authority may establish a different validity period or modify the validity period of the design specifications issued.

➔ Duration of the process	30-60 days
➔ Validity of the design specifications	Five years
➔ Solar PV	applies
➔ Windfarm	applies

Building permit (Riigikogu, 2021a):

1. a building permit grants the right to build the construction work that corresponds to the building design documentation based on which the building permit is issued;
2. a building permit is issued by the local authority unless otherwise provided by law;
3. the application for a building permit and the related documents are filed with the competent authority electronically via the register of construction works;
4. the application for a building permit must be accompanied by building design documentation that conforms to the requirements. If an expert assessment has been conducted to verify the conformity of the building design documentation to the requirements, the expert assessment report must also be filed.

Procedure for issuing building permits (Riigikogu, 2021a):

1. the building permit is issued if the building design documentation that has been filed conforms to the requirements established in legislation, i.e., above all, to the detailed spatial plan or design specifications and the requirements for construction works and building work. Where so provided by law, the construction work must conform to the national or local special spatial plan;
2. the competent authority decides on the need to initiate the assessment of environmental impact;
3. by way of supplementary conditions, the building permit may, above all, stipulate the following:
   - restriction of the validity period of the building permit to the time limit for the demolition of the temporary construction work;
   - the possibility of altering the building permit about the validity of several building permits issued in respect of the same registered immovable;
   - the possibility of amending the term of the building permit;
   - the possibility of repeated installation of the same construction work in the exact location or within the territory defined in the building permit without filing a building notice or building permit;
   - conditions for building work arising from the complexity of the construction work or building work or
   - the conduct of an expert assessment of the building design documentation.

4. the competent authority issues the building permit within **30 days** from applying. The competent authority sets a time limit of up **to ten days** for the giving of approvals or opinions;
5. where necessary, the competent authority refers to the proposed building permit:
   - for approval to the authority in whom the law vests competencies that are related to the subject matter of the application for the permit;
   - for an opinion to the authority or person whose rights or interests may be affected by the construction work or building work envisaged in the application.

6. suppose observations are filed concerning the proposed building permit in the course of the giving of approvals and opinions. In that case, the competent authority considers these observations or states the reasons for not considering them. The building permit is issued electronically in the register of construction works;

7. the person who applied for the building permit must file with the competent authority a notice of commencement of building work at **least three days** before the building work commences.

The competent authority refuses to issue a building permit if (Riigikogu, 2021a):

- the envisaged construction work does not conform to the detailed spatial plan, design specifications, a national or local special spatial plan, the requirements established for construction works or for building work, or other public-law restrictions;
- the building design documentation has not been prepared by a competent person or an expert assessment by a competent person has not been performed in respect of the building design documentation;
- the building design documentation does not take into account the results of the site investigations conducted at the site of the construction work to be built or the required site investigations have not been performed;
- the construction work or building work entails a permanent negative impact for the owner of the registered immovable, or the owners of adjacent registered immovable or other persons affected by the construction work or building work, and it is not possible to sufficiently reduce or alleviate that impact;
- the building design documentation does not conform to the requirements established for building design documentation;
- the competent authority has initiated proceedings to repeal the detailed spatial plan that serves as the basis for the building design documentation;
- the competent authority has initiated proceedings to revoke the design specifications that serve as the basis for the building design documentation;
- a temporary ban on building work has been established about the registered immovable in respect of which the building permit is applied for;
- the construction or building work entails a significant environmental impact that cannot be sufficiently avoided or alleviated.

A building permit is valid for **five years**. When building work has commenced, the building permit is valid for up to **seven years** from when it became valid. Where the circumstances warrant this, a longer term of validity may be stipulated, or the term of validity may be amended.

➔ Duration of the process	30-40 days
➔ Validity of the building permit	5-7 years
➔ Solar PV	applies
➔ Windfarm	applies

Building notice (Riigikogu, 2021a):

1. the competent authority must be notified of building work prior to commencement of the work;
2. the building notice is filed with the local authority unless otherwise provided by law;
3. the filing of a building notice is required regarding the construction works for building power generation facilities with a generation capacity that exceeds 100 kW as well as power generation facilities with a generation capacity of up to 100 kW;
4. The building design documentation of a construction work subject to the building permit requirement includes construction works subject to the notification obligation. The building permit functions as the building notice.

Procedure for issuing a Building notice (Riigikogu, 2021a):

1. the competent authority is notified of the building of a construction work electronically via the register of construction works;
2. a building notice must be filed at least **ten days** before the building of the construction work commences. If within ten days from the filing of the building notice, the competent authority does not inform the person who filed the building notice of the need for further verification of the information presented in the building notice, building work may commence;
3. where it is planned to build power generation facilities with a generation capacity that exceeds 100 kW as well as power generation facilities with a generation capacity of up to 100 kW, the building notice must be accompanied by the relevant building design documentation;
4. where needed, the competent authority carries out a verification of whether, about the construction work or building work stated in the building notice, it is necessary:
    - to bring the construction work or building work into compliance with the requirements;

- to obtain the approval of the competent authority for the construction work or building work;
- to establish further requirements for the construction work about its architectural or engineering solution or appearance;
- to join the owner of the registered immovable or owners of adjacent registered immovable to the proceedings.

According to a building notice, the building of construction work may take place within **two years** following the filing of the building notice or receipt of further requirements or approval of corresponding building design documentation (Riigikogu, 2021a).

Use and occupancy notice (Riigikogu, 2021a):

1. in situations falling under this section, the competent authority must be notified in advance of the use and occupancy of the construction work or a change in its purpose of use;
2. use and occupancy notice must be filed when the construction work is complete if the construction work or a part of the construction work is intended to be used and occupied and if, about the construction work or the part of the construction work, the requirements for the use and occupancy of construction works have been met;
3. the use and occupancy notice is filed with the local authority unless otherwise provided by law;
4. the filing of use and occupancy notice is required in respect of the construction works for power generation facilities with a generation capacity that exceeds 100 kW and power generation facilities with a generation capacity of up to 100 kW.

Filing a use and occupancy notice (Riigikogu, 2021a):

1. the competent authority is notified of the use and occupancy of a construction work electronically via the register of construction works;
2. use and occupancy notice must be filed at least **ten days** before commencement of the use and occupancy of the construction work or the change of its purpose of use. If, within ten days from the filing of the use and occupancy notice, the competent authority does not inform the person who filed the notice of the need for further verification of the information presented in the notice, the use and occupancy of the construction work may commence, or the purpose of use of the construction work may be changed.

Based on a use an occupancy notice, the construction built may be used and occupied indefinitely unless otherwise provided by law. A use and occupancy permit are issued if the building work performed on the completed construction work conforms to the building permit. It is possible to use and occupy the construction work to comply with the requirements and its purpose of use. A use and occupancy permit are required in respect of the construction of power generation facilities with a generation capacity that exceeds 100 kW as well as power generation facilities with a generation capacity of up to 100 kW and in the event of a change in their purpose of use (Riigikogu, 2021a).

The use and occupancy permits are issued by the local authority unless otherwise provided by law (Riigikogu, 2021a):

- if the application for a use and occupancy permit includes construction works that were built based on a national special spatial plan, the corresponding use and occupancy permit is issued by the Consumer Protection and Technical Regulatory Authority, unless otherwise provided by law;
- if the application for a use and occupancy permit includes construction works in respect of which the issuing of the use and occupancy permit is in the competency of the State and of the local authority, the corresponding use and occupancy permit is issued by the Consumer Protection and Technical Regulatory Authority, unless otherwise provided by law;
- if the application for a use and occupancy permit includes construction works in respect of which the issuing of the use and occupancy permit is in the competency of several government agencies, the corresponding use and occupancy permit is issued by the Consumer Protection and Technical Regulatory Authority, unless otherwise provided by law.

Procedure for issuing use and occupancy permits (Riigikogu, 2021a):

1. the use and occupancy permit is issued if the construction work conforms to the requirements established in legislation, i.e., above all to the requirements for construction works, and conforms to the building permit;
2. the competent authority decides on the need to initiate the assessment of environmental impact above all, if the change in the purpose of use of the construction work may entail a significant environmental impact that has not been assessed before;

3. the competent authority issues the use and occupancy permit within **30 days** from the date of filing of the application. The competent authority sets a time limit of **ten days** to give approvals or opinions.

The use and occupancy permits are granted for an unspecified term unless stipulated otherwise in the permit.

➔ Duration of the process	30-40 days
➔ Validity of the use and occupancy permit	*unspecified term*
➔ Solar PV	applies
➔ Windfarm	applies

