Centre for Economic Development,
Transport and the Environment

Permits and other administrative procedures for renewable energy production plants

Manual of procedures

Permits and other administrative procedures for renewable energy production plants

Manual of procedures

Editing: Renewable energy permit guidance and contact point authority, South Ostrobothnia Centre for Economic Development, Transport and the Environment
Publication format: Digital publication
Date of publication: 26 November 2024

Contents

Manual of procedures on the permits and other administrative procedures for renewable energy production plants

Dear reader, you are reading the updated version of the Permits and other administrative procedures for renewable energy production plants manual. This Manual of Procedures provides guidance for both large and small renewable energy projects. Please note that the **manual imposes no legal obligations, and its sole task is to provide information on the relevant procedures. The detailed procedural requirements for each project are determined by the competent authorities on a case-by-case basis.** Ultimately, all legal interpretations are decided upon by a court of law.

The first version published in 2021 has been updated with regard to changes in legislation and practices. The first version of the Manual of Procedures was prepared by a working group led by Project Manager Mauri Keränen, and it included representatives of the contact point authority, other competent authorities, and representatives of the Association of Finnish Cities and Municipalities. The same parties have also been involved in the preparation of the updated version. Moreover, the updated version incorporates feedback received from stakeholders. The Manual of Procedures is published as an electronic publication on the website of the Renewable energy permit guidance service.

The impact of the first version of the Manual of Procedures was assessed in a thesis (Tulensalo, 2024). The results of this study have been considered in the new version of the Manual by, for example, adding a section on hydrogen production and specifying the guidelines related to industrial-scale solar power plants. Furthermore, the Manual now contains more images to keep the reading experience lighter.

The Manual of Procedures is part of the implementation of the EU RED II Directive on the promotion of the use of energy from renewable sources. In Finland, the Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures (1145/2020) entered into force on 30 June 2021. The South Ostrobothnia Centre for Economic Development, Transport and the Environment (ELY Centre) acts as the statutory national contact point authority.

The contact point authority offers centralised guidance services for individuals and project developers, monitors the deadlines set for the permit procedures of renewable energy plants and administrative approval procedures, and issues decisions on deadlines. Moreover, the Permits and Supervision service serves as the electronic contact point for permit and procedure matters under the Directive.

We hope that this Manual will provide you with support for planning your project. We would be happy to receive any feedback and suggestions you may have for further updates to the Manual.

Karoliina Laakkonen-Pöntys
Director of Environment and Natural Resources, South Ostrobothnia Centre for Economic Development, Transport and the Environment

Mari Hakola
Chief Specialist, Renewable energy permit guidance and contact point authority, South Ostrobothnia Centre for Economic Development, Transport and the Environment

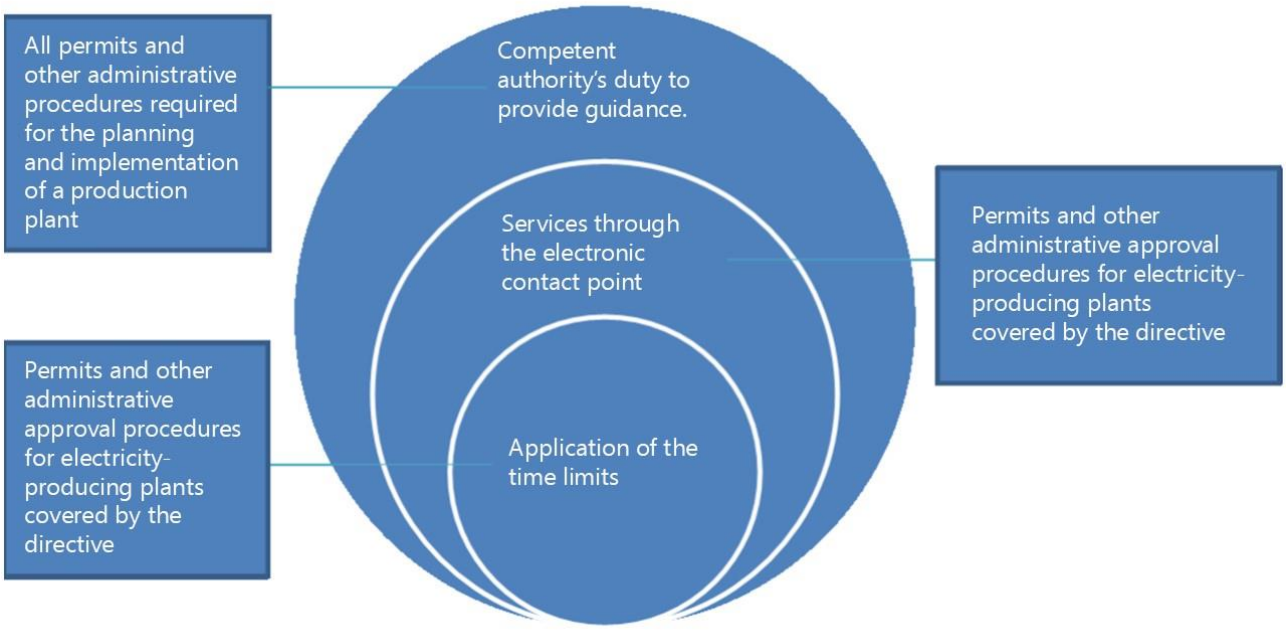
Streamlining the procedures in renewable energy plant projects

National contact point authority for renewable energy

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures (1145/2020, the Renewable Energy Permit Act; available in Finnish and Swedish) contains provisions on a national contact point authority for renewable energy. In Finland, the contact point authority is the Renewable energy permit guidance and contact point authority (link in Finnish and Swedish) at the ELY Centre for South Ostrobothnia. One of the tasks of the contact point authority is to coordinate the preparation, publication, and updating of this Manual of Procedures. Furthermore, the contact point authority bears the centralised responsibility for advising project developers and monitoring the deadlines set for the permit procedures of renewable energy plants and administrative approval procedures. The national legislation and the role of the contact point authority for renewable energy are based on Directive (EU) 2018/2001 of the European Parliament and of the Council on the promotion of the use of energy from renewable sources (RED II Directive, (EU) 2018/2001, Article 16).

Renewable energy production plants can be anything from solar panels installed on the roof of a single-family house to massive wind turbines and biogas plants. In terms of the functions of renewable energy production plants, the scope of the Renewable Energy Permit Act covers the production of renewable energy (electricity, heat, cooling, biogas, biofuel, or bioliquid), as well as the processing and further refining of digestate in plants that produce biogas. The permits and procedures associated with these activities and their placement within the scope of e-services, advisory duties of the contact point authority, and deadlines are presented in Table 1.

Image 1. Breakdown of the application of the Act.



The renewable energy contact point authority is obliged to provide advice on permit procedures and other administrative procedures referred to in section 5 of the Renewable Energy Permit Act. In addition to the procedures associated with e-services, the duty to provide advice applies extensively to permits and administrative procedures related to land use planning, right to use immovable property, and designing production plants.

The advisory duties of the contact point authority are conducted by the Renewable energy permit guidance (link in Finnish and Swedish). The permit guidance provides procedure-related advice, such as how to initiate a

matter, what documents are needed, and how the processing stages of the matter progress. The advisory services are available by telephone, e-mail, and through the Permits and Supervision service.

Through the Permits and Supervision service, applicants can get all the advice they need regarding the permit procedures and other administrative procedures specified in section 6 of the Renewable Energy Permit Act. Furthermore. online guidance is provided not only by the Renewable energy permit guidance but also by the competent authorities, which are responsible for providing actual advice on the permit matter in question. The Renewable energy permit guidance ensures that requests for advice are processed or forwarded to the competent authority, when necessary.

Time limits for the permit procedures for renewable energy plants

The Renewable Energy Permit Act lays down time limits binding on the authorities regarding the maximum duration of permit procedures and other administrative procedures for renewable energy plants, meaning renewable energy production plants that produce electricity. The time limits are applied regardless of whether the applicant is using the Permits and Supervision service which serves as an electronic contact point or taking the matter directly to the competent authority. The permits and administrative procedures that fall within the scope of the time limit calculations are presented in Table 1.

The total duration of permit procedures and other administrative approval procedures (as referred to in section 9 of the Act) that are required for the construction, grid connections, and operation of a renewable energy plant shall not exceed two years. The time limit is one year for plants with an electricity production capacity of less than 150 kW and for power plant upgrades. Updating a power plant may mean, for example, replacing the power plant's operating systems and equipment either fully or in part. Alteration projects may include, among others, expanding a wind farm, renewing a boiler in a plant burning biomass-based solid fuels, or building a new boiler in an already operational plant area.

The time limits are set for the total processing time of all procedures. The calculation of the time limit begins with the initiation of the first permit or administrative procedure matter and ends when the parties are notified of the last decision pertaining to the permit procedure or other administrative approval procedure. The time limit covers all stages of the permit procedure or other administrative approval procedure. The time limit does not include periods during which the applicant has no pending matters involving permits or administrative approval procedures.

The obligation to monitor the time limits lies with the ELY Centre for South Ostrobothnia Centre which acts as the contact point authority for renewable energy, and the duty to ensure compliance rests with the competent authorities. If a renewable energy plant project requires several procedures falling within the time limits, the competent authorities shall jointly ensure compliance with the set time limits and, where appropriate, agree on processing times.

There are certain exceptions to the calculation of time limits regarding, for example, appeals and obligations laid down in the EU's environmental legislation. The time period may be extended by a time that is equivalent to the processing of the following:

- exceptional procedures referred to in section 48, subsection 2 and section 49, subsection 3 and subsection 4 of the Nature Conservation Act;
- emissions permit procedures referred to in section 8 of the Emissions Trading Act;
- appeals against decisions on permits and other administrative procedures covered by the time limits.

Where duly justified on the grounds of extraordinary circumstances, the contact point authority may extend the period by a maximum of one year. To be granted an extension, the applicant may not have any other simultaneously pending permit procedures or other administrative procedures that are subject to the time limits. Extraordinary circumstances may arise, for example, if:

- the project in question is extensive or new and involves an unexceptionally vast and ambiguous set of permit procedures;
- the drafting of reports related to permit procedures and other administrative procedures must take place at a certain time of the year, such as bird surveys in wind power projects;
- the project requires a derogation from the protection of habitats under section 31 of the Nature Conservation Act, the granting of which requires exceptionally extensive reports;

- the project changes substantially when the permit procedure or other administrative approval procedure is pending, or the matter concerning the permit procedure is returned to the competent authority for review on the basis of an appeal.

The threshold for extending the deadline is high, and all extension requests are assessed on a case-by-case basis. An extension to the time limit may be applied for by the applicant, a party to the matter, or the competent authority. Furthermore, the contact point authority may also decide to extend the deadline on its own initiative. The applicant may ask the contact point authority to temporarily suspend the calculation of the time limit. The contact point authority shall decide to interrupt the calculation of the time limit if the applicant submits an application in the matter. After the interruption, the calculation of the time limit continues from the point when the interruption was made.

In addition to temporarily interrupting the calculation, the applicant may apply for the calculation of the deadline to expire. The contact point authority shall decide that the calculation of the time limit expires if the applicant submits an application in the matter. Moreover, the contact point authority has the possibility to decide that the calculation of the time limit expires if the permit procedure or other administrative approval procedure has been interrupted for at least one year for reasons attributable to the applicant. The interruption does not need to be continuous, but the total interruption period may also consist of several interruptions attributable to the applicant. A permit procedure or other administrative procedure is considered to be interrupted for reasons attributable to the applicant when, for example, the applicant fails to take measures that are essential for the procedure to progress, such as supplementing their application. Before issuing a decision, the contact point authority shall consult the applicant and the competent authority. If the contact point authority decides that the calculation of the time limit shall be deemed expired, the calculation will be discontinued as specified in the decision. If the applicant wishes to take action on the same project after the calculation of the time limit has expired, the calculation for the project in question shall start again from the beginning.

Online services and the Permits and Supervision service

The Permits and Supervision service (link in Finnish) serves as the electronic contact point referred to in the Renewable Energy Permit Act. The permits and procedures included in the e-services concern the construction, updating, connecting to the power grid, and use of renewable energy plant projects. Furthermore, the Permits and Supervision service also offers other service packages than the one described above.

The Permits and Supervision service operates on a one-stop shop principle. It allows the customer to apply for permits and notifications processed by different authorities. The service has several features that facilitate its use: the same information only needs to be filled in once, and customers can monitor the progress of their permit process or other procedure as well as compliance with the processing deadlines. The service directs the application or notification to the correct authority for processing, and it can be used to contact the authorities handling the permits and notifications.

Customers can receive a permit report through the service to find out which permits are required for their renewable energy plant project. The service instructs the customers to apply for the necessary permits, even if the customers themselves would not have prior information of which permits they need for their project.

The use of e-services is voluntary, meaning that all applicants get to decide if they want to use the Permits and Supervision service. If they wish, applicants may handle their matters related to permit procedures or other administrative procedures directly with the competent authority.

Learn more

- Renewable energy permit guidance ELY Centre (ely-keskus.fi, in Finnish and Swedish)
- Permits and Supervision service (in Finnish and Swedish). Ministry of Economic Affairs and Employment of Finland
- The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures (in Finnish and Swedish). Finlex (finlex.fi)

Instructions for the reader

The Renewable Energy Permit Act (1145/2020) ties together 43 different permits and other procedures. The permits and procedures covered by the Act are presented in Table 1. The table indicates the competent authority and shows which permits and administrative procedures fall within the scope of e-services, the contact point authority's duty to provide advice, and the application of the time limit.

The type, scope, impacts and location of the project, as well as the regional characteristics and land use planning situation, affect the need for a permit or procedure, which is why the requirements are always determined on a case-by-case basis. The chapters on different methods of renewable energy production aim to provide an overview of what procedures are, or may be, needed for each production method. Furthermore, each chapter is concluded with a description of an imaginary project and the associated procedures. An individual project may, due to its circumstances, require permits or official procedures outside the scope of the Renewable Energy Permit Act, which are not described under that specific project type or the case in point given here. Moreover, municipal differences in land use planning and building ordinance may also affect the necessary procedures. The party responsible for the project shall ensure that the necessary permits have been applied for and obtained. In fact, the responsible party should, at an early stage, contact the different authorities from whom they may need permits to implement the project.

This Manual of Procedures imposes no legal obligations, and its sole task is to provide information on the relevant procedures. The detailed procedural requirements for each project are determined by the competent authorities on a case-by-case basis. Ultimately, all legal interpretations are decided upon by a court of law.

The Manual of Procedures contains several links with additional information about the procedure mentioned in the text, such as the building permit. The links may also lead directly to legislative texts, electronic permit applications, or other additional information on the matter. The links stand out in the text as underlined, blue text inserts.

Table 1. Permits and procedures under the Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures.

Permits and other administrative procedures	Legal basis	Competent authority	Online services	Contact point authority's duty to provide advice	Application of the time limit
Land use planning					
Land use planning	Land Use and Building Act (132/1999)	municipality, regional council		●	
Decision concerning the need for planning	Land Use and Building Act (132/1999), section 137	municipality	Only planning need matters related to building permit procedures	●	Only planning need matters related to building permit procedures
Deviation decision	Land Use and Building Act (132/1999), section 174	municipality	Only minor deviations related to a building permit procedure	●	Only minor deviations related to a building permit procedure
Right to use immovable property					
Granting the right of use	Water Act (587/2011), chapter 2, sections 12–14	Regional State Administrative Agency	Only the granting of user rights addressed in connection with permit procedures under the Water Act	●	Only the granting of user rights addressed in connection with permit procedures under the Water Act
Expropriation permit	Act on the Redemption of Immoveable Property and Special Rights (603/1977), sections 5–10	National Land Survey of Finland, Finnish Government		●	

Locating community infrastructure equipment	Land Use and Building Act (132/1999), section 161	local building control authority		●	
Placing a line in a water area belonging to another party	Water Act (587/2011), chapter 2, section 5a	ELY Centre			
Municipal consent	Electricity Market Act (588/2013), section 17	municipality		●	
Production plant design					
Environmental impact assessment (EIA)	Act on the Environmental Impact Assessment Procedure (252/2017)	ELY Centre		●	
Research permit	Antiquities Act (295/1963), section 10	Finnish Heritage Agency		●	
Right of exploitation	Act on the Exclusive Economic Zone of Finland (1058/2004), section 6	Ministry of Economic Affairs and Employment		●	
Research permit	Water Act (587/2011), chapter 18, section 7	Regional State Administrative Agency		●	
Natura Assessment	Nature Conservation Act (9/2023), chapter 35	ELY Centre (opinion), municipality/Regional State Administrative Agency (permit)		●	
Permit to explore and survey the sea bottom	Territorial Surveillance Act (755/2000), section 12	Defence Command		●	
Exploration permit	Act on the Redemption of Immoveable Property and Special Rights (603/1977), section 84	National Land Survey of Finland		●	
The Finnish Defence Forces' statements on the final acceptability of building wind farms	Act on the Defence Forces (551/2007), Territorial Surveillance Act, and Land Use and Building Act	Defence Command		●	
Construction, updating and grid connections of the production plant					
Environmental permit	Environmental Protection Act (527/2014), section 27	Regional State Administrative Agency, municipal environmental protection authority	●	●	●
Registration of the activity	Environmental Protection Act (527/2014), section 116	municipal environmental protection authority	●	●	
Building permit	Land Use and Building Act (132/1999), section 125	local building control authority	●	●	●
Action permit	Land Use and Building Act (132/1999), section 126	local building control authority	●	●	●
Demolition permit	Land Use and Building Act (132/1999), section 127	local building control authority	●	●	●
Demolition notification	Land Use and Building Act (132/1999), section 127	local building control authority	●	●	
Permit to disturb a relic	Antiquities Act (295/1963), section 11	Finnish Heritage Agency	●	●	●

Consent for the construction in Finland's exclusive economic zone	Act on the Exclusive Economic Zone of Finland (1058/2004), section 7	Ministry of Economic Affairs and Employment	●	●	●
Water permit	Water Act (587/2011), chapter 3, sections 2–3	Regional State Administrative Agency	●	●	●
Handling and storage permit	Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005), section 23	Finnish Safety and Chemicals Agency (Tukes)	●	●	●
Handling and storage notification	Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005), section 24	Rescue authority	●	●	●
Derogations from the prohibition of destruction and deterioration of habitat types	Nature Conservation Act (9/2023), chapter 66	ELY Centre	●	●	●
Derogation from provisions concerning the conservation of species	Nature Conservation Act (9/2023), chapter 83	Ministry of the Environment, ELY Centre	●	●	
Notification of activities that impact a Natura network area	Nature Conservation Act (9/2023), chapter 37	ELY Centre	●	●	
Derogation from the protection of aquatic habitat types	Water Act (587/2011), chapter 2, section 11	Regional State Administrative Agency	●	●	●
Obstacle permit	Aviation Act (864/2014), section 158	Finnish Transport and Communications Agency (Traficom)	●	●	●
Project permit for building a power cord	Electricity Market Act (588/2013), section 14	Energy Authority	●	●	●
Notification of the construction and decommissioning of a power plant	Electricity Market Act (588/2013), section 64	Energy Authority	●	●	
Construction permit (pipelines for biogas and biomethane)	Government Decree on the Safety of Natural Gas (551/2009), section 5	Tukes	●	●	●
Construction permit for natural gas storage (also applicable to biogas)	Government Decree on the Safety of Natural Gas (551/2009), section 9	Tukes	●	●	●
Notification for the storage of natural gas (also applicable to biogas)	Government Decree on the Safety of Natural Gas (551/2009), section 9	Tukes	●	●	
Using the production facility					
Registration	Act on Animal By-products (517/2015), section 33, and Article 23 of the EU By-products Regulation (1069/2009)	Municipal veterinarian, Finnish Food Authority	●	●	

Approval	Act on Animal By-products (517/2015), section 33, and Article 24 of the EU By-products Regulation (1069/2009)	Municipal veterinarian, Finnish Food Authority	●	●	
Notification	Fertilizers Act (711/2022), section 14	Finnish Food Authority	●	●	
Emissions permit	Emissions Trading Act (1270/2023), section 26	Energy Authority	●	●	
Notification of a wind farm	Act on Wind Power Compensation Areas (490/2013), section 5	Energy Authority	●	●	
Registration of pressure equipment	Pressure Equipment Act (1144/2016), section 51	Tukes		●	

In this Manual of Procedures, possible abbreviations in legal references refer to the following acts:

Waste decree: Government Decree on Waste (179/2012)
Expropriation Act: Act on the Redemption of Immoveable Property and Special Rights (603/1977)
NCD: Government Decree on Nature Conservation (1066/2023)
NCA: Nature Conservation Act (9/2023)
Monitoring Decree: Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (685/2015)
Chemicals Safety Act: Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005)
Natural Gas Decree: Government Decree on the Safety of Natural Gas (551/2009)
Highways Act: Act on the Transport System and Highways (503/2005)
AA: Antiquities Act (295/1963)
LUBA: Land Use and Building Act (132/1999)
APA: Adjoining Properties Act (26/1920)
Seveso Directive: EU Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances
Animal By-product Regulation: Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002
Animal By-product Act: Finnish Act on Animal By-products (517/2015)
PIPO Decree: Government Decree on Environmental Protection Requirements for Medium-sized Energy Production Units (1065/2017)
EEZ Decree: Government Decree on Finland's Exclusive Economic Zone (1073/2004)
EEZ Act: Act on the Exclusive Economic Zone of Finland (1058/2004)
Compensation Act: Act on Wind Power Compensation Areas (490/2013)
Wind Turbine Noise Decree: Government Decree on Guide Values for the Outdoor Noise Level of Wind Turbines (1107/2015)
Renewable Energy Permit Act: Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures (1145/2020)
WD: Government Decree on Water Resources Management (1560/201)
WA: Water Act (587/2011)
EPA: Environmental Protection Act (527/2014)
EPD: Environmental Protection Decree: Government Decree on Environmental Protection (713/2014)
EIA Decree: Government Decree on the Environmental Impact Assessment Procedure (277/2017)
EIA Act: Act on the Environmental Impact Assessment Procedure (252/2017)

Bio-CHP and bioheating plants

Bio-CHP plants use solid biofuels to generate both heat and electricity (CHP = Combined Heat and Power). Bio-CHP plants can range from large-scale facilities of over 50 MW to small CHP plants of below 1 MW. Biogas can also be used in combined heat and power production.

Bioheat is generated by burning solid biofuels. The permit requirements for bioheating plants depend on their size (plants with above 20 MW capacity are large, 1–20 MW are medium, and under 1 MW are small). Solid biofuels usually consist of forest biomass (such as wood-based waste from fellings and from the forest industry), arable biomass (such as reed canarygrass, cereal crops, and straw) or other organic industrial and municipal waste.

If the plant also produces electricity, the permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of the project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 2. Permits and other administrative procedures required for biofuel plants [large bio-CHP plant (fuel capacity ≥ 50 MW), medium bio-CHP plant (fuel capacity at least 1 MW but less than 50 MW), large bioheating plant (fuel capacity ≥ 20 MW), medium bioheating plant (fuel capacity at least 1 MW but less than 20 MW), small-scale production of bio-CHP and bioheat (fuel capacity < 1 MW)].

Required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council or municipality): required for large bio-CHP plants and bioheating plants. Otherwise, the requirements are determined on a case-by-case basis.
Construction, updating and grid connections of a production plant
Notification of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority): needed for medium-sized or large bio-CHP plants.
Environmental permit (EPA, municipal environmental protection authority or Regional State Administrative Agency): needed for large bio-CHP plants and bioheating plants. A medium-sized bio-CHP plant or bioheating plant requires either an environmental permit or a registration of operations. Small-scale production of bio-CHP and bioheat may be subject to an environmental permit.
Registration of activities (EPA, municipal environmental protection authorities) or an environmental permit: required for medium-sized bio-CHP plants and bioheating plants.
Building permit (LUBA, municipal building control authority)
Right to use immovable property
Emissions permit (Emissions Trading Act, Energy Authority): required for large bio-CHP plants and bioheating plants. A medium-sized bio-CHP plant may also need an emissions permit.

Table 3. Permits and other administrative procedures that mat be required for biofuel plants [large bio-CHP plant (fuel capacity ≥ 50 MW), medium bio-CHP plant (fuel capacity at least 1 MW but less than 50 MW), large bioheating plant (fuel capacity ≥ 20 MW), medium bioheating plant (fuel capacity at least 1 MW but less than 20 MW), small-scale production of bio-CHP and bioheat (fuel capacity < 1 MW)].

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Decision concerning the need for planning (LUBA, municipal building control authority): may be needed for a medium-sized bio-CHP plant or bioheating plant, or for small-scale production.
Deviation decision (LUBA, municipal building control authority)
Production plant design
Environmental impact assessment (EIA Act, ELY Centre): may be needed for large bio-CHP plants and bioheating plants.
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA, ELY Centre): may be required for large and medium-sized bio-CHP plants and bioheating plants.
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant

Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Water permit (WA, Regional State Administrative Agency): may be required for large or medium-sized bio-CHP plants.
Handling and storage permit (Chemicals Safety Act, Tukes): may be required for large or medium-sized bio-CHP plants and bioheating plants.
Handling and storage notification (Chemicals Safety Act, rescue authorities)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Obstacle permit (Aviation Act, Traficom): may be required for large or medium-sized bio-CHP plants and bio-heating plants.
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment): may be required for large or medium-sized bio-CHP plants.
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, municipality): may be required for large and medium-sized bio-CHP plants.
Using the production facility
Registration (Finnish By-products Act and the EU By-products Regulation, municipal veterinarian, Finnish Food Authority)
Approval (Finnish By-products Act and the EU By-products Regulation, municipal veterinarian, Finnish Food Authority)
Registration of pressure equipment (Pressure Equipment Act, Tukes)

New bio-CHP and bioheating plant projects

Planning of land use and construction

When planning the placement of a bio-CHP or bioheating plant, it must be ensured that the valid land-use plan allows for the placement of the project on the plot. Moreover, the land-use plans for the surrounding land areas must be taken into account, as the production plant may not hinder the use of the adjacent plots for the purpose indicated in the plan. There may be a need to update the plan if the surveys carried out in connection with the planning do not cover the impacts of the new project.

Local construction is steered at the municipal level. The municipality decides on the drawing up of plans, so the party planning a project shall contact the municipality at an early stage of the project to explore the possibility of initiating a planning process. The landowner or other titleholder may submit an initiative to the municipality for drawing up a plan. Consequently, a decision on the proposed planning initiative is made in the municipality. If the planning measures are to be started, certain terms and conditions shall be defined for the process. Furthermore, the process of drawing up a project plan may also come with certain costs, as the municipality has the right to recover the costs of planning from the party on whose initiative the plan is drawn up.

If the project is located in an area requiring planning, the type and location of the project determine whether a decision concerning the need for planning is sufficient or whether the placement of the project requires land-use planning. A bio-CHP or bioheating plant project can be implemented with a decision concerning the need for planning if the use and environmental values of the area and its surroundings do not set any restrictions on construction, and there is no significant need for coordination between construction and other land use. The matter is assessed by the municipal authorities.

Chipping of fuel wood. © Forest Centre

When making plans for land-use planning and construction efforts, potential ancient relics must be taken into account. In connection with the planning process, an inventory of archaeological cultural heritage shall be carried out to determine whether there are previously unknown ancient relics in the area. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. Furthermore, a research permit shall be applied for if it is required in the permit to disturb the ancient relic.

The construction of a bio-CHP or bioheating plant always requires a building permit as provided in the Land Use and Building Act (132/1999, LUBA). Depending on the location of the plant and the connection of the activities to the agricultural sector, the construction of smaller plants may require a decision concerning the need for planning if no plan exists for the area in question. However, if the planning threshold is exceeded, a decision concerning the need for planning is not applicable. Independent plants that produce energy for the electricity grid usually require a plan. (LUBA, section 16, section 137).

Additional reading:

- Find out more about land-use planning in the chapter General information on land use planning.
- Find out more about the procedures laid down in the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act
- Find out more about procedures concerning relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

An environmental impact assessment procedure (EIA procedure) is always applied to boiler plants and power plants that have a fuel capacity of at least 300 MW (Act on the Environmental Impact Assessment Procedure 252/2017, EIA Act). The EIA procedure may be required for an energy production plant if the plant is likely to

cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act. Moreover, the combined effects of different projects may also constitute a need for an EIA procedure (section 3 of the EIA Act). The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter. It is advisable to contact the ELY Centre regarding the possible need for an EIA procedure already at the planning stage of the project.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (section 9 of the EIA Act). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be required. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

Bio-CHP and bioheating plants are often so large in terms of size that they require an environmental permit referred to in the Environmental Protection Act (527/2014, EPA). If the fuel capacity of an energy production plant exceeds 50 MW, the requirements for installations covered by the directive shall be applied to it, in which case the permit authority is the Regional State Administrative Agency (section 27 of the EPA). Even energy production plants with a capacity of under 50 MW need an environmental permit from the Regional State Administrative Agency if they are part of the operation of an installation covered by the directive. If the plant has one or more energy production units that burn solid fuels with a capacity of at least 20 MW, and the total fuel capacity of all the energy production units in the plant area is less than 50 MW, the permit authority is the municipality [Government Decree on Environmental Protection (713/2014, EPD) section 2].

