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

Recommendations To Improve Administrative Processes For The Implementation Of RES Technologies

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INTRODUCTION

Recommendations for improving the administrative procedures for the deployment of RES technologies are based on the information gathered and compiled in the previous phases of this research. Recommendations take into account the European Commission's Communication of December 11, 2019, on a European Green Deal (COM(2019)640) (European Comission, 2019), the European Commission's report of October 14, 2020, to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on the State of the Energy Union under Regulation (EU) 2018/1999 on the governance of the Energy Union and climate action (COM(2020)950) (European Comission, 2020) and the objectives and targets contained therein, and the objectives and targets of the National Energy and Climate Plans of each country. Furthermore, Directive 2011/92/EU of the European Parliament and of the Council of December 13, 2011, on the assessment of the effects of certain public and private projects on the environment (The European Parliament and the Council, 2012)and Directive 2018/2001 of the European Parliament and of the Council of December 11, 2018, on the promotion of the use of energy from renewable sources are also taken into account (European Parliament and the European Council, 2018).

In preparing the recommendations, particular attention has been paid to their consistency with the objectives and targets set out in the European Green Deal, EU Directive 2018/2001 on promoting the use of energy from renewable sources, and the National Energy and Climate Plans of the Baltic States.

The research identified and described administrative processes in Finland, Norway and Sweden. Although the procedures for deploying RES technologies in these countries do not follow a common framework, they can be considered examples of good practice together and individually. The recommendations are based on the installed capacities of wind and solar parks in the Nordic countries, the accumulated knowledge identified in the comparative part of the study, and the smoother deployment of medium and large-sized parks.

The examples of good practice in administrative procedures identified in the Research phase covering the Nordic countries are unlikely to be directly transferable. However, the conduct of specific administrative procedures should be examined and evaluated as a possible way to improve the administrative procedures in the Baltic States

The research has found that the administrative process for installing wind and solar farms is very similar in all the countries included in the research boundaries, even close to being the same in terms of the overall activities to be carried out. In all the countries included in the study, the process of implementing a wind farm project consists of the same process steps - spatial planning, environmental impact assessment (if required by legislation), construction permit and grid connection. The comparative part of the research concluded that previously mentioned project implementation steps take the most time of the project implementation. Each country may require additional permits and approvals or certain authorities to be notified.

The section on administrative processes in the Nordic countries made it possible to identify improvements, resulting in several stages of the process being merged to speed up or optimise the process. For example, in Finland, municipalities can facilitate the development of wind power plants by adopting a wind power directing local master plan. Most of the required environmental assessments have already been carried out (Bergmann, 2018). In addition, the Finnish Land Use and Building Act (Chapter 10a, Article 77a) state that a building permit for a wind power plant may be issued if a legally binding master plan stipulates explicitly that the plan or part thereof is the basis for the building permit (*Land Use and Building Act 5.2.1999/ 132*, 1999). Furthermore, Norway has implemented a single point of contact system for approving wind and solar par project development - The Norwegian Water Resources and Energy Directorate (NVE) (The Norwegian Water Resources and Energy Directorate, 2021). Detailed information on the implementation process for wind and solar park projects can be found both on the Swedish Energy Agency's website (Swedish Energy Agency, 2019, 2020c, 2020d, 2020b, 2020e) and for the permits required for the spatial and construction process, on the National Board for Housing, Building and Planning's website (PBL knowledge bank, 2020).

The recommendations section is structured so that the first chapter, "Regulatory framework", describes the rationale for the recommendations based on the regulatory framework and extractions from the documents to make it easier to understand the link between the regulatory documents and the recommendations. In addition to the regulatory framework, one of the criteria on which the recommendations are based is the section of this research on the Nordic countries (Finland, Norway and Sweden), which can be considered as examples of best practice due to the amount of accumulated knowledge and experience in the installation of wind and solar PV power generation installations.

The second chapter describes short-term (up to three years) (The Parliament of the Republic of Latvia, 2008) development recommendations, which mainly focus on changes in administrative processes and include changes in normative documents, merging administrative processes and developing various information material and guidelines to improve the transparency of the process and facilitate a common interpretation of the normative framework. Recommendations have been developed for the Baltic States as a whole and individually, based on the information gathered in the research. The recommendations are grouped according to the project implementation phases identified and described in the study: territorial planning, EIA, construction process, permits for the development of electricity production capacity and permits for electricity production from renewable energy sources; connection to the grid.

The third chapter describes medium-term recommendations (up to seven years) (The Parliament of the Republic of Latvia, 2008), which include changes in the coordination of the administrative process and possible changes in the responsible authorities, as well as improvements in the administrative process itself; the recommendations are too large or resource-intensive to be implemented in the short term.

Only short- and medium-term recommendations have been made, recognising that the targets set by the European Green Deal are very ambitious and that the transition to renewable energy production must be as rapid as possible, which automatically implies a significant increase in the number of solar PV and wind power plants in operation.

1. REGULATORY FRAMEWORK

During previous stages of this research, authors have identified and described administrative processes in the Baltic (Latvia, Lithuania, Estonia) and Nordic (Finland, Norway, Sweden) countries. The administrative procedures in the countries included in the research were compared, considering indicators such as timeline, complexity, information availability, the impact of public opinion, and local authorities (municipalities). Each of the analysed criteria included one or several sub-criteria. Taking into account that the research has described administrative processes and has not included a general scientific analysis of administrative procedures for the implementation of RES technologies, nor has it analysed "good practice examples" separately, looking beyond the scope of the research, the development of recommendations has been carried out in close connection with the regulatory framework. The recommendations are based on:

- European Commission Communication of December 11 2019 - A European Green Deal (European Comission, 2019)
- Directive 2018/2001 of the European Parliament and of the Council of December 11, 2018, on the promotion of the use of energy from renewable sources (European Parliament and the European Council, 2018);
- the National Energy and Climate Plans of Latvia (Ministry of Economics, 2020a), Lithuania (Government of Lithuania, 2020a) and Estonia (Ministry of Economic Affairs and Communications & Ministry of the Environment and the Ministry of Rural Affairs, 2019a);
- The Nordic (Finland, Norway, Sweden) model of administrative processes is included in the previous stages of this research.

1.1 European Green Deal

The focus of the Green Deal lies in sustainable development and halting climate changes while remaining in the best interests and well-being of the people of the Member States as a factor that cannot change during this process (European Comission, 2019). Decisions taken at the EU and Member State level in the context of the Green Deal must not put people in a disadvantageous state and expose them to the risk of energy poverty through the transition to energy produced from renewable sources (European Comission, 2019). Therefore, the EU is committed to creating appropriate financial mechanisms to support sustainable solutions. At the national level, financial support must be provided and available to all investors and companies willing to reorient greener solutions (European Comission, 2019). In budgeting, process priority must be given to green and sustainable solutions (European Comission, 2019). Tax reform is needed to take the new priorities set by the Green Deal into account – to stop subsidising fossil fuels; to introduce the polluter pays principle (European Comission, 2019).