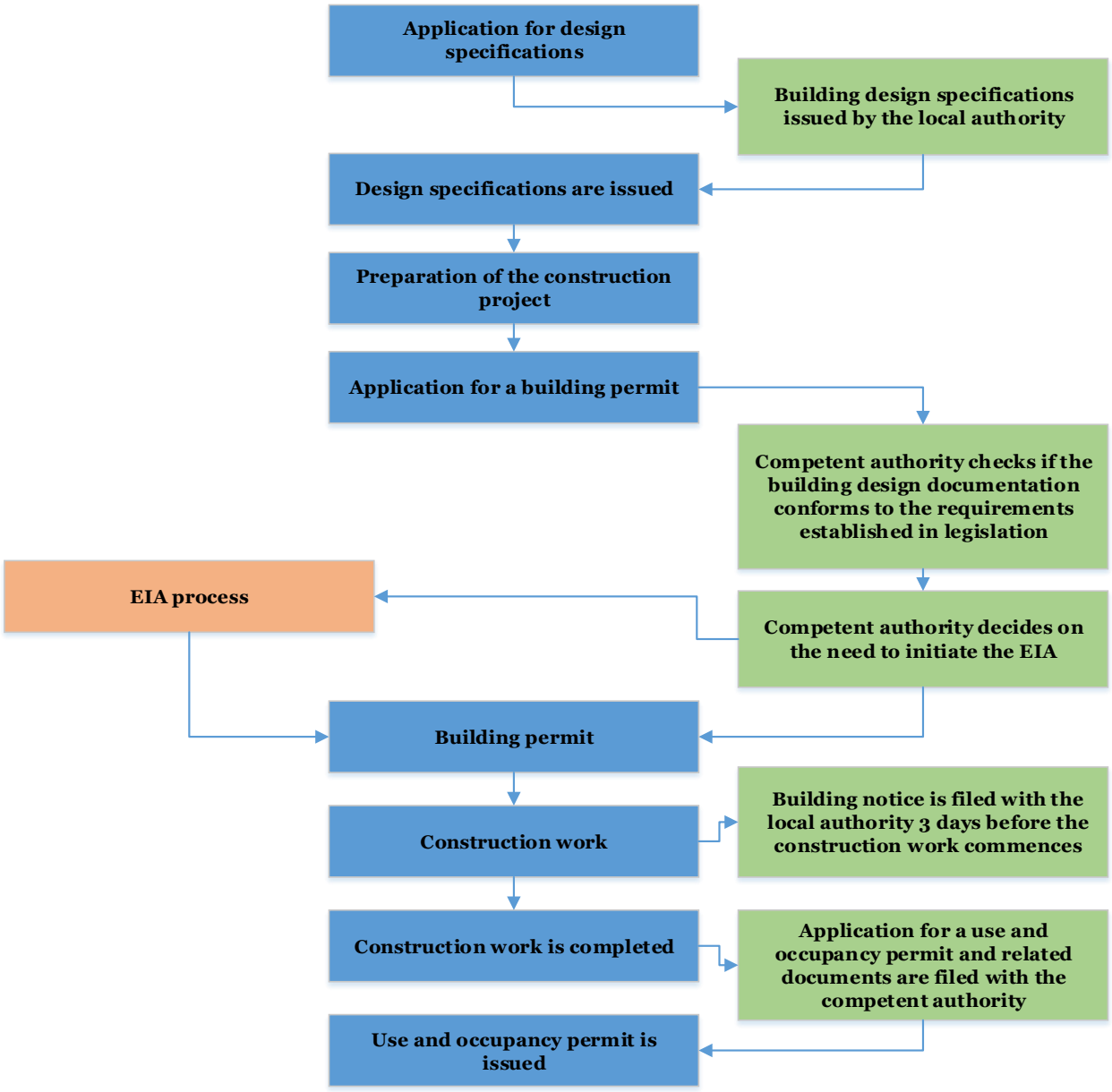


Fig. 4.7. Permits connected to construction process (Riigikogu, 2021a)

4.5. Permission for the introduction of new electricity production installations

Electricity Market Act regulates the production, transmission, sale, export, import and transit of electricity and the economic and technical management of the electricity system (Riigikogu, 2020). The law prescribes the principles of the functioning of the electricity market, based on the need to ensure an efficient electricity supply at a reasonable price, by environmental requirements and consumer needs, and the balanced, environmentally friendly and long-term use of energy sources. According to this Act, a producer is an electricity undertaking that produces electricity through one or more production equipment. (Riigikogu, 2020):

An entity must be authorised and have a permit for electricity generation. It does not apply in the following cases (Riigikogu, 2020):

- upon production of electricity using production equipment with a net capacity of up to 200 kW;
- upon transmission of electricity through a closed distribution network;
- Upon transmission of electricity via a direct line, if the direct line is connected to production equipment with a net capacity of up to 500 kW.

An application for a licence can be submitted to the Competition Authority in the register of economic activities (direct access to the register: https://mtr.mkm.ee/) (Konkurentsiamet, 2021). The information and documents to be submitted with the application for an authorisation to produce electricity must enable the Competition Authority to attach additional conditions to the authority under Section 32 of the Electricity Act (Konkurentsiamet, 2021):

- the maximum permissible net capacity of the generating installation;
- the maximum permitted capacity of the generating installation
- the maximum permissible capacity of the generating installation, the maximum permitted output of the generating installation, the maximum capacity of the generating installation, the indication of the energy source to be used for operating the generating installation;
- information on whether the electricity produced under the licence may be sold with the aid referred to in Article 59 of the ELTS;

- a list of the requirements applicable to the production of electricity from renewable energy sources and to the equipment used for such production, if the electricity produced under the licence may be sold with the support referred to in Article 59 of the ELTS;
- a description of the equipment used for the production and sale of electricity using the support referred to in Article 59 of the ELTS.

In the case of electricity generation, the provision of network services through the distribution network and the transmission of electricity via a direct line or direct lines, the applicant for authorisation shall receive an initial reply from the Competition Authority within **three working days** of the submission of the application, including information on the time limit for processing the application (Konkurentsiamet, 2021).

The Competition Authority shall resolve the application for authorisation within **60 days** by granting or refusing the authorisation (Konkurentsiamet, 2021). The time limit for the resolution of the application starts to run from the submission of all the required information (Konkurentsiamet, 2021). The Competition Authority will inform the undertaking of any deficiencies in the application on a working day following the day they were identified and will allow a reasonable time for the deficiencies to be remedied (Konkurentsiamet, 2021). In case of failure to submit the required information within the deadline, the Competition Authority may decide not to deal with the application (Konkurentsiamet, 2021).

➔ Duration of the process	*60 days*
➔ Solar PV	applies
➔ Windfarm	applies

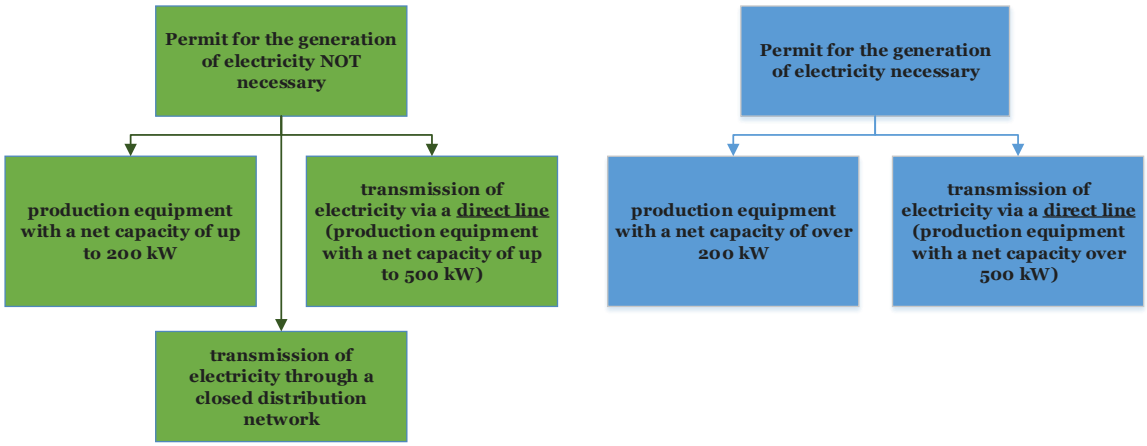


Fig. 4.8. Permit for the generation of electricity (Riigikogu, 2020)

4.5.1. Permit to sell electricity

In order to operate as a **seller of electricity**, an undertaking shall submit a notice of economic activities to the Register of Economic Activities under the procedure provided for in the General Part of the Code of Economic Activities Act. There is no notification obligation in the following cases if (Riigikogu, 2020):

- a person who, outside his or her main activity, sells and transmits electricity within a building or immovable belonging to him or her or wholly in his or her possession to persons who lawfully use the building or immovable;
- a non-profit association that sells and transmits electricity to its member-only for the supply of electricity to an apartment, cottage, garage or private house owned or possessed by the member;
- upon sale of electricity produced by the producer;
- sale of electricity on the electricity exchange;
- in the sale of electricity, if the electricity is transmitted to the consumer via a direct line and is produced with the help of production equipment with a total net capacity of less than 200 kW.

General Part of the Code of Economic Activities, Article 20. "Resolution of application for activity license" determines that (Riigikantselei, 2021):

1) The Economic-Administrative Authority shall decide on the application for authorisation by granting or refusing to grant an authorisation within **30 days** from the date of submission of the application. The time limit for processing the application shall start from submitting all the required information. Where an undertaking fails to provide the information required in the application for an authorisation, the economic operator shall be informed by the economic operator no later than the working day following the day on which the deficiency is identified, indicating the information which has not been provided and setting a reasonable time limit for its provision and stating that the economic operator may be entitled to have the application rejected if the required information is not provided. If the undertaking fails to provide the required information within the time limit, the monetary administrative authority may reject the application for an authorisation.
2) Suppose upon examination of the application. It appears that the personal or material requirements of the control element of the authorisation have not been met or that the authorisation cannot be granted because the undertaking required to submit a due

diligence plan under this Act has failed to submit such a plan. In that case, the monetary administrative authority may suspend the time limit for the resolution of the application until the deficiency has been remedied, but for not more than **30 days**, by informing the applicant undertaking.

3) The economic operator may extend the time limit for the settlement of an application once for not more than 30 days where the complexity of the individual case requires, by informing the applicant undertaking. The economic, administrative authority shall state the reasons for the need and duration of the extension in the notification sent to the applicant undertaking.
4) Suppose the monetary administrative authority does not deal with the application within the time limit specified by law or within the extended time limit. In that case, the authorisation shall be deemed tacitly granted to the undertaking on the expiry of that time limit. The economic, administrative authority shall enter the authorisation details in the register on a working day following the expiry of the time limit. In cases provided for by law, this principle may be derogated for overriding public interest and protecting the rights of third parties. The principle of the tacit entry into force of authorisation shall not apply where the authorisation is subject to ancillary conditions.

➔ Duration of the process	*30-60 days*
➔ Solar PV	applies
➔ Windfarm	applies

4.6. Connection to the network

The Grid Code is established based on Subsection 42(2) of the Electricity Market Act. This Regulation lays down (Vabariigi Valitsus, 2019):

- Technical requirements applicable to power-generating installations by the security of supply of the electricity system;
- Simplified conditions for connection to the network of power-generating installations whose capacity is below 15 kW and use a renewable source for a generation.

The system operator shall approve the connection of a power plant with a rated power of over 1 MW to the system. Requirements applied to the generating installations of power

plants with rated active power up to 1 MW state that the electrical design documentation of a power plant that is to be connected to the network and whose rated capacity exceeds 15 kW is presented for endorsement to the network operator (Vabariigi Valitsus, 2019). The network operator decides on the matter **within 30 days** of receiving the corresponding application. If circumstances require detailed scrutiny, the decision is made within **60 days** of receiving the application.