Plants that are smaller than those listed above may need to submit a registration of activities to the municipal environmental protection authority under the Environmental Protection Act. A plant cannot require both an environmental permit and registration at the same time. The plant needs a registration of activities if its fuel capacity is at least 1 MW but less than 50 MW, and the fuel capacity of each energy production unit that burns solid fuels is less than 20 MW. An environmental permit must also be applied for a small energy production plant if:

- the activities are part of the operation of an installation covered by the directive;
- the activity may cause pollution of a water body, and the project in question is not one requiring a permit under the Water Act;
- conveying wastewater from the activities may lead to the pollution of a ditch, spring, or streamlet;
- the activity may place an unreasonable burden on the surroundings as referred to in section 17 of the Adjoining Properties Act;
- the activities are located in groundwater areas important to water supply or otherwise suitable for such use (for more details, see section 30 of the EPA).

With regard to wastewater produced in the activities of an energy plant subject to an environmental permit, provisions on the conveying of said wastewater (condensation water) on another's property and on the construction of a ditch or sewer pipe intended for conveying the wastewater are laid down in the environmental permit as provided in the Environmental Protection Act (EPA, sections 68, 69 and 158). The energy plant may also need a permit under the Water Act due to, for example, the construction of cooling water intake and discharge structures (WA, section 3, subsections 2–3). The water permit is usually needed for water intake or waterway structures required by the project. If the project requires an environmental permit issued by the Regional State Administrative Agency and also a water permit, these shall be applied for jointly, and a single decision will be issued in the matter (a so-called mixed project).

An energy plant may also use animal by-products and related derivatives as fuel. If animal by-products other than whole bodies of animals are burned in the plant, the Animal By-product Regulation does not apply to the operation. Therefore, such installations are not recognised as installations under the Animal By-product Regulation. These installations are subject to, among others, the Waste Act, the Government Decree on Waste Incineration, and the Environmental Protection Act and Decree.

If the plant is only used to incinerate whole bodies of animals, it requires an approval as a co-incineration plant in accordance with the Animal By-products Act (517/2015) and the Animal By-products Regulation ((EC) No

1069/2009). The competent authority is the municipal veterinarian. The Government Decree on Waste Incineration issued by the Ministry of the Environment does not apply to the incineration of entire animal bodies, but the activities are regulated by, for example, the Waste Act, the Environmental Protection Act, and the environmental Protection Decree. As a rule, an environmental permit is required for the operation of combustion plants. In contrast, independent incineration plants on animal farms are usually included in each farm's environmental permit.

The burning of manure from farmed animals may also require a plant approval in accordance with the Animal By-products Act and the Animal By-products Regulation. The approval can only be applied for after receiving a positive permit decision or completing the registration in accordance with environmental or waste legislation (646/2011, Waste Act). The incineration of manure from farmed animals in boilers with a maximum fuel capacity of 50 MW is not considered waste incineration, in which case the activities do not need to comply with laws on waste incineration. The Ministry of the Environment, the Ministry of Agriculture and Forestry, and the Finnish Food Authority have published guidelines (in Finnish) regarding these activities. However, if the boiler is used to burn some other animal by-products or derived products in addition to manure from farmed animals, or if the boiler's fuel capacity exceeds 50 MW, the activity is considered as waste incineration.

If the plant is used to burn animal manure, it requires an approval from the municipal veterinarian as follows:

- Boilers located on animal farms that are subject to registration or a permit under the Environmental Protection Act → municipal veterinarian's approval is required
- Boilers located outside animal farms that are subject to registration or a permit under the Environmental Protection Act → municipal veterinarian's approval is not required
- Until 1 January 2030, existing boilers with a fuel capacity of at least 1 MW but less than 5 MW that begin to comply with the Government Decree on Environmental Protection Requirements for Medium-Sized Energy Production Units and Plants (1065/2017, PIPO Decree) only from 1 January 2030 onwards → municipal veterinarian's approval is required.

All installations included in emissions trading must have an emissions permit in accordance with the Emissions Trading Act (1270/2023). An emissions permit is required, for example, for the combustion of fuels in plants with a total rated thermal input of more than 20 MW and for the CO2 emissions from smaller combustion plants connected to the same district heating network. A more detailed list of the activities can be found in the appendices to the Emissions Trading Act.

Additional information:

- Read more about the environmental impact assessment procedure (EIA) in the chapter Act on the Environmental Impact Assessment Procedure.
- Read more about proceedings referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.
- Read more about procedures concerning animal by-products in the chapter Procedures under the Act on Animal By-products, the EU Regulation on Animal By-products, and the Fertilizers Act
- Read more about the emissions permit in the chapter Emissions permit under the Emissions Trading Act.

Safety considerations

If dangerous chemicals are stored or handled in an energy production plant, the operator must determine the risk of accidents caused by the chemicals. The effects of potential accidents shall be taken into account when selecting a site for the installation. Moreover, the choice of location must also account for the built environment, nature sites, groundwater areas, and the planning of the area. The vulnerability of the environment is assessed based on the criteria determined by the Finnish Safety and Chemicals Agency (Tukes), and the environmental permit authority will also examine the conditions for granting a permit in its permit assessment.

An energy production plant that extensively stores or handles dangerous chemicals requires a handling and storage permit from Tukes in accordance with the Act on the Safe Handling of Dangerous Chemicals and Explosives (390/2005, Chemicals Safety Act). When determining the scope of the activities, all hazardous chemicals handled and stored in one location under the operator's control are taken into account. In order to determine the scope of the activities, a chemical inventory is required, listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are recorded in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio

calculator in KemiDigi (the national chemicals data repository and service). (Chemicals Safety Act, section 23, section 24).

An energy production plant that engages in small-scale handling and storage of chemicals must submit a notification to the regional rescue authority (Chemicals Safety Act, section 24). For example, the notification limit for storing fuel oil is 10 tonnes (approximately 12.5 m^3). The rescue authority monitors the compliance and functioning of the technical implementation and operating methods of installations referred to in the chemical safety legislation that engage in minor industrial handling and storage activities, as well as the production facilities' compliance with applicable regulations. The processing of a notification is presented in the process diagram in the chapter Handling and storage notification. If the production plant has pressure equipment that pose a significant risk under the Pressure Equipment Act (1144/2016), such as liquefied petroleum gas (LPG) containers or steam boilers, the owner or holder of the pressure equipment must register these pressure equipment in the pressure equipment register maintained by Tukes.

Depending on the height and location of the smokestack, the plant may require an obstacle permit under the Aviation Act (864/2014). In practice, all structures with a height of more than 30 metres that are located close to airports and structures with a height of more than 60 metres throughout Finland require an aviation obstacle permit from Traficom. Once Traficom receives a permit application, it requests an aviation obstacle statement from Traffic Management Company Fintraffic Ltd. The power plant shall be equipped with aircraft warning lights in accordance with the conditions of the obstacle permit. After the obstacle has been set up, an obstacle notification must be submitted to Traffic Management Company Fintraffic Ltd.

Additional information:

- Read more about the procedures described in the Chemicals Safety Act in the chapter Procedures under the Chemical Safety Act.
- Read more about the registration of pressure equipment in the chapter Registration of pressure equipment under the Pressure Equipment Act
- Read more about the aviation obstacle permit procedure in the chapter Obstacle permit procedure under the Aviation Act.

Procedures involving power grids

To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act (588/2013) must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, and power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

The construction of an energy production plant may require land areas for purposes such as placing the equipment needed for grid connections. Plans for connecting the plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Act on the Redemption of Immoveable Property and Special Rights (603/1977, Expropriation Act), and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas is subject to an agreement with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An expropriation permit is needed if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

If the project requires small equipment, such as cables, to be placed in the area of another party, the placement should primarily be agreed upon with the landowner. The necessary access rights may also be granted by a decision of the municipal building control authority regarding the locating of community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Additional information:

- Read more about procedures laid down in the Electricity Trading Act in the chapter Procedures under the Electricity Market Act.
- Read more about other procedures related to connection lines in chapters Notification of placing a service conduit in a water area belonging to another party, Expropriation permit under the Expropriation Act, Locating community infrastructure equipment, and Municipal consent under the Electricity Market Act.

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures, but a production plant may also need procedures outside the scope of this Act. For example, a junction permit is required if access to the production plant requires a new junction to a road or the moving or alteration of an existing junction, and carrying out construction work in the immediate vicinity of a road may create a need for a deviation decision (Highways Act, 503/2005).

Illustrative example: Medium-sized bioheating plant

The case in point is a chip-burning bioheating plant with a fuel capacity of 8 MW, with no technical or functional connection to an installation covered by the directive. No flue gas condenser is used in the operations in such a way that the discharge of condense water could cause pollution to a water body. The installation requires the following permits and administrative procedures:

Amendment of the local detailed plan (LUBA)

- The production facility will be located in an undeveloped area in an urban setting surrounded by housing areas with detached homes.
- In the regional land use plan, the area covered by the local detailed plan is marked as an area of urban functions.
- In the component master plan, the area is marked as a residential area with mainly detached houses and as a local recreation area. When the master plan was drawn up, the need for a heating plant had not been identified.
- In the valid local detailed plan, the area is marked with an M to reserve it as an agricultural and forestry area.
- Therefore, placing the production plant in this area requires an amendment to the local detailed plan.

Registration of activities with the municipal environmental protection authority (EPA)

- The fuel capacity of the bioheating plant is 8 MW, meaning that registration is sufficient.
- The activities have been organised and the plant located in such a way that it does not cause an unreasonable burden to the neighbour as referred to in section 17 of the Adjoining Properties Act.
- The plant is not located in a groundwater area. If it were, an environmental permit would be required.

Building permit (LUBA)

- As a new structure, the bioheating plant requires a building permit from the municipal building control authority.

Notification to the rescue authority of minor industrial handling and storage of chemicals (Chemicals Safety Act)

- A fuel tank (10 tonnes) for reserve fuel (oil) is installed on the site.
- The rescue authority must be notified of small-scale industrial handling and storage of dangerous chemicals.

Registration of pressure equipment (Pressure Equipment Act)

- All pressure equipment that pose a significant risk must be entered into the pressure equipment register maintained by Tukes.

Locating community infrastructure equipment (LUBA)

- An agreement on the placement of district heating pipes was not reached with all private landowners, which means that the placement requires a decision from the municipal building control authority.

Small Bio-CHP or bioheating plant

Planning of land use and construction

There are several definitions for small Bio-CHP and bioheating plants. For the purposes of this manual, small-scale production refers to plants with a fuel capacity of less than 1 MW. Building an energy production plant always requires a building permit in accordance with the Land Use and Building Act. Depending on the location of the plant, its impacts, and the connection of the activities to the agricultural industry, the plant may also require a decision concerning the need for planning, if the building work takes place in an area not covered by a plan that would directly steer the building process.

Environmental considerations

Installations with a fuel capacity of less than 1 MW do not require a registration of activities to the municipal environmental protection authority as referred to in the Environmental Protection Act, nor do they, as a rule, require an environmental permit. An environmental permit is required if the plant is part of the operation of an installation covered by the directive, and a permit may also be required based on the general permit requirement of the Environmental Protection Act (section 27), in other words if:

- the activity may cause pollution of a water body, and the project in question is not one requiring a permit under the Water Act;
- conveying wastewater from the activities may lead to the pollution of a ditch, spring, or streamlet;
- the activity may place an unreasonable burden on the surroundings as referred to in section 17 of the Adjoining Properties Act.

An environmental permit is also required if the activities are to be sited in an important groundwater area or another groundwater area suitable for water supply use and the activity could pose a risk of groundwater pollution (EPA, section 28). Furthermore, even small-scale plants are subject to the Act on Animal By-products and the Animal By-product Regulation if whole animal bodies are burned in the plant. Such small-scale burning plants that do not require an environmental permit still require a plant approval from the municipal veterinarian. If animal by-products other than whole bodies of animals are burned in the plant, the Animal By-product Regulation does not apply, but the activities require an environmental permit or registration of the activity. Such installations are not recognised as installations under the Animal By-product Regulation. The approval procedures for burning manure can be found in the chapter New bio-CHP and bioheating plant projects.

If the location of the plant may have an impact on natural values protected under the Nature Conservation Act, a Natura assessment or exceptions may be considered, just like with larger incineration plants. Derogations from the protection of habitats under the Water Act and a permit under the Antiquities Act may also be necessary.

Safety considerations

If dangerous chemicals are handled in the plant, it may be necessary to notify the rescue authority in accordance with the Chemicals Safety Act. For example, the notification limit for fuel oil is 10 tonnes (approximately 12.5 m^3). The rescue authority monitors the compliance and functioning of the technical implementation and operating methods of installations referred to in the chemical safety legislation that engage in minor industrial handling and storage activities, as well as the production facilities' compliance with applicable regulations. The processing of the notification is presented in a process diagram in the chapter Construction permit for natural gas storage and the storage notification. The ratio needed to determine the scope of the operation can be calculated using the ratio calculator in KemiDigi (national chemicals data repository and service) or the table of chemicals published by the rescue departments' partnership network (Chemicals Safety Act, sections 23 and 24).

Procedures involving power grids

Small-scale energy plant projects usually require the installation of minor equipment, such as lines or cables, in the area of another party. Such installations should primarily be agreed upon with the landowner. The necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment under section 161 of the Land Use and Building Act. In some cases, when the equipment cannot be considered minor, an expropriation permit under the Expropriation Act may also be required.

When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures, but a production plant may also need procedures outside the scope of this Act. For example, a junction permit is required if access to the production plant requires a new junction to a road or the moving or alteration of an existing junction, and carrying out construction work in the immediate vicinity of a road may create a need for a deviation decision (Highways Act, 503/2005).

Alteration project of a Bio-CHP or bioheating plant

A project involving alterations to a bio-CHP or bioheating plant may mean, for example, the changing of fuel, replacing plant components (such as a boiler or turbine) with more efficient solutions, or installing a waste heat recovery system in the flue gas scrubber. The project may require different plans and procedures related to land use

planning depending on the size, impacts, and location of the alteration, as well as the planning situation in the area and the need to reconcile different forms of land use. The EIA procedure based on the project list also applies to the alterations or extensions of projects included in the list, provided that the alteration or extension itself corresponds to the size limit set for the project. For combustion plants, this means that the fuel capacity shall be at least 300 MW.

Sometimes projects need to be altered even before the construction work begins. The alterations may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When the plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (LUBA, section 9). The project coordinator may submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

Significant changes that increase the emissions of activities subject to an environmental permit or the impacts of said emissions, or other substantial changes to the activities, may require amendments to the environmental permit. However, the permit does not need to be amended if the change does not increase the environmental impacts or risks, and the operations do not change substantially. A change in activities is always considered significant if, as a result, the operations turn into the activities of an installation covered by the directive. The need to revise the environmental permit for operations is assessed by the competent supervisory authority. The decision on an environmental permit matter concerning a significant change in operations is made by the permit authority that has the authority to decide on an environmental permit matter concerning similar new activities (EPA, sections 29 and 35). An operator may also apply for the amendment of an environmental permit under section 89 of the Environmental Protection Act.

Operators of smaller plants must notify the supervisory authority without delay of any changes in the registered activities referred to in the Environmental Protection Act. This applies, for example, to changes that are essential from the point of view of supervision as they may have an impact on environmental pollution, compliance with statutes, activities in accordance with registration conditions, or the permit requirement for the activities to be registered (EPA, section 170). Based on the notification, the competent authority will assess whether the registration must be updated or whether an environmental permit will be required for the operations in the future.

If the change involves additional construction or substantial changes to the use of the building or its parts, the alteration project requires a building permit (LUBA, section 125). If new land areas are commissioned in connection with the change and if this may affect the natural values of the area protected under the Nature Conservation Act, a Natura assessment or derogations under the Nature Conservation Act may be necessary. Furthermore, permits under the Antiquities Act (295/1963) and derogations from the protection of aquatic habitat types under the Water Act may also be necessary as the activities expand to new areas.

Significant changes to the handling and storage permit referred to in the Chemicals Safety Act require a permit granted by Tukes (Chemicals Safety Act, section 23). Changes subject to a permit include, for example, the following:

- construction of a new unit or production line;
- comprehensive changes to the process;
- new chemical storage buildings of significant size;
- a large new storage tank or several smaller tanks, i.e. a new tank area.

If the criteria for a change subject to a permit are met, the operator shall apply for a permit for the amendments. For an alteration permit to be granted, however, a commissioning inspection must first be carried out by Tukes.

Other minor changes must be reported to Tukes. The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- updating the classification or form of chemicals to a more dangerous category;
- a change in the production method of chemicals, e.g. increase in the operating temperature and pressure, or the batch process becoming continuous;
- renewal of the safety automation system;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. The change notification does not require a commissioning inspection by Tukes but, before the change is introduced, the supervisor of the use of chemicals or LPG must provide proof that the legal requirements and the conditions laid down in the decision issued by Tukes are met.

All significant changes to handling and storage operations that require a notification under the Chemicals Safety Act must be reported to the rescue authority (Chemicals Safety Act, section 24, subsection 2). The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- change of the placement site;
- a new tank;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. A change notification may require a commissioning inspection by the rescue authority, if this has been separately required in the decision made on the basis of the notification. The inspection ensures that the terms and conditions of the decision and the safety requirements of the regulations are met.

If the change to the operations of the production plant also mean that the burning of animal bodies or manure is commenced in the plant, the facility may require a plant approval under the Animal By-products Regulation. If the plant has previously been registered or issued an approval, any changes in the activities that have an impact on the fulfilment of the conditions for the registration or approval shall be reported without delay to the authority to which the registration notification or the approval application was submitted. The authority must also be informed without delay of the cessation of operations.

Production of biogas and its use in energy production

Biogas plants produce biogas that is used on site for the production of electricity and/or heat or is sold forward as fuel. In this manual, biogas plants are divided into different size classes as follows:

- large (treat over 35,000 tonnes of waste per year);
- medium (treatment between 20,000 and 35,000 tonnes of waste per year); and
- small (treat less than 20,000 tonnes of waste per year).

If the plant also produces electricity, the permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of the project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 4. Permits and other administrative procedures required for biogas plants [large (waste treatment volume >35,000 t/y), medium (waste treatment volume 20,000–35,000 t/y), small (waste treatment volume ≥20,000 t/y)].

Required permits and other administrative procedures (law, responsible authority)
Production plant design
EIA (EIA Act, ELY Centre): required if the biogas plant is large, and in individual cases.
Construction, updating and grid connections of a production plant
Environmental permit (EPA, municipal environmental protection authority): required if the biogas plant is large or medium-sized. A small biogas plant requires either an environmental permit or registration of activities.
Registration of activities (*EPA, municipal environmental protection authority*): a small biogas plant requires either an environmental permit or registration of activities.
Building permit (*LUBA, municipal building control authority*)
Right to use immovable property

Table 5. Permits and other administrative procedures that may be required for biogas plants [large (waste treatment volume >35,000 t/y), medium (waste treatment volume 20,000–35,000 t/y), small (waste treatment volume ≥20,000 t/y)].

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Water permit (WA, Regional State Administrative Agency): may be required for large or medium-sized bio-CHP plants.
Handling and storage permit (Chemicals Safety Act, Tukes)
Handling and storage notification (Chemicals Safety Act, Tukes)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)

Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment): may be required for large bio-CHP plants.
Notification of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority): may be needed for medium-sized or large bio-CHP plants.
Construction permit for biogas and biomethane pipelines (Government Decree on the Safety of Natural Gas Treatment, Tukes)
Construction permit for a gas storage facility (Government Decree on the Safety of Natural Gas Treatment, Tukes)
Gas storage notification (Government Decree on the Safety of Natural Gas Treatment, Rescue Authority)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, Municipality): may be needed for large biogas plants.
Using the production plant
Registration (Finnish Animal By-products Act and the EU By-products Regulation, municipal veterinarian, Finnish Food Authority)
Approval (Animal By-products Act and the EU By-products Regulation, municipal veterinarian, Finnish Food Authority)
Notification (Fertilizers Act, Finnish Food Authority)
Emissions permit (Emissions Trading Act, Energy Authority): may be required for large biogas plants.
Registration of pressure equipment (Pressure Equipment Act, Tukes)

New biogas production plant projects

Planning of land use and construction

The size, impacts, and location of the project, the regional planning situation, and the need to reconcile different forms of land use dictate whether it is possible to locate the biogas production plant in the intended area, and which plans and procedures related to land use planning are required for the project. As the transportation, intermediate storage and handling of biodegradable waste and materials produce odours, the location of the plant and its integration with the land use plans are extremely important.

Larger biogas projects may require regional land use planning solutions. The regional plan can be used to promote the implementation of projects by indicating the basic location solutions for significant activities and by steering more detailed planning measures by means of regional plan regulations.

Municipal planning creates concrete preconditions for the implementation or development of land use plans. The local master plan defines the relationship between projects and the rest of the community structure, and local detailed plans enable construction in the area. Biogas plants are not always included in the planning as such, in which case the implementation of the project may require amending the plan or drawing up a plan. The landowner or other titleholder may submit an initiative to the municipality for amending or drawing up a plan. Consequently, a decision on the proposed planning initiative is made in the municipality. If the planning measures are to be started, certain terms and conditions shall be defined for the process. Furthermore, the process of drawing up a project plan may also come with certain costs, as the municipality has the right to recover the costs of planning from the party on whose initiative the plan is drawn up.

Biogas plant operations may not be located in an area covered by a local detailed plan in a way that violates the local detailed plan, or in a way that would hinder the use of the area for the purpose specified in the regional plan or a legally binding local master plan, provided that the area is covered by a regional land use plan in force or a legally binding local master plan (EPA, section 12). If the location of a biogas plant has not been considered in the planning, it may be necessary to assess in the consideration of the environmental permit whether the area is used for the purpose indicated in the plan.

When drawing up plans, the archaeological cultural heritage of the area is usually examined, and ancient relics are taken into account. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. Furthermore, a research permit shall be applied for if it is required in the permit to disturb the ancient relic. Building an energy production plant always requires a building permit in accordance with the Land Use and Building Act.

Additional information:

- Read more about land use planning in the chapters Regional plan, Local master plan and Local detailed plan.
- Find out more about the procedures laid down in the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act and Decree.
- Find out more about procedures concerning relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

Based on the list of projects provided in the Act on the Environmental Impact Assessment Procedure, an EIA procedure is required for a biogas plant with a waste treatment capacity of more than 35,000 tonnes per year. The plant may also require an EIA procedure if it is likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act, including when considering the cumulative impacts of different projects (EIA Act, section 3 and Annex 1). The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter. It is advisable to contact the ELY Centre regarding the possible need for an EIA procedure already at the planning stage of the project.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning on various levels. When a plan is drawn up specifically for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (section 9 of the EIA Act). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be necessary. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

The need for an environmental permit for a biogas plant in accordance with the Environmental Protection Act depends on the nature and extent of the operations and on the materials handled at the plant. A biogas plant is considered an installation covered by the directive as provided in the Environmental Protection Act if it burns the biogas it produces, and its fuel capacity is 50 MW or more. In this case, the permit authority is the Regional State Administrative Agency. At the moment, however, even the largest biogas plants in Finland are significantly smaller in size. A biogas plant is an installation covered by the directive and subject to an environmental permit also in the following cases:

- If the plant treats over 50 tonnes of waste per day either biologically or physico-chemically, and the activities do not involve the treatment of community wastewater.
- The permit limit for waste treatment is 75 tonnes per day for waste utilisation or for the combination of utilisation and disposal with a biological process, or for the pre-treatment of waste for incineration, provided that the activities do not involve the treatment of community wastewater.
- The permit limit for waste treatment is 100 tonnes per day if the only waste treatment activity is anaerobic treatment (digestion).

The processing of animal waste at a biogas plant is always subject to an environmental permit. The Regional State Administrative Agency decides on environmental permits for plants handling animal waste (with a capacity of

at least 20,000 tonnes) and for installations covered by the directive. In other cases, the permit authority is the municipal environmental protection authority (EPA, section 27, subsection 1 and Annex 1; EPA, section 34; EPA, sections 1–2).

A farm-specific biogas plant requires an environmental permit or a notification decision referred to in section 115d of the Environmental Protection Act, as the treatment of manure and waste in a biogas plant is considered treatment of waste on a professional basis or at an installation. If the farm has an environmental permit and a biogas plant is established in connection with the farm, it requires an amendment to the permit under section 29 of the Environmental Protection Act. If the farm is subject to a notification under Annex 4 to the Environmental Protection Act, and a biogas plant is established in connection with the farm, it will be considered whether the biogas plant can be approved via the notification procedure under section 115a of the Environmental Protection Act. An environmental permit is required for the biogas plant if the plant receives manure or waste from outside sources (such as sedimentation and closed tank sludge, food industry waste, or sewage sludge), unless the volumes are small, or the biogas plant sells or gives digestate to outside operators. The need for an environmental permit for a biogas plant may also arise on the basis of the general permit requirement (EPA, section 27) if:

- the activities are part of the operation of an installation covered by the directive;
- the activity may cause pollution of a water body, and the project in question is not one requiring a permit under the Water Act;
- conveying wastewater from the activities may lead to the pollution of a ditch, spring, or streamlet;
- the activity may place an unreasonable burden on the surroundings as referred to in section 17 of the Adjoining Properties Act.

An environmental permit is required if, for example, the activities may cause an unreasonable burden in accordance with section 17 of the Adjoining Properties Act. A biogas plant can cause noise, odours, and an increase in traffic volumes in the environment. The granting of an environmental permit requires that the activities be arranged in a way that does not cause an unreasonable burden on the surroundings (EPA, section 27, subsection 2). Moreover, the activities require an environmental permit when they are to be sited in an important groundwater area or another groundwater area suitable for water supply use (see EPA, section 30 for more details). If the biogas plant does not require an environmental permit, but the related energy production (1–50 MW) falls within the scope of the PIPO Decree, the registration procedure under the Environmental Protection Act is applied to the activities.

The use of digestate generated in a biogas plant as a fertiliser or soil improver does not require an environmental permit if the input materials in the biogas plant include manure, natural materials from agriculture and forestry which are not harmful to the environment or human health, wastewater sludge, septage, cesspool sludge or dry closet waste, or harmless ash or slag, and if the digestate is used on fields cultivated by the farm. (EPA, section 32, subsection 1, paragraphs 1–3). If the plant uses manure, slaughter waste or other animal by-products or derivatives thereof, the plant requires a registration or plant approval under the Animal By-products Act (517/2015, link in Finnish) and the Animal By-products Decree (783/2015, link in Finnish) issued by the Ministry of Agriculture and Forestry. The competent authorities are the municipal veterinarian and the Finnish Food Authority.

The registration or granting of approval is only completed after possible permits or registrations required by the environmental or waste legislation have been granted. As a rule, however, the procedures are rather light. They check whether the activities are organised in such a way that the use of by-products does not pose a risk to human or animal health. The need for procedures is as follows:

- Biogas plant → Approval from the Finnish Food Authority
- A farm-specific biogas plant which uses manure from the farm and safe plant waste, provided that the end product is also used on the farm → The Finnish Food Authority assesses the need for approval on a case-by-case basis
- A farm-specific biogas plant in other cases → Approval from the Finnish Food Authority.

If the biogas production process generates fertilising products referred to in the Fertilizers Act (711/2022, link in Finnish) and the biogas plant is not required to have a registration or plant approval in accordance with the Animal By-products Act or Decree, the biogas plant is required to submit a notification to the Finnish Food Authority under the Fertilizers Act before the production or marketing of the fertilising products. The notification shall be made in writing, and a description of the organisation of the activities, information on the products, and details on the quality system shall be attached to the notification.

Moreover, energy production plants with a fuel capacity of at least 20 MW also need an emissions permit for greenhouse gas emissions in accordance with the Emissions Trading Act. So far, no biogas plants of this size have been built in Finland.

Additional information:

- Read more about the environmental impact assessment procedures (EIA) in the chapter Act on the Environmental Impact Assessment Procedure.
- Read more about the procedures referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.
- Read more about the procedures related to animal by-products in the chapter Procedures under the Act on Animal By-products, the EU Regulation on Animal By-products, and the Fertilizers Act.
- Read more about procedures related to fertilising products in the chapter Notification procedure under the Fertilizers Act.
- Read more about the emissions permit in the chapter Emissions permit under the Emissions Trading Act.

Safety considerations

If dangerous chemicals are stored or handled in an energy production plant, the operator must determine the risk of accidents caused by the chemicals. The impact zones of potential accidents shall be taken into account when selecting a site for the installation. Moreover, the choice of location must also account for the built environment, nature sites, groundwater areas, and the planning of the area. The vulnerability of the environment is assessed based on the criteria determined by the Finnish Safety and Chemicals Agency (Tukes). The environmental permit authority examines the need for a permit and the conditions for granting the permit in its permit assessment. An energy production plant that extensively stores or handles dangerous chemicals requires a handling and storage permit from Tukes in accordance with the Act on the Safe Handling of Dangerous Chemicals and Explosives (390/2005, Chemicals Safety Act, available in Finnish and Swedish).