The energy sector and the need to reorient it towards energy produced from renewable sources increase attention in the Green Deal. It is a considerable challenge, as the restructuration of the energy sector towards energy production from renewable sources requires enormous investments (European Comission, 2019). To make this even more challenging, the EU has set a goal to affect consumers and producers financially during the transition to energy production from renewable energy sources (European Comission, 2019). Energy production and redistribution practices used in the past must be abandoned, and the

entire energy sector network modernised, making it more accessible, flexible, and digital wherever possible (European Comission, 2019).

The Green Deal has set targets for the Member States, including the Baltic States, to achieve by 2050. Achieving these targets requires a series of improvements in energy efficiency and a rapid shift from fossil to renewable energy.

1.2 Directive 2018/2001 of the European Parliament and of the Council of December 11 2018, on the promotion of the use of energy from renewable sources

The research focused on the requirements of the sections of Directive 2018/2001 of the European Parliament and of the European Council of December 11 2018, on the promotion of the use of energy from renewable sources (European Parliament and the European Council, 2018) (hereafter: RES Directive). It describes the improvements to the administrative procedures and the time limits. The RES Directive is aimed directly at increasing the amount of energy produced from RES and promoting the use of RES. EU directives, as a normative instrument, do not have to be transposed directly into national legislation (European Parliament, 2021), as is the case with regulations, but still, impose specific obligations in terms of the results to be achieved while allowing national governments to determine the forms and methods of implementation. Based on the above, recommendations are made concerning the following points of the **RES Directive – (43), (44), (47), (50), (51), Article 15, Article 16** (European Parliament and the European Council, 2018).

1.3 Latvia's National Energy and Climate Plan for 2021-2030

The National Energy and Climate Plan 2021-2030 (Ministry of Economics, 2020b) is a long-term energy and climate policy planning document that sets out the basic principles, objectives and courses of action for Latvia's national energy and climate policy for the next ten years, considering the outlined long-term development pathways. Changes to the existing administrative process are essential as the previous studies show (Ministry of Economics, 2020b) that Latvia does not have a transparent and systemic RES use promotion support policy and states that the plan contains an objective to use non-fossil gas whilst simultaneously failing to include a goal for phasing out fossil gas(Ministry of Economics, 2020b).

To develop a policy and administrative environment that promotes RES technologies, the National Energy and Climate Plan 2021-2030 Annex 4 sets out the objectives and targets to be achieved Table 1 (Ministry of Economics, 2020b).

Table 1. Annexe 4 "Planned policies and implementing measures" (Ministry of Economics, 2020b)

No.	Measure	Outcome of action	Deadline	Possible financing sources
H.7	Accelerate and simplify the procedures for the deployment of RES technologies (including authorisations) and ensure public benefits from RES projects	1. established a single point of contact to authorise the deployment of RES technologies, assessing the possibility of providing advice to other stakeholders, municipalities, real estate owners, etc. 2. Provided publicly available descriptions and instructions for obtaining the necessary authorisations for RES technology developers 3. The maximum time limits for the issue of licences shall be determined depending on the planned installation to update the electrical capacity and capacity. 4. Developed guidelines for promoters of renewable energy projects, including timely public engagement and socially responsible investments for the development of RES projects in Latvia 5. a framework designed to enable local community communities to benefit from the RES projects planned in their municipalities	31.12.2022	~ 55 thousand *Source: national budget*
3. Direction of action	**Promoting the use of non-emission technologies in electricity generation**			
3.2.	Review the territorial, construction regulation and land-use restrictions conditions for the development of RES technologies.	1. Review of the territorial and other restrictions in force in Latvia for the development of RES technologies, including the EIA process, applying them to the actual situation 2. Amendments to Cabinet Regulation No. 240 of April 30 2013, taking into account, among other things, the requirements arising from the	31.12.2022	~ 100 thousand *Source: national budget*

		conditions for carrying out the environmental impact assessment and local government spatial planning documents 3. Developing territorial conditions for the development of solar parks, assessing the feasibility of restrictions and establishing potential and prospective sites for the creation of solar parks 4. The general construction regulations have been clarified by clearly defining the jurisdiction group of the solar power plant, which will therefore determine the process of its construction and the necessary documentation to be submitted to the building board. 5. Improved regulation of the procedures for issuing building permits for the development of wind parks, including assessing the possibility of creating a solution that would allow the proposed activity to obtain a construction permit even before the EIA process is carried out without cancelling the EIA process. 6. Design and limit values for impacts specific to low-frequency sounds, vibration, flashing, noise, etc. wind parks 7. In light of the studies carried out by public and private parties and the nature areas currently identified, maps have been developed that highlight the most significant potential for developing wind parks (high-capacity wind parks) from the perspective of spatial planning and exploitation potential.		
3.3.	Develop a conceptual solution for the development of land wind parks (wind energy production)	1. Provision is made for the possibility and conditions for the construction of wind parks on agricultural lands of national importance and, where appropriate, amendments to the relevant legislation/legislation 2. Conditions have been developed for the granting of building rights to the construction of State-owned wind parks and for the granting	31.12.2021-31.12.2022	Within the existing budget

		of construction rights for the calculation (for example, depending on the value of electricity produced) 3. The conditions for the use of forest land for the development of wind parks have been developed in order, among other things, to encourage the diversion of large-capacity electricity generation plants further from populated areas: 3.1. Possible compensation mechanisms have been developed for the development of wind parks in national forest lands to compensate for carbon losses (if any) (by increasing the removal of carbon dioxide in other activities) 3.2. Developed solutions regarding the organisation of auctions for the allocation of building rights to the development of wind parks in the State forest land (exploration with building rights); 3.3. The relevant legislation has been developed, which provides that wind parks may be established in public forest lands where, after an assessment carried out, it is technically and territorially feasible without causing significant damage to forest ecosystems.		
3.5.	Carrying out the necessary assessments for the further development of RES electricity	5. Evaluation of possible incentive measures for municipalities to support more RES projects		
12. Direction of action		**Public awareness, education and awareness-raising**		
2.1.	Improving public knowledge, awareness and awareness of climate change mitigation, the use of RES and resource efficiency	1. Information campaigns have been carried out at least once a year on: ways of reducing the use of different resources used every day on the role and necessity of the RES and its contribution and benefits to the economy, society, nature and climate	31.12.2030	~ 100 thousand *Source: national budget*

		principles for the use of a socially responsible RES		

The recommendations are based not only on the measures and actions to be taken but also on the deadlines set in the National Energy and Climate Plan 2021-2030 Annex 4, which means that short- and medium-term recommendations are made.

1.4 Lithuania's National Energy and Climate Plan for 2021-2030

Lithuania has set very ambitious targets for the use of RES for energy generation in its National Energy and Climate Plan 2021-2030 (Government of Lithuania, 2020b): "By 2030, a 45% share of renewable energy in final energy consumption is expected to be achieved (one of the biggest ambitions for the development of RES in the EU), of which 45% in electricity and 90% in district heating will come from RES. Also, at least 30% of consumers will generate electricity for self-consumption coverage. The share of domestic electricity production in Lithuania will increase from 35% to 70%. In comparison, the share of RES in transport will increase to 15%, and Lithuania will become the leader in energy innovation in the region. The sources of energy production will consist of renewable energy sources and technologies that ensure energy production without polluting the environment. Consumers will be enabled to produce their energy to meet their needs".