Requirements to power plants with rated active power from 1 to 10 MW. In order to connect a power plant to the network, the project of the electrical part of the power plant to be connected shall be submitted to the network operator for approval (Vabariigi Valitsus, 2019). The operator shall coordinate the project with the system operator if the power plant is connected to the distribution network.

Requirements applied to the power plants with rated active power of over 5 MW - as a rule, a power plant is connected to the transmission network. The connected shall submit the electrical part of the power plant project to the network operator for approval (Vabariigi Valitsus, 2019). Suppose a power plant is connected to a distribution network. In that case, the distribution network operator shall coordinate the connection offer and the electrical part of the power plant project with the system operator.

Connection to the network of wind turbines, wind farms and solar power plants (Vabariigi Valitsus, 2019):

- The transmission network operator approves the connection to the distribution network of a power plant whose rated operational capacity exceeds 200 kW. The transmission network operator decides on the matter within **30 days** from receiving the corresponding application;
- a power plant whose rated operational capacity exceeds 10 MW is connected to the transmission network.

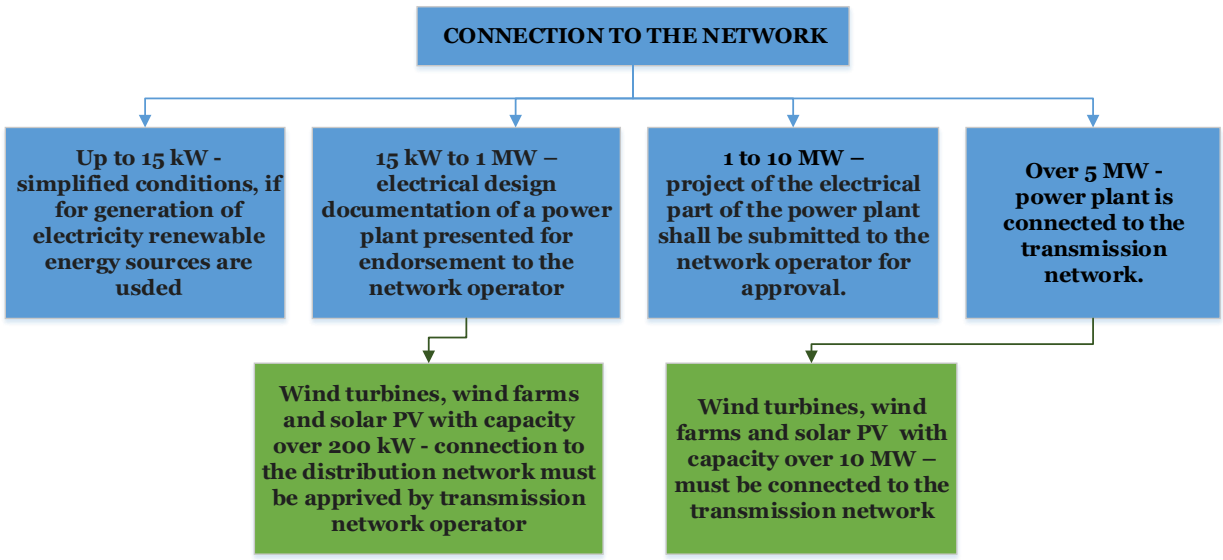


Fig. 4.9. Connection to the network (Vabariigi Valitsus, 2019)

From the beginning of 2013, the Estonian electricity market was opened to all consumers (Konkurentsiamet, no date). Anyone with a valid network contract can choose the right electricity seller. In an open market, all electricity producers have equal access to electricity networks (Konkurentsiamet, no date). The consumer can choose the most suitable electricity seller for him, regardless of the undertaking he has concluded a network service contract (Konkurentsiamet, no date). The price of electricity is formed on the power exchange under equal conditions of competition.

In the electricity market, trading in the Estonian region generally occurs through the Nord Pool power exchange (Konkurentsiamet, no date). In some cases, electricity is sold based on contracts between the producer and the consumer.

The transmission system operator JSC Elering is responsible for the operation of the electricity system as a whole and for ensuring a high-quality electricity supply (Konkurentsiamet, no date). There are **33 distribution network operators** in Estonia, which manage more than 65,500 kilometres of low and medium voltage lines (Konkurentsiamet, no date). Largest of them, Elektrilevi OÜ's with a market share of approximately 87%, followed by VKG Elektrivõrgud OÜ operating in Ida-Viru County and Imatra Elekter AS operating in Western Estonia (Konkurentsiamet, no date). They all are responsible for ensuring a high-quality electrical connection for the consumer and rectifying faults quickly.

4.6.1. Connection to the distribution network operator

As in Estonia, there are 33 distribution network operators. An example of the connection to two distribution network operators will be given - Elektrilevi OÜ's and VKG Elektrivõrgud OÜ, to illustrate the process as a whole.

Connection process to Elektrilevi OÜ's

Duration of the process (Elektrilevi, no date):

- more accessible network connections - 1-2 months
- more complicated cases - up to 12 months, reasons for the delay could be construction, design, agreements with landowners, applying for approvals from the municipality and various agencies, and other related work also takes time

1. Application (Elektrilevi, no date):
   - Based on the subscription application, a price offer will be prepared. In order to enter into a connection agreement, it is necessary to submit a connection application, based on which an offer together with the term and cost of completion of the network connection will be prepared. In order to apply, it is necessary to know the size of the main fuse and the possible location of the connection shield;
   - in the case of a new object, the object's electrical system designer will help make the necessary calculations of the main fuse. When choosing the location of the connection board, it must be taken into account that it is easily accessible and, in the case of a large immovable, not very far from the place of consumption. Usually, the most suitable location of the connection shield is on the border of the real estate, the map of the cadastral unit on the website of the Land Board is also helpful in choosing the location ;
   - an offer within an average of 7 days. In more complex cases, it can take up to 30 days will be prepared. The offer is valid for 60 days;
   - if the offer is suitable, a contract is signed, and an invoice is issued.

2. Construction:

During construction, an in-house electrical system installation should begin (Elektrilevi, no date).

Distribution system operator	**Client**

The necessary approvals from the landowners are requested, and the necessary project is prepared to construct the lines.	Order an in-house electrical system project from a licensed electrical work company
An electricity network with a connection board, connection point, main fuse and meter is built.	After performing the electrical work, order an audit of the electrical installation.
The connection board to the mains is connected. Notification of the completion of the work is, and an invoice for the last instalment for payment is sent.	Submit a copy of the audit

3. Inspection of the electrical installation:

   An audit of the electrical installation must be ordered to ensure the safety of the electrical systems. Afterwards, a copy of the audit results must be submitted to Elektrilevi (Elektrilevi, no date).

4. Network contract:

   Sign up for a network contract. For Elektrilevi to start supplying electricity to the point of consumption, the client needs to sign a network contract. Once the network contract is signed, the point of consumption will be energised, and the system is ready to go. Now an electricity supplier must be chosen (Elektrilevi, no date).

Connection process to VKG Elektrivõrgud OÜ

1. Preparatory work:

   As a first step before applying, it is recommended to contact one of VKG Elektrivõrgud OÜ specialists who answer any client's questions. It is not up to the network company to determine the power consumption, i.e. how much head protection is needed. This has to be determined by the client in cooperation with an electricity specialist, who will draw up a project for the electrical system of the installation (VKG Elektrivõrgud, no date).

2. Application

   Once the client is clear about the service he needs, he must apply for connection to the electricity network on the relevant bill. The application must be completed in all the required fields and be accompanied by the required documents. Documents to submit (VKG Elektrivõrgud, no date) :

- identity document (passport, driving licence, ID-card);
- power of attorney, if you are an authorized person;
- proof of ownership if the land parcel is not yet formed and registered in the land register;
- the name of the detailed plan or project for the land and the approval number of VKG Elektrivõrgud OÜ (if available);
- additional documents on restrictions, etc., of which VKG Elektrivõrgud OÜ needs to be aware.

3. Connection offer

At the latest, within **30 days** of a valid connection request, a connection offer will be issued, including (VKG Elektrivõrgud, no date) :

- a connection contract specifying the cost and the planned date of energisation or completion of the works;
- technical conditions necessary for the design of the customer's electricity system;
- A delimitation report, if the location of the connection point (connection shield) can be precisely fixed. If it is necessary to build a new connection point, a delimitation act is drawn up after the connection point has been built, the location of which is chosen in agreement with the subscriber;

4. Connection contract

A bilateral connection contract is signed if the customer accepts the connection offer made by VKG Elektrivõrgud OÜ, which is valid for 60 calendar days (VKG Elektrivõrgud, no date).

After signing, an invoice is sent to the subscriber, upon payment of which VKG Elektrivõrgud OÜ starts working to construct the connection point. In the case of high-cost and multi-stage connections, which a separate project will solve, it is possible to pay for the connection in instalments (VKG Elektrivõrgud, no date).

5. Completion of construction works

VKG Elektrivõrgud OÜ will not energise the connection until all the works related to the construction/renovation of the electrical system (i.e. the internal network) of the connection site have been completed and the electrical installation has been issued a certificate of conformity by an accredited technical inspection company. In the case of modification of the consumption conditions of the installation (an increase of the main

fuse), the notification is only required if the nominal current of the main fuse exceeds 63 amperes (VKG Elektrivõrgud, no date).

The client must submit a declaration and a copy of the certificate confirming that the electrical installation conforms. Based on the notification, VKG Elektrivõrgud OÜ will further verify the technical inspection of the electrical installation and its compliance with the requirements from the database held by the Technical Inspection Authority (VKG Elektrivõrgud, no date).

6. Network contract

A new network contract will be concluded with the client, after which the consumption point will be energised. Suppose the invoice is not paid by the due date indicated on the invoice or other breaches of the connection contract. In that case, VKG Elektrivõrgud OÜ will send a reminder to the customer (VKG Elektrivõrgud, no date). The connection contract may only be amended with the prior written consent of both parties.