The permit or notification concerning the manufacture of biogas and directly related technical use and storage thereof is processed in accordance with the Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (685/2015, Monitoring Decree, available in Finnish and Swedish). The permit covers, for example, the reactor placed in the biogas plant area, the gas dome, the cleaning unit, and the combustion of gas at the boiler plant. The authority is either the rescue authority or Tukes, based on the amount of hazardous chemicals. All hazardous chemicals in the plant are included, not just biogas. In order to determine the scope of the activities, a chemical inventory is required, listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are indicated in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio calculator in KemiDigi (the national chemicals data repository and service) or the table of chemicals (in Finnish) published by the rescue departments' partnership network. (Chemicals Safety Act, sections 23 and 24).

Table 6. Permit for the manufacture of biogas and the notification procedure under the Chemicals Safety Act (Unprocessed biogas, methane content less than 80%),

	Unprocessed biogas (methane content less than 80%)			
	From 1 to under 5 tonnes	From 5 to under 10 tonnes	From 10 to under 50 tonnes	≥ 50 tonnes
Procedure	Notification to the rescue authority	Permit from Tukes	Major accident prevention policy (permit from Tukes)	Security report (permit from Tukes)

An energy production plant that engages in small-scale handling and storage of chemicals must submit a notification to the rescue authority under the Chemicals Safety Act (Chemicals Safety Act, section 24). The notification limit for storing biogas is 1 tonne (800 m^3). The quantity of gas is expressed as the highest gas volume (in tonnes) that may occur simultaneously at the plant (storage, equipment, and pipelines). The rescue authority monitors the compliance and functioning of the technical implementation and operating methods of installations referred to in the chemical safety legislation that engage in minor industrial handling activities, as well as the production facilities' compliance with applicable regulations. The processing of the notification is presented in a process diagram in

the chapter Construction permit for natural gas storage and gas storage notification. If the production plant has pressure equipment that pose a significant risk under the Pressure Equipment Act, such as LPG containers or steam boilers, the owner or holder of the pressure equipment must register these pressure equipment in the pressure equipment register maintained by Tukes.

Additional information:

- Read more about the procedures referred to in the Chemicals Safety Act in the chapter Procedures under the Chemicals Safety Act.
- Read more about the registration of pressure equipment in the chapter Registration of pressure equipment under the Pressure Equipment Act.

Procedures related to biogas pipelines, storage of processed biogas, and power grids

The Government Decree on the Safety of Natural Gas Treatment (551/2009, Natural Gas Decree) also applies to the technical use of biogas and to the pipelines and equipment intended for the recovery, transport, distribution, and use of biogas. The natural gas/biogas pipeline requires a construction permit for transmission pipelines issued by Tukes in the following cases (Natural Gas Decree, section 5):

- building a biogas pipeline system outside the plant (both unrefined and refined biogas);
- technical use of biogas (operator outside the biogas plant) when the total nominal fuel power of operational equipment is at least 1.2 MW;
- construction of a public natural gas filling station;
- biogas recovery from a landfill. In landfills, the recovery pipelines themselves are not covered by the natural gas regulations, but the application of the law starts with the system after the recovery pipeline.

Refined biogas (mainly methane-containing biogas) is subject to the same legislation and requirements as natural gas. Refined biogas is supplied to the natural gas pipeline network, refuelling stations, and various other applications. If the methane content of biogas is 80 % or more, the storage permit limits are the same as for natural gas. The interface between the pipelines for unrefined and refined biogas is usually the refining unit.

The storage of biogas requires a construction permit from Tukes when the amount of gas to be stored is at least 5 tonnes. If the amount of gas to be stored exceeds 0.2 tonnes but is less than 5 tonnes, a notification of storage must be submitted to Tukes (Natural Gas Decree, section 9).

Table 7. Storage of refined biogas, notification and permit limits (minimum methane content 80 %)

	Refined biogas (minimum methane content 80 %)			
	From 0.2 to under 5 tonnes	From 5 to under 50 tonnes	From 50 to under 200 tonnes	At least 200 tonnes
Procedure	Notification to Tukes	Permit from Tukes	Major accident prevention policy (permit from Tukes)	Security report (permit from Tukes)

Plans for connecting the plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. Moreover, if the biogas plant generates electricity for the power grid, the operator shall conclude the necessary contracts for electricity production. The valid grid connection and safety requirements shall always be checked with the power grid operator. Moreover, it may be necessary to acquire access rights to land areas in order to find a location for the equipment needed for the grid connection. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas is subject to an agreement with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or a transmission pipeline for gas with a length of over 40 kilometres and a diameter of DN 800 millimetres. An expropriation permit is also required if the cable or transmission pipeline

is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

A project permit pursuant to the Electricity Market Act may be required for the construction of a high-voltage power cable if the voltage of the cable is at least 110 kV. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt). If the plant generates biogas to be fed into the natural gas network, an agreement is required in accordance with the Natural Gas Market Act (587/2017) with the network operator to connect the plant to the natural gas network.

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Additional information:

- Read more about procedures related to the storage and transfer of biogas in the chapter Procedures under the Natural Gas Decree.
- Read more about the procedures under the Electricity Market Act in the chapter Procedures under the Electricity Market Act..
- Read more about other procedures related to connection lines in the chapters Notification of placing a service conduit in a water area belonging to another party, Expropriation permit under the Expropriation Act, Locating community infrastructure equipment, and Municipal consent under the Electricity Market Act.

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures, but a production plant may also need procedures outside the scope of this Act. For example, a junction permit is required if access to the production plant requires a new junction to a road or the moving or alteration of an existing junction, and carrying out construction work in the immediate vicinity of a road may create a need for a deviation decision (Highways Act, 503/2005).

Illustrative example: a small-scale biogas plant project

The case in point is a farm-specific biogas plant using grass biomass, horse manure and chicken manure as raw material. The biomass treatment capacity is 10,000 tonnes per year. The biogas plant produces heat and electricity for private use. The production plant requires the following permits and other administrative procedures:

Environmental permit (EPA)

- The biogas plant is considered to engage in treatment of waste on a professional basis or as an installation.

- The location of a biogas plant has not been considered in the planning, making it necessary to assess in the environmental permit consideration whether the area is used for the purpose indicated in the plan. The plant may not be located in a way that violates the local detailed plan. In an area that is covered by a regional land use plan in force or a legally binding local master plan, the plant activities may not hinder the use of the area for the purpose indicated in the plan.
- As the biomass volume treated per year is less than 20,000 tonnes, the permit authority is the municipal environmental protection authority.

Building permit (LUBA)
- As a new structure, the biogas plant requires a building permit from the municipal building control authority.

Notification of minor industrial handling and storage of chemicals (Chemicals Safety Act)
- The rescue authority must be notified of small-scale industrial handling and storage of dangerous chemicals.

Illustrative example: a large biogas plant project

The case in point is a centralised biogas plant that uses slurry and dry manure from domestic animals, arable biomass, and other biodegradable materials as raw materials. The biomass treatment capacity is 100,000 tonnes per year. The biogas produced at the plant is refined into transport fuel. In addition, the plant produces fertilising products from digestate. The production plant requires the following permits and other administrative procedures:

Planning (LUBA)
- There is no valid local master plan or detailed plan for the location of the project.
- At the initiative of the project developer, the municipality will launch the preparation of a master plan and a local detailed plan.

EIA (EIA Act)
- An environmental impact assessment is needed on the basis of the project list, as the plant's biomass treatment volume exceeds 35,000 tonnes per year.

Environmental permit (EPA)
- An environmental permit is required as the biogas plant is considered to engage in treatment of waste on a professional basis or as an installation.
- As the volume of treated waste is at least 20,000 tonnes per year, the permit authority is the Regional State Administrative Agency.

Building permit (LUBA)
- As a new structure, the biogas plant requires a building permit from the municipal building control authority.

Permit for the industrial handling and storage of chemicals (Chemicals Safety Act)
- The volume of gas is 5–10 tonnes, in which case a permit issued by Tukes is required.

Construction permit for biogas pipelines (Natural Gas Decree)
- A permit granted by Tukes is required because the biogas plant is connected to a public biogas refuelling station.

Construction permit for biogas storage (Natural Gas Decree)
- A permit issued by Tukes is required because the amount of gas stored exceeds 5 tonnes.

Plant approval for a by-product plant (Animal By-products Act, Animal By-products Decree)
- The biogas plant processes animal by-products, meaning that an approval by the Finnish Food Authority is required.

Registration of pressure equipment (Pressure Equipment Act)

- The plant has pressure equipment that pose a significant risk, and these pressure equipment must be entered into the pressure equipment register maintained by Tukes.

Alteration of a biogas plant

An alteration to a biogas production plant may refer to, for example, the introduction of new waste types as a raw material for energy production. The project may require different plans and procedures related to land use planning depending on the size, impacts, and location of the project, as well as on the planning situation in the area and the need to reconcile different forms of land use.

The EIA procedure based on the project list also applies to the alterations or extensions of projects included in the list, provided that the alteration or extension itself meets the size limit set for the project, which means a biogas plant with a total waste treatment capacity of over 35,000 tonnes per year. In addition, alterations and extensions close to the size limit may cause significant adverse environmental impacts, in which case the EIA obligation may be applied on the basis of the decision on the need for an EIA procedure.

Sometimes projects need to be altered even before the construction work begins. The alterations may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When the plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

With regard to an alteration project, it should be noted that after the changes are made, activities that have previously required registration under the Environmental Protection Act may now require an environmental permit. Changes that increase the emissions from activities subject to an environmental permit or the impacts of said emissions, or other significant changes to the activities, may require amendments to the environmental permit. A change in activities is always considered significant if, as a result, the operations turn into the activities of an installation covered by the directive. The need for an environmental permit is assessed by the competent supervisory authority, the ELY Centre, or the municipal environmental protection authority. The decision on an environmental permit matter concerning a significant change in operations is made by the permit authority that has the authority to decide on an environmental permit matter concerning similar new activities. (EPA, sections 29 and 35). An operator may also apply for the amendment of an environmental permit (EPA, section 89). A change in operations can be handled simply by a notification if the existing equipment is suitable for processing the new waste type and the change in operations does not increase the environmental impacts or risks (EPA, section 170, subsection 3). If the change involves additional construction or substantial changes to the use of the building or its parts, the alteration project requires a building permit under the Land Use and Building Act (LUBA, section 125).

Significant changes to the handling and storage permit referred to in the Chemicals Safety Act require a permit granted by Tukes (Chemicals Safety Act, section 23, subsection 3). Changes subject to a permit include, for example, the following:

- construction of a new unit or production line;
- comprehensive changes to the process;
- new chemical storage buildings of significant size;

- a large new storage tank or several smaller tanks, i.e. a new tank area.

If the criteria for a change subject to a permit are met, the operator shall apply for a permit for the amendments. For an alteration permit to be granted, however, a commissioning inspection must first be carried out by Tukes.

Other minor changes must be reported to Tukes (Chemicals Safety Act, section 23, subsection 3). The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- updating the classification or form of chemicals to a more dangerous category;
- a change in the production method of chemicals, e.g. increase in the operating temperature and pressure, or the batch process becoming continuous;
- renewal of the safety automation system;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. The change notification does not require a commissioning inspection by Tukes but, before the change is introduced, the supervisor of the use of chemicals or LPG must provide proof that the legal requirements and the conditions laid down in the decision issued by Tukes are met.

All significant changes to handling and storage operations that require a notification under the Chemicals Safety Act must be reported to the rescue authority (Chemicals Safety Act, section 24, subsection 2). The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- change of the placement site;
- a new tank;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. The change notification may also impose a requirement for a commissioning inspection by the rescue authority, if one is specifically required in the decision based on the notification. The inspection ensures that the terms and conditions of the decision and the safety requirements of the regulations are met.

With regard to a change in procedures under the Natural Gas Decree, the procedure related to the construction licence is applied. The operator must apply for a permit for the changes from Tukes, or in the case of minor changes, Tukes must be notified of the changes. Alterations that require a permit include significant expansions of pipelines or their use, and substantial alterations of the pipeline routes. Alterations that require a notification include minor changes in the pipelines or pipeline routes, and such additions to the pipelines or increase in their use that can be considered minor in comparison to the previous permit decision. Based on the notification, a commissioning inspection may be carried out on a case-by-case basis. The alteration documents shall be attached to the project control book. Activities related to normal operation, such as ordinary repair and maintenance work and replacing a machine with a similar device, do not require a permit or notification procedure. These measures shall be recorded in the project control book by the operation supervisor.

If the alteration means that the plant starts using manure, slaughterhouse waste, or other by-products referred to in the Animal By-products Act or Decree, a registration or plant approval must be applied for it in the same way as for a new project. If a registration or approval has previously been granted for the plant, the authority to which the registration notification or the approval application were first submitted must be notified without delay of any changes in the activities affecting the fulfilment of the requirements for registration or approval. A notification of the cessation of activities must also be submitted without delay.

Onshore wind power

In a wind power plant, the kinetic energy of the wind is converted into electricity using the rotating blades of the wind turbines. Wind turbines are often built in groups as so-called wind farms, either offshore or on land. An onshore wind farm typically consists of 6–20 turbines, but the largest planned areas can comprise over 100 turbines. The planned onshore wind farms are located all over the country, but there is a larger concentration of turbines near the coast of the Gulf of Bothnia. Moreover, higher installations also make it possible to build wind farms in wooded inland areas, where the ideal wind conditions are found higher than in the coastal areas.

The share of wind power of the total Finnish electricity production has grown quite rapidly over the recent years. The trend is to build increasingly large installations, but smaller turbines are also used to provide individual properties with suitable energy solutions. At the industrial level, wind turbines are divided into large (total rated plant capacity >45 MW) medium (total rated plant capacity <45 MW), and small (individual industrial turbines). In this publication, small-scale wind power refers to single wind turbines usually used for domestic purposes.

The impacts of wind turbines largely depend on their location and size, and on the local environmental values. In addition to the regular impacts, it is essential to also consider the potential impacts that the height of wind turbines may have on, for example, air traffic, the Defence Forces, and the functioning of communications networks. The permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of the project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 8. Permits and other administrative procedures required for onshore wind turbines [large (total rated capacity ≥45 MW), medium (total rated capacity <45 MW), small (individual industrial turbines)].

Required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality): required for large or medium-sized industrial wind power projects. Otherwise, planning needs are considered on a case-by-case basis.
Production plant design
EIA (EIA Act, ELY Centre): required if the industrial-scale wind power projects plant is large, and in individual cases.
The Finnish Defence Forces' statements on the acceptability of building wind farms (Defence Command)
Construction, updating and grid connections of a production plant
Obstacle permit (Aviation Act, Traficom)
Notification of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority): needed for large and medium-sized industrial wind power projects.
Building permit (*LUBA, municipal building control authority*)

Table 9. Permits and other administrative procedures that may be required for onshore wind turbines [large (total rated capacity ≥45 MW), medium (total rated capacity <45 MW), small (individual industrial turbines)].

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, municipal environmental protection authority)
Demolition permit (LUBA, municipal building control authority, or in exceptional circumstances the Regional State Administrative Agency)

Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, Municipality): may be needed for large plants.
Using the production plant
Notification of a wind power station (Act on Wind Power Compensation Areas, Energy Authority)

New onshore wind power projects

Planning of land use and construction

As a rule, the implementation of industrial wind farm areas requires a land use plan in accordance with the Land Use and Building Act, which lais down provisions to determine areas that are suitable for wind power construction. Wind power construction that bears regional significance is steered by means of the regional plan, as the plan may indicate so-called wind power areas and also areas in which wind power construction should not be planned. As a rule, regional plans are required to designate specific areas for wind farms with at least 8–10 turbines, but the regional council may determine the size of a regionally significant wind farm to be smaller or larger in size, depending on the conditions of the area.

Wind power construction with local significance is steered at the municipal level. The municipality decides on the drawing up of plans, so the party planning a wind power project must contact the municipality at an early stage of the project to explore the possibility of initiating a planning process. The wind power project operator or the landowner or other titleholder may submit an initiative to the municipality for drawing up a plan. A decision on the proposed planning initiative will be made in the municipality, and if the planning measures are to be started, certain terms and conditions shall be defined for the process. Furthermore, the process of drawing up a project plan may also come with certain costs, as the municipality has the right to recover the costs of planning from the party on whose initiative the plan is drawn up.

Section 77a of the Land Use and Building Act enables the preparation of a local master plan for wind power construction, so that the plan can steer the construction work directly. This procedure may be applied if the plan expressly states that the master plan or a part thereof may be used directly as a basis for a building permit. A local master plan that directly steers wind power construction may apply to the whole municipality, or it may be a partial master plan or a joint municipal master plan. Parts of the area covered by the local master plan may constitute a general master plan, whereas other parts may constitute a plan that steers wind power construction directly.

The master plan that directly steers wind power construction can be used when the coordination of other land use with wind power construction can be solved on a scale that is more general than the local detailed plan. Such areas typically include offshore areas and inland areas dominated by agriculture and forestry. Planning solutions that violate the key solutions and objectives of the regional plan are not possible.

The local detailed plan is used to steer wind power construction when it is necessary to provide wind power construction with a distinct framework in relation to other land use in the area, and the assessment of the impacts of the plan requires precise control of the location due to the impacts of wind power construction. Typically, such areas include the surroundings of urban areas, as well as industrial and port areas.

Wind farm @ Jussi Laurila

The possible implementation of other activities indicated in the current plan must also be investigated and ensured when developing the wind power project. If, for example, a residential area or another wind turbine is included in the plan, the impacts of the new project may not prevent the land uses indicated in the plan. Furthermore, the up-to-datedness of the wind power entries in the current plan must also be checked. The existing plan may need updating if the reports therein do not correspond to the impacts of the new project.

If the wind power project is located in an area requiring planning under section 16 of the Land Use and Building Act, the type and location of the project determine whether a decision concerning the need for planning is sufficient or whether the placement of the project requires land-use planning. A wind power plant can be implemented with a decision concerning the need for planning if the use and environmental values of the area and its surroundings do not set any restrictions on wind power construction, and there is no significant need for coordination between wind power construction and other land use. The matter is assessed by the municipal authorities. Individual industrial-scale wind turbines have been placed on the basis of a decision concerning the need for planning, but from the perspective of impact management and overall control, it is advisable to base industrial-scale power plant construction on centralisation and land use planning.

The archaeological cultural heritage of the area should be examined already in the planning phase, and ancient relics should be taken into consideration in land use planning. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic.

Moreover, the construction of an industrial-scale wind turbine always requires a building permit in accordance with the Land Use and Building Act. In addition to the regular appendices to a building permit, the building permit application for a wind turbine shall include a report on the impacts of the project on the landscape and neighbours, as well as a report on the other nearest masts/wind turbines planned by the applicant (Land Use and Building Decree (LUBD), section 64). In the building permit application, the key features are the external dimensions of the power plant and the impact analyses. The municipal building ordinance may contain provisions related to wind power construction.

Additional information:

- Read more about land use planning in the chapters Regional plan, Local master plan, and Local detailed plan.
- Read more about the procedures laid down in the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act.
- Read more about procedures concerning relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

Based on the list of projects referred to in the Act on the Environmental Impact Assessment Procedure, a wind farm project requires an EIA procedure whenever the number of wind turbines is at least 10 or total capacity is at least 45 MW. The project is also deemed to include the structures needed for construction, operation, and maintenance operations. Projects smaller than this may require an EIA procedure based on a decision on the need for an EIA procedure if the plant is likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act. The combined effects of different projects are also taken into account in the consideration. The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter.

The implementation of projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

No environmental permit is required for wind farms based on the list of installations provided in the Environmental Protection Act. However, a wind farm project may require an environmental permit regardless of its size, if the noise or flicker effects of the activities may cause an unreasonable burden to the nearby residents in accordance with section 17 of the Adjoining Properties Act. As a rule, the wind farm area should be located so far away from residential areas and other potentially disturbed sites that no environmental permit is required. The location of the wind farm is determined through procedures laid down in the Land Use and Building Act (planning, decision concerning the need for planning, building permit) in such a way that, for example, the noise level guidelines laid down in the Government Decree on guide values for the outdoor noise level of wind turbines (1107/2015, Wind Power Noise Decree) are not exceeded in an area exposed to noise according to a predetermined calculatory noise model. If the guideline values laid down in the Decree are not exceeded in the model, an environmental permit is, as a rule, not necessary. The same principle applies to flicker effects. Finland has no official limit values or recommendations in place for the flicker effects of wind farms, but the recommendations of other countries on limiting the flicker effect are used in the assessments. The Swedish recommendation, which is no more than eight hours per year and 30 minutes per day, is used in established administrative practice.

Wind farm areas often have rather extensive impacts on land use and, due to the hight of the turbines, on the local bird population. When choosing the location for a wind farm, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, in some situations, it may be necessary to apply for derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act. When planning a project near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

The land areas of onshore wind farms may require drainage. Excess water can be discharged from the desired land area by laying out ditches or pipelines, or by clearing brooks and main ditches. A notification of other than minor ditch drainage must be submitted to the Centre for Economic Development, Transport and the Environment (ELY Centre) before commencing the drainage work. A notification of drainage is always required if the work is carried out in groundwater areas or acid sulphate soil areas. No notification is made for minor ditch drainage, which includes:

- drainage of a small wood area;
- digging a ditch necessary for the draining of a building site on one's own land;

- drainage of a minor field block;
- subsurface drainage and subsoil drainage of a field block.

The authorities use the drainage notifications to assess whether a water permit or ditch drainage proceedings are necessary for the project. Furthermore, the notifier will receive guidance on how to complete the ditch drainage work without causing unnecessary harm to the environment. Based on the ditch drainage notification, the drainage work and the possible environmental permit granted for the area are assessed in terms of their connection to water management, such as in the aftercare of a peat production area. The existing water treatment structures in the area will be utilised if possible. Sometimes the extent and impacts of ditch drainage are so significant that a permit must be applied for from the Regional State Administrative Agency. Usually, however, a ditch drainage notification to the ELY Centre is sufficient.

Additional information:

- Read more about the environmental impact assessment procedures (EIA) in the chapter Act on the Environmental Impact Assessment Procedure.
- Read more about the procedures referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.
- Read more about procedures under the Nature Conservation Act in the chapters Natura assessment under the Nature Conservation Act and Procedures under the Nature Conservation Act.
- Drainage notifications (www.suomi.fi)
- Drainage notification (www.suomi.fi, in Finnish)

Safety and national defence considerations

Wind turbines form obstacles to air traffic, which is why their impact on air traffic and air safety must be investigated. Under section 158 of the Aviation Act, an obstacle permit is required in advance for setting up wind turbines, cranes needed to build the turbines, and other high-rising obstacles needed for the project. In practice, all structures with a height of more than 30 metres that are located close to airports and structures with a height of more than 60 metres throughout Finland require an aviation obstacle permit from Traficom. Once Traficom receives a permit application, it requests an aviation obstacle statement from Traffic Management Company Fintraffic Ltd (Traficom, 2023).

All wind turbines shall be equipped with aircraft warning lights in accordance with the conditions of the obstacle permit. Traficom has issued instructions (available in Finnish) on how to mark aviation obstacles. After the obstacle has been set up, a completion notification must be submitted to Traficom.

When choosing a location and drawing up a land use plan for wind farm construction, it is essential to consider the altitude restriction zones established around airports to ensure the smooth and regular flow of air traffic. Moreover, height restriction zones have also been established for road areas used as backup landing sites by the Finnish Defence Forces. More information on the height restriction zones and the related limitations is available from Traffic Management Company Fintraffic Ltd.

Wind turbines may affect the sensor systems used by the Finnish Defence Forces in regional surveillance, which may hinder the performance of Defence Forces' statutory regional surveillance task. To safeguard its operation, the Finnish Defence Forces Logistics Command issues opinions and statements on land use planning. (Act on the Defence Forces 551/2007, Territorial Surveillance Act 755/2000, Aviation Act).

To meet the requirements on ensuring the operating possibilities of the Finnish Defence Forces, the wind power operator shall request a statement from the Defence Forces on the acceptability of building wind farms. The statement is always required from the Defence Command when:

- the height of the wind turbines is over 50 metres (total height above ground or water level);
- the height of the wind turbines is less than 50 metres (total height above the ground or water level), and the turbines are built on a property that is limited to an area used by the Defence Forces.

If the wind farm is located in the Bay of Bothnia wind farm area (wind power compensation area), a statement from the Defence Forces is not required.

In connection with individual wind farm projects, the Finnish Defence Forces issue a separate statement on the need to investigate the impacts in more detail. If necessary, an impact assessment must be carried out by

VTT. The Defence Command (Operational Department) carries out an assessment on the need for a more detailed analysis after receiving the necessary data (maximum total height of the wind turbines, location coordinates, and number of turbines) on the planned wind turbines. The investigation of the impacts of the wind turbines is the responsibility of the wind power developer or land-use planner. If an impact analysis is needed, it shall be conducted at the latest in the detailed planning phase.

Under section 5 of the Act on Wind Power Compensation Areas (490/2013, Compensation Act), the operator of a wind power station in a wind power compensation area must pay the wind power fee. At present, the Compensation Act applies to the compensation area of the Bay of Bothnia. Electricity producers must submit a notification to the Energy Authority before commissioning a wind turbine for commercial use.

When carrying out excavation and construction work, it is essential to consider the cable lines of the Finnish Defence Forces that may run in and near the area. The location of the lines must be determined at least ten working days before the intended commencement of construction work. Information on the Defence Forces' cables shall be ordered from Johtotieto Oy. Johtotieto Oy provides excavators and builders with information and advice. The cable lines must also be taken into account when planning and implementing water construction work, such as excavation or dredging in the planning area. A statement on cable enquiries must also be requested from Suomen Erillisverkot Oy.

Additional information:

- Read more about the aviation obstacle permit procedure in the chapter Obstacle permit procedure under the Aviation Act.
- Read more about procedures related to national defence in the chapters The Finnish Defence Forces' statement on the acceptability of building wind farms and Notification of a wind farm under the Compensation Act.

Procedures involving power grids

Plans for connecting the wind farm to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. A wind turbine may only be connected to the power grind with the permission of the Energy Authority and with the consent of the network operator. In accordance with the Electricity Market Act, larger power plants may require a project permit from the Energy Authority for building a high-voltage cable of at least 110 kV. Under the Electricity Market Act, the electricity producer must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

The construction of an energy production plant may require land areas for purposes such as placing the equipment needed for grid connections. Municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act, and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas is subject to an agreement with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required. The permit may cover either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If the project is partially located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

If field surveys are required in the project area in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey. In the case of placement of cables, the necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment (LUBA, section 161).

With regard to wind power projects, the impacts on communications networks and radio systems should also be taken into account. According to studies, wind turbines may have an impact on, for example, the quality of TV

reception and the field and signal quality of mobile-communication networks. Radar systems also require a sufficient distance from wind turbines in order to function properly. Even minor changes in the location of wind turbines may have a significant impact on the operation of the regional radio systems. Due to existing TV and radio broadcast stations and high masts, it is advisable to engage in a dialogue between the operators when drawing up plans for wind turbines and, if necessary, determine the initial situation with regard to signal strength, for example. If it is observed after the construction of the wind turbines that the received signal has deteriorated even though the technical requirements for the reception equipment for which the property owner is responsible are met, it may be necessary to resort to special antenna solutions or the use of alternative distribution channels. If the disruptions affect a large number of properties, it may be necessary to build a new supplementary transmitter or, with regard to mobile-connection networks, a new base station. So far, such solutions have not been necessary in Finland.

The wind farm contractor shall submit a notification of the construction work to all known radio system operators within approximately 30 kilometres of the construction area. The users of radio frequencies can be checked from Traficom's table of radio frequency users and, if necessary, the contractor may contact Traficom by e-mail for more information on radio frequencies.

Additional information:

- Read more about the procedures under the Electricity Market Act in the chapter Procedures under the Electricity Market Act.
- Read more about other procedures related to connection lines in the chapters Notification of placing a service conduit in a water area belonging to another party, Expropriation permit under the Expropriation Act, Locating community infrastructure equipment, and Municipal consent under the Electricity Market Act.

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures, but a production plant may also need procedures outside the scope of this Act. For example, a junction permit is necessary if access to the production plant requires a new junction to a road or the moving or alteration of an existing junction. Construction in the immediate vicinity of roads may create a need for a deviation decision (Highways Act).

Illustrative example: Onshore wind power project

An onshore wind farm area consisting of 15 turbines and with a total capacity of approximately 60 MW requires the following permits and administrative procedures:

Planning (LUBA)

- Wind farm areas with regional significance are covered by the regional plan.
- To steer the project in more detail, a legally binding master plan for wind power construction is drawn up in the municipality.

Defence Forces' statement on the acceptability of building wind farms

- As the total height of the wind turbines is over 50 metres, the Defence Command must issue an approval for the construction work.

EIA procedure (EIA Act)

- The total capacity of the wind power project is at least 45 MW, and an environmental impact assessment procedure is needed directly based on the list of projects.

Obstacle permit (Aviation Act)

- The wind turbines stand over 60 metres above the ground, in which case an obstacle permit is required from Traficom.