The promotion and development of RES technologies are in line with EU and national strategic instruments and legislation. The main directions and measures for developing RES are set out in the updated National Energy Independence Strategy and the Law of the Republic of Lithuania on Energy from Renewable Sources, separately for each sector (Government of Lithuania, 2020b). The increase in the use of renewable energy technologies is mainly planned to be achieved through the organisation of neutral auctions for the allocation of allowances and the widespread deployment of small-scale renewable energy installations owned by private energy consumers and communities (Government of Lithuania, 2020b).

Table 2. Lithuania's National Energy and Climate Plan 2021-2030 (Government of Lithuania, 2020b)

Measure	Scope and results/effect envisaged	Implementation period	Entities responsible for implementing the policy
H4. Increasing municipal involvement in the climate change management policy	To establish attractive mechanisms for the implementation of the climate change management policy to encourage Regional Development Councils and individual municipalities to contribute effectively to the achievement of the national targets	2021-2030	Ministry of the Interior, Ministry of the Environment
H6. Increasing public awareness and involvement in the climate change management policy	Raising public awareness on climate change, pollution and public health through innovative and intensive communication based on Research	2021-2030	Ministry of the Environment

Additionally, to measures mentioned in Table 2, for the promotion of the use of RES, Lithuania has set general/specific measures to promote RES development (Government of Lithuania, 2020b):

- ***"Point of contact***. *Legislative amendments are being made obliging public institution Lithuanian Energy Agency to advise and provide methodological assistance to potential operators in the electricity sector on all issues related to the establishment and construction of power plants using RES, i.e. to assist in the entire process associated with the establishment of a power plant, from the selection of the power plant's capacity and type, choice of the type of operations in the electricity sector (production, production and consumption, electricity prosumer activity) to obtaining permits and sale of energy.*
- ***Simplification of administrative procedures***. *Potential electricity prosumers and persons wishing to produce electricity for their use and the household's needs, without supplying electricity to the grid, enjoy simplified procedures for installing power plants up to 30 kW. Such persons are not required to authorise to develop electricity capacity or electricity generation permits. They may start operations by informing the electricity network operator.*
- ***The organisation of information provision and training***. *State and municipal authorities, bodies and undertakings must prepare, deliver, and make public information on the procedures for issuing permits, licences or certificates, the procedures for examining certification applications, and assistance to applicants within the limits of their competence and support schemes. Within their remit, ministries are responsible for developing and implementing appropriate public information and awareness-raising campaigns, providing advice, and developing educational programmes on the practical uses and benefits of developing and using RES. Exchange of experience in using RES between public authorities, bodies, undertakings, organisations and private entities is organised, and examples of good practices are publicised.*
  The general programmes for formal education include knowledge and skills in RES use, benefits and technological solutions. Research, education of the public, training for civil servants and vocational training in the field of RES are being promoted. The use of pilot projects is encouraged.
  - *Information on support measures, legal information, organisations, statistics, and other related information on the development and use of RES is published on the website www.avei.lt.*
  - *Information on the issuance of certificates for the operation of energy installations and on certificate holders is available at https://vei.lrv.lt/lt/veiklos-sritys/energetikos-irenginiu-eksploatavimo-veiklos- atestatu-isdavimas-1.*
  - *Education programmes on the benefits and practical possibilities of using RES are included in the curricula of Lithuanian general education schools and Lithuanian universities and non-university higher education institutions.*
- ***Prosumers (use of energy from RES).*** *Electricity prosumers. Natural and legal persons planning to produce electricity in solar, wind and biomass power plants with an installed capacity of not more than 500 kW can become the producing consumers. Prosumers can 'store' the electricity produced by*

them and not consumed for their own or household use and in the electricity networks from April 1 of the current year to March 31 of the following year. The producer is charged the grid access fee for the amount of electricity stored and returned from the electricity networks. The amount of electricity supplied to the grid more than the electricity consumed by the prosumer during the storage period is not carried over to the following storage period. Prosumers may establish their power plants or purchase them based on bilateral contracts from third parties, thus making it possible for the occupants of multi-apartment buildings to become prosumers. Also, the power plant of the prosumer may be remote from the electricity consumption point. In this case, the power plant must be owned or managed by the prosumer."

1.5 Estonia's National Energy and Climate Plan for 2021-2030

The targets set by the Estonian National Energy and Climate Plan 2021-2030 mainly aim at increasing the share of energy produced from RES (Ministry of Economic Affairs and Communications & Ministry of the Environment and the Ministry of Rural Affairs, 2019b). According to the Estonian targets in the following decade, wind energy will have the highest growth potential (from both on-shore as well as offshore wind farms), as will solar energy (Ministry of Economic Affairs and Communications & Ministry of the Environment and the Ministry of Rural Affairs, 2019b).

Section 2.1.2. of the Estonian National Energy and Climate Plan, 2021-2030 states that the elements set out in point (a)(2) of Article 4 are based on the national renewable energy targets that comply with the agreed EU targets laid down in Directives (EU) 2018/2001 and (EU) 2018/1999, including milestones. Those are at least 18% of the general target that must be achieved by 2022, at least 43% by 2025 and at least 65% of the general target by 2027 (Ministry of Economic Affairs and Communications & Ministry of the Environment and the Ministry of Rural Affairs, 2019b).

In addition to the above, the Estonian National Energy and Climate Plan 2021-2030 sets out the following objectives for the future (Ministry of Economic Affairs and Communications & Ministry of the Environment and the Ministry of Rural Affairs, 2019b):

- ***"Ongoing studies and analyses or those that will be carried out soon.*** *Preparation of a manual of proceedings of renewable energy projects to make the so-called manual of proceedings available to the project developers and persons who wish to invest in renewable energy to facilitate understanding of the proceedings. […]*
- ***Other measures/actions that support the generation of renewable energy.***

- *In addition to monetary support measures for Estonia to acquire new electricity generation capacities based on renewable energy, state support must be provided to developers, and solutions must be found for potential problems. For example, the obstacles to the development of wind energy are mainly associated with national defence and environmental constraints, the opposition of local people and the resulting development risks. Different ministries and authorities must cooperate to alleviate these bottlenecks.*
- *The ministry responsible for the sector sent a letter to local governments that invited them to consider planning areas for energy-generating purposes during the preparation of the comprehensive plan. In Estonian conditions, this primarily means planning areas suitable mainly for the development of wind and solar energy. The importance of the role of local governments in developing renewable energy in the broader context of achieving the joint national renewable energy targets was emphasised.*