➔Duration of the process	1-12 months
➔ Solar PV	applies
➔Windfarm	applies

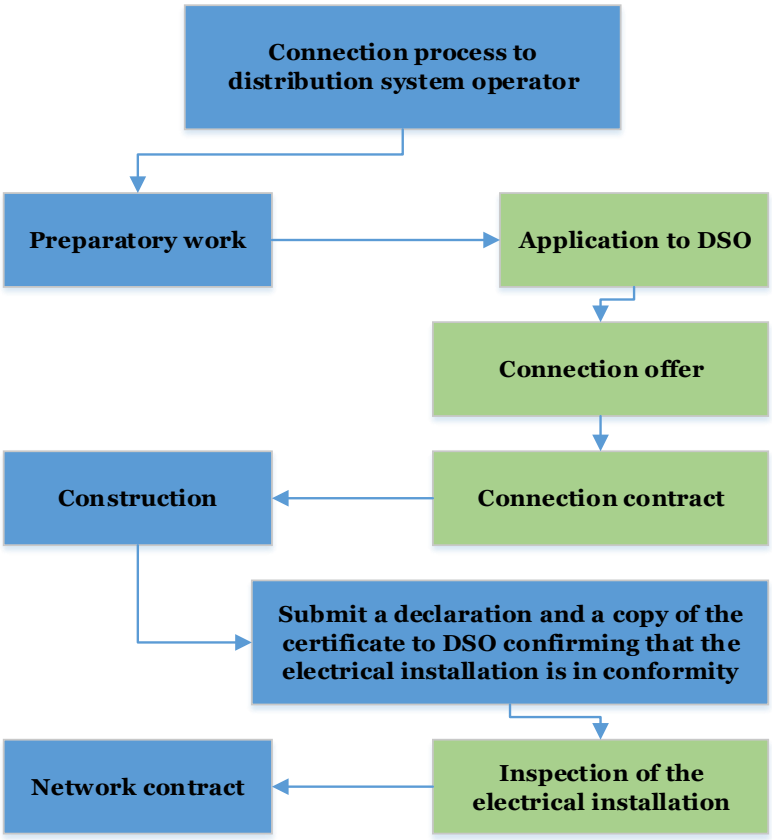


Fig. 4.10. Connection to DSO

Overall, the steps in the connection process for a distribution system operator are the same. The timeframes for the review of the connection and the preparation of the offer are also the same.

4.6.2. Connection to the Transmission System Operators network (over 10 MW)

Transmission system operator

JSC Elering is an independent electricity and gas system operator in Estonia whose primary duty is to guarantee high-quality energy supply to Estonian consumers at all times (Elering AS, no date a). Elering`s operations are regulated by Electricity Market Act and Natural Gas Act. Elering was founded on 27th January 2010 when unbundling from Eesti Energia AS was executed. All Elering`s shares belong to the Republic of Estonia, whose shareholder`s rights are executed by the Ministry of Economic Affairs and Communications.

To ensure the sustainable functioning of security of supply as a critical service, Elering maintains and develops both electricity and gas internal transmission networks and external connections (Elering AS, no date a). The balance between production and consumption has

to be ensured in the electricity system and sufficient gas amount for supplying consumers in the gas system (Elering AS, no date a).

Elering`s operations are based on the principle of an open energy market being aware of the responsibility for ensuring the functioning of the energy market and equal treatment of all energy market participants – producers, sellers, distribution networks and balance providers (Elering AS, no date a). Consumers must have the possibility and freedom to choose from whom to buy energy (Elering AS, no date a).

To connect to the electricity transmission network managed by Elering AS electricity producer must go through the stages outlined below. This process reflects the maximum number of activities associated with a single subscription (Elering AS, no date b). Different types of subscriptions may involve fewer activities than those listed here (Elering AS, no date b):

1. APPLICATION (client):
- Issuance of a procedural fee invoice (Elering)
  - Invoice payment (client)
  - Notification of application deficiencies (Elering)
  - Request corrections (client)
  - Decision on the adequacy of the application (Elering)
- Decision on acceptance of the application (elimination of deficiencies in the application and payment of the invoice must be verified) (Elering)

2. ACCESSION AGREEMENT
- Subscription offer (Elering)
  - Amendments to the subscription offer (client)
  - Feedback on amendments (Elering)
  - Acceptance of the subscription agreement offer / Signing the subscription agreement (client)
- Signed subscription agreement returned to the client (Elering)

3. BUILDING
- Issuance of the first instalment (Elering)
  - Invoice payment (client)
- Construction Procurement I (Elering)
  - Notice of commencement of the preparation of procurement documentation (Elering)
  - Notice of invitation to tender (Elering)
  - Transmission of procurement results to the client for approval (Elering)
  - Coordination of procurement results (client)
  - Notification of the winner of the procurement (Elering)
- Construction Procurement II (if applicable) (Elering)
  - Notice of commencement of the preparation of procurement documentation (Elering)
  - Notice of invitation to tender (Elering)
  - Transmission of procurement results to the client for approval (Elering)

- Coordination of procurement results (client)
- Notification of the winner of the procurement (Elering)

- Amendment to the Accession Agreement (Elering)
  - Amendments to the subscription offer (client)
  - Feedback on amendments (Elering)
  - Signing an amendment to the subscription agreement (client)
  - Notification on concluding amendments to the Accession Agreement (Elering)
- Issuance of the second instalment invoice (Elering)
  - Invoice payment (client)
- Construction (Elering)
  - Notice of commencement of construction (Elering)
  - Coordination of non-procurement expenditure with the client (Elering)
  - Network connection notification (Elering)
- Issuance of the third instalment invoice (Elering)
  - Invoice payment (client)

4. TENSIONING

- Preparation
  - Electrical part project for Elering (client)
  - Voltage schedule (client)
    - Coordination decision or comments (Elering)
  - Voltage plan (client)
    - Power supply with upgrades to the customer (Elering)
    - Signing the voltage plan (client)
    - Signing the voltage plan (Elering)
  - Communication connection
    - Notification to Elering to establish a communication connection (client)
  - Audit
    - Audit submitted based on the Building Code (client)
    - Feedback to the audit (Elering)
  - Interim network agreement (i.e. agreement for temporary use of network connection)
    - Tender for the temporary use of the network connection (Elering)
    - Amendments to the offer of a temporary network connection agreement (client)
    - Feedback on amendments (Elering)
    - Signed network temporary use agreement (client)
    - Mutually signed agreement on the temporary use of network connection (Elering)
- Tensioning
  - Issuance of voltage notification (Elering)
  - Tensioning
    - An indication that energization has been performed (date of energization) (Elering)
  - Testing
    - Notice to the customer to start post-energization testing (Elering)
  - Communication testing

- Notice to Elering (client) about performing a post-voltage communication test
- Post-voltage confirmation of communication operation to the customer (Elering)

5. SYNCHRONIZATION

- Preparation
  - Estimated time of synchronization for Elering (client)
  - Project for approval by Elering (client)
  - Notes on project synchronization to the customer (Elering)
- PSS / E models
  - PSS / E models for coordination with Elering (client)
  - Customer feedback on PSS / E models (Elering)
  - Models for coordination with Elering (client)
  - Model feedback to the customer (Elering)
- Simulation of cooperation
  - The volume of the cooperation simulation report for the client (Elering)
  - Collaboration simulation report for Elering (client)
  - Coordination of the cooperation simulation report to the client (Elering)
  - Decision on the coordination of the technical project (Elering)
- Test plan
  - To approve the test plan for Elering (client)
  - Test plan approval or comments to the customer (Elering)
  - Signed test plan for the customer (Elering)
  - Signed test plan for Elering (client)
- Synchronization schedule
  - Report pre-sync test results (client)
  - Comments or agreement on the results of pre-synchronization tests (Elering)
- Signal testing
  - Notice on signalling to Elering (client)
  - Confirmation that all synchronization prerequisites have been met (Elering)
- Interim network agreement (i.e. agreement for temporary use of network connection)
  - Tender for the temporary use of the network connection (Elering)
  - Signed network temporary use agreement (client)
  - Mutually signed agreement on the temporary use of network connection (Elering)
- Synchronization
  - Sync request to Elering (client)
  - Provisional temporary launch message (Elering)
  - An indication that synchronization has taken place (Elering)
  - Notice to Elering (client) about performing a communication test after synchronization

6. TESTING

- Quality measurement
  - Notification on the start of quality measurement to Elering (client)
  - A short report on quality measurement for Elering (client)

- Feedback on the short report on quality measurements (Elering)
- Comments on the short report on quality measurement to the client (Elering)
- Improved quality measurement short report to Elering (client)

- Functional tests
  - Authorization to start functional tests for the customer (Elering)
  - Functional test report with a complete quality report to Elering (client)
  - Comments on the report of the full report of functional tests and quality measurements to the customer (Elering)
  - Submission of an updated full report of functional tests and quality measurements to Elering (client)
  - Approval of the full report of functional tests and quality measurements to the customer (Elering)
- Tension test
  - Preparation of the stress gap test (preparation of a plan and informing the client about the time of the planned test) (Elering)
  - Message ready to start testing (client)
  - Stress gap test report for the customer (Elering)
  - Report of the reasons for the failure of the voltage gap test to Elering (client)
  - Confirmation that the production equipment voltage gap test was successful (Elering)
- Certificate of conformity
  - Certificate of conformity for the customer (Elering)
- Verification
  - Notice to the customer about the need and scope of verification (Elering)
  - Verification volume feedback to Elering (client)
  - Verified models (PSS / E, PSCAD) with collaboration simulation report to Elering (client)
  - Comments on models and/or cooperation report to the customer (Elering)
  - Improved verified models (PSS / E, PSCAD) with cooperation report to Elering (client)
  - Coordination of models and cooperation report (Elering)

7. NETWORK AGREEMENT

- Concluding a permanent network contract
  - Network contract offer (Elering)
  - Network agreement signed (client)
  - Mutually signed network agreement (Elering)
- Issuance of the final operational message (Elering)