Building permit (LUBA)

- The construction of a wind turbine requires a building permit from the municipal building control authority.

Expropriation permit for a connection line (Expropriation Act)

- Land areas must be expropriated for the construction of a connection line, so an expropriation permit issued by the National Land Survey is required.

Project permit for building a power cord (Electricity Market Act)

- The construction of a cable with a nominal voltage of 110 kilovolts requires a project permit from the Energy Authority.

Junction permit (Highways Act)

- Connecting a private road built in connection with the project to a public road requires a junction permit granted by the ELY Centre.

Notification of the construction plan and commissioning of a power plant (Electricity Market Act)

- The operator of a power plant with an output of at least one mega-volt-ampere shall submit a notification to the Energy Authority.

Alteration of an onshore wind farm

A wind power alteration project may mean, for example, replacing old turbines with new and more efficient ones or adding turbines to the wind farm area. The size, impacts, and location of the alteration work, as well as the planning situation in the area and the need to reconcile different forms of land use, dictate which procedures are required for the project. The goal is to locate wind farms so far away from residential areas and other potentially disturbed sites that an environmental permit under the Environmental Protection Act is not needed even in the case of alterations. The location of the wind turbines is determined also for alterations through the procedures laid down in the Land Use and Building Act (planning, decision concerning the need for planning, building permit) in such a way that, for example, the nose level guidelines established in the Government Decree on Guide Values for the Outdoor Noise Level of Wind Turbines (1107/2015) are not exceeded in an area exposed to noise according to a predetermined calculatory noise model. If the guideline values laid down in the Decree are not exceeded in the model, an environmental permit is, as a rule, not necessary. The same principle applies also to flicker effects. Finland has no official limit values or recommendations in place for the flicker effects of wind farms, but the recommendations of other countries on limiting the flicker effect are used in the assessments. The Swedish recommendation, which is no more than eight hours per year and 30 minutes per day, is used in established administrative practice.

Sometimes wind farm projects need to be altered even before the construction work begins. Changes in the goals of wind farm construction may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

If significant changes are made to land use plans and construction needs, it may be necessary to update the plan steering the construction before the building permits are processed. The municipal planning authorities monitor and make sure that the plans are up to date. The project coordinator may also submit an application to the municipality, based on which the municipality may, for a special reason, grant a derogation from the plan and the orders provided therein. The project coordinator may submit applications to the municipality for derogations from the provisions, orders, prohibitions, or other restrictions applied to construction work or other measures under the Land Use and Building Act or provisions issued under it.

When granting a building permit, minor deviations from building regulations, provisions, prohibitions, or other restrictions may be possible for a specific reason. Industrial efficiency, for example, cannot be considered a specific reason. Assessments concerning a deviation procedure are always carried out on a case-by-case basis, and the procedure is only applied to individual power plants. The deviation must be minor in relation to the project as a whole (such as minor changes in the location of the power plant). Possible alterations of a wind turbine type or model require noise and flicker models drafted for the new power plant type, and these must be presented when applying for a building permit under the Land Use and Building Act.

In case of demolition of a wind turbine, the possible need for a demolition permit under the Land Use and Building Act must be taken into account, as the permit is mandatory in areas covered by a local detailed plan or a local master plan if so provided in the local master plan. (LUBA, section 127). In addition, it must be taken into account that the Land Use and Building Act contains provisions on putting the construction site into a condition that does not compromise safety or degrade the environment if the wind turbine is no longer used, or construction work has been discontinued. (LUBA, section 170). For more information on dismantling the foundations of wind turbines, see the instructions issued by the Ministry of the Environment (link in Finnish).

If new land areas are commissioned in connection with the changes and if this may affect the natural values of the area protected under the Nature Conservation Act, a Natura assessment or derogations under the Nature Conservation Act may be necessary. Furthermore, permits under the Antiquities Act (295/1963) and derogations from the protection of aquatic habitat types under the Water Act may also be necessary as the activities expand to new areas.

If the size (larger, height >10 m), the number (increase in number), or the locations (difference of >100 m) of the wind turbines to be implemented differs from the information which the Defence Forces (Defence Command Operations Division) has had in its disposal when issuing a statement on the acceptability of the project, the project operator must obtain a new statement on the acceptability and survey needs from the Defence Command before the plan is approved. Also in cases where the changes are smaller than those mentioned above, the Defence Command Operations Division should be notified of the changes. The contractor must always ask or request permission for moving turbines, for example, by e-mail (also when the distance is less than 100 m), so that the Defence Command Operations Division receives information on the correct coordinates. A new statement is not required for when the transfer distance is less than 100 metres. In matters related to planning and land use, statements must be requested not only from the Defence Forces but also from Suomen Erillisverkot Oy.

New small-scale wind power projects

This manual uses Motiva's definition of small-scale wind power (link in Finnish). Small-scale wind power refers to single turbines with a rotor swept area of less than 200 square metres, which means that the blade length is approximately eight metres at maximum. In practice, this means equipment with a rated power below 50 kW. Typically, the height of small-scale wind turbine towers is 5–30 metres. Small-scale wind turbines are used, for example, to charge batteries in 12 V, 24 V, 48 V, or 230 V electrical systems. Moreover, small-scale wind turbines are also used to produce energy for heating systems in buildings, namely for water or storage heaters or domestic hot water boilers. Moreover, it is possible to use a small-scale wind turbine to produce electricity directly to the power grid of a detached house. In this case, the electricity produced by the turbine is converted into mains power using an inverter, and the turbine is connected to the main switchboard. Small wind turbines are used in, for example, agriculture, institutions, households, recreational dwellings, and sailboats. Moreover, small-scale wind power is a good source of energy in, for example, hybrid systems outside the electricity network, where production is also needed in the winter.

Table 10. Permits and other administrative procedures that may be required for small-scale wind power (rated power <50 kW).

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
Finnish Defence Forces' statement on the acceptability of building wind farms (Defence Command)
Research permit (Antiquities Act, Finnish Heritage Agency)
Construction, updating and grid connections of a production plant
Obstacle permit (Aviation Act, Traficom)
Environmental permit (EPA, municipal environmental protection authority)
Building permit (LUBA, municipal building control authority)
Action permit (LUBA, municipal building control authority)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Right to use immovable property
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)

Planning of land use and construction

Small-scale wind turbines are not included in any land use plans. It may be possible to find a place for a wind turbine without land use planning simply by way of a decision concerning the need for planning, depending on the impacts and location of the project. The assessment is always carried out on a case-by-case basis, taking into account the conditions at the location, the planning situation, the impacts of the project, and the prerequisites laid down in legislation.

Small-scale wind turbines can, in some occasions, be built solely on the basis of a building or action permit. A so-called direct building permit may be granted for areas not covered by the local detailed plan. In turn, in areas that are covered by the local detailed plan the assessments focus on conformity with the existing plan. The assessments are always carried out on a case-by-case basis, taking into account the conditions at the location, the planning situation, the impacts of the project, and the prerequisites laid down in legislation. The action permit mainly covers small wind turbines serving private household needs (see e.g. Supreme Administrative Court decision KHO 2016:147, in Finnish).

Specific requirements are applied to building permit and action permit applications when they pertain to wind turbine construction. In addition to the regular appendices to a building permit, a building permit application for a wind turbine shall include a report on the impacts of the project on the landscape and neighbours, as well as a report on the other nearest towers/wind turbines planned by the applicant (LUBD, section 64). The municipal building ordinance may contain provisions related to wind power construction.

Environmental considerations

Wind power construction may require an environmental permit in accordance with the Environmental Protection Act regardless of the size of the installation, if the noise or flicker effects of the activities may cause an unreasonable burden to the nearby residents in accordance with section 17 of the Adjoining Properties Act. As with larger wind turbines, derogations under the Nature Conservation Act, a notification of activities that impact a Natura network area, or a permit under the Antiquities Act may be required.

Procedures involving power grids

If the project requires small equipment, such as cables, to be placed in the area of another party, the placement should primarily be agreed upon with the landowner. The necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Small-scale wind turbines are usually built to serve individual applications. If the contractor also wants to connect the turbine to the power grid, the process requires an agreement with the electricity system operator. The contractor should also check with the electricity network operator that the system equipment meet the requirements of the power grid and electrical safety regulations. An electricity-producing power plant that meets the relevant technical requirements has the right to be connected to the power grid of the area. The electricity network operator is responsible for establishing such connections in its operating area. Electricity must not be fed into the grid if there is no buyer for it. Power companies have no obligation to purchase electricity from small producers, but many are willing to buy leftover electricity from small-scale production.

Illustrative example: a small-scale wind power project

A small wind turbine with a total capacity of approximately 30 kW and a tower height of 25 metres is going to be built outside the local detailed plan area. The project requires the following permits and administrative procedures:

Action permit (LUBA)

- The construction of the wind turbine requires an action permit from the municipal building control authority.
- The construction work does not restrict other building activities designated in the land use plans.
- The construction work does not cause impacts that would require a decision regarding the need for planning.

In addition, the plant will be connected to the power grid, in which case the project requires an agreement with the electricity network operator and a buyer for the electricity supplied.

Offshore wind power

Offshore wind power refers to electricity produced by wind turbines built in sea areas. There is currently a strong trend to promote offshore wind power; for example, the Finnish Government's TEAS project has studied the promotion of wind power construction, and the European Commission has issued a communication on the delivery of the EU offshore renewable energy ambitions. Moreover, the Ministry of Economic Affairs and Employment is drafting a Government proposal on the promotion of offshore wind power in the exclusive economic zone (link in Finnish).

The size of offshore wind turbines has increased in the recent years, which also improves the competitiveness of offshore wind power compared to more traditional onshore wind power. Finland has extremely favourable conditions for producing offshore wind power: relatively low waters, lower salinity than in the North Sea, and good wind conditions. The permits needed offshore wind projects vary greatly depending on the location of the project, which is why locations in territorial waters and in the exclusive economic zone are handled separately.

New offshore wind power projects in territorial waters

Marine areas that belong to the territory of the State of Finland, or territorial waters, are defined in the Act on the Delimitation of the Territorial Waters of Finland (463/1956). Territorial waters comprise the part of the sea immediately adjacent to land territory, stretching out to the international limit of the territorial waters. Territorial waters belong to the municipality which is closest in terms of land area. (Act on the establishment of municipal boundaries in Finnish territorial waters, 483/1996). As a rule, offshore wind turbines located in territorial waters are subject to the same procedures as onshore wind farms (see Onshore wind power). However, offshore wind power projects include certain specific considerations which are described more specifically in the following sections. The permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of the project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 11. Permits and other administrative procedures required for offshore wind farms in territorial waters.

Required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Production plant design
EIA (EIA Act, ELY Centre)
The Finnish Defence Forces' statement on the acceptability of building wind farms (Defence Command)
Permit to explore and survey the sea bottom (Territorial Surveillance Act, Defence Command)
Construction, updating and grid connections of a production plant
Water permit (WA, Regional State Administrative Agency)
Obstacle permit (Aviation Act, Traficom)
Notification of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority)
Building permit (*LUBA, municipal building control authority*)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)

Table 12. Permits and other administrative procedures that may be required for offshore wind farms in territorial waters.

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Decision concerning the need for planning (LUBA, municipal building control authority)
Production plant design

Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, Regional State Administrative Agency, or municipal environmental protection authority)
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Right to use immovable property
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, municipality)
Using the production facility
Notification of a wind power station (Act on Wind Power Compensation Areas, Energy Authority)

Planning of land use and construction

In view of the need for land use planning, the same considerations apply to offshore wind power built in territorial waters as to onshore wind power. Regional plans designate areas for offshore wind power construction, and wind farms with regional significance shall be located in these areas. Moreover, maritime spatial plans prepared by the regional councils also indicate offshore energy production areas. The goal of maritime spatial planning is to increase understanding and knowledge and achieve synergy benefits by reconciling different needs and objectives. In Finland, maritime spatial plans have no legal or binding effect on statutory permit or other procedures. However, maritime spatial plans are strategic plans and, thus, they steer planning efforts and indicate potential opportunities.

The municipality decides on the drawing up of plans, so the party planning a wind power project must contact the municipality at an early stage of the project to explore the possibility of initiating a planning process. The wind power project operator or the landowner or other titleholder may submit an initiative to the municipality for drawing up a plan. A decision on the proposed planning initiative will be made in the municipality, and if the planning measures are to be started, certain terms and conditions shall be defined for the process. Furthermore, the process of drawing up a project plan may also come with certain costs, as the municipality has the right to recover the costs of planning from the party on whose initiative the plan is drawn up.

The Land Use and Building Act enables the preparation of a local master plan for wind power construction, so that the plan can steer the construction work directly. (LUBA, section 77a). A local master plan that directly steers wind power construction may apply to the whole municipality, or it may be a partial master plan or a joint municipal master plan. A master plan that directly steers wind power construction can be used when the coordination of other land use with wind power construction can be solved on a scale that is more general than the local detailed plan. This procedure is typically applied to marine areas. Planning solutions that violate the objectives of the regional plan are not possible.

Wind turbines may affect the sensor systems used by the Finnish Defence Forces in regional surveillance, which may hinder the performance of Defence Forces' statutory regional surveillance task. To safeguard its operation, the Finnish Defence Forces Logistics Command issues opinions and statements on land use planning. (Act on the Defence Forces, Territorial Surveillance Act, Aviation Act).

In accordance with section 12 of the Territorial Surveillance Act, systematic exploration of the formation, structure or composition of the sea bottom is subject to a permit. The permit authority is the Defence Command of the Finnish Defence Forces. To meet the requirements on ensuring the operating possibilities of the Finnish Defence

Forces, the wind power operator shall request a statement for the offshore wind project from the Defence Forces regarding the acceptability of building wind farms. If the wind farm is located in the Bay of Bothnia wind farm area (wind power compensation area), a statement from the Defence Forces is not required.

Environmental considerations

Just as in land areas, an offshore wind farm project requires an EIA procedure based on the list of projects provided in the Act on the Environmental Impact Assessment Procedure whenever the number of individual turbines is at least 10 or the total capacity is at least 45 MW. The project is also deemed to include the structures needed for construction, operation, and maintenance operations. Offshore wind power projects are usually sizeable enough to require an EIA procedure. The assessment of transboundary environmental impacts is regulated by the so-called Espoo Convention. All the states that are parties to an agreement have the right to participate in an ongoing EIA procedure in another state if the environmental impacts of the project under assessment affect the state in question. Moreover, Finland and Estonia also have a bilateral EIA agreement, which added specifications to the Espoo Convention. The Finnish Environment Institute serves as Finland's competent authority in international consultations related to the EIA procedure.

In practice, the construction of an offshore wind farm always requires a permit under the Water Act based on the impacts of construction, dredging, and cable installations. The water permit, which is essential for offshore wind power projects, specifies the structures of the project and, consequently, the applied technological solutions.

Construction of an offshore wind turbine in territorial waters requires a building permit referred to in the Land Use and Building Act. In addition to the regular appendices to a building permit, the building permit application for a wind turbine shall include a report on the impacts of the project on the landscape and neighbours, as well as a report on the other nearest masts/wind turbines planned by the applicant. (LUBD, section 64). Moreover, the municipal building ordinance may contain provisions related to wind power construction.

An offshore wind farm area may sometimes require an environmental permit in accordance with the Environmental Protection Act if the noise or flicker effects of the activities may cause an unreasonable burden to the nearby residents in accordance with section 17 of the Adjoining Properties Act.

In view of offshore wind turbines, the impacts on natural habitats must also be taken into consideration. When choosing the location for an offshore wind farm, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. Nature conservation areas and national parks designated and located in marine areas are not suitable for wind power construction. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be necessary. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

From the perspective of wind power construction in marine areas, it is worth noting that the Antiquities Act protects underwater relics in the same way as relics found on land. Old shipwrecks are protected based on their age. A wreck or part of a wreck which, according to estimates, has sunk more than 100 years ago is treated as an ancient relic (Antiquities Act, section 20). The implementation of the project may require procedures under the Antiquities Act.

Safety and national defence considerations

Offshore wind turbines also form obstacles to air traffic and, therefore, their impact on air traffic and air safety must be investigated. If necessary, an obstacle permit under the Aviation Act must be applied for. If a wind turbine is to be located in a marine area (area adjacent to the coast), the contractor of the obstacle must also obtain a statement from the Finnish Border Guard. Each turbine shall be equipped with aircraft warning lights in accordance with the conditions of the obstacle permit. Moreover, a completion notification on the erection of flight obstacles must be submitted to Traficom by e-mail.

Similarly, impacts on maritime transport infrastructure must be taken into account in the construction of offshore wind farms. If an offshore wind farm is located in the vicinity a fairway or a traffic area of vessels, it may

cause harm to both the radar systems of vessels and the radar surveillance of maritime traffic control, thus posing a risk to maritime safety. There are more than 10,000 kilometres of public fairways along the Finnish coast. In addition, there are approximately 100 fixed VTS radar systems for maritime traffic control in the shore areas. Due to the existing extensive network of fairways and radar systems, the areas designated for offshore wind farms are often located rather close to the fairways or between a fairway and a VTS radar system. It is forbidden to build wind turbines in fairway areas, as this would hinder maritime traffic in the designated areas. Anchorage areas and fairway approach areas are also an important part of the fairway structure, and they are subject to the same accessibility requirements. All Finnish commercial shipping routes fall within the scope of traffic control, with radar systems as the key observation tool.

In terms of offshore wind power projects for which the impacts of wind turbines on shipping or maritime infrastructure have not been examined in detail, the wind turbines should not be planned closer than 1.5 kilometres from the edge of the fairway or from vessel operating areas to ensure the safety and undisrupted operation of maritime traffic. Traficom can assess the aforementioned distance requirements in more detail once the impacts of the offshore wind farm on, for example, maritime radar systems and the seafarer's view in the safety devices have been investigated. It is advisable to contact Traficom, Fintraffic Vessel Traffic Services Ltd, and the Finnish Transport Infrastructure Agency already in the early stages of project planning to discuss the details of the reports and to find sea areas that are suitable for offshore wind farms from the perspective of maritime traffic. Hydraulic engineering instructions and notifications of completion can be found on Traficom's website.

Procedures involving power grids

When placing connection lines at sea, the same procedures must be taken into account as on land. Plans for connecting the offshore wind farm to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. Moreover, the Finnish Defence Forces' cable lines must be taken into account in offshore wind power projects. The locations of sea cables should be checked already at the planning stage, and cable showings should be agreed on with the Finnish Navy's Joint Systems Centre.

A wind turbine may only be connected to the power grind with the permission of the Energy Authority and with the consent of the network operator. In accordance with the Electricity Market Act, larger power plants may require a project permit from the Energy Authority for building a high-voltage cable of at least 110 kV. Under the Electricity Market Act, the electricity producer must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

The implementation of a power plant project may require land areas for purposes such as placing the equipment needed for grid connections. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act, and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas is subject to an agreement with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required. The permit may cover either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If the project is partially located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project. If field surveys are required in the project area in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey. In the case of placement of cables, the necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment (LUBA, section 161).

Illustrative example: a wind energy project in territorial waters

An offshore wind farm area consisting of 30 turbines and with a total capacity of approximately 200 MW requires the following permits and administrative procedures:

Planning (LUBA)

- Wind farm areas with regional significance are covered by the regional plan.
- To steer the project in more detail, a legally binding master plan for wind power construction is drawn up in the municipality.

Permit to explore and survey the sea bottom (Territorial Surveillance Act)

- Underwater measurements and studies on the composition of the sea bottom carried out during the planning phase require a permission from the Defence Command.

EIA procedure (EIA Act)

- The total capacity of the wind power project is at least 45 MW, and an environmental impact assessment procedure is needed directly based on the list of projects.

Water permit (WA)

- A water permit issued by the Regional State Administrative Agency is required based on the impacts of construction, dredging, and cable installations.

Obstacle permit (Aviation Act)

- The wind turbines stand over 60 metres above the water level, in which case an obstacle permit is required from Traficom.

Building permit (LUBA)

- The construction of a wind turbine requires a building permit granted by the building control authorities.

Expropriation permit for a connection line (Expropriation Act)

- Areas must be acquired for the connection line through expropriation, so an expropriation permit issued by the Finnish Government is required.

Project permit for building a power cord (Electricity Market Act)

- The construction of a cable with a nominal voltage of 110 kilovolts requires a project permit from the Energy Authority.

Notification of the construction plan and commissioning of a power plant (Electricity Market Act)

- The operator of a power plant with an output of at least one mega-volt-ampere shall submit a notification to the Energy Authority.

Notification of a wind farm (Act on Wind Power Compensation Areas)

- The wind farm area is located within a wind power compensation area.
- The electricity producer is obliged to submit a notification to the Energy Authority before the commercial deployment of wind power and pay a turbine-specific wind power fee.
- Wind power projects implemented in a wind power compensation area do not require a statement from the Defence Forces on the acceptability of building wind farms.

New offshore wind power projects in the exclusive economic zone

The Finnish exclusive economic zone begins at the external border of territorial waters, and it extends to a border established on the basis of international agreements. Provisions on the Finnish exclusive economic zone and its utilisation are laid down in the Act on the Exclusive Economic Zone of Finland (1058/2004, EEZ Act, available in Finnish and Swedish) and in the Government Decree on the Exclusive Economic Zone of Finland (1073/2004, EEZ Decree, in Finnish and Swedish). The system of official procedures concerning wind power construction is different in the exclusive economic zone than in territorial waters or land areas, as the exclusive economic zone is partially subject to different legislation than the actual areas owned by the State of Finland.

Table 13. Permits and other administrative procedures required for offshore wind farms in the exclusive economic zone.

Required permits and other administrative procedures (law, responsible authority)
Production plant design
EIA (EIA Act, ELY Centre)
Right of exploitation (EEZ Act, Finnish Government)
Finnish Defence Forces' statement on the acceptability of building wind farms (Defence Command)
Permit to explore and survey the sea bottom (Territorial Surveillance Act, Defence Command)
Construction, updating and grid connections of a production plant
Water permit (WA, Regional State Administrative Agency)
Notifications of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government): required if the connection line is located in territorial waters or on the mainland.

Table 14. Permits and other administrative procedures that may be required for offshore wind farms in economic waters.

Potentially required permits and other administrative procedures (law, responsible authority)
Production plant design
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, municipal environmental protection authority or, in exceptional circumstances, the Regional State Administrative Agency)
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment): may be required if the cord is placed in territorial waters or on the mainland.
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Right to use immovable property
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)

An offshore wind power project to be located in the exclusive economic zone of Finland requires the Finnish Government's consent for exploitation and construction in Finland's exclusive economic zone in accordance with the EEZ Act. Under the EEZ Act, construction work may be carried out in the Finnish exclusive economic zone for the purpose of economic exploitation only if the Government issues a consent upon application. The Government's consent is needed for research work, construction, and power plant use related to the development of an offshore wind power project.

The Land Use and Building Act is only applied in the exclusive economic zone in terms of the provisions of chapter 8a on maritime spatial planning. No legally binding plans are drawn up for the exclusive economic zone and, therefore, the construction of wind turbines does not require a building permit.

As a rule, an exploration and survey permit under the Territorial Surveillance Act is not required to be applied for operations in the Finnish exclusive economic zone. However, a permit is needed if the project cables run through territorial waters. In this case, the permit authority is the Defence Command.

If a project permit referred to in the Electricity Market Act is required for the project for the construction of a high-voltage cable of at least 110 kilovolts, the Ministry of Economic Affairs and Employment will act as the permit authority for the construction of cross-border cables.

In other respects, the construction of an offshore wind farm in the exclusive economic zone mainly requires the same official procedures as projects located in territorial waters and onshore wind power projects. The same procedures are applicable at least in part because even if the wind farm area itself would be located in the exclusive economic zone, the underwater cables are partly located in territorial waters, and the project may also involve connection lines to be built on the mainland.

Illustrative example: a wind power project located in the exclusive economic zone

A wind farm area placed in the exclusive economic zone which consists of 50 turbines and has a total capacity of approximately 400 MW requires the following permits and administrative procedures:

Right of exploitation granted by the Government (EEZ Act)

- The economic utilisation of the exclusive economic zone and research aiming to this end require the consent of the Finnish Government.

Government's consent for construction in Finland's exclusive economic zone (EEZ Act)

- The Government's consent is also required for the construction and use of equipment and other structures used for economic exploitation in the exclusive economic zone.

Defence Forces' statement on the acceptability of building wind farms

- As the total height of the wind turbines is over 50 metres, the Defence Command must issue an approval for the construction work.

Permit to explore and survey the sea bottom (Territorial Surveillance Act)

- A permit from the Defence Command is needed, as the cabling of the project will also pass through territorial waters.

EIA procedure

- The total number of wind turbines is at least 10, so an environmental impact assessment is needed directly based on the list of projects.

Water permit (WA)

- A water permit issued by the Regional State Administrative Agency is required based on the impacts of construction, dredging, and cable installations.

Expropriation permit for a connection line (Expropriation Act)

- Areas must be acquired for the connection line through expropriation, so an expropriation permit issued by the National Land Survey is required.

Project permit for building a power cord (Electricity Market Act)

- A project permit from the Ministry of Economic Affairs and Employment is required for the construction of a cable which has a nominal voltage of 110 kilovolts and runs across the national borders.

Notification of the construction plan and commissioning of a power plant (Electricity Market Act)

- The operator of a power plant with an output of at least one mega-volt-ampere shall submit a notification to the Energy Authority.

Additional information:

- Advancing wind power construction: Means for streamlining of project development and for coordination of various objectives (abstract available in English). The Finnish Government (julkaisut.valtioneuvosto.fi).
- Draft proposal: Draft bill for the act on offshore wind power in the exclusive economic zone (link in Finnish). Ministry of Economic Affairs and Employment (tem.fi).

Solar energy projects

In Finland, solar energy projects have usually been carried out on a relatively small scale and in connection with existing buildings. Solar power is most commonly used to either generate electricity by means of solar panels or to generate heat with solar heat collectors. However, increasingly larger projects, such as industrial-scale solar power plants, are emerging alongside the traditional uses. The term solar power plant refers to systems from which electricity is supplied to the power grid. For the purposes of this manual, an installation with a capacity of over 1000 kW (1 MW) is considered an industrial-scale solar power plant.

In this manual, installations smaller than industrial-scale solar power plants are divided into medium-sized plants (10 kW – approximately 1000 kW) that produce electricity or heat primarily for the consumption of individual apartment buildings, industrial or commercial structures or office buildings, and small plants intended for domestic use (under 10 kW) which mainly produce electricity or heat for private consumption in single-family houses, summer cottages, or other small buildings. For example, holiday homes may operate with an off-grid system, meaning a system outside the public power grid. The permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of an electricity-producing solar power project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 15. Permits and other administrative procedures required for an industrial-scale solar power project (> 1 MW).

Required permits and other administrative procedures (law, responsible authority)
Production plant design
Notifications of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority)
Construction, updating and grid connections of a production plant
Building or action permit (LUBA, municipal building control authority)

Table 16. Permits and other administrative procedures that may be required for an industrial-scale solar power project (> 1 MW).

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
EIA (EIA Act, ELY Centre)
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)

Municipal consent (Electricity Market Act, municipality)

Table 17. Permits and other administrative procedures that may be required for medium-sized (10 kW – approx. 1 MW) and household (<10 kW) solar energy projects.

Potentially required permits and other administrative procedures (law, responsible authority)
Design, construction, updating, and grid connections of a production plant
Building or action permit (LUBA, municipal building control authority)
Right to use immovable property
Locating community infrastructure equipment (LUBA, municipal building control authority)

New industrial-scale solar power projects

Planning of land use and construction

A project may require various plans and procedures related to land use planning depending on the size, impacts, and location of the project, as well as on the planning situation in the area and the need to reconcile different forms of land use. There are no uniform national guidelines for the construction of solar energy systems in Finland. The responsibilities and obligations are determined in accordance with the Land Use and Building Act, just as in any other construction projects. The characteristics of the area, the planning situation, and the project itself dictate whether it is possible to place an industrial-scale solar power plant in the intended area, and which land use planning efforts and construction-related permits may be needed. Solar power can be addressed at all levels of land use planning (regional plan, local master plan, and local detailed plan).

Several regional plan projects that are currently pending have addressed solar energy either as a separate theme or as part of the renewable energy section. Each region may adopt its own approach to the topic because, for example, there is no unambiguous definition of a solar power plant of regional significance that could be considered a general starting point for regional planning. In fact, it has been debated whether or not a solar power plant actually is a regionally significant issue in terms of land use planning – even regardless of the power plant's production capacity and surface area requirements. This question is primarily linked to the issue of potential need for trans-municipal planning or the possible existence of trans-municipal environmental impacts, and whether or not it is justified to reserve areas for possible future projects in a legally binding long-term plan (the regional plan's impact on lower-level planning and official activities).

Each municipality may decide on the practices of solar power construction within the conditions set by legislation. Land use planning for solar energy purposes is mainly launched based on the needs and initiatives of the real estate business. The municipal land use steering instruments (master plan, local detailed plan, building and action permit, and building ordinance) are usually sufficient means for steering the construction of solar energy production areas. Large-scale solar energy projects, including the production plant, the production plant's road and electricity infrastructure, and the design of transformation stations and underground cable networks, may require local master planning and/or local detailed planning, or changes to existing plans.