- *Motivating local governments and the local community (see the above 'Analysis of community benefit instruments (impact assessment of tolerability)' through the local benefit that renewable energy production units bring that should, as it were, compensate for the possible disturbances, e.g. visual pollution, noise disturbances, and the NIMBY (Not In My Backyard) effect. In addition to the study, visits to local governments and engagement in legislative processes are also foreseen to introduce the amendments, obligations, and targets arising from new directives.*
- *Nature conservation restrictions and the relaxation of such restrictions. The construction of any production facility in the natural environment involves some impact. Still, it is crucial to remember that nature conservation restrictions and established nature conservation areas should not automatically rule out renewable energy generation in that area. It is vital to find so-called areas of compromise.*

- ***Specific measures to introduce one or more contact points, streamline administrative procedures, provide information and training, and facilitate the uptake of power purchase agreements.*** *Under the Electricity Market Act, connection conditions are enabled for connecting to the grid power generation equipment using renewable energy sources and with a capacity of under 15 kW. Electricity producers also do not require an activity licence if the net capacity of the production equipment is below 200 kW."*

2. SHORT-TERM RECOMMENDATIONS TO IMPROVE ADMINISTRATIVE PROCESSES

2.1 Microgeneration plants

The previous stages of the research identified a breakdown of RES technologies by capacity, whereby smaller capacities are often subject to administrative exemptions. At the same time, more considerable wind or solar power plants are subject to additional administrative requirements. The capacity breakdown of micro and small-scale electricity generators, according to capacity, is subject to a simplified installation and approval process in the countries covered by the Research:

- Latvia - microgenerator - 11.1 kW, small-scale power plant up to 0.99 MW;
- Lithuania – microgenerator – 30 kW, small-scale power plant up to 500 kW;
- Estonia - microgenerator – 15 kW, small-scale power plant up to 1 MW.

In comparison to the Nordic countries, microgenerators and small-scale electricity generation installations are either not categorised by capacity or are considered as small-scale electricity generation installations with larger capacities than in the Baltic States (Fredriksen et al., 2015):

- Finland - microgenerator - 100 kVA[1], small power plant up to 2 MVA[2];
- Norway - microgenerator - 100 kW, small power plant up to 1 MVA[3];
- Sweden - microgeneration - 43.5 kW.

Therefore, it can be seen that the Baltic States classify micro-generators installations with much smaller capacities than the Nordic countries. However, it is forecasted that households' power consumption will maintain high due to the introduction of new technologies (Enerdata, n.d.). Also, with the recent increase in electricity prices (Elektrum, 2021; European Commission, 2021; Latvian Public Broadcasting, 2021), it could be that the installed capacity of a microgenerator in a household could not cover the amount of electricity consumed. **Therefore, the authors recommend revising the legislation on capacities corresponding to the definition of microgeneration. It should increase the Baltic States' capacity for installations classified as microgenerators, subject to simplified installation conditions.** The amount by which the capacity of microgenerators can be raised from the defined one should be determined in consultation with the national distribution and transmission system operators and the national regulatory authorities so that the capacity increase does not cause technical problems for the overall electricity network.

2.2 Permits required for installing a microgenerator

The comparative part of the research showed that Lithuania has the most favourable administrative conditions for installing microgenerators of all the countries included in the study and the highest permissible microgenerator capacity of all three Baltic States. Therefore, establishing a microgenerator is not limited by territorial planning restrictions and does not require a building permit. In contrast, a building permit or notification of the authority responsible for construction may be necessary for the other countries included in the study.

The research has assessed the information on microgenerator installation in the Baltic and Nordic countries and found generally little difference in administrative procedures. The time needed to install

[1] 80 kW, assuming that the power factor is 0.8 (cosφ) (Laurens Electric Cooperative, n.d.);
[2] 1.6 MW, assuming that the power factor is 0.8 (cosφ) (Laurens Electric Cooperative, n.d.);
[3] 0,8 MW, assuming that the power factor is 0.8 (cosφ) (Laurens Electric Cooperative, n.d.)

a microgenerator is between one and three months, indicating a simplified process for installing and connecting microgenerators to the grid. The information published by the distribution networks of all three Baltic States on the technical requirements for connecting microgenerators to the grid and the process descriptions can be rated as comprehensive and informative.

2.2.1 Latvia

Even though microgenerators are subject to a simplified installation process, the study found that general information on the installation of wind and solar PV microgenerators is incomplete. **Therefore, the authors recommend that the Ministry of Economy, in cooperation with the State Construction Control Bureau of Latvia, develop guidelines for the installation of wind turbines and solar PV panels (on a technology-by-technology basis) on the correct interpretation of the current Construction Law and the requirements for the installation of these civil engineering structures.**

These guidelines would be a vital reference material not only for microgenerator installers but also for municipal Building Authority officials, as the research (see previous stages of this research) concluded that there is a lack of detailed information and that not all municipalities interpret the existing regulations on the installation of solar PV panels in a straightforward manner.

2.2.2 Lithuania

The administrative process for the installation of microgenerators is facilitated by the Law of the Republic of Lithuania on Energy from Renewable Sources, which states that microgeneration installations and small power plants up to 500 kW can be installed without any specific requirements for wind or solar PV power generation installations in the detailed planning, provided that this does not conflict with the territorial plan of the municipality concerned. No construction permit is required (Lietuvos Respublikos Seimas, 2011a). However, the study did not offer simplified descriptions or guidelines for installing wind turbines and solar PV panels.

2.2.3 Estonia.

The information included in the research is mainly based on the Estonian legislation, as the study did not find any explanatory information on how the legislation should be correctly

interpreted regarding the installation of wind and solar PV microgeneration installations, hence authors recommend the development of guidelines and/or comprehensive information on the installation of wind and solar PV panels.

For guidance or comprehensive information on installing wind and solar panels, it is recommended to review the relevant information on the Swedish Energy Agency's website on the possible representation of information - https://www.energimyndigheten.se/fornybart/ . In addition, information on the National Housing, Building and Planning Council website https://www.boverket.se/sv/om-boverket/guider/guide-for-bygglov-och-byggprocessen/ ; https://www.boverket.se/sv/PBL-kunskapsbanken/lov--byggande/anmalningsplikt/bygglov-for-anlaggningar/vindkraftverk/.

2.3 Territorial planning

2.3.1 Latvia

The research revealed that the installation of wind turbines is regulated by the Latvian Cabinet of Ministers' Regulation No. 240, "General Regulations for the Planning, Use and Building of the Territory", which specifies the location of wind turbines in the territory and the distances to be observed from other objects or buildings. Article No. 161 of the regulations mentioned above states that "Wind power plants with a capacity of more than 20 kW are allowed to be located in the industrial area (R), technical area (TA), agricultural area (L) and forest area (M) according to the conditions of the spatial plan" (*General Regulations for the Planning, Use and Building of the Territory*, 2013). Article No. 162 states that "The spatial plan or local plan may define areas where the construction of wind power plants is prohibited" (*General Regulations for the Planning, Use and Building of the Territory*, 2013). If the construction of wind power plants is not foreseen/permitted according to the conditions stated above, changes to the municipality's detailed plan are required. The approximate duration of the process is one year and two months. The amendment process includes public consultation.