➔Duration of the process	*6-12 months*
➔ Solar PV	applies
➔Windfarm	applies

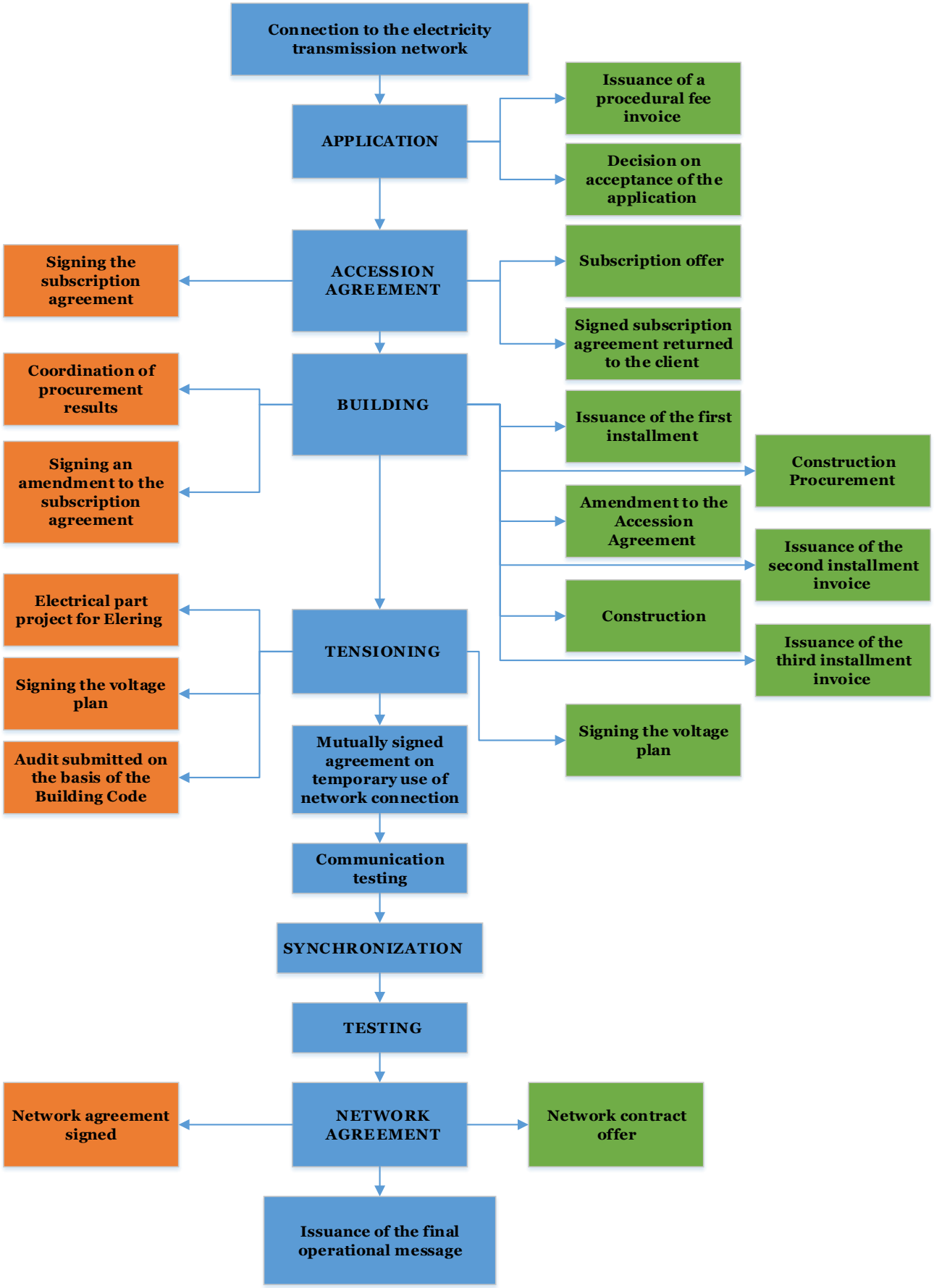


Fig. 4.11. Connection to TSO

4.7. Direct line

Electricity Market Act defines "direct line" as a line which is located in the service area of a network operator and which lacks a direct connection to the network, except for a closed distribution network, but which may be indirectly connected to the network through an electrical installation of a market participant and which serves to transmit electricity from a power station to another power station or another market participant for its consumption, resale or transmission (Riigikogu, 2020). An undertaking must hold corresponding authorization to engage in the generation of electricity and conveying electricity via a direct line or via direct lines, when electricity is conveyed via a direct line, provided the direct line is connected to a generating installation whose net capacity is up to 500 kW (Riigikogu, 2020).

In order to operate as a seller of electricity, an undertaking must present a notice of economic activities to the registrar of economic activities by the rules provided in the General Part of the Economic Activities Code Act. When selling electricity, provided the electricity has been conveyed to the consumer via a direct line and generated by generating installations with a total net capacity of less than 200 kW, the obligation to notify does not apply (Riigikogu, 2020).

The network operator to whose network the generating installation is connected or in whose service area the generating installation is connected to its network via a direct line, and the electrical installation of a customer, certifies the installation's compliance with the requirements after the end of the testing period and based on test results. If the net capacity of the generating installation exceeds 5 MW, the installation's compliance with the requirements is certified by the system operator (Riigikogu, 2020).

A consumer or an electricity undertaking has the right to construct and use a direct line in order to supply electricity to itself or consumers or to an undertaking belonging to the same group as the electricity undertaking only if (Riigikogu, 2020):

- the direct line is built on the immovable on which the producer's power station is located, on an adjacent immovable or to an electrical installation located at a distance of up to six kilometres from the generating installation;
- due to the need to amend the network contract entered into with the network operator, the builder of the direct line has agreed with the network operator the terms and conditions of consumption or production or has agreed to amend

those terms and conditions for reasons related to the construction of the direct line and the connection of the generating installation to the network;

- the builder of the direct line has submitted to the network operator information regarding the maximum rated operating voltage of the line, the length of the line, its geographic coordinates, its layout and other principal technical parameters;
- the direct line may be constructed in an area other than specified before if the network operator has refused to connect the electrical installation of the consumer, producer or seller to the network or if the network operator in whose service area the construction of the direct line is planned gives its written consent to the construction and use of the direct line.

The advantage of building direct lines is that energy producers can build a direct line for more customers and negotiate the conditions without involving the grid. This means that solar PV or wind turbine installation can be carried out without any connection to the network if many consumers are available and are willing to purchase electricity (PV magazine, no date).

➔Duration of the process	*not stated*
➔ Solar PV	could be applicable
➔Windfarm	could be applicable

4.8. Offshore wind farms

The Electricity Market Act, Chapter 8, "Loading of the public body of water with wind power plants", determines that in order to plan the loading of a public water body with a wind power plant, a building permit under subsection 217 (1) of the Water Act shall be applied for from the Consumer Protection and Technical Supervision Board (Riigikogu, 2020). In addition to the information and documents provided for in the Water Act, an application for a building permit shall contain information concerning the potential capacity of the wind power plant, and the application shall be accompanied by the approval of the transmission system operator concerning the technical conditions for connection to the transmission system.

A building permit for a load of a public water body with a wind power plant may be issued only to an electricity undertaking or to an undertaking belonging to the same group as

the electricity undertaking. The average value of land is determined based on the results of regular land valuation carried out by the Land Valuation Act. The area under construction of a wind power plant also includes the distances of up to 1000 meters between individual wind turbines belonging to the wind power plant, calculated based on the width of the wind turbines and the area under construction of the facilities necessary for servicing the wind power plant (Riigikogu, 2020). After the issue of a building permit until the commencement of use of a wind power plant for the intended purpose, the superficies fee shall be paid 10% of the fee (Riigikogu, 2020).

Rules for loading a public water body with wind power plants are described in a more detailed manner in The Water Act, Article 3 "Encumbering Public Water Bodies with Construction Works that are Not Permanently Connected to Shore". In order to do that, the developer must obtain a **Superficies licence** (Riigikogu, 2021d).

1. The superficies licence is the right to encumber a delimited part of a public water body with construction works that are permanently connected to the bottom of the water body and are not permanently connected to the shore for a specified term (Riigikogu, 2021d). State authority is not required to apply for a superficies licence to encumber a public water body with construction works.
2. Construction works built under a superficies licence, to which the superficies licence applies, shall form an essential part of the superficies licence and shall belong to the holder of the superficies licence based on the right of ownership (Riigikogu, 2021d).
3. The superficies licence shall not replace other permits prescribed by law required for building and using the construction works, forming an essential part of the superficies licence unless otherwise provided by law (Riigikogu, 2021d).

Procedure for applying for a superficies licence (Riigikogu, 2021d):

1. an application for a superficies licence shall be submitted to the competent authority;
2. an application for a superficies licence shall contain the following information:
   - the purpose of use of the construction works;
   - the maximum height and depth of the construction works and other important technical data;
   - the number of construction works on the encumbered area and the ground projection area;
   - the coordinates of the encumbered area of the public water body and the size in square metres of the encumbered area;

- the description of the investigation if the competent authority requires the conduct of such investigation;
- the applied term of the superficies licence;
- if additional requirements for holders of superficies licences are provided by law, the application shall also include the confirmation of the applicant that he or she complies with the requirements;
- a map of the planned construction works' location and the civil engineering works required for servicing the construction works.

3. after the investigation carried out as required by the competent authority and the environmental impact assessment, the applicant shall submit the investigation reports and environmental impact assessment reports to the competent authority;
4. specifications for applications for superficies licences for encumbering a public water body with a wind power plant shall be provided for in the Electricity Market Act;
5. the commencement of the procedure for the issue of a superficies licence shall be decided by the competent authority;
6. the competent authority shall decide to commence or not to commence the procedure for the issue of a superficies licence after obtaining the opinion from the authorities concerned. The authority expressing an opinion shall substantiate the opinion. The term for expressing an opinion shall be **30 days**;
7. if no circumstances precluding the commencement of the procedure for the issue of a superficies licence become evident, the competent authority shall publish a notice in the official publication *Ametlikud Teadaanded*, in at least one national daily newspaper and on its website before the commencement of the procedure;
8. within **20 days** of publishing the notice, other interested parties shall have the right to submit their application for a superficies licence for encumbering the same public water body part with construction works:
   - if several applications are submitted in respect of one area of a public water body, and the construction works requested to be encumbering the public water body are substantially different from the construction works set out in the first application, the competent authority shall also submit the other applications for obtaining an opinion;
   - if several applications for a superficies licence concerning one area of a public water body have been submitted to the competent authority in case of which

there are no grounds for a refusal to issue the superficies licence, the procedure for the issue of a superficies licence shall be commenced based on the application that is the most appropriate to the social and economic needs of the Estonian society as a whole, the strategic development plans of the state, and the spatial plans for the district.