The archaeological cultural heritage of the area should be examined already in the planning phase, and ancient relics should be taken into consideration in land use planning. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic.

Industrial-scale solar power plants, or the placement of large panel groups in the terrain separated from other areas, require an action permit in accordance with the Land Use and Building Act. A large solar power plant may even require a building permit instead of an action permit if it can be considered a building due to its size. Depending on the location and impacts of the power plant, the construction work may require a decision regarding the need for planning. However, if the planning threshold is exceeded, the procedure based on a decision concerning the need for planning is not applicable.

Environmental considerations

Industrial-scale solar power plants are not included in the list of projects provided in Annex 1 to the Act on the Environmental Impact Assessment Procedure and, therefore, do not automatically require an EIA procedure. The most significant environmental impacts associated with a solar energy production area are related to the project's extensive need for surface area. In solar power projects, the EIA procedure shall be implemented directly on the basis of the list of projects if the project corresponds to section 2f of Annex 1 to the EIA Act. The EIA procedure must be carried out in the case of alteration of a permanent nature of a forest, peatland or wetland where the area that is regarded as connected exceeds 200 hectares, by carrying out first-time ditching or by draining undrained peatland and wetland sites, or by permanently removing the growing stock.

High-voltage cables that may be built in connection with solar electricity installations and heat transmission pipes required for solar heat plants may have environmental impacts. According to the list of projects provided in the EIA Act, the EIA procedure is applied to projects involving the transfer and storage of energy and substances (above-ground power lines of at least 220 kilovolts with a length of over 15 km). Moreover, an industrial-scale solar power plant may also require an EIA procedure based on an individual decision, if the plant is likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act, including when considering the cumulative impacts of different projects. (EIA Act, section 3). The combined effects of different projects are also taken into account in the consideration. The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator may submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

When choosing the location for a solar power plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be necessary. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

Solar energy projects may sometimes impose drainage needs on lands. Excess water can be discharged from the desired land area by laying out ditches or pipelines, or by clearing brooks and main ditches. A notification of other than minor ditch drainage must be submitted to the ELY Centre before commencing the drainage work. A notification of drainage is always required if the work is carried out in groundwater areas or acid sulphate soil areas. In contrast, no notification is required for minor ditch drainage, which includes:

- drainage of a small wood area;
- digging a ditch necessary for the draining of a building site on one's own land;
- drainage of a minor field block;
- subsurface drainage and subsoil drainage of a field block.

Based on the drainage notification, the ELY Centre will assess whether the scope and impacts of the drainage project are significant enough to require a permit under the Water Act. The ELY Centre also assesses whether ditch drainage proceedings are needed. Furthermore, the ELY Centre provides guidance on how complete the ditch drainage work without causing unnecessary harm to the environment. On the basis of the drainage notification, the impacts of drainage and previously granted environmental permits on water treatment are also assessed: for example, existing water treatment structures in a decommissioned peat production area may be utilised in drainage. It is advisable to contact the ELY Centre's water act supervisor concerning the need for drainage.

Safety considerations

The instructions published by the rescue departments' partnership network (in Finnish) contain issues to consider regarding the fire safety of solar power systems in the planning, implementation, operation, and maintenance phases. When planning to build solar power plants near an airport, it may be necessary to investigate the possible glare effects on air traffic. When assessing the need for and planning the investigations, the plant operator should contact Traffic Management Company Fintraffic Ltd. Industrial-scale solar energy projects (capacity of more than 1 MWp) require a statement from the Finnish Defence Forces. However, no statement is required if the project is smaller than this and not planned in the safety zones of the Finnish Defence Forces, which are marked in the regional plans. Moreover, no statement is required for household-size solar energy projects.

Procedures involving power grids

Plans for connecting the plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. Industrial-scale solar power plants can affect the structure of the entire power grid. Solar energy production is varied by nature, and this must also be taken into account when connecting the production plant to the grid. The power plant must be able to operate even when the voltage and frequency of the network vary. The valid grid connection and safety requirements must always be checked with the power grid operator. To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

It may be necessary to acquire access rights to land areas in order to find a location for the equipment needed for the grid connection. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act and the electrical cable is built outside the area reserved for this purpose in the plan. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required. The permit may cover either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Illustrative example: an industrial solar power plant

An electricity-producing solar power plant with a rated capacity of 2 MW is built on the ground in an area which is partially designated for industrial use in the local detailed plan. The project requires the following permits and administrative procedures:

Planning (LUBA)

- At the initiative of the operator, the municipality initiates a change in the local detailed plan to place a solar power plant in the area in an environmentally friendly manner.

Action permit (LUBA)

- The solar power plant has a significant impact on the landscape and the environment, so an action permit from the municipal building control authority is required.

Notification of the construction plan and commissioning of a power plant (Electricity Market Act)

- The operator of a power plant with an output of at least one mega-volt-ampere shall submit a notification to the Energy Authority.

In addition, the plant will be connected to the power grid, in which case the project requires an agreement with the electricity network operator, as well as a buyer for the electricity supplied.

Medium-sized solar power systems and domestic use

Planning of land use and construction

Municipal building control procedures are usually sufficient for solar power projects of this size. If a solar panel or collector has a significant impact on the cityscape or the environment, the installation or construction work requires

Solar panels on the roof of a building. © ELY Centre for South Ostrobothnia

an action permit under the Land Use and Building Act. (LUBA, section 126a). The installation or construction of a solar panel or collector may require an action permit, for example, when the building or construction site is located in an area with historical, urban, or landscape value. Such areas include, among others, areas protected in the land use plans, and nationally significant areas in the built cultural environment. Moreover, modifications made to the façade or roof of a protected building usually require a permit.

The municipal building ordinance may contain provisions related to solar power projects. The building ordinance is always municipality-specific and, therefore, different municipalities may have different requirements concerning the permit procedure. Under the Land Use and Building Act, minor solar panel activities can be exempted from the permit requirement. In this case, however, a notification must be submitted to the building control authorities. It is always advisable to check the matter in advance from the municipality's building ordinance and the municipal building control authorities. In fact, the local regulations on solar power should be examined already during the planning phase to ensure that the official procedures progress smoothly. In new buildings, solar energy-related permit procedures are carried out in connection with other permits.

Procedures involving power grids

Solar power projects are usually built to serve individual applications. Generally, a solar power installation is connected to the grid via a grid inverter, in which case a contract with the electricity system operator is required. Moreover, the contractor should also check with the electricity network operator that the solar power system equipment meet the requirements of the power grid and electrical safety regulations. An electricity-producing power plant that meets the relevant technical requirements has the right to be connected to the power grid of the area. The electricity network operator is responsible for establishing such connections in its operating area. Electricity must not be fed into the grid if there is no buyer for it. Small-scale producers of solar power usually sell their surplus electricity to power companies, but the companies are not obliged to purchase solar electricity from small producers.

In addition to an inverter, the solar power system may be equipped with a battery, which, in addition to the property's own electricity needs, may be available to the power company through a separate contract to even out demand spikes in the grid area. The battery of an electric car connected to the building's electricity network at the charging station can be used in a similar manner, but it requires suitable charging equipment and an agreement with the power company.

With regard to a solar power system, it is also possible to implement a closed distribution network that can be used to manage the power grid operations of a geographically limited industrial or commercial area. The activities are subject to a permit and regulated in terms of their economy, but the provisions are lighter than those applied to typical distribution networks. A closed distribution network requires a permit referred to in section 11 of the Electricity Market Act. This procedure is not covered by the Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures. More information on the matter is available on the Energy Authority's website (in Finnish).

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by the municipal building control authority's decision on locating community infrastructure equipment under section 161 of the Land Use and Building Act.

Illustrative example: a medium-sized solar power system

A solar power plant with a nominal capacity of 60 kW is located on the roof of a commercial property. The project requires the following permits and administrative procedures:

Action permit (LUBA)

- The installation of solar panels has a significant impact on the cityscape, so an action permit issued by the municipal building control authority is required.

In addition, the plant will be connected to the power grid, in which case the project requires an agreement with the electricity network operator as well as a buyer for the electricity supplied.

Solar power alteration project

In terms of solar power, an alteration project may mean, for example, increasing the number of panels or replacing them with more efficient ones. As of yet, Finland has no experience of alterations of industrial-scale solar power plants. Switching panels to more efficient ones would hardly require a permit process, but increasing the number of panels might require, for example, an action permit. The key factor in the assessment is whether or not the land use and environmental impacts of the plant will change in connection with the alteration project, and to what extent.

Sometimes industrial-scale solar power projects need to be altered even before the construction work begins. The alterations may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

If new land areas are commissioned in connection with the changes and if this may affect the natural values of the area protected under the Nature Conservation Act, a Natura assessment or derogations under the Nature Conservation Act may be necessary. Furthermore, permits under the Antiquities Act (295/1963) and derogations from the protection of aquatic habitat types under the Water Act may also be necessary as the activities expand to new areas.

Heat pumps

Heat pumps are installed in properties, both on a smaller and larger scale, as air source heat pumps, air-to-water heat pumps, exhaust air heat pumps, and ground source heat pumps. On an industrial scale, heat pumps can be installed, for example, to recover heat from industrial processes and surplus heat from wastewater in municipal district heating production.

Table 18. Permits and other administrative procedures that may be required for industrial heat pumps.

Potentially required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Action permit (LUBA, municipal building control authority)
Handling and storage permit (Chemicals Safety Act, Tukes)
Handling and storage notification (Chemicals Safety Act, rescue authorities)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Right to use immovable property
Locating community infrastructure equipment (LUBA, municipal building control authority)

Table 19. Permits and other administrative procedures that may be required for ground source heat pumps.

Potentially required permits and other administrative procedures (law, responsible authority)
Production plant design
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Construction, updating and grid connections of a production plant
Action permit (LUBA, municipal building control authority)
Water permit (WA, Regional State Administrative Agency)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Handling and storage notification (Chemicals Safety Act, rescue authorities)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Right to use immovable property
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)

Table 20. Permits and other administrative procedures that may be required for air source heat pumps, air-to-water heat pumps, and exhaust air heat pumps.

Potentially required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Action permit (LUBA, municipal building control authority)

New heat pump projects

Construction planning

Installing an air source heat pump or air-to-water heat pump on the exterior wall of a building usually requires an action permit in accordance with the Land Use and Building Act, at least when the installation leads to a modification of the façade. The installation of an exhaust air heat pump does not normally require an action permit, but in certain individual cases a permit may be required. It is important to consider the potential protected status of the building and its cultural and historical significance. The façades of such buildings may not be altered.

The requirement for an action permit may be determined in the municipality's building ordinance. The building ordinance is always municipality-specific and, therefore, different municipalities may have different requirements concerning the permit procedure. For example, in some municipalities, a report on the management of the wastewater from the heat pump is required for the permit. It is advisable to check the matter in advance from the municipality's building ordinance and building control authorities to ensure that the official procedures progress smoothly.

The construction of a heating system for a new building is handled as part of the building permit process. If the heating system of an existing building is to be replaced with a ground source heating system, the process primarily requires an action permit. The municipality may exempt the drilling of ground source heat wells in its area either in whole or in part from the requirement for an action permit by means of provisions introduced in the building ordinance and apply the notification procedure instead. An action permit is also needed in situations where a heat well is to be used as an additional source of heat. Drilling a heat well may have an impact on land use in the surrounding area, such as in cases where the utilisation of geothermal heat could limit the equal opportunities of the neighbour. (LUBA, section 126a).

When excavations/earthworks related to a ground source heating system are carried out in the vicinity of a well-known ancient relic, a permit to disturb an ancient relic must be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic. If an unidentified ancient relic is found during the excavation work aimed at the implementation of a ground source heating system, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. These authorities will provide instructions on how to proceed in the matter. If necessary, the contractor shall apply for a permit to disturb an ancient relic from the Finnish Heritage Agency and, if needed, for a research permit as well.

The heat well used by the ground source heat pump may, with the consent of the neighbour in question, be drilled as a diagonal hole extending to the adjacent property. Even the entire energy well and collector circuit can be placed on the adjacent property upon an agreement with the landowner. In such cases, it may be appropriate to establish an easement for the property. The easement safeguards the placement of the equipment on the neighbouring property, even if the owner of said property would change. Provisions on establishing an easement for real estate are laid down in Chapter 14 of the Real Estate Formation Act. The easement contract concluded with the neighbour shall be attached to the application for an action permit.

Drilling a heat well or installing a heat collection pipeline in a water body requires an action permit required by the Land Use and Building Decree. If a shore owner wishes to place a heat collection pipe system in the water body, the owner of the water area must issue their consent to the placement of the structure

Environmental considerations

In groundwater areas, digging a heat well for a ground source heat pump may also require a permit from the Regional State Administrative Agency in accordance with the Water Act. The need for a permit is assessed by the supervisory authorities referred to in the Water Act (ELY Centre and the municipal environmental protection authority). The decision on the permit matter is based on a case-by-case consideration under the provisions of the Water Act. Moreover, the rulings of the Supreme Administrative Court are also taken into account in the permit consideration (for example, KHO: 2015:150 and KHO: 2019:37). If the project requires a water permit, it is advisable to apply for the permit first, as a possible negative decision would prevent the building of the ground source heating system. The Land Use and Building Act does not require such a procedure order, but it is easier if the other necessary permits are already applied for before submitting an application for an action permit.

A geothermal circuit can be installed in an energy well or underground in a collection circuit or, for example, it can be placed at the bottom of a water body. If the installation of a geothermal heat collector circuit demands the use of extensive land areas, the project may require derogations referred to in the Nature Conservation Act from environmental protection regulations, or derogations from the protection of aquatic habitat types under the Water Act.

Safety considerations

The heat recovery liquid used in ground source heating systems is subject to the provisions of the Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (390/2005, Chemicals Safety Act, available in Finnish and Swedish). As a rule, the amounts of hazardous heat recovery liquid used in heat pumps are so low that they do not require a permit or notification under the Chemicals Safety Act. However, it is possible that larger ground source heating systems that are connected to the district heating network may require a permit or notification in accordance with the Chemicals Safety Act for substances such as ammonia which is used as a heat recovery liquid.

Heat pump alteration project

In ground source heating projects, a modification aimed at increasing the plant's capacity means either establishing a new recovery area or drilling a new deeper heat well. Such modifications require an action permit in accordance with the Land Use and Building Act, similarly to a new project. In other words, the permit process does not differ from the permit proceedings required for a new ground source heating project. With regard to other heat pump types, an alteration project may mean, for example, replacing the heat pump with a more efficient device. If the alteration has significant impacts on, for example, the façade, or the technical properties of the equipment change significantly, a new action permit or a permit or notification pursuant to the Chemicals Safety Act may be required.

Indoor unit of a heat pump. © ELY Centre for South Ostrobothnia

Geothermal energy

For the purposes of this manual, geothermal energy projects refer to underground heat transfer systems with a depth of over 500 metres. Deep in the Earth's crust lies a practically inexhaustible reserve of thermal energy that can be utilised for heating purposes. The operating principle is to run water through the soil or bedrock. In a deep geothermal plant, drilling can extend to a depth of 8 kilometres. In so-called enhanced geothermal systems (EGS), the goal is to increase the waterflow between drill holes by widening the existing gaps in the bedrock. When water is pumped into the system with high pressure, it affects the tension in the bedrock and causes the rock surfaces to shift, which is manifested as small earthquakes. In fact, the operation of EGS plants may even cause larger earthquakes, which is why the earthquake risk in the area must be surveyed in advance, and seismic surveillance during the construction phase is necessary.

Geothermal energy is a new form of renewable energy utilisation, which is also reflected in the regulation and licensing pertaining to the activities. So far, only two geothermal heat projects have received a licence in Finland, one in Otaniemi, Espoo and the other in Tampere. In both projects, permit applications under the Land Use and Building Act were submitted to the city's building control authority. At one site, the project was granted an action permit, and the other proceeded with a building permit.

Table 21. Permits and other administrative procedures required for a geothermal energy production plant.

Required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Building or action permit (LUBA, municipal building control authority)

Table 22. Permits and other administrative procedures that may be required for a geothermal energy production plant.

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
EIA (EIA Act, ELY Centre)
Research permit (Antiquities Act, Finnish Heritage Agency)
Natura assessment (NCA)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, Regional State Administrative Agency, or municipal environmental protection authority)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Water permit (WA, Regional State Administrative Agency)
Handling and storage permit (Chemicals Safety Act, Tukes)
Handling and storage notification (Chemicals Safety Act, rescue authorities)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)

Planning of land use and construction

The construction of a geothermal energy plant may not conflict with a land use plan approved for the area (regional plan, local master plan, or local detailed plan). The land use situation at the site and its surroundings must be surveyed with sufficient detail to identify potential risk factors. In the survey, attention should also be paid to the underground structures and functions of the surrounding area, as well as to any plans concerning underground facilities. The land use plans may even include areas reserved for geothermal energy.

The drilling of a heat well intended for the utilisation of geothermal energy requires an action permit, just like any shallower heat well (LUBA, section 126a). If the implementation of the project requires new-built structures, a building permit is required.

Additional information:

- Read more about land use planning in the chapters Regional plan, Local master plan, and Local detailed plan.
- Read more about proceedings pursuant to the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act.
- Read more about procedures regarding ancient relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

Geothermal energy production plants are not included in the list of projects provided in Annex 1 to the Act on the Environmental Impact Assessment Procedure and, therefore, do not automatically require an EIA procedure. However, a geothermal energy production plant may require an EIA procedure based on an individual decision, if the plant is likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act, including when considering the cumulative impacts of different projects (EIA Act, section 3). The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter.

Geothermal energy production plants are not listed as activities subject to an environmental permit in the Environmental Protection Act. A geothermal energy production plant project may require an environmental permit pursuant to the Environmental Protection Act due to, for example, a noise or dust nuisance under section 17 of the Adjacent Properties Act (EPA, section 27). As a rule, if the plant is located in a groundwater area it requires a permit under the Water Act, as the project may change the quality or quantity of groundwater and, consequently, lead to consequences that are subject to a permit under the Water Act.

Additional information:

- Read more about the environmental impact assessment procedure (EIA) in the section Act on the Environmental Impact Assessment Procedure.
- Read more about proceedings referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.
- Read more about procedures under the Nature Conservation Act in the chapters Natura assessment under the Nature Conservation Act and Procedures under the Nature Conservation Act.

Safety considerations

The productivity of an energy well can be improved by means of chemical treatment. In the drilling phase, chemical mixtures are used to enhance the movement of crushed rock and, thus, to clean out the drill hole. If chemicals are used in drilling or production, a permit or notification in accordance with the Chemicals Safety Act may be required.

Seismic monitoring is an essential part of the risk management procedures of a geothermal energy production plant. For example, the City of Espoo authorised the Institute of Seismology to supervise the project in Otaniemi. Even if no such authorisation is made, the Institute of Seismology should be kept informed of the operational stages of the project. The Institute of Seismology is responsible for monitoring seismic activity in Finland, and it is often the first instance of contact in the event of any ground tremor or noise observations. Moreover, depending on the project and its characteristics, it may also be necessary to implement a seismic monitoring system maintained by the project operator.

Hydropower projects

In recent years, hydropower has accounted for approximately 15–25 % of Finnish electricity production. There are still opportunities for additional hydropower construction in Finland, even though the largest potential sites have already been developed, and most of the largest rivers have been harnessed for hydropower production. In fact, attempts to boost the power supply are mainly focused on enhancing the efficiency of the existing power plants. The use of hydropower is subject to specific provisions laid down in the Water Act, and also to specific procedures, such as the procedure on an offer to participate involving the utilisation of joint hydropower (WA, chapter 8, section 5). In terms of size, hydropower plants are divided into large (total rated capacity over 10 MW) and small (total rated capacity under 10 MW) plants. The permit authorities must complete the permit procedures and other administrative approval procedures required for the construction, grid connections, and use of the project within certain time limits, which are discussed in more detail in the chapter Time limits for the permit procedures for renewable energy plants.

Table 23. Permits and other administrative procedures required for a hydropower plant [large (total rated capacity >10 MW), small (total rated capacity <10 MW)].

Required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Water permit (WA, Regional State Administrative Agency)
Notification of the construction and decommissioning of a power plant (Electricity Market Act, Energy Authority): required for large hydropower plants. Otherwise, the requirements are determined on a case-by-case basis.
Building permit (LUBA, municipal building control authority)

Table 24. Permits and other administrative procedures that may be required for a hydropower plant [large (total rated capacity >10 MW), small (total rated capacity <10 MW)].

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
EIA (EIA Act, ELY Centre)
Research permit (Antiquities Act, Finnish Heritage Agency): may be required for large hydropower plants.
Natura assessment (NCA)
Research permit (Expropriation Act, National Land Survey of Finland)
Construction, updating and grid connections of a production plant
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)

Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, municipality)

New large-scale hydropower projects

Planning of land use and construction

The effects of establishing a hydropower plant extend to a wide area. Often these areas are already developed, in which case land use planning is the appropriate tool for determining the impacts of the plant. Regionally significant construction is steered by means of a regional plan, which can be used to promote the implementation of projects by indicating the basic location solutions for significant activities and by steering more detailed planning by means of regulations issued in the regional plan.

Municipal planning creates concrete preconditions for the implementation or development of projects. The local master plan determines how the project relates to the rest of the community structure. The local detailed plan enables construction work in an area when it is necessary to provide the construction with a distinct framework in relation to other land use in the area, and the assessment of the impacts of the plan requires precise control of the location due to the impacts of the construction. Typically, such areas include the surroundings of urban areas, as well as industrial and port areas.

It is important to examine the possibilities of implementing other activities assigned to or planned for the area in the land use plans. For example, if an area is reserved for residential use or for another energy project in the plan, the impacts of the new project may not prevent the implementation of the previously planned land use. The operator should always check that the valid entries are up to date. There may be a need to update the existing plans if the previous assessments and surveys do not correspond to the impacts of the new project.

If the project is located in an area requiring planning, the type and location of the project determine whether a decision concerning the need for planning is sufficient or whether the placement of the project requires land use planning. An energy project can be implemented with a decision concerning the need for planning if the use and environmental values of the area and its surroundings do not set any restrictions on the construction, and there is no significant need for coordination between the construction work and other land use. The matter is assessed by the municipal authorities. In terms of impact monitoring and overall management, it is desirable to base industrial-scale power plant construction on centralisation and land use planning. Moreover, the structures related to a hydropower plant always require a building permit in accordance with the Land Use and Building Act.

In connection with the planning process, an inventory of archaeological cultural heritage will be carried out to determine, among others, whether there are previously unknown ancient relics in the area. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic. Moreover, operators at hydropower sites may encounter relics from previous hydropower construction (rapids), and any tampering with these during construction is most likely subject to a permit to disturb a relic and a research permit.

Environmental considerations

Hydropower plants may require an EIA procedure in accordance with the Act on the Environmental Impact Assessment Procedure. The need for an EIA procedure may arise directly on the basis of section 3, subsection 1 of the EIA Act and the list of projects in Annex 1 of said Act, in which paragraph 3 addresses the construction and regulation of a water body:

- a) dams and other installations where the amount of water or additional amount of water held back or stored exceeds 10 million cubic metres;
- b) reservoirs where the new or additional amount of water held back or stored exceeds 10 million cubic metres;
- c) water body regulation projects if the average flow in the water body exceeds 20 cubic metres per second or the flow and water level conditions will change materially compared with the initial situation;
- d) the transfer of water between river basins where the aim of the transfer is to prevent possible water shortages and where the amount of water to be transferred exceeds 3 cubic metres per second, excluding transfers of piped drinking water.

The construction of a hydropower plant may require an environmental impact assessment procedure on the basis of discretion in an individual case (EIA Act, section 3, subsection 2). Individual decision-making takes into account the characteristics and location of the site, the impacts of the project, and the cumulative effects of different projects. The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter.

The implementation of large projects may require both an EIA procedure and land-use planning on various levels. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

Under the Water Act, the construction of a hydropower plant is always subject to a permit issued by the Regional State Administrative Agency. Construction of a power plant also includes the cleaning out of a water body and making a new channel for the plant. The introduction of hydropower often also involves the start of water regulation. The water permit is contingent on a right of use, regardless of the size of the project and the volume of hydropower to be utilised. In addition to a right of use pertaining to the relevant areas, the applicant must have the right to the hydropower resources to be utilised in the project.

Due to the regulation measures involved, power plant projects often have impacts on land use and on aquatic habitats. When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. Moreover, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be necessary. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that may impact a Natura network area or to conduct a Natura assessment.

Procedures involving power grids

Plans for connecting the hydropower plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. In addition, the hydropower plant may need access rights to place the equipment and cables needed for the grid connections. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act and the electrical cable is built outside the area reserved for this purpose in the plan.

Primarily, land use rights should be agreed upon with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An ex-

propriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area before obtaining the expropriation permit in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by a decision of the municipal building control authority regarding the locating of community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

New small-scale hydropower projects

Small-scale hydropower plants are divided into two power categories: small plants with a capacity of 1–10 MW and mini-hydropower plants with a capacity of under 1 MW. In this manual, all power plants with a capacity of less than 10 MW are considered small hydropower plants. There is very little practical experience of the implementation of mini-hydropower plants in Finland. The procedures that are necessary for hydropower plants with a capacity of over 1 MW are rarely necessary for mini-hydropower plants.

Planning of land use and construction

The effects of establishing a hydropower plant extend to a wide area. Often these areas are already developed, in which case land use planning is the appropriate tool for determining the impacts of the plant. Regionally significant construction is steered by means of a regional plan, which can be used to promote the implementation of projects by indicating the basic location solutions for significant activities and by steering more detailed planning by means of regulations issued in the regional plan.

Municipal planning creates concrete preconditions for the implementation or development of projects. The local master plan determines how the project relates to the rest of the community structure. The local detailed plan enables construction work in an area when it is necessary to provide the construction with a distinct framework in relation to other land use in the area, and the assessment of the impacts of the plan requires precise control of the location due to the impacts of the construction. Typically, such areas include the surroundings of urban areas, as well as industrial and port areas.

It is important to examine the possibilities of implementing other activities assigned to or planned for the area in the land use plans. For example, if an area is reserved for residential use or for another energy project in the plan, the impacts of the new project may not prevent the implementation of the previously planned land use. The

contractor should always check that the valid entries are up to date. There may be a need to update the existing plans if the previous assessments and surveys do not correspond to the impacts of the new project.

If the project is located in an area requiring planning, the type and location of the project determine whether a decision concerning the need for planning is sufficient or whether the placement of the project requires land use planning. An energy project can be implemented with a decision concerning the need for planning if the use and environmental values of the area and its surroundings do not set any restrictions on the construction, and there is no significant need for coordination between the construction work and other land use. The matter is assessed by the municipal authorities. In terms of impact monitoring and overall management, it is desirable to base industrial-scale power plant construction on centralisation and land use planning. Moreover, the structures related to a hydropower plant always require a building permit in accordance with the Land Use and Building Act.

In connection with the planning process, an inventory of archaeological cultural heritage will be carried out to determine, among others, whether there are previously unknown ancient relics in the area. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic. Moreover, operators at hydropower sites may encounter relics from previous hydropower construction (rapids), and any tampering with these during construction is most likely subject to a permit to disturb a relic and a research permit.

Environmental considerations

Small hydropower plants may require an EIA procedure in accordance with the Act on the Environmental Impact Assessment Procedure, although the likelihood of needing the EIA procedure is lower than in the case of large hydropower projects. The construction of a hydropower plant may require an environmental impact assessment procedure on the basis of discretion in an individual case (EIA Act, section 3, subsection 2). Individual decision-making takes into account the characteristics and location of the site, the impacts of the project, and the cumulative effects of different projects. The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter.

Under the Water Act, the construction of a hydropower plant is always included in the list of water resources management projects subject to a permit, which means that the introduction of even a small new hydropower plant requires a permit granted by the Regional State Administrative Agency. Moreover, actions such as cleaning out a water body and making a new channel for the plant are also considered a part of the construction of the power plant. In fact, the introduction of hydropower often also involves the start of water regulation. The water permit is contingent on a right of use, regardless of the size of the project and the volume of hydropower to be utilised. In addition to a right of use pertaining to the relevant areas, the applicant must have the right to the hydropower resources to be utilised in the project. In addition, structures related to a hydropower plant project always require a building permit in accordance with the Land Use and Building Act.

Due to the regulation measures involved, a small-scale power plant project may have impacts on land use and on aquatic habitats. When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. Moreover, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be necessary. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

Procedures involving power grids

Plans for connecting the hydropower plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. In addition, the hydropower plant may need access rights to place the equipment and cables needed for the grid connections. Municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at least

110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas may be agreed upon with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area before obtaining the expropriation permit in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

The project may require access rights to place the equipment and cables needed for the grid connections. To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt). If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by a decision of the municipal building control authority regarding the locating of community infrastructure equipment under section 161 of the Land Use and Building Act.