No restrictions on installing solar PV panels are identified in the legislation concerning spatial planning.

Based on the above and the case study carried out during the research, it was identified that the limiting factor for installing wind farms with a capacity larger than 20 kW is the likelihood of requiring changes to the detailed planning, which the municipality may refuse to carry out. In addition, the changes may be suspended after the public consultation if the

local community or other interested parties oppose implementing such a project in the public consultation.

The case study carried out during the research identified a problem that theoretically, the location of the wind power plant would comply with the requirements set out in the Cabinet of Ministers Regulation No 240 "General Regulations for the Planning, Use and Building of the Territory" if the municipality's spatial plan was amended to allow the construction of the wind power plant within the types of permitted use of the municipality or by changing the permitted use of the territory to one where the construction of the wind power plant is possible (see previous stages of the research). It indicates that **the spatial planning developed by the municipalities plays a major role in the implementation of projects**, especially if the wind farm is planned to be built in a larger area divided into different functional zoning plots. The functional zoning of the areas referred to in Ministers Regulation No 240" General Regulations for the Planning, Use and Building of the Territory ", which determines in which functional zoning areas the installation of wind power plants is allowed, does not imply any relief for wind park developers if the municipality concerned has decided in its territorial plan to prohibit the installation of wind power plants in certain territories or has not foreseen the construction of wind parks in its spatial plan.

Based on the information gathered in the research, the targets set out in the European Green Deal (European Comission, 2019), the RES Directive (European Parliament and the European Council, 2018) and Latvia's NECP2030 Annex 4, point No. 3.2 "Review the territorial, construction regulation and land-use restrictions conditions for the development of RES technologies" (Ministry of Economics, 2020b), authors recommend the following additions to the existing regulatory framework:

- **To require municipalities to determine the areas where wind farms are allowed to be installed when drawing up the municipality's territorial plan and/or detailed planning**, replacing the current regulation that municipalities may prohibit the installation of wind farms. In addition, it should be stipulated that a prohibition on installing a wind farm in a particular area may be imposed only based on an EIA report that has identified that the wind farm would pose a severe threat to the environment or endanger the environment preservation of cultural heritage. **Such a procedure, in which municipalities themselves determine the areas where wind turbines could be installed, could, in the view of the authors, make the process**

more transparent and shorten the duration of the project realisation time by a year.

- **Further research should be carried out to determine whether it is possible to stipulate in-laws and regulations that all municipalities must allocate a certain amount of land for the installation of wind power plants** or to explain to the responsible ministry why this is not possible to increase the target for the amount of electricity produced from RES. However, such a requirement should only be introduced in combination with prior measurements or calculations of the wind potential in the allocated area. In addition, it would determine whether it would be economically viable to locate a wind farm in the area at all.
- **Detailed plans that already include areas where wind turbines are allowed to be located should undergo an environmental impact assessment during the development of the detailed plan** to attract developers and create favourable conditions for the implementation of projects. The authors are aware that carrying out EIAs for more significant sites is a resource-intensive measure, both financially and in terms of human resources. Still, they believe that funds could be attracted from the European Structural Funds for such a measure.
- **Establish that a detailed spatial plan drawn up by a municipality allows for the installation of wind turbines is the basis for granting a building permit. Based on a study on the Nordic countries, Finland, it is identified as an example of good practice that the location of a wind farm in a detailed spatial plan is considered the basis for granting a building permit.** The Land Use and Building Act of Finland (Chapter 10a, Article 77a) state that a building permit for a wind power plant may be issued if a legally binding master plan stipulates explicitly that the plan or part thereof is the basis for the building permit" (*Land Use and Building Act 5.2.1999/ 132*, 1999). In Norway, electricity-generating installations subject to licensing are exempted from spatial planning requirements: "Zoning plans are not required to be prepared for energy plants subject to a licensing requirement, but the municipality may prepare plans for such plants" (Ministry of Local Government and Modernisation, 2014). In Sweden, it is stipulated that: "the building committee decides whether or not a detailed plan is required for a wind power

project" (Swedish Energy Agency, 2020a). Considering the situation in Latvia where the municipal Construction Board issues both changes to detailed plans and construction permits, the authors do not see any obstacles to merging these two processes to facilitate and speed up the administrative process.

- A public consultation is a part of making changes to the existing municipal spatial plan, which may stop further consideration of the project. The case study carried out during the research concluded that although the EIA process can be carried out in parallel with changes to the detailed planning, developers do not always choose to do so in the interests of saving money, as there is a high probability that the project will be stalled after the EIA report has been prepared or during the EIA. **Following the Nordic experience, in this case, Finland, where the public consultation on changes to the spatial plan and the public consultation on the EIA are combined, the authors recommend that the process in Latvia should be combined.** Furthermore, if the project is subject to an EIA, the public consultation on the EIA should include factors relevant for changes to the detailed planning. Therefore, it would reduce the number of public consultations required to implement the project and make it more project-specific.
- The comparative part of the study found that Latvia has the lowest amount of accumulated knowledge of all the countries included in the survey in implementing solar and wind technologies for electricity generation. It means that both project developers and the municipalities' employees have little experience installing RES technologies and necessary permits. Furthermore, the study did not identify any support measures provided to municipalities to promote the deployment of solar PV and wind farms. **Authors recommend developing informative and explanatory information for municipal staff to clarify issues related to spatial planning and consider allowing municipalities to charge project developers fees for advice and review of documents.** The fees should be strictly regulated in the normative documents to exclude unscrupulous behaviour and consider whether, with additional funding, municipalities would be able to attract higher-level specialists and provide better value assistance to developers.

2.3.2 Lithuania

The installation of technologies that use RES is primarily regulated by the Law of the Republic of Lithuania on Energy from Renewable Sources, which determines that: "Given the limited size and potential impact of low-capacity power plants (up to 500 kW) using renewable energy sources and to avoid disproportionate financial and administrative burdens, the responsible authorities shall ensure that the design and construction these 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;
- 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 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).

The electricity-generating installations using RES for electricity generation with a capacity exceeding 500 kW must be following the municipality's spatial plan. The regulatory documents governing spatial planning do not explicitly refer to regulations specifically for installing wind or solar farms. Conceptually, it should be that if the detailed development plan of a site does not provide for the installation of a wind power plant or a solar park, the municipality may request an amendment to the detailed development plan to allow the installation of facilities for the generation of electricity.

After analysing the legislation regulating territorial planning in Lithuania (the Spatial Planning Law) and publicly available information, it was possible to identify the levels of territorial planning, what type of territorial development they regulate and what functions they fulfil. However, no particular regulation was identified for installing wind and solar PV farms (Lietuvos Respublikos Seimas, 1995). Results of the Research indicate that, if necessary, changes can be made to the spatial plan and the municipality in whose territory the land area is located decides whether to initiate or reject the change. However, it was impossible to identify the total duration of the process, and the main steps of the process were partially identified.