9. the competent authority refuses to commence a procedure in respect of other applications unless it is possible to issue a second superficies licence in respect of the area concerned due to the nature of the construction works;
10. if the encumbered area indicated in an application for a superficies licence is changed before the decision to commence a procedure for the issue of the superficies licence is made, the competent authority shall ask an opinion from the authorities concerned:
    - in justified cases, the encumbered area indicated in the application can be changed after having published a notice in the official publication *Ametlikud Teadaanded*;
    - suppose the area is changed after having published the notice and after the procedure to a more significant extent than 33%. In that case, the notice shall be published in the official publication *Ametlikud Teadaanded* and upon submission of competing applications.

11. when commencing the procedure for the issue of a superficies licence, the competent authority shall determine:
    - the person based on whose application the procedure shall be carried out;
    - whether to commence or not to commence environmental impact assessment;
    - if necessary, the investigations to be conducted by the applicant for the superficies licence in order to achieve the decision on the issue of the superficies licence, and the time limits for conducting these investigations;
    - if necessary, the conditions that shall be taken into account if other procedures for the issue of a superficies licence have been commenced regarding the area set out in the application, or if there is another superficies licence in force for encumbering the area set out in the application;
    - other necessary conditions.

12. The competent authority shall issue a superficies licence. At a reasoned request of the applicant for a superficies licence, the competent authority may extend the term for

conducting the investigations determined upon commencement of the superficies licence and change other conditions.

Commencement of procedure for issue of superficies licence by way of competition (Riigikogu, 2021d)**:**

1. commencement of the procedure for the issue of a superficies licence by way of competition in the case of several applications for a superficies licence, it is not possible to decide due to the lack of adequate considerations, the competent authority shall organise competition by written auction among the respective applicants in order to commence the procedure for the issue of a superficies licence;
2. to select an application for a superficies licence by way of a competition in order to commence the procedure for the issue of the superficies licence, the competent authority may determine:
   - the base price for the auction for up to 1,000,000 euros;
   - the participation fee for participating in the competition.

3. the participation fee shall be equal for the participants in the auction and shall not exceed the base price for the auction determined (1 000 000 euros);

4. the procedure for the issue of a superficies licence shall be commenced in respect of the bidder that bids the highest price at the written auction and pays the amount bid at the auction by the due date set out in the competition notice.

Refusal to commence the procedure for issue of superficies licence (Riigikogu, 2021d):

1. the competent authority shall refuse to commence the procedure for the issue of a superficies licence if the issue of the superficies licence is impossible;
2. the competent authority shall also refuse to commence the procedure for the issue of a superficies licence if:
   - procedure for the issue of another superficies licence has already been commenced in the area set out in the application, and it is not possible to issue a second superficies licence for the relevant area due to the nature of the construction works to be built based on the superficies licence to be issued as a result of such procedure;
   - the drawing up of a spatial plan has been initiated, and the planning procedures have not been completed;

- a national special spatial plan has to be prepared to build the planned construction works.

Term of superficies licence (Riigikogu, 2021d):

1. a superficies licence shall be **valid for 50 years**. The competent authority may take into account the type and purpose of use of the construction works, also establish a shorter term for a superficies licence;
2. the competent authority may extend the term of a superficies licence by up to 50 years at the holder's request of a superficies licence. An application for extending a superficies licence shall be submitted at least three months before the expiry of the term of the superficies licence.

➔Duration of the process	*8-10 years*
➔ Superficies licence	valid for 50 years
➔ Solar PV	not applicable
➔Windfarm	applies

After adopting the Marine Strategy, more detailed regulation of offshore wind farms could follow. At present, this Strategy is still in the process of being developed, and the regulation on "Content and requirements for the preparation of a Marine Strategy" is available now (Keskkonnaminister, 2020).

4.8.1. Eesti Energia wind farm project in the Gulf of Riga

Offshore wind farm projects are very time-consuming, and the ever-changing environmental and energy policies and legislation add to the time-consuming nature of the project (Eesti Energia, 2021). As for the timetable of the Gulf of Riga wind farm project development, it is still in the preparatory phase. However, what has been done and the way ahead looks the following (Eesti Energia, 2021).

- "Eesti Energia AS started the preparatory works for the offshore wind farm in 2008: wind modelling, site selection analysis in cooperation with Hendrikson&KO, as well as geological bedrock maps were commissioned;
- an application for the initiation of the water use permit procedure for the establishment of the wind farm in the Gulf of Riga to the Ministry of the Environment, i.e. the water use permit authority, on 14.04.2008 ;

- an application for the initiation of the building permit procedure for the establishment of the wind farm in the Gulf of Riga to the Ministry of Economic Affairs and Communications, i.e. the building permit authority, on 27.02.2010 based on § 226(1) of the Water Act *(in force at that time)*;
- The Building Permit Procedural Body requested the opinion on the application for a building permit from the relevant authorities. On 10.05.2010, the Building Permit Procedural Body published a notice to initiate the building permit procedure in the daily newspaper Eesti Päevaleht, in the Official Gazette and on its website. Within 20 days of the publication of the notice, other interested parties had the right to apply for a building permit. No additional applications were submitted for the building site during this period.
- On 06.07.2010, the Building Permit Procedural Authority submitted a proposal to the Government of the Republic to initiate the building permit procedure.
- On 02.09.2010, **the Government of the Republic decided not to approve the draft** and instructed the Ministry of Economic Affairs and Labour to review the draft.
- In October 2012, the Government of the Republic initiated the regional planning of the maritime area bordering Pärnu County. It was decided to suspend the initiation of the building permit for the Gulf of Riga offshore wind farm to prepare the plan.
- As of 01.07.2015, the Consumer Protection and Technical Surveillance Authority became the authority in charge of the building permit procedure.
- On 17.04.2017, the regional plan of the maritime area bordering Pärnu County was established by the decision of the Pärnu County Mayor.
- On 18.05.2017, Eesti Energia confirmed that it is still interested in processing the building permit application.
- On 19.12.2019, **the Government of the Republic of Estonia initiated the procedure for the building permit and environmental impact assessment for the Gulf of Riga wind farm**, and ordered mandatory studies".

2020-2024 building permit procedure, EIA and studies (Eesti Energia, 2021):

- "On 19.02.2020, Eesti Energia AS submitted the draft EIA programme to the Consumer Protection and Technical Surveillance Authority.

- The EIA programme was made available to the public electronically on 12.03.2020-31.03.2020 in the document register of the TTJA. 08.04.2020 Public discussion of the environmental impact assessment programme of the building permits at Pärnu County Government House.
- During April-June, responses to the comments received were drafted, and the programme was updated.
- 25.06.2020 The building permit examiner requested comments on the updated EIA programme from the relevant authorities. A list of the relevant authorities involved can be found in the EIA programme.
- A new publication of the EIA programme is planned for August 2020 and public consultation for early September. Approval of the EIA programme is planned for the end of 2020 at the latest.
- Preparations for the planning of studies and the preparation of the EIA report will start in autumn 2020. Completion and publication of the EIA report are expected in 2023.
- 2024-2028 is the predicted timeline for the design, procurement and construction works".

As can be seen from the above example, the initial studies for the offshore wind farm started in 2008, and according to the plan, construction would take place between 2024 and 2028. Assuming that the offshore wind farm is commissioned in 2028, the approximate implementation time for the offshore wind farm is 20 years.

4.9. Support mechanisms

Electricity Market Act, Article 58 "Production from renewable energy sources and efficient cogeneration" determines that (Riigikogu, 2020):

- a producer may not subsidise production from renewable energy sources at the expense of other production and vice versa. At the request of the Competition Authority, the producer shall provide data on the breakdown of revenues and costs of production from renewable energy sources separately from the relevant data on other production;
- the amount of electricity for which a certificate of origin is issued, as well as the amount of electricity for which a subsidy is paid in whole or in part, shall be determined using a remote metering device and shall be deemed to be the total of the balancing production delivered to the network of the licensed network operator at all connection points of the producer's power plant during the trading

period and the amount of electricity delivered to the consumer via a direct line by this Act;

- the Competition Authority and the transmission system operator shall have the right to request from the generator, the line operator and the network operator to whose line or network the generating installations of the generator are connected the data necessary for the verification of the information submitted;
- the transmission system operator shall publish the procedure for submitting the data on its website.

A producer has the right to receive support from a transmission system operator: for electricity, if it has produced it from a renewable energy source with a generating installation, the net capacity of which does not exceed 125 MW (Riigikogu, 2020). A transmission system operator shall pay support to a producer based on its application: 0.0537 euros for one kilowatt-hour of electricity (Riigikogu, 2020).

Renewable energy support

Subsidies for introducing renewable energy sources, making the energy sector more efficient and ensuring the security of domestic supply are distributed based on Article 59 of the Electricity Market Act (Elering AS, no date d). According to the Electricity Market Act, the subsidies are paid by the transmission system operator, Elering. The data on the granted state aid is entered in the "Register of State Aid and De minimis Aid"(Elering AS, no date d). The consumer shall bear the cost of financing the support according to the volume of consumption of the network service and the amount of electricity consumed via the direct line (Elering AS, no date d).

A producer using wind as an energy source may receive support by Article 59^{1} of the Electricity Market Act until a total of 600 GWh of electricity is produced from wind energy in a calendar year (Elering AS, no date d).

Renewable energy support is paid based on subsection 59 (2^{5}) of the Electricity Market Act for electricity produced with a generating installation with an electrical capacity of less than 50 kW, if electricity is produced by 31 December, 2020 at the latest and no investment support has been received for construction (Elering AS, no date d).

Payment of aid for production equipment which started production on 1.07.2020. On 1 July 2020, an amendment to the Electricity Market Act entered into force, which provided for the granting of operating aid for the production of electricity from renewable energy to

generating installations with an electrical capacity of up to 50 kW as block exemption under the European Commission Regulation (EU) No 651/2014 (Elering AS, no date d). By law, the conditions of the corresponding regulation apply to this assistance. Producers whose production equipment has been recognized by the network operator as complying with the network code requirements of 1.07.2020 will receive support as state aid granted based on the block exemption. The support rate specified in the Electricity Market Act is 5.37 c/kWh. The support period is 12 years, provided that the generation facility complies with the following conditions of EU Regulation No. 651/2014 (Elering AS, no date d).