When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Illustrative example: a small hydropower plant project

A hydropower plant with a total rated capacity of one megawatt is to be located on the site of a decommissioned and ruined hydropower plant. The project requires the following permits and administrative procedures:

Contacting the museum with regional responsibility to determine whether the project concerns archaeological cultural heritage (Antiquities Act)

Water permit (WA)

- The construction of a hydropower plant always requires a water permit from the Regional State Administrative Agency.
- The applicant must, as the owner or holder of the right of use, have the right to the hydropower to be utilised in the project.
- The hydropower plant shall be constructed in a way as that enables fish and other aquatic organisms to pass the dam structures.

Building permit (LUBA)

- The new power plant structure needs a building permit from the municipal building control authority.

Notification of the construction plan and commissioning of a power plant (Electricity Market Act)

- The operator of a power plant with an output of at least one mega-volt-ampere shall submit a notification to the Energy Authority.

In addition, the plant will be connected to the power grid, in which case the project requires an agreement with the electricity network operator and a buyer for the electricity supplied.

Hydropower alteration project

Most hydropower alteration projects involve upgrading old plants. Indeed, the majority of added potential from already developed water bodies is achieved by increasing the efficiency of existing plants.

The EIA procedure based on the list of projects also applies to the modifications and extensions of projects covered by the list, if the change or extension in question meets the determined limits for the project size. Even smaller alterations and extensions may cause significant adverse environmental impacts, in which case the EIA obligation may be applied on the basis of an individual decision on the need for an EIA procedure.

Sometimes projects need to be altered even before the construction work begins. The alterations may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

A water permit is required to modify an already authorised plant if the alteration is significant enough to infringe upon public or private interests. The commissioning of a new hydropower source also requires a water permit and, thus, the right to said energy source. In other words, the permit requirement for an alteration is based on the same impacts that create the need for a permit for new projects. In terms of alterations, the need for a permit is assessed in relation to the existing permit and its terms and conditions. Thus, the need for a permit is also linked to impacts that have not been taken into account in the previous permit.

If new land areas are commissioned in connection with the changes and if this may affect the natural values of the area protected under the Nature Conservation Act, a Natura assessment or derogations under the Nature Conservation Act may be necessary. Furthermore, permits under the Antiquities Act (295/1963) and derogations from the protection of aquatic habitat types under the Water Act may also be necessary as the activities expand to new areas.

The grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt). The alteration project may require access rights to place the equipment and cables needed for the grid connections. To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage of at

least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Expropriation Act and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas may be agreed upon with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or if the line is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area before obtaining the expropriation permit in order to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by a decision of the municipal building control authority regarding the locating of community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

Additional information:

- Read more about land use planning in the chapters Regional plan, Local master plan, and Local detailed plan.
- Read more about proceedings pursuant to the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act.
- Read more about procedures regarding ancient relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.
- Read more about the environmental impact assessment procedure (EIA) in the section Act on the Environmental Impact Assessment Procedure.
- Read more about proceedings referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.

Manufacture of biofuels

The permits required for the production of biofuel vary greatly depending on the type of the fuel, the raw materials used, and the size of the production facility. The production of biogas and hydrogen used as fuels is discussed in separate chapters. The production of liquid biofuels usually involves the utilisation of fats either as such, through combustion, or by refining fats into, for example, biodiesel.

Table 25. Permits and other administrative procedures required for the production of biofuels (liquid biofuel and bioliquid).

Required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Building permit (LUBA, municipal building control authority)

Table 26. Permits and other administrative procedures that may be required for the production of biofuels (liquid biofuel and bioliquid).

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
EIA (EIA Act, ELY Centre)
Research permit (Antiquities Act, Finnish Heritage Agency): may be required for large hydropower plants.
Natura assessment (NCA)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, Regional State Administrative Agency, or municipal environmental protection authority)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Handling and storage permit (Chemicals Safety Act, Tukes)
Handling and storage notification (Chemicals Safety Act, rescue authorities)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)
Using the production facility
Registration of pressure equipment (Pressure Equipment Act, Tukes)

Planning of land use and construction

In general, the production of liquid fuels involves large installations and the placement consideration is usually carried out already at the planning stage, similar to other large-scale energy projects. When deciding on the location of a biofuel production plant, it is essential to ensure whether the current plan allows the plant to be placed on the site. Moreover, the land-use plans for the surrounding plots must be taken into account, as the production plant may not hinder the use of the adjacent plots for the purpose indicated in the plan. There may be a need to update the plan if the surveys carried out in connection with the planning do not cover the impacts of the new project.

Local construction is steered at the municipal level. The municipality decides on the drawing up of plans, so the party planning a project shall contact the municipality at an early stage of the project to explore the possibility of initiating a planning process. The landowner or other titleholder may submit an initiative to the municipality for

drawing up a plan. Consequently, a decision on the proposed planning initiative is made in the municipality. If the planning measures are to be started, certain terms and conditions shall be defined for the process. Furthermore, the process of drawing up a project plan may also come with certain costs, as the municipality has the right to recover the costs of planning from the party on whose initiative the plan is drawn up.

If the project is located in an area requiring planning, the type and location of the project determine whether a decision concerning the need for planning is sufficient or whether the placement of the project requires land-use planning. A biofuel production project can be implemented with a decision concerning the need for planning if the use and environmental values of the area and its surroundings do not set any restrictions on the construction, and there is no significant need for coordination between the construction work and other land use. The matter is assessed by the municipal authorities.

When making plans for land-use planning and construction efforts, potential ancient relics must be taken into account. In connection with the planning process, an inventory of archaeological cultural heritage will be carried out to determine whether there are previously unknown ancient relics in the area. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic.

The construction of a biofuel production plant always requires a building permit in accordance with the Land Use and Building Act. The granting of a building permit depends on the location of the plant. If the area is covered by a local detailed plan, the potential building sites are determined in the plan. If the area is unplanned, the building site will be examined separately.

Additional information:

- Read more about land use planning in the chapters Regional plan, Local master plan, and Local detailed plan.
- Read more about proceedings pursuant to the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act.
- Read more about procedures regarding ancient relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

The production of liquid fuel is subject to an environmental permit if the plant produces at least 5000 tonnes of fuel per year. Under the Environmental Protection Decree, the permit authority is the Regional State Administrative Agency. The manufacture of organic chemicals, such as simple hydrocarbons and oxygen-containing hydrocarbons, is covered by the environmental permit requirements applied to installations covered by the directive.

Based on the list of projects laid down in the Act on the Environmental Impact Assessment Procedure, industrial scale production plants of bioethanol and bio-oil are subject to the EIA procedure (EIA Act, Annex 1). Moreover, the combined effects of different projects may also constitute a need for an EIA procedure (section 3 of the EIA Act). The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter. It is advisable to contact the ELY Centre regarding the possible need for an EIA procedure already at the planning stage of the project.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator can submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may

sometimes be required. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

Additional information:

- Read more about the environmental impact assessment procedure (EIA) in the section Act on the Environmental Impact Assessment Procedure.
- Read more about proceedings referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.

Safety considerations

As a rule, plants producing liquid biofuels are so large in size that they require a permit for the handling and storage of dangerous chemicals as referred to in the Chemicals Safety Act. In addition, a security report or a major accident prevention policy (links in Finnish) pursuant to the Chemicals Safety Act may also be required. When determining the scope of the activities, all hazardous chemicals handled and stored in one location under the same operator's control are taken into account. This process requires a chemical inventory listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are indicated in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio calculator in KemiDigi (the national chemicals data repository and service) (Chemicals Safety Act, sections 23 and 24).

An energy production plant that engages in small-scale handling and storage of chemicals must submit a notification to the regional rescue authority. The rescue authority monitors the compliance and functioning of the technical implementation and operating methods of installations referred to in the chemical safety legislation that engage in minor industrial handling activities, as well as the production facilities' compliance with applicable regulations. (Chemicals Safety Act, section 24). The processing of a notification is presented in the chapter Handling and storage notification. The notification limits are as follows:

- the notification limit for biodiesel is 10 tonnes;
- the notification limit for renewable diesel is 10 tonnes;
- the notification limit for renewable petrol is 1 tonne;
- the notification limit for bioethanol is 1 tonne.

If the production plant has pressure equipment that pose a significant risk under the Pressure Equipment Act, such as LPG containers or steam boilers, the owner or holder of the pressure equipment must register these pressure equipment in the pressure equipment register maintained by Tukes.

Additional information:

- Read more about proceedings under the Chemicals Safety Act in the chapter Procedures under the Chemicals Safety Act.
- Read more about the registration of pressure equipment in the chapter Registration of pressure equipment under the Pressure Equipment Act

Hydrogen production

This chapter of the Manual of Procedures is based on the guide on the safety of hydrogen handling and storage drawn up by the Finnish Safety and Chemicals Agency (Tukes). Renewable or green hydrogen is produced from water by electrolysis using electricity produced with renewable energy. Electrolysis is the most common method of hydrogen production in Finland, but other production methods are also used. Hydrogen can be used as an energy carrier and as a fuel in internal combustion engines or fuel cells. Hydrogen can also be used to produce fossil-free steel when the iron ore concentrate is reduced with hydrogen. Finland has no specific legislation on hydrogen, so like other flammable gases, hydrogen is considered a dangerous chemical.

Table 27. Permits and other administrative procedures required for the production of hydrogen.

Required permits and other administrative procedures (law, responsible authority)
Construction, updating and grid connections of a production plant
Building permit (LUBA, municipal building control authority)
Handling and storage permit (Chemicals Safety Act, Tukes): required if the production plant holds at minimum 2 tonnes of hydrogen.
Handling and storage notification (Chemicals Safety Act, rescue authorities): required if the production plant holds over 100 kg but under 2 tonnes of hydrogen.

Table 28. Permits and other administrative procedures that may be required for the production of hydrogen.

Potentially required permits and other administrative procedures (law, responsible authority)
Land use planning
Planning (LUBA, regional council, or municipality)
Decision concerning the need for planning (LUBA, municipal building control authority)
Deviation decision (LUBA, municipal building control authority)
Production plant design
EIA (EIA Act, ELY Centre)
Research permit (Antiquities Act, Finnish Heritage Agency): may be required for large hydropower plants.
Natura assessment (NCA)
Construction, updating and grid connections of a production plant
Environmental permit (EPA, Regional State Administrative Agency, or municipal environmental protection authority)
Demolition permit (LUBA, municipal building control authority)
Demolition notification (LUBA, municipal building control authority)
Permit to disturb a relic (Antiquities Act, Finnish Heritage Agency)
Derogations from the prohibition of destruction and deterioration of habitat types (NCA, ELY Centre)
Derogation from provisions concerning the conservation of species (NCA, ELY Centre)
Notification of activities that impact a Natura network area (NCA, ELY Centre)
Derogation from the protection of aquatic habitat types (WA, Regional State Administrative Agency)
Construction permit for a transmission pipeline (Government Decree on the Safety of Natural Gas Treatment, Tukes)
Construction permit for a gas storage facility (Government Decree on the Safety of Natural Gas Treatment, Tukes): required if the storage volume of natural gas is at least 5 tonnes.
Gas storage notification (Government Decree on the Safety of Natural Gas Treatment, rescue authority): required if the storage volume of natural gas is over 2 tonnes but under 5 tonnes.
Obstacle permit (Aviation Act, Traficom)
Project permit for building a power cord (Electricity Market Act, Energy Authority, Ministry of Economic Affairs and Employment)
Right to use immovable property
Expropriation permit (Expropriation Act, National Land Survey of Finland, Finnish Government)

Locating community infrastructure equipment (LUBA, municipal building control authority)
Notification of placing a service conduit in a water area belonging to another party (WA, ELY Centre)
Municipal consent (Electricity Market Act, municipality)
Using the production facility
Emissions permit (Emissions Trading Act, Energy Authority)
Registration of pressure equipment (Pressure Equipment Act, Tukes)

New hydrogen plant projects

Planning of land use and construction

When deciding on the location of a hydrogen production plant, it is essential to ensure whether the current plan allows a chemical plant to be placed on the site. Tukes recommends a “T/kem” marking for plots reserved for a large-scale chemical plant. Other suitable land use plan markings for a hydrogen plant include “T” (industrial and storage area), “EN” (energy supply area), and “TT” (site for industrial operations with significant environmental impacts). Moreover, the land-use plans for the surrounding plots must be taken into account, as the production plant may not limit the use indicated in the land use plan for the surrounding plots. The consequences of potential accidents must be limited to the area of the hydrogen production plant. A marking for another type of distribution station may be suitable for a hydrogen distribution station. When placing the distribution station, the surrounding plots and planning regulations must be taken into account.

Building a hydrogen production plant always requires a building permit in accordance with the Land Use and Building Act. The granting of a building permit depends on the location of the plant. If the area is covered by a local detailed plan, the potential building sites are determined in the plan. If the area is unplanned, the building site will be examined separately. An action permit may be sufficient, for example, for the construction of tanks or smokestacks. When building a hydrogen refuelling station, it is advisable to contact the municipal building control authority for instructions.

When making plans for land-use planning and construction efforts, potential ancient relics must be taken into account. In connection with the planning process, an inventory of archaeological cultural heritage will be carried out to determine whether there are previously unknown ancient relics in the area. If an unidentified ancient relic is found during the implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency must be contacted without delay for instructions. If necessary, a permit to disturb an ancient relic may be applied for from the Finnish Heritage Agency. A research permit shall be applied for if it is required in the permit to disturb the ancient relic.

Additional information:

- Read more about land use planning in the chapters Local master plan and Local detailed plan.
- Read more about proceedings pursuant to the Land Use and Building Act in the chapter Procedures under the Land Use and Building Act and Decree.
- Read more about procedures regarding ancient relics in the chapter Permit to disturb a relic and research permit under the Antiquities Act.

Environmental considerations

Based on the list of projects provided in the Act on the Environmental Impact Assessment Procedure, an EIA procedure is required for integrated chemical installations for industrial scale (EIA Act, Annex 1, section 6c). If the plant produces hydrogen by only one chemical process, such as electrolysis, the project not subject to the EIA requirement. However, in the event that other chemical or physical processes, such as methane production, are combined with the production of hydrogen, an EIA procedure is required.

The following projects are not covered by the list of projects in Annex 1 to the EIA Act:

- the plant only produces hydrogen through electrolysis (depending on the location of the plant and other activities related to the project, an individual decision on the EIA procedure may be required).

The following projects are covered by the list of projects in Annex 1 to the EIA Act:

- integrated chemical installations (EIA Act, Annex 1, section 6c) for industrial scale manufacture of, for example, methane;
- installations for storage of hydrogen either in liquid or gas form, if the total capacity of storage containers is at least 50,000 cubic metres (EIA Act, Annex 1, section 8c);
- pipelines intended for the transport of hydrogen with a diameter of more than DN 800 millimetres and a length of more than 40 kilometres (EIA Act, Annex 1, section 8a);
- overhead electrical power lines with a voltage of at least 220 kV and a length of more than 15 kilometres (EIA Act, Annex 1, section 8c).

Hydrogen production may also require an EIA procedure if the plant is likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act, including when considering the cumulative impacts of different projects (EIA Act, section 3 and Annex 1). The regional ELY Centre decides on the need to apply the EIA procedure in individual cases. The party responsible for the project may initiate the matter. It is advisable to contact the ELY Centre regarding the possible need for an EIA procedure already at the planning stage of the project.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning on various levels. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out in connection with the plan in a joint procedure (LUBA, section 9). The project coordinator may submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

The regional ELY Centre is responsible for assessing whether hydrogen production plants require an environmental permit. The assessment shall take into account the production plant as a whole, the hydrogen production method used at the plant, the precursors, and the products. An environmental permit is applied for from the Regional State Administrative Agency or the municipal environmental protection authority (EPA, section 34). In the case of hydrogen production plants, the authority granting the environmental permit is usually the Regional State Administrative Agency. A hydrogen production plan may need an environmental permit for the following reasons:

- the production of inorganic chemicals on an industrial scale (EPA, Annex 1, Table 1, (IED), point 4a);
- the production of organic chemicals on an industrial scale (EPA, Annex 1, Table 1, (IED), point 4b);
- the gasification of coal or other fuels with a thermal input of at least 20 megawatts (EPA, Annex 1, Table 1, (IED), point 5a);
- the gasification of fuels other than coal in installations with a thermal input of less than 20 megawatts and an annual fuel production of at least 3,000 tonnes (EPA, Annex 1, Table 2,
- point 5a); production plants for gaseous fuel with an annual production capacity of at least 5,000 tonnes (EPA, Annex 1, Table 2, point 5b).

The need for an environmental permit may also arise on the basis of the general permit requirement (EPA, section 27). This means that an environmental permit is required if the activities may cause an unreasonable burden in accordance with section 17 of the Adjoining Properties Act. The environmental permit is only granted if the activities are organised in a way that causes the neighbours no such burden that can be considered unreasonable. Furthermore, the plant may require an environmental permit if it is located in a groundwater area (EPA, section 28).

A liquid fuel distribution station requires a registration of activities under the Environmental Protection Act if the total storage capacity of the fuel tanks is at least 10 cubic metres (EPA, Annex 2, paragraph 3). In groundwater areas, the operations of a distribution station require an environmental permit under section 28, subsection 1 of the Environmental Protection Act.

A hydrogen production plant may also need a permit in accordance with the Water Act (water permit) due to, for example, the construction of cooling water intake and discharge structures. The water permit may be needed mainly for water intake or waterway structures required by the project. If the project requires an environmental permit issued by the Regional State Administrative Agency and also a water permit, these shall be applied for jointly, and a single decision will be issued in the matter (so-called mixed project).

When choosing the location for a production plant, it is important to avoid areas in their natural state and areas with natural value, as well as the habitats and natural ranges of protected species. However, derogations under the Nature Conservation Act and derogations from the protection of aquatic habitat types under the Water Act may sometimes be required. When operating near an area belonging to the Natura 2000 network, it may be necessary to submit a notification of activities that impact a Natura network area or to conduct a Natura assessment.

An emissions permit under the Emissions Trading Act (1270/2023) must be applied for if the production capacity of hydrogen gas and synthesis gas exceeds 5 tonnes per day [Emissions Trading Act (1270/2023), Annex 1, paragraph 19].

Additional information:

- Read more about the environmental impact assessment procedure (EIA) in the section Act on the Environmental Impact Assessment Procedure.
- Read more about proceedings referred to in the Environmental Protection Act in the chapter Procedures under the Environmental Protection Act.
- Read more about the emissions permit in the chapter Emissions permit under the Emissions Trading Act.

Safety considerations

The Act on the Safe Handling and Storage of Dangerous Chemicals and Explosives (Chemicals Safety Act, 390/2005, available in Finnish and Swedish) provides the legal foundation for hydrogen production. The following two decrees have been issued on hydrogen production Under the Chemicals Safety Act:

- Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (685/2015, Monitoring Decree; link in Finnish)
- Government Decree on Safety Requirements for Industrial Handling and Storage of Dangerous Chemicals (856/2012, Safety Requirements Decree; link in Finnish)

The permit obligations and supervisory authorities are determined by the scope of the activities, as defined in the Monitoring Decree. The Monitoring Decree contains requirements pertaining to access control, security report, preparation of a major accident prevention policy, emergency plan, and official inspections. The Safety Requirements Decree contains requirements for the location of a production facility from the perspective of preparedness in case of potential accidents.

The Chemicals Safety Act is applied within the territory of the State of Finland. This territory also includes the water areas within the Finnish borders. The use and storage of chemicals on board a vessel are not covered by the Act. Instead, the regulations on the transport of dangerous goods (TDG) are applied in such cases. If the hydrogen production plant or pipeline system is to be located within the exclusive economic zone, the Finnish Government must be contacted.

If the operations of the hydrogen production plant include storing or handling dangerous chemicals, the establishment of the plant requires an assessment of the accident risks caused by the chemicals. In the assessment, particular attention should be paid to sensitive areas (care institutions, schools, and day-care centres) in terms of possible pressure, temperature, and health impacts.

A hydrogen production plant that extensively stores or handles dangerous chemicals requires a handling and storage permit from Tukes in accordance with the Act on the Safe Handling of Dangerous Chemicals and Explosives. When determining the scope of the activities, all hazardous chemicals handled and stored in one location under the same operator's control are taken into account. In order to determine the scope of the activities, a chemical inventory is required, listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are indicated in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio calculator in KemiDigi (the national chemicals data repository and service) (Chemicals Safety Act, sections 23 and 24). The handling and storage of hydrogen is considered to be large-scale if the plant contains at least two tonnes of hydrogen. The permit application shall be submitted to Tukes, which is the supervisory authority for plants of this size.

A hydrogen production plant that engages in small-scale handling and storage of chemicals must submit a notification to the regional rescue authority (Chemicals Safety Act, section 24) by using the notification form (in Finnish). The operations of a plant are considered minor if the plant handles and stores more than 100 kg but under two tonnes of hydrogen. The notification must be made at least one month before the start of handling or storage. The processing of the notification is presented in a process diagram the chapter Handling and storage notification.

When planning the location of a hydrogen distribution station, the factors to be considered are largely the same as for the placement of a hydrogen production plant. These include protective distances from customer facilities (such as a service station store) and other possible fuel and gas tanks and charging stations. The protective distances can be reduced with protective walls. Moreover, operations of a distribution station require an assessment of the risks pertaining to the detachment of the refuelling hose.

Hydrogen is stored and transferred in a pressurised form. Pressure equipment include a tank, pipeline, or other technical assembly that has or may develop an excess pressure of at least 0.5 bar. Under the Pressure Equipment Act (1144/2016), pressure equipment posing a significant hazard must be entered into the pressure equipment register maintained by Tukes. The rescue authorities are requested to carry out a commissioning inspection before commencing the operations. The inspection covers the safe use of the production facility, maintenance and service of equipment, accident prevention, and the organisation of rescue services.

Additional information:

- Read more about proceedings under the Chemicals Safety Act in the chapter Procedures under the Chemicals Safety Act.
- Read more about the registration of pressure equipment in the chapter Registration of pressure equipment under the Pressure Equipment Act

Storage and transmission of hydrogen

A construction permit granted by Tukes is always required for the construction of hydrogen transmission pipelines, meaning pipelines located outside the production plant. The construction permit is only granted when the safety requirements laid down in the Chemicals Safety Act are met (390/2005, chapter 2). In the area of the production plant, the plant operator is responsible for the pipelines, and they are covered by the Pressure Equipment Directive (PED). In contrast, the hydrogen transmission pipelines are located outside the plant area and are not covered by the PED.

Hydrogen can be stored as pressurised gas, and the typical storage pressure is 200–700 bar. The tanks are pressure equipment and, thus, subject to applicable pressure equipment legislation. Liquid hydrogen is stored at a pressure of less than 5 bar. The challenges of liquid hydrogen storage include hydrogen evaporation (boil-off) and the durability of the tank material in terms of the large temperature differences. The temperature of liquid hydrogen is -253 °C. When storing hydrogen, the factors to consider include storage capacity, storage time, and how quickly the hydrogen needs to be used. The storage of hydrogen is challenging because of its properties.

More information on the structures and material recommendations related to hydrogen storage and transmission can be found in Tukes' guide on the safety of hydrogen handling and storage.

Connection to the gas or electricity network

In hydrogen production, substances such as synthetic methane can be produced as a derivative of hydrogen by combining carbon dioxide with hydrogen. If the plant generates gas to be fed into the natural gas network, an agreement is required pursuant to the Natural Gas Market Act (587/2017, available in Finnish and Swedish) with the network operator to connect the plant to the natural gas network.

The construction of a hydrogen production plant may require land areas for purposes such as placing the equipment needed for grid connections. Plans for connecting the plant to the power grid shall be drawn up simultaneously with overall project planning, so that the total impacts of the project can be assessed. A municipal consent referred to in the Electricity Market Act must be obtained for the route of an electrical cable with a nominal voltage

of at least 110 kilovolts, if the right to place the electrical cable is not based on an expropriation permit in accordance with the Act on the Redemption of Immoveable Property and Special Rights (603/1977, Expropriation Act), and the electrical cable is built outside the area reserved for this purpose in the plan.

The right to use land areas may be agreed upon with the landowner. If it is necessary to acquire areas for the project through expropriation, an expropriation permit is required covering either ownership or user rights. An expropriation permit is required if the goal is to build an above-ground power line with a capacity of at least 220 kilovolts and length exceeding 15 kilometres, or a transmission pipeline for gas with a length of over 40 kilometres and a diameter of DN 800 millimetres. An expropriation permit is also required if the cable or transmission pipeline is part of a project subject to the EIA procedure. The prerequisites for an expropriation permit are laid down in section 4 of the act on amending the act on expropriation permits for certain projects impacting the use of the environment (1238/2023). If field surveys are required in the project area to plan the project and determine the need for expropriation, a research permit must first be applied for from the National Land Survey.

If the project requires minor equipment, such as cables, to be placed in the area of another party, the placement may be agreed upon with the landowner. The necessary access rights may also be granted by a decision of the municipal building control authority regarding the locating of community infrastructure equipment under section 161 of the Land Use and Building Act. When minor equipment are placed in water areas owned by another party, a notification of placing a service conduit in a water area belonging to another party shall be submitted to the ELY Centre in accordance with the Water Act, if the equipment are placed under a main channel (such as a river, narrow channel or strait) or a brook. (WA, chapter 2, sections 12–14). A line or cable may be placed in a water area owned by another party, provided that the placement does not cause more than minor harm to the owner of the area. Upon receiving the notification, the ELY Centre will either instruct the notifier to apply for a permit under the Water Act based on possible adverse impacts, or lais down a framework for the implementation of the project. The notification procedure ensures that the notifier receives the necessary information on the need for a permit and guidance for carrying out the actions by causing as little harm as possible. If the project is located in a water area so that a permit is required under the Water Act, permanent access rights may also be granted in connection with the permit to the areas required by the project.

To build a high-voltage power cord, a project permit pursuant to the Electricity Market Act (588/2013) must be applied for from the Energy Authority, if the voltage of the cord is at least 110 kV. In addition, the grid operator's consent is required for connecting the power plant to the grid. Under the Electricity Market Act, electricity producers must also notify the Energy Authority of the construction plan, commissioning, long-term or permanent decommissioning, or power increase of a power plant if the plant capacity is at least one mega-volt-ampere (around one megawatt).

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures, but a production plant may also need procedures outside the scope of this Act. For example, a junction permit is necessary if access to the production plant requires a new junction to a road or the moving or alteration of an existing junction. Construction in the immediate vicinity of roads may create a need for a deviation decision (Highways Act).

Illustrative example: a production plant for hydrogen and synthetic methane

The project coordinator is planning a production plant that produces 7,600 tonnes of hydrogen per year and 15,000 tonnes of synthetic methane per year. Carbon dioxide and hydrogen separated from water by electrolysis produce synthetic methane, which is transported from the production plant through the pipeline network. The production plant requires the following permits and procedures:

Planning (LUBA)

- There is no valid local master plan or detailed plan for the location of the project.

- At the initiative of the project developer, the municipality will launch the preparation of a master plan and a local detailed plan.

EIA procedure (EIA Act)

- The EIA procedure is required directly based on the list of projects, as the plant uses hydrogen for the production of methane [integrated chemical installation (EIA Act, Annex 1, paragraph 6c)].

Environmental permit (EPA)

- An environmental permit is required for the production of inorganic chemicals on an industrial scale (EPA, Annex 1, Table 1, (IED), point 4a).

Building permit (LUBA)

- As a new building, the hydrogen and synthetic methane production plant requires a building permit from the municipal building control authority.

Permit for the industrial handling and storage of chemicals (Chemicals Safety Act)

- A permit issued by Tukes is required because the amount of hydrogen at the plant exceeds two tonnes.

Construction permit for methane transmission pipelines (Natural Gas Decree)

- A permit issued by Tukes is needed because methane is transferred through a pipeline.

Construction permit for gas storage (Natural Gas Decree)

- A permit issued by Tukes is required because the amount of gas stored exceeds five tonnes.

Registration of pressure equipment (Pressure Equipment Act)

- The plant has pressure equipment that pose a significant risk, and these pressure equipment must be entered into the pressure equipment register maintained by Tukes.

Alteration of a hydrogen production plant

The EIA procedure based on the list of projects also applies to the modifications and extensions of projects covered by the list, if the change or extension in question meets the determined limits for the project size. However, even smaller alterations and extensions may cause significant adverse environmental impacts, in which case the EIA obligation may be applied on the basis of an individual decision on the need for an EIA procedure.

Sometimes projects need to be altered even before the construction work begins. The alterations may require that the EIA procedure and the reasoned conclusion issued by the EIA contact authority are assessed to ensure they are up to date. The EIA authority operating under the regional ELY Centre shall assess the need for an EIA procedure or, alternatively, the sufficiency and timeliness of a completed EIA procedure. If the project is subject to the EIA procedure, but the project has not yet been implemented, the project coordinator may request an assessment directly from the EIA contact authority on the timeliness of the reasoned conclusion. Moreover, the permit authority, meaning the building control authority, is also obliged to ensure that the reasoned conclusion is up to date. The building control authority shall request a statement from the ELY Centre on the building permit of a project to which the EIA procedure has been applied (LUBA, section 132). If the original project has already been completed, the EIA authority will assess whether the alteration requires an EIA procedure in accordance with the EIA Act.