Concerning the above, authors recommend:

- **to make an addition to the normative acts regulating territorial planning, defining specific requirements concerning the installation of RES technologies in municipal territories;**
- **develop a separate explanatory information document (infographic) on the requirements** of the spatial planning for the installation of solar PV and wind farms with the capacity below and over 500 kW, listing all possible limiting factors;
- **explain in detail in the information material the process and deadlines for cases where changes to the spatial plan or functional zoning are required.** In this way, the transparency of the process could be improved. A good example is the schematic representation of the process for making changes to the spatial plan, prepared by the Riga City Construction Board (the schematic representation is included in the description of the Latvian territorial planning processes in the previous stages of this research).

2.3.3 Estonia

In Estonia, spatial planning is regulated by the Planning Act (*Planning Act*, 2019), which, like Lithuanian and Latvian legislation, sets out the spatial planning system, the hierarchy of spatial plans and functional zoning. In addition, the Planning Act provides information on the actions to be taken if changes to the spatial plan are required and a description of the timeframe within which these changes can be made (Planning Act, 2019). However, the study did not identify any guidance on which level of plans regulate solar PV installation and wind farms and in which manner. The only indication found was that the installation of large wind farms should be carried out following the national level spatial plan.

The Planning Act states the following concerning changes to the development plan: "The decision to adopt the detailed spatial plan or to refuse to do so is made at the latest when three years have elapsed since the initiation of the plan" (*Planning Act*, 2019), which indicates a time-consuming administrative process.

Regarding the above, authors recommend:

- **to make an addition to the normative acts regulating territorial planning, defining specific requirements concerning the installation of RES technologies in municipal territories;**

- **develop a separate explanatory information document (infographic) on the requirements of the spatial planning** for the siting of solar PV and wind farms, listing all possible limiting factors;
- **consider the possibility of making changes to the regulatory documents and reducing the length of the process related to changes to the spatial planning.**

Authors recommend that all three Baltic States develop guidelines and/or official publicly available information on the process of installing wind and solar farms (for each technology separately) in the context of spatial planning and possible limitations resulting from the capacities or sizes of the technologies. Authors recommend referring to the Swedish Energy Agency's website on the relevant topics to develop guidelines - https://www.energimyndigheten.se/fornybart/. Also, the information on the website of the National Housing, Building and Planning Council - https://www.boverket.se/sv/om-boverket/guider/guide-for-bygglov-och-byggprocessen/ ; https://www.boverket.se/sv/PBL-kunskapsbanken/lov--byggande/anmalningsplikt/bygglov-for-anlaggningar/vindkraftverk/. The websites in the example only contain information in Swedish, but if the recommendation on publicly available information is taken on to consideration, authors recommend that, wherever possible, this type of information should be available in both the national language and English on the websites of public administrations or authorities that control the relevant processes. The availability of information in the national language and a widely used international language could attract investors and transparency of the process.

2.4 Environmental Impact Assessment

The time to carry out an EIA and prepare the EIA report is one of the longest in project implementation and depends on many highly project-specific variables. For example, the EIA is most directly dependent on the location of the power generation facility and flora and fauna in the vicinity and other influencing factors such as the availability of experts.

2.4.1 Latvia

The installation of solar PV panels, which includes large power plants, does not require an EIA. Whereas for wind power plants, initial EIA must be carried out where (Saeima, 1998):

- the number of installed wind turbines is five or more;
- wind turbines have a capacity of five MW or more;
- wind turbines are located closer than 500 m from residential dwellings, except where the wind turbine is intended to supply electricity to a residential dwelling and has a capacity of 20 kW or more;
- the height of the structure exceeds 30 m, and it is located in a specially protected nature area or closer than one km from a specially protected nature area.

A full EIA must be carried out in cases where the wind power plant consists of 15 or more turbines or has a total capacity of 15 MW or more (Saeima, 1998). The research concluded that the EIA process is sufficiently well described and comprehensible in legislation and on the websites of the responsible authorities. According to the case study carried out during the research, it was concluded that the most time-consuming part of the preparation of the EIA report might be the engagement of experts to assess the potential environmental risks listed in the EIA programme. Likely, the experts will not be available, and the project developer will have to wait for several months to carry out their expertise.

Overall, the availability of information on the EIA procedure is assessed as suitable. **To increase the efficiency of the procedure, the authors recommend following the Finnish example and combining the public consultation on the EIA and the changes to the spatial planning.** The attitude of the local community, neighbours, and other interested parties can be assessed after the first consultation whether the project is generally accepted or negatively perceived so that the developer can determine whether to continue investing in the development of the project or not. By stipulating in the regulation that only technical details related to the execution of the project can be discussed and corrected in subsequent public consultations, eliminating the possibility that the project could be halted due to a sudden change in public opinion.

Based on the low amount of accumulated knowledge found in the comparative part of the research and the relatively small number of implemented wind power projects in Latvia. **The authors propose further analysis at the level of public administrations to**

determine whether the availability of explanatory information and the level of training of the staff of the regional offices of the State Environmental Service is sufficiently high. Furthermore, determine whether the knowledge related to the potential environmental impacts of wind farms is based on the latest scientific findings. Finally, update, if necessary, the guidelines and manuals for the preparation of EIA programmes and the assessment of EIA report for wind farms.

In addition, **authors recommend educational seminars at the municipal level or the display of information material in public places, which would improve people's knowledge and promote positive attitudes towards wind power generation and explain its benefits to the community**.

2.4.2 Lithuania

EIA is not required to install solar PV panels, including large size power plants. In contrast, for the development of wind power plants, an EIA screening procedure is necessary if (Lietuvos Respublikos Seimas, 2017):

- three wind turbines, at least one of which is 50 m or more in height;
- The wind farm is installed within 1 km of a protected area, except where no more than one wind farm is established on a farmstead or outbuilding and the height of the wind farm is not more than 25 m.

The EIA process is described comprehensively and understandably in the legislation and on the websites of the responsible authorities. A schematic representation of the EIA process was also found during the research.

The research identified that the authority responsible for the EIA report has certain rights to return for correction both during the screening procedure for EIA and on several occasions to request clarification or modifications to the EIA report itself. Also, compared to the other Baltic States, Lithuania has a higher number of public consultations (five public consultations, including the screening process) (Lietuvos Respublikos Seimas, 2017).

The involvement of the local community in the EIA process is appreciated. At the same time, in terms of the overall length of the administrative process and transparency, the authors have to assume that this unnecessarily prolongs the preparation and validation time of the EIA report. **Authors, therefore, recommend that the EIA procedure be revised and that a maximum number of rejections in the EIA screening**

procedure and the EIA report be set (or limited to fewer rejections), with clear criteria for the developer as to why the report or screening has been rejected and why corrections should be made. It would improve the transparency of the process and avoid the possibility of rejecting a report based on subjective criteria.

Assess the possibility of stipulating in the regulation that only technical details related to the execution of the project can be discussed and corrected in subsequent public consultations of EIA, eliminating the possibility that the project could be halted due to a sudden change in public opinion.