Renewable energy fee

The renewable energy charge is the cost of financing electricity subsidies produced from a renewable energy source or in the efficient cogeneration mode and provided to the grid. The rates are set out in the Electricity Market Act (Elering AS, no date c). The renewable energy charge is separated from the network charges. Thus, all end-users of electricity in Estonia pay their payers according to the volume of network service and the amount of electricity consumed through the direct line. The renewable energy charge is shown separately in the electricity bill, allowing consumers to see exactly how much is being paid to finance subsidies for electricity produced from renewable energy and efficient cogeneration. VAT is added to the fee (Elering AS, no date c).

Under the current Electricity Market Act, the renewable energy fee is calculated by Elering, which prepares and publishes on its website by 1 December each year an estimate of the amount required to finance subsidies for the next calendar year based on forecasts submitted by network operators, direct electricity and efficient cogeneration electricity producers and consumers connected to Elering's grid. Based on the assessment, Elering shall determine the amount of financing of subsidies for the next calendar year per kilowatt-hour of consumed network service and electricity consumed via direct line, taking into account amounts over or under received during the 12 months immediately preceding the assessment and justified expenses for subsidy management (Elering AS, no date c).

Network operators, direct line holders and consumers connected to Elering's electricity network shall send Elering a forecast of the volume of network service provided for the next calendar year by 1 November each year.

The amount of the renewable energy fee in 2021 (Elering AS, no date c):

- Renewable energy fee: 1.13 cents/ kWh
- VAT: 20%

- Fee including VAT: 1.36 cents/ kWh

4.10. Case study analysis

Solar panels in Estonia - AS Utilitas Tallinn and AS Utilitas Eesti Solar power plants overview

During 2019-2020, AS Utilitas Tallinn and AS Utilitas Eesti developed eight solar power plant projects in Estonian district heating heat plants. Table 1 shows an overview of installed solar power plants.

Table 1. Overview on solar power plants

Implementer	Address	Solar plant capacities
AS Utilitas Tallinn	Marja tänav 5, Kristiine linnaosa Tallinn Harju maakond	59.16 kW
AS Utilitas Tallinn	Masina tänav 18, Kesklinna linnaosa Tallinn Harju maakond	15.64 kW
AS Utilitas Eesti	Kastani tänav 3a, Rapla linn, Rapla vald, Rapla maakond	31.96 kW
AS Utilitas Eesti	Julius Kuperjanovi tänav 99, Valga linn, Valga vald, Valga maakond	25.84 kW
AS Utilitas Eesti	Aia tänav 50, Jõgeva linn, Jõgeva vald, Jõgeva maakond	59.16 kW
AS Utilitas Eesti	Aia tänav 50, Jõgeva linn, Jõgeva vald, Jõgeva maakond	59.84 kW
AS Utilitas Eesti	Põhja tänav 27, Keila linn, Harju maakond	15.62 kW
AS Utilitas Eesti	Põhja tänav 27, Keila linn, Harju maakond	35.5 kW

During the interview with the representative and project coordinator from the AS Utilitas Eesti, Aleksandr Šablinski typical steps and duration for the solar power plant projects were identified:

- Clarification of main concept, location etc. – *2 months*
- Applications for project design for the solar power plants – *depends on local authority, one week to 1 month or even 1 or 2 years*

- Applications for the grid connection –*depends on capacity, one week for smaller plants (up to 50 kW), but longer for larger plants (1 MW). If there are too many power plants in a particular region, it is harder to get permission from the distribution grid.*
- Geological surveys – it is optional if solar power plants are on the ground
- Solar power plant design
- Construction permit application – *1 month, varies from 2 weeks to 2 months*
- Grid connection contract – *4 - 6 weeks*
- Construction of grid connections – *2-9 weeks*
- Delivery of solar power plant materials– *3-4 weeks*
- Construction of solar power plant– *about 1-2 weeks, depends on the number of solar panels*
- Renewed grid connection contracts with generations permit – *2-4 weeks*
- Applying of grid compliance permit from the grid company – *depends on capacity, approximately 2-4 weeks*.
- Beginning of the power generations
- Using permit applications to local authorities – *4-12 weeks*
- Registering of the direct line connection permit with primary grid (separate metering device needed)

Municipality and local authorities permit projects and approve the project idea. Each municipality has their regulations about power plants technical conditions and possible locations. Even though there is a ministry strategy, each municipality has separate legislation. A municipality can disagree with the idea and project and make regulations or public hearings. However, it depends on the project type, and if there is a public hearing, it extends the project by one month. The Company experienced that installation of one of the possible power plants was stopped by the local municipality which considered it inappropriate in the particular location.

REFERENCES

Augstsprieguma tīkls (2021a) *AST vizītkarte*.

Augstsprieguma tīkls (2021b) *Ekspluatācijas paziņošanas procedūras un Pārbaužu veikšanas kārtība*.

Augstsprieguma tīkls (2021c) *Pieslēgumi pārvades sistēmai*.

Aušra Mudėnaitė, Simonas Skukauskas and Julius Raškauskas (2021) *Amendments to the Law on Spatial Planning adopted: what is important for developers to know?*

Būvniecības valsts kontroles birojs (2021) *Būvdarbu valsts kontrole un būvju pieņemšana ekspluatācijā*.

Cabinet of Ministers (2020) 'Noteikumi par atļaujām elektroenerģijas ražošanas jaudu palielināšanai vai jaunu ražošanas iekārtu ieviešanai', *Latvijas Vēstnesis*, 175.

Consultare OÜ (2020) 'Päikeseelektrijaamade rajamine Otepää loodusalale'.

Eesti Energia (2021) *Liivi lahe meretuulepargi keskkonnamõjude hindamine*.

Available at: https://liivimeretuulepark.ee/ (Accessed: 3 December 2021).
Eesti Energia AS (no date) *Väiketootmine - müü toodetud elekter võrku ja teen - Eesti Energia*.
Eesti statistika (2021) *KE36: Energy efficiency indicators*.
Ekonomikas ministrija (2020) *Atļauju izsniegšana elektroenerģijas ražošanas jaudu palielināšanai vai jaunu ražošanas iekārtu ieviešanai*.
Ekonomikas ministrija (2021) *Elektrostacijas ieviešana un elektroenerģijas ražošanas uzsākšana*.
Elektrilevi (no date) *Ühenduse loomine*.
Elektrum (2021) *Obligātā iepirkuma komponenšu izmaiņas : Elektrība : Elektrum*.
Elering AS (no date a) *Ettevõttest*.
Elering AS (no date b) *Liitumisprotsessi ajatelg*.
Elering AS (no date c) *Taastuvenergia tasu*.
Elering AS (no date d) *Taastuvenergia toetus*.
ESO (2021a) *Įmonės veikla*.
ESO (2021b) *KAS YRA GAMINANTIS VARTOTOJAS?*
ESO (2021c) *Ketinama parduoti elektros energiją rinkos sąlygomis*.
ESO (2021d) *KOKS GAMINANČIO VARTOTOJO PRIJUNGIMO PROCESAS?*
ESO (2021e) *Pateikite paraišką ESO savitarnoje išankstinėms prijungimo sąlygoms gauti*.
Estonian Latvian & Lithuanian Environment (2021) 'Vēja elektrostaciju park a "Laflora" būvniecība Jelgavas novada Līvbērzes pagastā Ietekmes uz vidi novērtējuma ziņojums', pp. 1–303.
European Commission (2018) 'Directive (EU) 2018/2001 of the European Parliament and of the Council on the promotion of the use of energy from renewable sources', *Official Journal of the European Union*, 2018(L 328), pp. 82–209.
Keskkonnaminister (2020) 'Merestrateegia sisu ja koostamise nõuded', pp. 4–8.
Konkurentsiamet (2021) *Tegevusload | Konkurentsiamet*. Available at: https://www.konkurentsiamet.ee/et/elekter-maagaas/elekter/tegevusload#Nõuded taotlejale (Accessed: 3 December 2021).
Konkurentsiamet (no date) *Valdkonna tutvustus*.
Lietuvos Respublikos aplinkos ministerija (2016) 'Statybos techninio reglamento STR 1.01.03:2017 „Statinių klasifikavimas" patvirtinimo', *TAR*, (27168).
Lietuvos Respublikos aplinkos ministerija (2017a) 'Planuojamos ūkinės veiklos atrankos dėl poveikio aplinkai vertinimo tvarkos aprašo patvirtinimo', *TAR*, (16397).
Lietuvos Respublikos aplinkos ministerija (2017b) 'Planuojamos ūkinės veiklos poveikio aplinkai vertinimo tvarkos aprašo patvirtinimo', *TAR*, (17241).
Lietuvos Respublikos aplinkos ministerija (2021) *Poveikio aplinkai vertinimas*.
Lietuvos Respublikos Seimas (1995) 'Lietuvos Respublikos teritorijų planavimo įstatymas', *Valstybės žinios*, 107(2391).
Lietuvos Respublikos Seimas (1996) 'Lietuvos Respublikos statybos įstatymas', *Valstybės žinios*, (I–1240).
Lietuvos Respublikos Seimas (2000) 'Lietuvos Respublikos elektros energetikos įstatymas', *Valstybės žinios*, 66(1984).
Lietuvos Respublikos Seimas (2011a) 'Lietuvos higienos normos HN 33:2011 "TRIUKŠMO RIBINIAI DYDŽIAI GYVENAMUOSIUOSE IR VISUOMENINĖS PASKIRTIES PASTATUOSE BEI JŲ APLINKOJE"', *Valstybės žinios*, 75(3638).
Lietuvos Respublikos Seimas (2011b) *The Law of the Republic of Lithuania on Energy from Renewable Sources*, *Valstybės žinios*.
Lietuvos Respublikos Seimas (2017) 'Lietuvos Respublikos planuojamos ūkinės veiklos poveikio aplinkai vertinimo įstatymo Nr. I-1495 p...', *TAR*, (11562).