The implementation of large projects may require both the procedure laid down in the EIA Act and land-use planning. When a plan is drawn up for the implementation of a project referred to in the EIA Act, the EIA procedure can be carried out together with the plan in a joint procedure (LUBA, section 9). The project coordinator may submit an initiative on a joint procedure to the contact authority (regional ELY Centre). A prerequisite for the joint EIA procedure and planning procedure is that the ELY Centre and the authority responsible for planning must support the initiative.

If the alteration involves additional construction or substantial changes to the use of a building or its parts, the alteration project requires a building permit (LUBA, section 125). If new land areas are commissioned in connection with the changes and if this may affect the natural values of the area protected under the Nature Conservation Act, a Natura assessment or derogations under the Nature Conservation Act may be necessary. Furthermore, permits under the Antiquities Act (295/1963) and derogations from the protection of aquatic habitat types under the Water Act may also be necessary as the activities expand to new areas.

Significant changes to the handling and storage permit referred to in the Chemicals Safety Act require a permit granted by Tukes Other minor changes shall be reported to Tukes (Chemicals Safety Act, section 23, subsection 3). The changes subject to a permit include, for example, the following:

- construction of a new unit or production line;
- comprehensive changes to the process;
- new chemical storage buildings of significant size;
- a large new storage tank or several smaller tanks, i.e. a new tank area.

If the criteria for a change subject to a permit are met, the operator shall apply for a permit for the amendments. For an alteration permit to be granted, however, a commissioning inspection must first be carried out by Tukes. The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- updating the classification or form of chemicals to a more dangerous category;
- changes in the manufacturing method of the chemical, such as an increase in the operating temperature and pressure;
- renewal of the safety automation system;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. The change notification does not require a commissioning inspection by Tukes but, before the change is introduced, the supervisor of the use of chemicals or LPG must provide proof that the legal requirements and the conditions laid down in the decision issued by Tukes are met. The processing of permits and changes is explained extensively on the website of Tukes.

All significant changes to handling and storage operations that require a notification under the Chemicals Safety Act must be reported to the rescue authority (Chemicals Safety Act, section 24, subsection 2). The notification requirement applies to changes such as the following:

- increase in the volume of chemicals of the same hazard class either in the equipment or the storage facilities, increase of 5-10%;
- change of the placement site;
- a new tank;
- a new filling and unloading point for vehicles.

If the criteria for submitting a change notification are met, a notification shall be drawn up. A change notification may require a commissioning inspection by the rescue authority, if this has been separately required in the decision made on the notification. The inspection ensures that the terms and conditions of the decision and the safety requirements of the regulations are met.

With regard to changes in the procedures under the Natural Gas Decree, the procedures related to the storage construction permit and the pipeline construction permit shall be applied. The operator must apply for a permit for the alterations from Tukes, or in the case of minor changes, Tukes must be notified of the changes. Alterations that require a permit include significant extensions of the pipelines or their use, or substantial alterations of the pipeline routes. Alterations that require a notification include minor changes in the pipelines or pipeline routes, and such additions to the pipelines or increase in their use that can be considered minor in comparison to the previous permit decision. Based on the notification, a commissioning inspection may be carried out on a case-by-case basis.

Requirements for permits and procedures

Renewable energy production plants may need a wide range of permits and other administrative procedures, depending on the scope, implementation, location, and environmental conditions of the project. These procedures are carried out by various authorities. The general elements of the procedures are described in this chapter by project phase.

Procedures under the Land Use and Building Act and Decree

General information on the land use planning system

National land use objectives are part of the land use planning system referred to in the Land Use and Building Act (132/1999, LUBA). The objectives are set by the Finnish Government. The purpose of the land use objectives is as follows:

- to ensure that consideration is given to issues of national significance in regional and municipal land use planning and in the activities of state authorities;
- to help achieve the objectives of the Land Use and Building Act and land use planning efforts, the most important of which are a good living environment and sustainable development;
- to act as a medium for proactive and interactive official land use planning measures in issues of national significance;
- to promote the implementation of international conventions and contracts in Finland.

According to section 24 of the Land Use and Building Act, the objectives must be taken into account, and their implementation must be promoted in regional and municipal planning, and in the activities of government authorities.

Regional plan

Regional plans contain a general plan for land use for the entire region or for a specific sub-area therein. The regional plan identifies national, regional, local, and trans-municipal land use needs, and it can also be drawn up for specific sub-areas or in stages to cover one or several specific land use forms. The regional plan steers more detailed planning in the manner laid down in the Land Use and Building Act. When drawing up a regional plan, the relevant content requirements must be taken into account to the extent required by the steering goal and degree of detail of the plan. The regional plan is presented on a map. The plan includes a key to the symbols used and written regulations. The regional plan is approved by the regional council.

General considerations concerning the regional plan

As a rule, the regional plan steers and displays activities that have regional or trans-municipal impacts. Not all methods of energy production are comprehensively addressed in all regions. However, it may be possible to implement a planned activity in terms of land use, as long as it does not prevent or hinder the implementation of other activities indicated in the regional plan. (LUBA, section 32).

The regional land use plan as a whole may consist of an overall plan or several separate plans drawn up in stages or for certain sub-areas, which is why the overall situation and steering impact of regional planning must be examined based on a combination of all regional plans, taking into account all valid regional plan entries. Moreover, the regional plan may also contain general provisions concerning the entire area covered by the regional plan, and these may have an impact on the more detailed planning and implementation of energy production.

Regional land use plans indicate the main intended use of a land area by means of land reservation markings, and functions guiding land use planning are indicated, for example, by means of sub-area markings or site markings. Not all Finnish regions have designated all land areas for specific use by means of land reservations marked

in the regional plan. These so-called "white areas" are unplanned areas with no identified immediate needs for land use steering. These areas are often dominated by agriculture and forestry. The "white areas" are not subject to national, regional or local interests analysed in the regional plan. Furthermore, general regulations and sub-area provisions may also apply to these areas in the regional plan.

As a basic rule, no energy production areas should be placed in areas designated in the regional plan as areas that either already are or are intended to be protected under the Nature Conservation Act and which hold values referred to in the Nature Conservation Act (sites and areas marked with either S or SL). In addition, activities causing environmental hazards shall not be placed in areas reserved for recreational activities (generally marked with a V).

The development needs of national defence, border security and control, civil defence, and security of supply must be secured in the planning of land use. It must also be ensured that the operating capacity of the bodies responsible of these functions is not undermined. Building restrictions are in force in areas designated for the purposes of the Finnish Defence Forces or the Border Guard, in areas designated for transport or technical maintenance networks or zones, and in protection or consultation zones designated in regional plans. The building restriction area may be expanded or reduced in the plan by special provisions.

This chapter does not cover regional plan entries the steering effect of which is based on legislation. However, the planning regulations normally associated with these markings have a steering effect on more detailed planning under the Land Use and Building Act. Such markings can be made, for example, to restrict activities due to, for example, ancient relics and groundwater areas.

Valuable landscape areas indicated in regional plans, sites and areas in the built cultural environment, areas of the Finnish Defence Forces and the associated safety zones, and the protection and consultation zones referred to in the Seveso Directive (2012/18/EU) must be taken into account as necessary in the planning of all different forms of energy production. Moreover, more detailed instructions shall be requested from the responsible authorities, if necessary.

As the regional plan is a general-level plan whose content and level of precision vary between regions, operators planning more extensive energy production plants are advised to contact the regional council in question and check the council’s practices and interpretations pertaining to the steering impacts of the regional plan.

Local master plan

The purpose of the local master plan is to provide general guidance regarding the community structure and land use of a municipality or a part thereof, and to integrate functions. The main purpose of the local master plan is to present the municipality’s land use objectives and to steer local detailed planning. However, a master plan may also be drawn up to steer construction and other land use in a certain area. The local master plan is approved by the local council. The local master plan is presented on a map. The plan includes a key to the symbols used and written regulations. The steering precision of the master plan may vary from a strategic plan to a detailed master plan with land reservations (such as a partial master plan for wind power).

Under the Municipalities Act (410/2015), planning initiatives may be submitted to a municipality, but the decision to draw up a master plan, as well as the process itself, are always the responsibility of the municipality. Under the aforementioned Act, a municipality may recover the costs of drawing up a plan in certain situations. If, for example, a local master plan to steer wind power construction is drawn up primarily on the basis of private interests and on the initiative of the project operator or the landowner or other titleholder, the municipality may recover from them either in full or in part the costs incurred for drawing up the local master plan. The municipality approves the basis for the charge, which is collected by plan area, and the manner and date of payment. The party to which the costs are charged may be the entity responsible for the planned wind power project, the landowner or titleholder, or some other operator, depending on the situation. In addition, the municipality has the right to collect land use compensation if the plan provides a clear benefit to a private party.

Local detailed plan

The local detailed plan is drawn up for the purpose of detailed organization of land use, building, and development. The local detailed plan is primarily approved by the local council, but the council's authority may be delegated in the standing orders to the municipal board or to a committee. Buildings may not be built in violation of the local detailed plan (building restriction). Functions which hinder the use designated for other areas in the local detailed plan may not be located in the plan area. Moreover, functions which are in conflict with regulations issued in the local detailed plan concerning the prevention or restriction of harmful or disturbing environmental impacts may not be located in the local detailed plan area. The local detailed plan is presented on a map. The plan also includes a key to the symbols used and written regulations. The landowner or other titleholder may submit an initiative to the municipality for drawing up a plan. Consequently, a decision on the proposed planning initiative is made in the municipality. Decisions regarding the drawing up of a local detailed plan are always made by the municipality, and the municipality is responsible for the planning process (with the exception of the detailed shore plan). Under the Act, the municipality has the right to recover the costs incurred by the municipality due to the planning process from the party benefiting from the planning project.

Decision concerning the need for planning

According to section 16 of the Land Use and Building Act, an area requiring planning is an area the use of which involves needs that require special measures, such as road, water main or sewer construction or arranging other areas. The need for planning may be based directly on the provisions of the Act, regulations laid down in the local master plan, or the regulations of the building ordinance. Provisions concerning areas requiring planning also apply to construction where the environmental impact is so substantial as to require more comprehensive consideration than the normal permit procedure.

In areas requiring planning, land use must be based on adequate planning measures. As a rule, construction work in an area requiring planning shall be based on the local detailed plan. However, construction may also be based on a decision concerning the need for planning, in which the construction work is assessed more extensively than in the ordinary building permit procedure from the perspective of community development, environmental values, and future land use.

Applications for a decision concerning the need for planning shall be submitted to the municipality. The application shall be accompanied by a map of the surroundings that indicates the location of the area, and a site plan that indicates existing and planned building and any construction activity on the construction site. In addition, the required attachments include a document demonstrating the holding right to the building site, an account of any hearings carried out, an assessment of the key impacts of the project associated with the decision concerning the need for planning, and grounds for the application. A decision concerning the need for planning and a building permit can be applied for at the same time.

Neighbours and others whose living, work, or other conditions may be affected by the project will be consulted during the processing of the application for a decision concerning the need for planning. Statements shall also be requested as necessary from the ELY Centre, other state authorities, and the regional council if the decision concerning the need for planning significantly affects their operations. A statement must also be requested from neighbouring municipalities, if the decision concerning the need for planning has a significant impact on their land use. A statement from the ELY Centre must be requested in certain situations, such as when the area is subject to specific national land use objectives.

Planning needs issues are usually prepared in the municipality either by the planning service or the building control unit. The decision-maker may be the municipal board, a committee (or other multi-member body), or an officeholder. More detailed instructions for submitting an application are often published on the municipality's website, and those interested in further guidance may contact the municipal body responsible for the preparatory work.

Deviation decision

As a rule, all construction work must comply with the valid legislation and the land use plan. However, upon application and for a special reason, the municipality may grant a right to deviate from the provisions, regulations, prohibitions, and other restrictions issued in or under the Land Use and Building Act concerning building and other action. The deviation may be granted, for example, from the provision laid down in a law or decree or from the regulations issued under the building code or building ordinance. Moreover, a deviation may be granted with respect to a land use plan and its provisions. A right to deviate may not be granted concerning provisions on the landscape work permit or the special conditions laid down in legislation for a building permit in areas requiring planning. Provisions on the conditions for deviations are laid down in chapter 23 of the Land Use and Building Act. A right to deviate is granted by the municipality upon application. The following documents shall be included with applications for a deviation (LUBD, section 85):

- a map of the surroundings that indicates the location of the area, and a site plan that indicates existing and planned building and any construction activity on the construction site;
- documents showing that the applicant holds the title to the construction site or is otherwise entitled to apply; and
- an account of any hearings carried out by the applicant. Applications must provide an estimate of the principal impact of the project involving the deviation and the grounds for the application.

Neighbours and others whose living, work, or other conditions may be affected by the project will be heard during the processing of the deviation application. In addition, statements shall be requested as necessary from the ELY Centre, other state authorities, and the regional council if the deviation significantly affects their operations. A statement must also be requested from the neighbouring municipalities if the deviation has a significant impact on their land use.

Deviation decisions are usually prepared in the municipality either by the land use planning services or the building control unit. The decision-maker may be the municipal board, a committee (or other multi-member body), or an officeholder. More detailed instructions for submitting an application are often published on the municipality's website, and those interested in further guidance may contact the municipal body responsible for the preparatory work.

Additional information:

- Regional planning → Regional land use planning (see the website of the regional council).
- Local master planning, local detailed planning → Municipal planning services or planner. If the municipality does not have a planner, operators are advised to contact the municipal building inspector (see the municipality's website).
- Decision concerning the need for planning, deviation from the plan (responsibility of either municipal planning services or building control) → Municipal planning services or planner. If the municipality does not have a planner, operators are advised to contact the municipal building inspector (see the municipality's website).

Building permit

Under the Land Use and Building Act, a building permit is applied for from the municipal building control. The decision on the permit is made by either the building committee (municipal building control authority) or an officeholder. Many municipalities use an electronic service system, such as Lupapiste.fi. Applicants may also initiate their matter through the Permits and Supervision service.

Under section 131 of the Land Use and Building Act, applications shall include proof that the applicant is the titleholder of the building site, and the master drawings for the structure. In addition, section 64 of the Land Use and Building Decree lays down special requirements for appendices in the case of building permits for wind power stations. If necessary, the building control authority may also require other appendices to the application, depending on the nature and extent of the project.

When a building permit application is submitted, neighbours shall be heard in the matter and a notice of the application shall be publicized on the building site. If the project is to be located in an area that has been reserved

for recreation or conservation purposes in the regional plan or in an area important to nature conservation, an opinion on the application shall be requested from the ELY Centre.

Preconditions for a building permit in local detailed plan areas are provided in section 135 of the Land Use and Building Act, while preconditions for a building permit outside local detailed plan areas are provided in section 136 of the Land Use and Building Act. In areas covered by the local detailed plan, the suitability of the construction site for its intended purpose is primarily determined in the plan. After the appeal period has expired, the building permit may also be granted on the basis of an approved local detailed plan that is not legally valid or a local master plan that directly steers wind power construction. In this case, the building permit must stipulate that construction may not be started before the plan has gained legal force. If the plan does not enter into force, the building permit shall be considered void. (LUBA, section 201a).

The building permit decision may be accompanied with necessary regulations. The regulations may concern, for example, how construction work is carried out or action taken, and the limitation of any harm that may be caused by them. The construction work covered by the building permit must begin within three years and be completed within five years of the permit being granted. The local building control authority may extend the validity of a permit or approval to commence the work for a maximum period of two years, provided that the legal conditions required for building and other action are still met. These periods may be extended by a maximum of three years at a time in order to complete the work.

If it is necessary to deviate from the plans approved in connection with the building permit decision (changes during construction work), the building inspector may consent to the deviation if, when considering the quality of the deviation and the provisions and consideration associated with the permit process, the deviation does not entail a significant change to the permit or the position of the neighbours – otherwise the changes require a new building permit. Any significant changes made to special plans during construction work must be submitted to the building control authority, signed by the special designer, before the work phases in question can begin.

If the project also requires an environmental permit, it should be noted that legislation contains specific provisions on the relationship between a building permit and an environmental permit that affect the permit procedure and the conduct of the final inspection of the building (LUBA, sections 134, 153, and 153a). If the project falls within the scope of the EIA procedure, this has an impact not only on the appendices required but also on the overall permit procedure (LUBA, section 132; LUBD, section 66).

The permit applicant or the party carrying out the action is obliged to pay a permit fee to the municipality for inspection and supervision tasks and other official duties. The fee may be charged in advance. If the measure is not carried out either in full or in part, the fee shall be refunded upon application insofar as the fee has been charged in advance for measures that were not implemented.

Action permit

Under the Land Use and Building Act, an action permit is applied for from the municipal building control. The decision on the permit is made by either the building committee (municipal building control authority) or an officeholder. Many municipalities use an electronic service system, such as Lupapiste.fi. Applicants may also initiate their matter through the Permits and Supervision service.

Instead of a building permit, an action permit may be applied for in the case of structures and installations such as masts, containers and smokestacks, if deciding on the permit issue does not, in every respect, require the steering otherwise necessary in construction work. In addition, an action permit is required to install or locate a structure or installation that is not considered a building, if the action has an impact on nature, townscape or landscape or on the use of surrounding land areas.

The Land Use and Building Act specifically lists measures subject to an action permit, such as separate devices (including masts, smokestacks, storage tanks, and wind turbines). An action permit is also required for the installation or construction of a solar panel or collector that significantly affects the cityscape or the environment.

The municipality may provide in the building ordinance that an action permit is not required in the municipality or its parts if the measure in question can be considered minor. Such minor actions that may be exempt from the permit requirement are listed in the municipality’s building ordinance. However, it should be noted that even if a permit is not required, the action must often be reported to the building control authorities. Furthermore, the building control authority may require an action permit even for measures exempted from the permit requirements if this

is necessary to protect public interests or the legal rights of the neighbours. The action may begin if the local building control authority does not, within 14 days of receiving the notification, require an application for a permit for the project concerned to be made. A permit is also not necessary if the action is based on a legally binding plan, a street plan, an approved road plan, or an approved railway plan.

When a matter concerning an action permit is resolved, the provisions on the preconditions for building permits shall be observed as is applicable. The permit applicant or the party carrying out the action is obliged to pay a permit fee to the municipality for inspection and supervision tasks and other official duties. The fee may be charged in advance. If the action is not carried out either in full or in part, the fee shall be refunded upon application insofar as the fee has been charged in advance for measures that were not implemented.

Demolition permits and notification

The demolition of a building requires either a demolition permit in accordance with the Land Use and Building Act or a demolition notification. In an area covered by a local detailed plan, a building or part thereof may not be demolished without a permit. A permit is also required in areas where a building prohibition for the purpose of drawing up a local detailed plan is in force. Moreover, a permit is needed if so required in the local master plan. No permit is required for the demolition of an outbuilding or any other corresponding minor building, unless the building can be considered to be historically important or architecturally valuable, or to be a part of such an entity. Furthermore, no permit is required if a currently valid building permit, street plan, approved road, or railway plan requires the demolition of the building.

Unless the demolition requires a permit, the local building control authority shall be notified in writing of the demolition of a building or part thereof 30 days before the demolition work begins (demolition notification). During said period, the building supervision authority may, if justified cause exists, demand that a permit be applied for. The applicant may also submit an application for a building demolition permit or a demolition notification through the Permits and Supervision service.

Right to commence

In certain situations, the permit authority may grant the right to commence construction work or other action either in full or in part before the permit decision or other similar decision has become legally valid (LUBA, section 144). To be granted the right to commence, the applicant shall provide acceptable sureties as security against any harm, damage, or costs that may be caused by revoking the decision or amending the permit. An operator starting construction work under the right to commence, before obtaining a legally valid permit, does so at their own risk. The court of appeal may annul or amend the decision or otherwise prohibit the enforcement of the permit decision.

Locating community infrastructure equipment

Under section 161 of the Land Use and Building Act, property owners and titleholders are obliged to allow the location of service conduits serving the community or the property in the area they own or hold the title to, unless the location can be organized satisfactorily by some other means and at reasonable cost. The same applies to minor equipment, structures and installations related to service conduits. Unless an agreement has been reached with the property owner or titleholder on the location, the decision concerning it is made by the local building supervision authority.

Established legal practices include interpretations of what is meant by service conduits serving the community or the property. If the conduit is not covered by the provisions of the Land Use and Building Act, the right to place it is acquired in a procedure laid down in the Expropriation Act.

- Supreme Administrative Court ruling KHO 1983 II 109: A 110 kV power line, located in the area of two different municipalities and securing the power supply of a glasswool factory and two cities, was not considered a service conduit serving the community or property as referred to in section 133, subsection 1 of the Building Act.

- Supreme Administrative Court ruling KHO 1995 A 39: A conduit that was not part of the national grid and served mainly the communities within the distribution area of the power supply plant was considered a service conduit serving the community, despite the fact that the conduit was occasionally used to transfer electricity to the national main grid and it was located in the area of several municipalities.
- Supreme Administrative Court ruling KHO:2015:69: A company intended to place power lines as ground cables in areas owned by other operators to create connections between individual wind turbines belonging to the company's wind farm. The conduits were considered to serve the power plant properties, and their placement could be managed under the Land Use and Building Act.

Service conduits or other equipment may not be built so that planning of the area or implementation of a plan is hindered. In addition, causing undue harm to the property shall be avoided when the location is decided on.

The content of the application is not specified in legislation. To assess whether the conditions laid down by law are met, the authorities need at least the following information in connection with the application:

- appropriate and actual information on the properties in the area where the conduit is to be placed;
- a map of the location and a plan extract on request;
- relevant alternatives for the conduit placement;
- a comparison of the costs of implementing the different alternatives, their technical feasibility, the maintenance and operating costs of the conduit, and the harm caused to the landowner.

Interested parties, such as landowners, leaseholders and possibly special rights holders, are heard with regard to the placement application. The right to commence may also apply to decisions on locating equipment. The owner or titleholder of a property is entitled to be paid compensation for harm and damage caused by the location of service conduits or other equipment. Unless an agreement is made on compensation, the matter shall be resolved as laid down in the Expropriation Act.

Act on the Environmental Impact Assessment Procedure (EIA Act)

The EIA procedure is an environmental impact assessment procedure defined in the Act on the Environmental Impact Assessment Procedure (252/2017), which is applied to projects and changes thereof that are likely to have significant environmental impacts. Provisions on the EIA procedure are also laid down in the Government Decree on the Environmental Impact Assessment Procedure (277/2017, EIA Decree).

The goal of the EIA procedure is to avoid or prevent significant adverse environmental impacts of projects. The EIA procedure may be required, among others, for projects involving the construction of a wind farm, hydropower plant, or biogas plant. In these cases, the person responsible for the project shall make sure that the necessary environmental assessments are carried out. During the EIA procedure, the impacts of the project are assessed in connection with planning work and before decision-making, making it possible to influence future decisions and take the assessment results into account in permit considerations and in the actual permit granted for the project.

In the EIA procedure, the significant environmental impacts of the project and its implementation options are identified, assessed, and described. The EIA procedure should be carried out at a sufficiently early stage in the project, so that there are still options available for implementing the project. At that time, the procedure provides information on what the practical implementation of a specific project would mean in terms of the different alternatives, how the available options would affect the environment, and how the harmful impacts could be prevented. The goal is to generate information for the project developer to support their planning and decision-making efforts. Furthermore, the procedure aims to ensure that residents and other parties in the area affected by the project have an opportunity to access information on planned projects affecting the environment, participate in the impact assessments and, thus, influence project planning.

The EIA legislation determines the stages of the procedure and the content requirements of the documents produced in the procedure. These include the developer's assessment programme (EIA programme) and assessment report (EIA report), the contact authority's statement on the assessment programme, and the reasoned conclusion on the assessment report. The ELY Centre steers and supervises the implementation of the EIA procedure in its area of operation, acts as the competent authority in environmental impact assessment procedures, makes decisions on applying the EIA procedure in individual cases, and sees to other tasks assigned to it under the EIA Act and Decree.

Scope of application of the EIA procedure

The EIA procedure is applied to projects either based on the list of projects annexed to the EIA Act or, in individual cases, by the decision of an authority (EIA decision). Moreover, it must be noted that the developer of a project shall be sufficiently aware of the environmental impacts of projects not covered by the EIA procedure to an extent that can reasonably be required.

The list of projects in Annex 1 to the EIA Act indicates the projects to which the EIA procedure must always be applied. Size limits have also been determined for most of the projects. The following are examples from the list of projects:

- thermal power stations and other combustion installations with a heat output of 300 megawatts or more;
- wind farm projects where the number of wind turbines is at least 10 or total capacity is at least 45 megawatts;
- installations where bioethanol or bio-oil is manufactured or produced on an industrial scale.

Sometimes a project may require interpretations of the applicability of the project list. In such cases, the ELY Centre is the competent authority.

The EIA procedure based on the list of projects is also applied to the alterations or extensions of projects covered by the project list. Sometimes the project plan is modified after the EIA procedure has been carried out, but before implementing the project. In such situations, it should be assessed whether the EIA procedure that was already carried out covers the modified plan, as well.

Under section 3, subsection 2 of the EIA Act, the EIA procedure may also be applied to projects not covered by the list of projects or to an alteration of a previously completed project. Such cases involve projects or alterations that are likely to cause significant environmental impacts comparable in type and extent to those of the projects referred to in Annex 1 to the EIA Act, including when considering the cumulative impacts of different projects.

The impacts of similar projects may differ depending on the specific environmental characteristics of the affected area. In particular, projects or project extensions close to the size limit indicated in the list of projects may have significant adverse environmental impacts.

Matters involving the need to apply the EIA procedure are usually initiated at the request of the developer or the permit authority, but the competent authority is also obliged to initiate the decision-making procedure independently if it receives information of a project subject to the assessment obligation. The matter may also be initiated by residents or NGOs in the area affected by the project. The decision on the application of the EIA procedure in individual cases is made by the ELY Centre of the operating area. If the project is located within the operating area of several ELY Centres, the EIA contact authorities of the ELY Centres will agree on who will act as the competent authority.

The project developer shall provide a description of the project and any likely significant environmental impacts thereof for decision-making purposes. The description may also include information related to the characteristics of the project and planned actions aimed at avoiding or preventing any significant adverse environmental impacts caused by the project. Provisions on the matter are laid down in section 12 of the EIA Act, and a list of the information to be provided can be found in section 1 of the EIA Decree. The ELY Centre's decision on the need to apply the assessment procedure may be appealed by the developer to the administrative court and, if they are granted a further appeal permit, to the supreme administrative court.

EIA procedure

The EIA procedure is divided into the EIA programme and EIA report stages as shown in the diagram below. The assessment programme is usually preceded by a prior consultation, although this is not a mandatory part of the process.

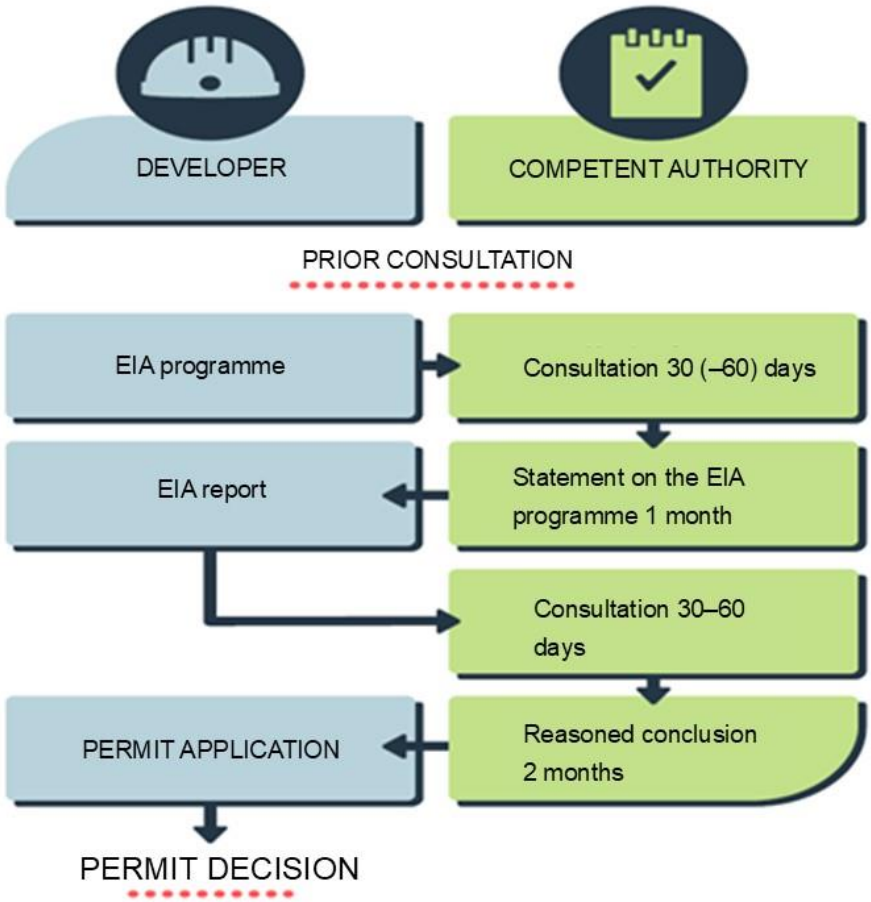


Image 2. Stages of the EIA procedure (source: support material for the competent EIA authority, 6 April 2021).