2.4.3 Estonia

Environmental Impact Assessment and Environmental Management System Act determines that preliminary assessment and EIA for construction of a wind power plant is necessary if more than five wind turbines with a total capacity of more than 7.5 megawatts on land are about to be installed (Vabariigi Valitsus, 2020). The legislation describes the EIA procedure broadly, including the time limits for examining the documents submitted.

According to the information gathered in the research, the preliminary EIA procedure in Estonia can also be applied to installing solar PV parks. According to other countries' administrative procedures, it is not applicable in any other country except Norway. The sources reviewed during the study did not provide more precise information on the EIA procedure's solar PV park development projects requirements. **Given the low environmental impact of solar PV parks during installation and operation time, authors recommend considering the possibility of not applying the initial EIA or entire EIA procedure for this technology**, thus facilitating the overall administrative procedure. If this option is not seen as possible, information material on the cases and capacities of solar PV panels where an EIA is initially applied should be prepared.

While describing the EIA process, the primary source of information used during the research was normative documents issued by the Estonian government. Therefore, for a better understanding of the EIA process and the requirements for installing wind or solar PV parks, we recommend that general explanatory information and a detailed flowchart of the process be prepared and posted on the website of the responsible authority.

2.5 Construction process

In all three Baltic States, a building permit is required to start the construction process (in some cases, exceptions are microgeneration plants), issued in about 30 days if the application and documentation are correctly filled in and complete. The construction process in all three Baltic States is regulated by the national construction law, which does not contain specific information relating directly to installing wind or solar PV parks.

The authors faced the problem of identifying and describing the exact administrative procedure and timeline that would determine the construction process of wind and solar PV parks in the Baltic States during the previous stages of this research. Explanatory information on the construction process, which type of permit is required, and the duration of the process was not or only partially available on the websites of the authorities responsible for the construction process. In the case of Latvia, an additional issue was identified - the existing legislation on the installation of civil engineering structures is interpreted and applied differently by municipal building authorities.

To improve the administrative process related to the construction process, the authors recommend the following improvements:

- To promote the use and deployment of RES technologies, **to amend the existing regulatory enactments regulating the construction, by identifying specific requirements for the installation of RES technologies, in this case specifically for the installation of solar PV panels and wind farms**, thus making the approval and installation process more comprehensible and transparent. Avoiding a situation where all civil engineering structures are classified only according to capacity, without taking into account the specific technology, its size and the specifics of its installation;
- **in case changes to the existing building code are not considered feasible, authors recommend that guidelines and/or additional information material for installing solar PV plants and wind parks being developed at the national level**. Supplemented by a detailed flow chart of the process, which would aid the understanding and correct application of the existing regulatory framework. The existence of such explanatory material would also contribute to a uniform interpretation of the legal provisions by the municipal building authorities responsible for issuing building permits;

- **authors recommend that all three Baltic States develop guidelines and/or official publicly available information on the process of installing wind and solar farms (for each technology separately) in the context of construction and possible limitations resulting from the capacities or sizes of the technologies.** To develop guidelines, the authors recommend referring to the National Housing, Building and Planning Councils website mentioned before.

2.6 Permits for the development of electricity production capacity and permits for the production of electricity from renewable energy sources

In all three Baltic States, there is a requirement to obtain a permit to develop electricity production capacity and permits for electricity production from RES. The existence or need for this type of permit was not identified in the Nordic countries of the study. The approval of the relevant municipality or a permit to install the equipment is considered a permit to install the equipment in Nordic countries. Introducing new or additional capacity in the Nordic countries is a complex process, usually involving spatial planning and EIA.

The study did not clarify the rationale and practical necessity of this permit, nor the criteria are taken into account when assessing whether or not to grant such a permit. Authors, therefore, propose to consider the following options to improve and simplify the administrative procedure:

- by creating a single point of contact: in the country for coordination of development of RES technologies, **the need for such a permit could be automatically integrated into the overall coordination of a solar PV plants or wind farm project implementation, considering that an application accepted and referred for further coordination could automatically be considered as a permit for the installation or capacity increase**;
- by delegating all authorisation for solar and wind parks to the municipality: **permits for the development of electricity production capacity and permits for the production of electricity from RES could be re-categorised as an application for the development of a wind or solar**

PV park project in the municipality. In case the application is forwarded for further examination and approval, the permit could be considered as approved;

- facilitating administrative procedures: **amend the existing legislation and reclassify "permit" as an "informative report", which would serve as information for statistical records and integrate it into the administrative procedure for connecting wind or solar PV plants to the electricity grid.** Obliging the distribution or transmission network to inform the responsible authority of the application and the project developer's request to connect the plant to the electricity grid.

2.7 Connection to the grid

The connection to the electricity grid and the publicly available information on the websites of the distribution and transmission network operators in the Baltic States can be seen as an example of good practice if assessing the administrative processes of wind and solar PV parks in general. The information on the distribution and transmission grids' websites describes the activities' steps and explains in more detail the actions to be taken and often the deadlines under each step.

2.8 Digitalisation

Even though the research identified the possibility of submitting many permit documents electronically in the Baltic States, there is no single online system where all permits and approvals could be obtained in one place. Following the practice in Finland (Lupapiste service - https://www.lupapiste.fi/login/fi), **authors suggest that all Baltic States also think of a single online system to be established where all necessary permits and consultations, as well as tracking the progress of documents, can be done electronically on one platform.** An online platform could considerably speed up the overall administrative process and reduce the volume of documents to be submitted while at the same time improving the transparency of the process.

3. MEDIUM-TERM RECOMMENDATIONS

3.1 Amendments to legislation

Law of the Republic of Lithuania on Energy from Renewable Sources (Lietuvos Respublikos Seimas, 2011a) can be described as an example of good practice. This single legal act summarises and defines the rules relating to the technologies' deployment, installation, and capacity limits and the targets to be achieved for generating energy with RES technologies. **Such a legislative act summarising regulation for RES technologies can be seen as a facilitating factor for the development and installation of RES technologies and contributes to the transparency of the processes.**

The authors recommend that Latvia and Estonia follow the example of Lithuania and consider drafting similar legislation. A single legislative document would set national targets and capacities to be installed and limits on installing technologies. It could serve as a guiding document for the regulation of RES technologies. Further guidelines and manuals could be developed to administer the process at both the national and municipal levels. It would also be an excellent tool for wind and solar PV park developers. Furthermore, a well-organised and coherent legislative framework with a transparent and clearly defined process would create a favourable climate for attracting local and foreign investors to develop larger capacity power plants.

3.2 Establishing a single contact point

Article 16(1) of the RES Directive (European Parliament and the European Council, 2018) proposes that Member States establish one or more points of single contact for solar PV or wind farm developers to obtain the necessary advice and permits to develop their projects in one place, without the need to contact any other authority. Establishing a single contact point also complies with the objectives and measures to be carried out in the Latvian and Lithuanian NECP2030 (Government of Lithuania, 2020b; Ministry of Economics, 2020b).