Lietuvos Respublikos Seimas (2019) ‘Lietuvos Respublikos specialiųjų žemės naudojimo sąlygų įstatymas’, *TAR*, (9862).

Lietuvos Respublikos Vyriausybė (2012) ‘Atsinaujinančių energijos išteklių naudojimo energijai gaminti skatinimo tvarkos aprašo patvirtinimo’, *Valstybės žinios*, 81(4239).

Lietuvos Respublikos Vyriausybė (2019) ‘Veiklos elektros energetikos sektoriuje leidimų išdavimo taisyklių patvirtinimo’, *TAR*, (13089).

Lietuvos Respublikos Vyriausybė (2020) ‘Dėl Veiklos elektros energetikos sektoriuje leidimų išdavimo taisyklių patvirtinimo’.

Litgrid (2021) *Activities*.

Majandus- ja taristuminister (2015) ‘Ehitise kaitsevööndi ulatus , kaitsevööndis tegutsemise kord ja kaitsevööndi tähistusele esitatavad nõuded’, (5), pp. 1–4.

Mikhel Annus (2018) *Taastuvenergia aastaraamat (Renewable Energy Yearbook)*. Tallin: Eesti Tastuvenergia Koda.

Ministru kabinets (2006) ‘Enerģētikas infrastruktūras objektu aizsargjoslu noteikšanas metodika’, *Latvijas Vēstnesis*, 195.

Ministru kabinets (2009) ‘Noteikumi par regulējamiem sabiedrisko pakalpojumu veidiem’, *Latvijas Vēstnesis*, 172.

Ministru kabinets (2013) ‘Vispārīgie teritorijas plānošanas, izmantošanas un apbūves noteikumi’, *Latvijas Vēstnesis*, 96.

Ministru kabinets (2014a) ‘Elektroenerģijas ražošanas, pārvades un sadales būvju būvnoteikumi’, *Latvijas Vēstnesis*, 194.

Ministru kabinets (2014b) ‘Latvijas Republikas iekšējo jūras ūdeņu, teritoriālās jūras un ekskluzīvās ekonomiskās zonas būvju būvnoteikumi’, *Latvijas Vēstnesis*, 631.

Ministru kabinets (2014c) ‘Noteikumi par pašvaldību teritorijas attīstības plānošanas dokumentiem’, *Latvijas Vēstnesis*, 628.

Ministru kabinets (2014d) ‘Vispārīgie būvnoteikumi’, *Latvijas Vēstnesis*, 191.

Ministru kabinets (2015a) ‘Kārtība, kādā novērtē paredzētās darbības ietekmi uz vidi un akceptē paredzēto darbību’, *Latvijas Vēstnesis*, 14(18).

Ministru kabinets (2015b) ‘Kārtība, kādā Valsts vides dienests izdod tehniskos noteikumus paredzētajai darbībai’, *Latvijas Vēstnesis*, 20.

Ministru kabinets (2019) ‘Par Jūras plānojumu Latvijas Republikas iekšējiem jūras ūdeņiem, teritoriālajai jūrai un ekskluzīvās ekonomiskās zonas ūdeņiem līdz 2030. gadam’, *Latvijas Vēstnesis*, 232.

Ministru kabinets (2020) ‘Noteikumi par elektroenerģijas ražošanu, izmantojot atjaunojamos energoresursus, kā arī par cenu noteikšanas kārtību un uzraudzību’, *Latvijas Vēstnesis*, 175.

Oficiālās Statistikas Portāls (2021) *Elektriskā jauda un saražotā elektroenerģija no atjaunīgiem energoresursiem*.

OSP (2021) *Energetika - Oficialiosios statistikos portalas*.

Padome, S. pakalpojumu regulēšanas komisijas (2012) ‘Sistēmas pieslēguma noteikumi elektroenerģijas ražotājiem’, *Latvijas Vēstnesis*, 34.

Planeerimine (no date a) *Kohaliku omavalitsuse planeeringud | Planeerimine.ee*.

Planeerimine (no date b) *Ruumiline planeerimine | Planeerimine.ee*.

pv magazine (no date) *Solar installations see an unprecedented boom in Estonia*.

Riga City Building Authority (no date) *Detailed planning scheme*.

Riigikantselei (2021) *Majandustegevuse seadustiku üldosa seadus–Riigi Teataja*. Available at: https://www.riigiteataja.ee/akt/131122017005 (Accessed: 3 December 2021).

Riigikogu (2005a) *Environmental Impact Assessment and Environmental Management System Act*.

Riigikogu (2005b) ‘Keskkonnamõju hindamise ja keskkonnajuhtimissüsteemi seadus’, pp. 1–31.

Riigikogu (2019) 'Planeerimisseadus', (2), pp. 1–53.
Riigikogu (2020) 'Elektrituruseadus', pp. 1–57.
Riigikogu (2021a) 'Ehitusseadustik', pp. 1–44.
Riigikogu (2021b) 'Tabulated overview of the obligation to submit a building notice or building design documentation and to apply for a building permit'.
Riigikogu (2021c) 'Tabulated overview of the obligation to submit a use and occupancy notice or building design documentation and to apply for a use and occupancy permit'.
Riigikogu (2021d) 'Veeseadus', (1), pp. 1–72.
Sabiedrisko pakalpojumu regulēšanas komisija (2013) 'Tīkla kodekss elektroenerģijas nozarē', *Latvijas Vēstnesis*, 126.
Sabiedrisko pakalpojumu regulēšanas komisija (2017) 'Informācijas iesniegšanas vispārīgie noteikumi', *Latvijas Vēstnesis*, 257.
Sabiedrisko pakalpojumu regulēšanas komisija (2018) 'Sistēmas pieslēguma noteikumi elektroenerģijas pārvades sistēmai', *Latvijas Vēstnesis*, 64.
Sabiedrisko pakalpojumu regulēšanas komisija (2021a) 'Grozījumi Sabiedrisko pakalpojumu regulēšanas komisijas 2018. gada 27. marta lēmumā Nr. 1/7 "Sistēmas pieslēguma noteikumi elektroenerģijas sistēmas dalībniekiem"... - Latvijas Vēstnesis', *Latvijas Vēstnesis*, 108.
Sabiedrisko pakalpojumu regulēšanas komisija (2021b) *Reģistrēšana/licencēšana*.
Sabiedrisko pakalpojumu regulēšanas komisija (2021c) *Sistēmas pieslēguma noteikumi elektroenerģijas sadales sistēmai*. 1/8. Rīga.
Sabiedrisko pakalpojumu regulēšanas komisijas padome (2019) 'Vispārējās atļaujas un reģistrācijas noteikumi enerģētikas nozarē', *Latvijas Vēstnesis*, 50.
Sabiedrisko pakalpojumu regulēšanas komisijas padome (2020) 'Par obligātā iepirkuma komponentēm no 2021. gada 1. janvāra', *Latvijas Vēstnesis*, 231.
Sadales Tīkls (2020) *Mikroģeneratora pieslēgšana*.
Sadales Tīkls (2021a) *Elektrostacijas pieslēgums*.
Sadales Tīkls (2021b) *Jauna pieslēguma ierīkošana nekustamajā īpašumā*.
Sadales Tīkls (2021c) *Kā ierīkot mikroģeneratora pieslēgumu mājsaimniecībā vai uzņemumā*.
Sadales Tīkls (2021d) 'Mikroģeneratoru invertoru saraksts'.
Sadales Tīkls (2021e) *Nepieciešamās elektroenerģijas pieslēguma jaudas noteikšana*.
Sadales Tīkls (2021f) *Par uzņēmumu*.
Sadales Tīkls (2021g) 'Vispārējās tehniskās prasības mikroģeneratora uzstādīšanai'.
Saeima (1997) 'Aizsargjoslu likums', *Latvijas Vēstnesis*, 56/57.
Saeima (1998) 'Par ietekmes uz vidi novērtējumu', *Latvijas Vēstnesis*, 322/325.
Saeima (2009) 'Apgrūtināto teritoriju informācijas sistēmas likums', *Latvijas Vēstnesis*, 27.
Saeima (2010) 'Jūras vides aizsardzības un pārvaldības likums', *Latvijas Vēstnesis*, 183.
Saeima (2011) 'Teritorijas attīstības plānošanas likums', *Latvijas Vēstnesis*, 173.
Saeima (2014) 'Zemes pārvaldības likums', *Latvijas Vēstnesis*, 228.
Saeima (2020) 'Parlamentārās izmeklēšanas komisijas "Par OIK atbalsta ieviešanas mērķiem, ietekmi, kritērijiem atbalsta saņemšanai, atbalsta intensitāti, Eiropas Komisijas 2017. gada 24. aprīļa lēmumu lietā SA.43140 (2015/NN) un par nodarīto kaitējumu un tiesību aizsard', *Latvijas Vēstnesis*.
Uzlādēts.lv (2020) *Saules enerģijas attīstību Latvijā kavē nepilnības likumdošanā | Uzlādēts*.
Vabariigi Valitsus (2019) 'Võrgueeskiri', (1), pp. 1–18.
Vabariigi Valitsus (2020) 'Tegevusvaldkondade , mille korral tuleb anda keskkonnamõju hindamise vajalikkuse eelhinnang , täpsustatud loetelu 1', pp. 6–11.
Valsts vides dienests (2021) *Vides tehniskie noteikumi*.

Valsts Vides dienests (2021) *Paredzētās darbības ietekmes uz vidi sākotnējais izvērtējums | Valsts vides dienests*.

Valstybinė energetikos reguliavimo taryba (2020) 'Elektros rinkos liberalizavimas'.

VERT (2019) *Issuing of the permission to develop the energy generating capacities*.

VERT (2021) *Elektra Nepriklausomo elektros energijos tiekimo licencijas/leidimus turinčios įmonės*.

Vides eksperti (2021) *Ietekmes uz vidi novērtējuma procedūra*.

Vides pārraudzības valsts birojs (2019) *Programma Nr.5-03/9 ietekmes uz vidi novērtējumam vēja elektrostaciju parka 'Laflora' būvniecībai Jelgavas no vada Līvbērzes pagastā*. Rīga.

Vides pārraudzības valsts birojs (2021) *IVN procedūra*.

VKG Elektrivõrgud (no date) *Liitumisprotsess*.