Only Norway has created a single contact point from all the countries included in the research. The single contact point is the Norwegian Water Resources and Energy Directorate (NVE), an institution under the Ministry of Petroleum and Energy supervision. Based on the information gathered in the research and how easy or difficult it was to gather information on each country's administrative procedures for implementing solar and wind power plants,

authors can refer to the NVE in Norway as an example of good practice. In addition, the following positive aspects of the existence of a single point of contact were identified:

- availability of comprehensive and detailed information on the installation process of solar PV plants and wind farms;
- a common approach and interpretation of legal provisions;
- advice on the process and support in completing the necessary documentation;
- accumulated knowledge and understanding of the project process and specificities, a common approach to dealing with non-standard situations, experienced staff.

One disadvantage of having a single point of contact was identified as the reduced involvement and advocacy of the local municipality, which could potentially lead to local community dissatisfaction with the implementation of particular projects.

In the long term, establishing a single point of contact could facilitate the development of wind and solar PV park projects and speed up their progress due to the accumulated knowledge and deeper understanding of the potential impacts of the projects. In addition, a single point of contact could tackle the different approaches and interpretation of legislation by municipalities identified in the research.

Authors, therefore, suggest that a separate department or agency is established under the relevant ministry of each Baltic State to follow and update on the latest developments in each country's regulatory framework for solar PV plants and wind farms (and RES technologies in general). Publish and maintain comprehensive information on the administrative process of project development and the nuances that development of each technology should be taken into account. A single point of contact could provide advice and support during project planning and implementation. It could be the central authority to process all documents if another relevant authority's approval is needed. To prepare and distribute information material to break the stereotypes associated with solar PV and wind power energy generation. Organise meetings or workshops with representatives of communities that already have wind or solar PV parks in their vicinity to share experiences on how and if the project has affected the daily life and well-being of the community.

The research identified that the review and promotion of project development documentation in the Nordic countries is a fee-based service, with a price list set by the municipalities. **Therefore, to avoid creating an additional burden on national**

budgets, the authors suggest examining the possibility of covering all or part of the costs of creating and maintaining the single contact point through contributions from project developers. Authors emphasise that the fees should be proportionate and fair, with defined cost elements that are understandable and justified, avoiding the possibility of imposing unjustified costs on the process.

There is a possibility of attracting funding to create a single point of contact alternatively. For example, Latvia's NECP2030 (Ministry of Economics, 2020b) sets the objective to stop subsidising energy production using fossil energy sources and to implement the "polluter fully pays principle"; if these objectives would be reached, part of the funding generated or saved could be channelled into the creation of a single contact point for further development and implementation of RES technologies.

3.3 Enhancing the role of municipalities

Giving more autonomy to local municipalities and the authorities under their supervision is seen as another direction to promote the development of RES technologies and improve administrative processes. In the countries included in the research, municipalities have the highest administrative burden in the wind and solar PV park implementation procedure. However, the legislative framework established at the national level must then be precisely implemented in the municipal regulatory framework and interpreted according to a common standard in all municipalities. The research only looked at the national legislative framework without going deeper into each municipality's regulations regarding installing solar PV plants and wind farms. Only a few cases were published by a municipality used in the research to clarify process steps.

In the case of the Baltic States, municipalities are responsible for ensuring that the location of wind turbines or solar PV plants complies with existing spatial planning and issuance of building permits and are also involved in the EIA process. Therefore, it can be concluded that municipalities are responsible for a large part of the project implementation approvals. Considering the relatively scarce explanatory information found on the public administration websites and the varying interpretations of the regulatory framework identified both in the literature and in the case studies**, authors have to conclude that a relatively high administrative burden is imposed on municipalities. However, it is impossible to identify support mechanisms (in the form of information and financial support) from the authorities responsible for overseeing the process**.

Maintaining the current concept of administrative process flow, where municipalities play a significant or increased role in the implementation of wind and solar PV plant projects, authors recommend the following improvements:

- **a manual and guidelines prepared by the competent public authority for the use of municipal officials, explaining in detail the specifics and correct interpretation of the legislation related to the wind and solar PV plant installation process and the preferred progress flow of the project;**
- Considering that electricity generated from wind and solar energy benefits the whole country, the municipality must find the administrative and financial resources to ensure that best governance principles drive projects. And given the low level of accumulated knowledge in the Baltic States, especially in Latvia, compared to the Nordic countries, **authors encourage the establishment of national-level support mechanisms for municipalities and municipal officials to improve and strengthen the administrative process of project implementation**;
- considering that the municipality and the local community have a crucial role in promoting or stalling wind farm projects, the authors would recommend that various incentives be included in national legislation to encourage municipalities to support and promote the development of RES in their municipalities. **Possible incentives could involve introducing a one-time payment, where the project developer pays the municipality an amount of money determined by the national regulatory framework**. The cost could be calculated as a percentage of the total project scope (installed capacity) or a percentage of the electricity sold when the plant starts operation. The positive aspect of introducing such a norm is that it would not create an additional burden on national budgets and would motivate municipalities to cooperate with wind farm developers - to find compromises and explore all possible solutions. Additional funding would allow municipalities to attract specialists in the relevant field to work in the municipality, as well as open the possibility to create a separate department within the municipality, whose functions would be focused on the implementation of RES projects;

- as identified in the case studies, because of the ambiguous attitudes of local communities towards installing wind farms near residential areas, **it should be considered to create financial incentives for the directly affected population of municipalities.** Consider introducing an annual payment to affected communities based on the distance between the community and the RES project. In case the introduction of such a payment is administratively complicated, assessment of the possibility of a reduction of the electricity price for the local community may be considered, where part of the discount is covered by the developer of the wind or solar farm;
- **an alternative to giving more power to municipalities is to involve planning regions in the examination and implementation of RES projects.** The existence of an inter-institutional authority between the public administration and the municipalities could contribute to the transparency and objectivity of project progress. They could also mediate between the municipality and the project developer in case of disagreement or additional support needed.

The research identified that the review and approval of project development documentation in the Nordic countries is a fee-based service, with a fixed tariff set by the municipalities. **Therefore, to establish a separate department within the municipality specialising in RES project development, the authors propose to look into the possibility of covering it in whole or in part by contributions from project developers.** Authors emphasise that the fees should be set proportionately and fairly, with defined cost components that are understandable and justified, avoiding the possibility of imposing unreasonable costs on the proceedings.

3.4 Offshore wind farms

Although the study examines the regulatory framework for the implementation of offshore wind parks, it is not possible to make specific recommendations at this time, as no offshore wind park project has yet been implemented in the Baltic States, and the regulatory framework for the implementation of offshore wind park projects in Lithuania and Estonia is still being developed.

Based on the information gathered about the Nordic experience, **it can be suggested that one of the prerequisites for faster project delivery could be to not separate the licensing procedures for offshore wind farms from on-shore wind farms,**

making them two disparate technologies licensed through entirely different procedures.

Given the potential environmental impacts and complexity of offshore wind farms, there is a clear need to define permitting criteria adjusted to the specific conditions of open water or sea. However, the conceptual approach of the Nordic countries for the development of offshore wind projects should be seen as an example of good practice. The study results also indicate that the process moves faster when the EIA or changes to the spatial plan are combined with issuing a building permit.

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