The key parties to the EIA procedure are the project developer and the competent authority. The developer is the operator or a party that is otherwise responsible for the preparation and implementation of a project referred to in the EIA Act. The EIA legislation requires that the author of the assessment programme and report shall have sufficient expertise for the preparation of the assessment programme and report.

Several other parties are also involved in the EIA procedure, including other authorities and parties whose conditions or interests may be affected by the project (such as residents of areas affected by the project and other parties operating therein). In practice, anyone interested in the project or the EIA procedure can participate in the procedure. In EIA legislation, participation refers to the distribution of information, organisation of consultations, presentation of opinions and views, issuing of statements, and other interactive actions.

Before the submission of the environmental impact assessment programme or during the assessment procedure, the competent authority may hold a prior consultation in cooperation with the developer and key authorities. The goal of the prior consultation is to promote the management of all the assessment, planning and permit procedures required by the project, to streamline the exchange of information between the developer and the authorities, and to improve the quality of the assessment and report documents. The consultation may be initiated by the competent authority, the developer, or other relevant authority.

The EIA programme describes the ways in which environmental impacts are investigated and assessed. In the assessment programme, the developer shall state the necessary information on the project and its reasonable alternatives, and a description of the current state of the environment. In addition, the assessment shall even include impacts whose significance is not yet clear, and which therefore require further investigations. The assessment programme shall contain a proposal for the organisation of the assessment procedure. Provisions on the contents of the assessment programme are laid down in section 3 of the Government Decree on the Environmental Impact Assessment Procedures. The developer of the project shall submit the assessment programme to the competent authority.

After the consultations and statements, the competent authority shall issue a statement on the assessment programme to the developer, who shall take it into account when preparing the assessment report. The purpose of the statement is to help the developer to draw up an assessment report that meets the requirements of the EIA Act. The competent authority's statement shall consider the statements and opinions issued on the assessment programme and summarise them. When a project has transboundary impacts, the competent authority shall also take into account the results of the international consultation.

The developer shall determine the environmental impacts of the project and the different implementation alternatives and prepare an environmental impact assessment report on the basis of the assessment programme and the statement issued on it by the competent authority. The assessment report is a uniform proposal prepared by the developer on the environmental impacts of the project and its alternatives, and it also includes an assessment of the significance of the environmental impacts. Provisions on the content requirements of the assessment report are laid down in general in section 19 of the EIA Act, and a list of the contents of the assessment programme is provided in section 4 of the EIA Decree. The report sets out measures to avoid, prevent, limit, or eliminate identified significant adverse environmental impacts. The report shall also provide details on the monitoring of these impacts, a comparison of the different alternatives, and information on the implementation of the environmental impact assessment procedure. The developer of the project shall submit the assessment report to the competent authority.

After the consultations and statements and after reviewing the adequacy and quality of the environmental impact assessment report, the competent authority shall prepare a reasoned conclusion on the significant environmental impacts of the project. In the conclusion, the competent authority shall state its position on the developer's proposal and express whether or not it agrees with the developer's assessment. The reasoned conclusion shall include a summary of the other statements and opinions given on the assessment report. Moreover, if the project has transboundary impacts, the competent authority shall also take into account the results of the international consultation. The developer of the project shall attach the assessment report and the reasoned conclusion to their permit applications.

The developer of the project is responsible for the costs of announcements, consultations, and environmental impact analysis and assessments, as well as the cost of translations needed to meet the obligations involving the assessment of transnational impacts. The statement and reasoned conclusion issued by the competent authority on the assessment programme are also subject to a fee. General provisions on the liability for costs are laid down in section 38 of the EIA Act. No fee is charged for EIA decisions.

Combining EIA and other procedures

Combining the EIA procedure and the land use plan

If the project sparks both an EIA procedure and a separate land use planning procedure, it is possible to carry out an environmental impact assessment in connection with the planning efforts, coordinate the consultations included in the EIA procedure and project planning, or carry out the procedures separately.

According to section 22 of the EIA Act, the consultations may be coordinated when the EIA procedure and land use plan concerning the project are pending at the same time The coordination of consultations is applicable, for example, to projects for which the procedures cannot be combined.

The EIA procedure may also be carried out in a joint procedure with the plan drawn up for the project. In this case, the land use and building legislation is applied. Further provisions on the progress of the joint procedure are laid down in the Land Use and Building Decree. The municipality is responsible for assessing the impacts of the plan. In the EIA procedure, the environmental impacts of the project are assessed by the developer of the project.

The procedures may only be combined in the case of planning of an EIA-related project, in which the plan or an amendment thereof is drawn up to enable the implementation of the project in question. It is possible to combine procedures at the local master plan or local detailed plan level. A precondition for combining the procedures is that the competent authority and the authority responsible for planning agree on the matter (EIA Act, section 5). The developer of the project has the right to take the initiative on combining the procedures. The competent authority is the most appropriate recipient of the initiative.

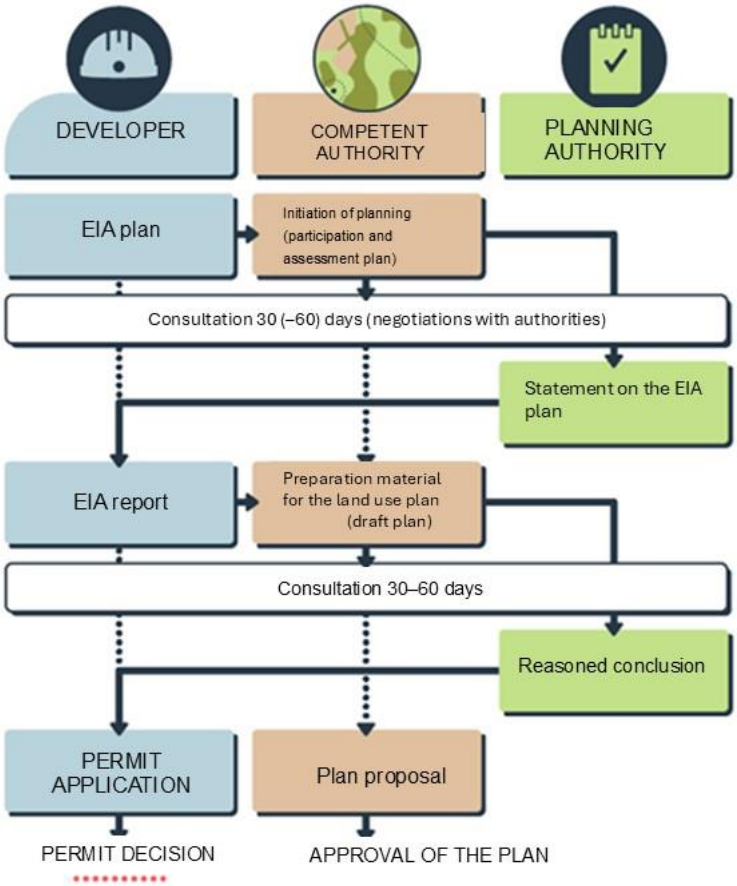


Image 3. EIA procedure for project-related planning (source: support material for the competent EIA authority, 6 April 2021).

When the EIA procedure is combined with planning measures, the environmental impacts of the project are assessed in connection with the planning work associated with the project. The authority responsible for planning is in charge of the implementation of the joined procedure (LUBA, section 9; LUBD, sections 30a and 30b). It is the

task of the competent EIA authority to verify that the environmental impact assessment has been sufficient in terms of content. The tasks of the competent authority include preparing a statement on the environmental impact assessment plan (corresponding to the assessment programme under the EIA Act) and issuing a reasoned conclusion. In this procedure, the tasks of the developer of the project are substantially the same as in the procedure under the EIA Act.

Combining the EIA procedure with the Natura assessment

As a rule, the EIA procedure should be combined with a Natura assessment referred to in the Nature Conservation Act (NCA, section 35). The obligation to carry out a Natura assessment may arise either based on the impacts of an individual project or on combined effects (other projects and plans). The starting point for a Natura assessment is an evaluation of the impacts on the natural values on which the selection of a specific Natura 2000 site is based, and the goal is to provide the authorities approving projects or confirming plans with assurance that the implementation of said projects and plans will not have any significant negative impact on the integrity of Natura 2000 sites.

From the perspective of the developer, including the Natura assessment in the EIA procedure may reduce the overlap of nature surveys and speed up the processing. Combining the two processes may help in conveying information on the environmental impacts to the different parties and, in some cases, also promote the collection of information, as a separate Natura assessment does not include any statutory participation procedures. Although combining the assessments is the main rule, the assessments can also be carried out separately in exceptional cases, such as when completing a comprehensive Natura assessment is not yet possible with the project information available at that state of the EIA procedure.

Combining the EIA procedure and the Natura assessment means that the EIA procedure shall include a sufficiently detailed assessment of the impacts on the natural values of Natura 2000 sites. In this case, the nature impact assessment must meet the requirements laid down in both the EIA Act and the Nature Conservation Act.

Coordination of the EIA procedure and permit procedures

As a rule, the need for studies included in the EIA procedure and in the permit procedure concerning the project must be coordinated to avoid completing overlapping studies (EIA Act, section 4). If an EIA procedure and an environmental permit application under the Environmental Protection Act are pending at the same time, the assessment report may be consulted in the context of consultations regarding the permit application, provided that the following conditions are met (EIA Act, section 22; EPA, section 44 a):

- The environmental permit application concerning the project falls under the jurisdiction of the state environmental permit authority.
- There is no feasible alternative for implementing the project in terms of its location, scope and technical characteristics, other than the one presented in the project permit application.

The so-called zero option related to the assessment procedure is not considered a feasible option. The coordination process is most often applied to modifications of existing operations, and it is only intended to apply to entirely new projects in exceptional circumstances. Coordination measures are agreed upon between the competent authority and the permit authority on the developer's initiative. If the application for a permit under the Water Act and the supplementing of the assessment report referred to in section 27 of the EIA Act concerning the same project are pending at the same time, the permit authority may consult on the assessment report while carrying out consultations associated with the water permit application. (WA, section 11a; EIA Act, section 27).

Additional information:

- EIA – assessing the environmental impacts of projects (in Finnish and Swedish), Ministry of the Environment (ymparisto.fi)
- Support material for the competent EIA authority, 6 April 2021 (in Finnish), Ministry of the Environment (ymparisto.fi)

Procedures under the Nature Conservation Act

With regard to the procedures laid down in the Nature Conservation Act (9/2023), the scope of the Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the Natura Assessment (NCA, section 35), the notification procedure concerning activities that impact a site belonging to the Natura 2000 network (NCA, section 37), derogations from the prohibition of destruction and deterioration of habitat types (NCA, section 66), and derogation from provisions concerning the conservation of species (NCA, section 83). As a rule, however, projects must be planned in a way that causes no negative impacts on nature, thus eliminating the need to initiate deviation procedures. The same applies to Natura sites, meaning that the primary goal is to avoid deterioration.

Natura assessment under the Nature Conservation Act

Provisions on the Natura assessment are laid down in section 35 of the Nature Conservation Act. According to the Act, a project or plan may not, either individually or when combined with other projects, cause a significant deterioration in the nature values due to which the site has been reported, proposed, or included in the Natura 2000 network. An assessment shall be carried out if a project or plan, either individually or in combination with other projects and plans, is likely to cause a significant deterioration in nature values of a site included in or proposed to be included in the Natura 2000 network for the conservation of which the site has been included or is intended to be included in the Natura 2000 network. The authority issuing a permit or approving a plan for such an area shall ensure that the assessment is carried out. The authority shall request a statement on the assessment from the ELY Centre and from the party in whose possession the nature conservation area is. The obligation to carry out an impact assessment under the Nature Conservation Act arises if the impacts of the project

- target the nature values on which the protection of the Natura site is based;
- are by their nature detrimental to nature values;
- are significant in terms of their quality;
- will, according to an advance evaluation, affect the nature values at the site.

The assessment must always be carried out, unless it is completely ruled out based on an objective analysis that any projects or plans would have a significant impact on the site's conservation objectives, either separately or in combination with other projects or plans. This applies to actions targeting the Natura site but also to projects that take place outside the site but whose impacts extend to the Natura site. However, activities that alter the natural environment may also be carried out within the Natura site, if they do not significantly weaken the grounds for the protection of the site.

The assessment obligation applies to areas listed in Government decisions that have been declared as SCA areas, SPA areas, or proposed as SCI areas, or that have already been included in the Natura 2000 network by a decision of the Commission. SAC areas are special areas of conservation under the Habitats Directive, SPAs are special protection areas under the Birds Directive, and SCIs are sites of community importance which are proposed as areas of special conservation. The assessment process extends also to projects on which, as announced by the Commission, negotiations will begin with the aim of including them into the Natura 2000 network.

Additional information:

- Natura 2000 areas in Finland (ymparisto.fi)
- Ecological Surveys and Ecological Impact Assessment (abstract in English). Reports of the Finnish Environment Institute 43/2023. Finnish Environment Institute (syke.fi)
- FCG 20.11.2019. Halsua wind farm. Natura assessment, section 65 of the Nature Conservation Act (in Finnish).

Notification of actions that cause significant deterioration to a Natura 2000 site

It is forbidden to cause significant deterioration to nature values on the basis of which sites included in the Natura 2000 network are conserved. These nature values are either specific species and their habitats or certain other

habitats. For this reason, the ELY Centre must, under section 37 of the Nature Conservation Act, be notified of measures taken in or near a Natura 2000 site if they may result in a deterioration prohibited by law at the Natura 2000 site. A notification is not required for measures that are based on a decision or permit issued by an authority, or which require a notification on the basis of other legislation.

The notification obligation applies to actions taken either within or near a site included in the Natura 2000 network if the measure in question may have a significant negative impact on the nature values on the basis of which sites included in the Natura 2000 network are conserved. These nature values refer to specific habitats or to species and their habitats that are part of the conservation objectives of the site in question. A measure may always have a significant negative impact on the conservation values of a Natura 2000 site, if the measure or its impacts are directly targeted at an individual of a species or its habitat, or at a specific habitat, due to which the Natura 2000 site is protected. In this case, the notification should be made.

The ELY Centre is responsible for assessing whether these impacts are significant enough to merit restrictions on the measure in question. For example, all excavations of soil or waterbed, the clearing out of vegetation, and any other activities that alter nature at a Natura 2000 site should be reported to the ELY Centre. In contrast, activities outside the Natura 2000 site rarely require a notification.

The notification shall be made to the ELY Centre in writing at least 30 days prior to taking action. The notification may be submitted online in the e-service (in Finnish) or by using an existing form (available in Finnish) and sending it by e-mail or post. The notification shall be regarded as delivered once it has arrived at the ELY Centre. The notification may also be submitted electronically through the Permits and Supervision service.

The purpose of the notification is to allow the ELY Centre to, whenever necessary, guide the party responsible for the action to implement it in a manner that causes no harm to the nature values of the site. If the intended measure would cause impacts prohibited by law, the ELY Centre shall consider to what extent the measure needs to be restricted and, if necessary, issue a decision on the matter. The notification shall be made 30 days prior to taking action. After the deadline has expired, the measure may be implemented unless the ELY Centre has posed restrictions on it by its decision. The notification shall contain information on the measure, the manner of its implementation and its impacts on the conservation objectives of the Natura site. Provisions on the content of the notification are laid down in section 3 of the Government Decree on Nature Conservation (1066/2023, available in Finnish and Swedish).

To ensure the smooth handling of the matter, the notification shall contain sufficiently precise information on the intended measure. It is particularly important to describe the content, scope and targeting of the measure in detail. The timing and duration of the measures are also important, especially when considering the significance of disturbances to species.

It is advisable to attach a detailed map of the area to the notification, demonstrating the exact location and extent of the measure. For example, in the case of construction of a road or other service line, a report including a detailed map is usually needed. As a rule, the location of the measure must be indicated by means of the property identifier and by stating the municipality where the property is located. If the measure targets or affects several properties, the location of the measure can also be indicated with sufficient accuracy on a map, without the need to clarify the details of the properties located in the area. In this case, it is also not necessary to find out the contact details of the property owners.

Providing a description of the impacts of the planned measure does not require a detailed Natura assessment referred to in section 35 of the Nature Conservation Act. In the notification, the party responsible for the measure presents their views on the impacts of the measure based on their own expertise, taking into account the quality and implementation method of the measure and the location of the measure in relation to the Natura site.

Additional information:

- Notification obligation regarding actions that cause significant deterioration to a Natura 2000 site (in Finnish). Environmental Administration (ymparisto.fi).

Derogations from the prohibition of destruction and deterioration of habitat types

Under section 66 of the Nature Conservation Act, the ELY Centre may grant an exception to the prohibition of deterioration of conserved and strictly protected habitat types referred to in sections 64 and 65 of the Act if:

- the conservation objectives of the habitat type are not considerably jeopardised due to the project;
- the project is of very high public interest and its implementation is prevented due to the conservation of the habitat type;
- there is no technically or economically feasible alternative for the implementation of the project.

The party applying for a derogation shall have data on the impacts of the project and on alternative solutions aiming at an outcome with as little harm to the environment as possible. The authorisation of a derogation may be applied for through the local government e-service (in Finnish and Swedish). More instructions are available on the ELY Centre's website on derogations from the provisions on nature conservation (in Finnish and Swedish). The authorisation to derogate from the protection provisions is issued for a fixed period and it remains valid for a maximum of ten years at a time. If the project is transferred to another party, the transfer of the authorisation to derogate shall be applied for from the ELY Centre (NCA, section 66).

Derogation from provisions concerning the conservation of species

All mammals, birds, reptiles and amphibians occurring wild in Finland are protected under section 69 of the Nature Conservation Act, with the exception of game animals and unprotected animals referred to in section 5 of the Hunting Act (615/1993). Provisions on the protection of these species are laid down in the Hunting Act. Other animal species protected under the Nature Conservation Act are listed in Annex 1 to the Government Decree on Nature Conservation (1066/2023). Provisions on the protection of plant species are laid down in section 74 of the Nature Conservation Act. The protected plant species are listed in Annexes 3–5 to the Government Decree on Nature Conservation. Provisions on species subject to special conservation measures are laid down in section 77 of the Nature Conservation Act, and the species are listed in Annex 6 to the Government Decree on Nature Conservation.

With regard to protected animal species, it is forbidden to deliberately kill or capture specimens, take into possession, transfer to another location or otherwise damage nests or other refuges and eggs or other development stages of specimens, and to deliberately disturb any specimens. The marked nesting trees of protected birds and the repeatedly used nesting trees of large birds of prey are protected. It is prohibited to pick or destroy a protected plant or its part. (NCA, section 70).

These protection provisions do not prevent the use of the area for agriculture, forestry or construction activities, or the appropriate use of a building or equipment. In such cases, however, damage to or disturbance of protected animals and plants shall be avoided where possible without significant additional costs. The derogation referred to above does not apply to protected bird species or species listed in Annex IV to the Habitats Directive. (NCA, section 82).

Some species are protected under the Nature Conservation Act. According to section 78 of the Nature Conservation Act, the animal species specified in Annex IV and plant species specified in Annex IV(b) to the Habitats Directive are species in need of strict protection. Provisions on species in need of strict protection in Finland are laid down in the Government Decree on Nature Conservation. (NCA, section 78).

Under section 83 of the Nature Conservation Act, derogations from the protection provisions on the animal and plant species listed in Annex IV to the Habitats Directive and on species occurring wild in Finland may only be granted on strictly defined grounds, which are laid down in section 83 of the Nature Conservation Act. The derogation criteria referred to in section 83 of the Nature Conservation Act apply to the nesting trees of large birds of prey, to plant species, and to the localities, breeding sites, and resting areas of animal species (NCA, section 70, sections 73–74 and sections 77–79). A derogation may be granted if:

- there is no other satisfactory solution, and
- the derogation does not have adverse impacts on the preservation of a favourable conservation status of the species in question, and

- the derogation is based on one of the following reasons:
    - a) conservation of wild fauna and flora or preservation of habitat types;
    - b) preventing particularly serious damages concerning crops, livestock production, forests, fisheries or waters or other types of property;
    - c) interests of public health and public safety, or other imperative reasons of overriding public interest, including those of a social or economic nature, and if the derogation has benefits of primary significance for the environment;
    - d) for the purposes of research and education, re-population or re-introduction of these species or for the propagation measures necessary for these purposes, including the artificial propagation of plants;
    - e) selective and restricted collection and possession of specimens of the species in question under strictly controlled conditions, within the limits defined by the national competent authorities.

Derogations concerning the disturbing, hunting and killing of birds are processed by the ELY Centre for Southwest Finland. The authorisation for a derogation may be applied for through the local government e-service or by submitting a free-form application to the registry of the ELY Centre for Southwest Finland. If the application for a derogation concerns plants or animals other than birds, the application will be processed by the ELY Centre in whose area the planned measure would take place. A free-form application must be submitted to the registry of the regional ELY Centre in question.

If the application for a derogation pertaining to plants or animals other than birds concerns the whole country, the application is processed by the Ministry of the Environment. The application shall be submitted to the registry office of the Ministry of the Environment. Moreover, applicants may, if they so desire, initiate a procedure referred to in section 83 of the Nature Conservation Act through the Permits and Supervision service.

Additional information:

- Authorisation to derogate from the protection provisions on species (in Finnish and Swedish). Environmental Administration (ymparisto.fi).
- Authorisation to derogate from the prohibition to alter habitats (in Finnish and Swedish). Environmental Administration (ymparisto.fi).
- Presentation of the species (except for bats) in Annex IV of the European Union's Habitats Directive (abstract in English). Finnish Government (valtioneuvosto.fi).

Voluntary ecological compensation

Ecological compensation means offsetting a deterioration caused to species and habitats by improving their status elsewhere. As a rule, all deterioration should be avoided and minimised. In ecological compensation, the deterioration caused to a habitat or species may be compensated for in two ways, through offset measures or conservation offsets. (NCA, sections 3 and 98).

Offset measures are used to return a site the nature values or condition of which have deteriorated to a restoration process towards the desired state in terms of biodiversity. The measures can be used to increase the surface area of the habitat type or habitat of a species. For example, blocking the ditches in a drained mire may constitute an offset measure. In turn, a conservation offset means the permanent conservation of a threatened habitat, and it produces a better ecological outcome than the offset measures. (NCA, sections 99–100).

A deterioration in a threatened habitat type or species shall be offset by means of measures targeted at a habitat of the same species or the same habitat type. If this is not possible, the deterioration shall be offset by means of measures targeted at a corresponding species or habitat. More information on the criteria for compensation can be found in the Ministry of the Environment Decree on voluntary ecological compensation (933/2023, in Finnish and Swedish). (NCA, section 101).

Landowners may generate nature values as advance offsets by means for use in ecological compensation. In this case, the target of the offset is not yet known. In the future, the landowner may sell the generated nature values to some other party who will use them to offset the deterioration of nature values. The landowner shall formulate an offset plan for the generation of nature values, which contains information on the site used in offsetting and its nature values prior to the offset measures, and a list of the offset measures to be implemented, their time

frame, and the party implementing them. (NCA, section 103). More information on the content of the offset plan can be found in section 103 of the Nature Conservation Act and the decree of the Ministry of the Environment on voluntary ecological compensation (section 6).

The ELY Centre shall issue an opinion on the offset plan before the implementation of the offset measures. The opinion shall be sent for information to the municipality and the regional council where the offset site is located. (NCA, section 103). The opinion can be requested through the local government e-service. After the implementation of the offset measures, the ELY Centre shall issue an opinion on the quality and quantity of the nature values. With regard to compensation offsets, the opinion is already issued after the preparation of the offset plan. (Syke, 2024, 205).

If the landowner so wishes, information on the generated nature values is published in the compensation register, where an operator that deteriorates nature values may look for offsets produced by others. The landowner may sell the generated nature values to some other party who will use them to offset the deterioration of nature values. The operator deteriorating nature values shall pay compensation to the producer of nature values either as a lump sum or an annual payment if continuous management measures are carried out on the land. The amount of the fee is agreed between the producer of nature values and the party deteriorating them. (Syke, 2024, 205–207).

A party causing a deterioration may apply to the ELY Centre for a decision on the equivalence of an offset. The application shall contain information on the nature values of the impacted site prior to the deterioration, and an assessment of the deterioration caused to nature values. The application shall include details on the nature values generated by means of offset measures or conservation offsets. The ELY Centre will approve the application if it meets the requirements laid down in sections 99–101 of the Nature Conservation Act. When the nature values produced are used for compensation, the ELY Centre shall issue a prohibition on the destruction and deterioration of the nature values of the offset site.

Additional information:

- Generation of nature values. Ministry of the Environment (ymparisto.fi)

Procedures under the Environmental Protection Act

Environmental permit

Under the Environmental Protection Act (527/2014), activities that pose a risk of environmental pollution are subject to a permit. The environmental permit may include provisions on, for example, the scope of the activities, emissions, and how to reduce them. The preconditions for granting the permit include, among others, that the activities may not cause harm to health or significant environmental pollution or risk thereof. An environmental permit is applied for from the permit authorities stated in the Environmental Protection Act and the Government Decree on Environmental Protection (713/2014), meaning the Regional State Administrative Agencies or the municipal environmental protection authorities.

As a rule, the permit application shall be submitted to the permit authority electronically. The applicant may initiate the matter through the Permits and Supervision online service. A permit application submitted to the Regional State Administrative Agency may also be sent via the local government e-service. The systems will guide the applicant to fill in the necessary information. If necessary, a natural person acting as the operator may fill out the permit application and its appendices in paper form. The Finnish environmental administration's common permit forms can be found on the ymparisto.fi website.

Provisions on the content of the application are laid down in section 39 of the Environmental Protection Act and section 3 of the Environmental Protection Decree. The information to be attached to the application as necessary is listed in section 4 of the Decree. If the activity concerns the recovery or disposal of waste, the application must be accompanied by a report, the contents of which are described in section 6 of the Environmental Protection Decree. If the plant or activity causes emissions to a water body, the mandatory content requirements of the permit application are laid down in section 5 of the Environmental Protection Decree. If the operations are to be placed in a groundwater area suitable for water supply use, section 7 of the Environmental Protection Decree contains a list of additional information required for the permit application.

Under section 48 of the Environmental Protection Act, an environmental permit shall be issued if the activity fulfils the requirements of the provisions given in and under the Environmental Protection Act and the Waste Act. The permit authority shall investigate the conditions for granting the permit and shall take into account the statements issued and the objections and opinions submitted on the matter. The permit authority shall also take into account provisions issued on the protection of the public and private interest. Provisions laid down in and under the Nature Conservation Act shall be complied with when deciding on a permit matter. A permit application concerning a substantial change in an activity shall be resolved in such a way that the consideration takes into account those parts of the activity that the substantial change may affect and the environmental impacts and risks that may be caused by the change.

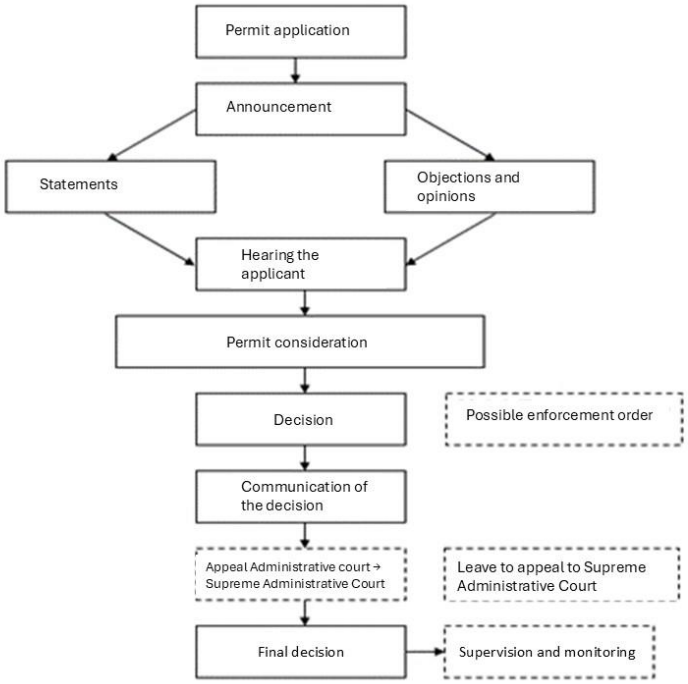


Image 4. Stages of the environmental permit procedures (ymparisto.fi).

The environmental permit decision shall lay down the necessary regulations. When permit regulations are issued, the nature of the activity, the characteristics of the area where the impacts of the activity occur, the impacts of the activity on the environment as a whole, the significance of the measures, to the environment as a whole, intended to prevent environmental pollution, and the technical and financial feasibility of implementing these measures shall be taken into account. Permit regulations concerning emission limit values and the prevention and limitation of emissions shall be based on the best available techniques. The permit regulations, however, shall not oblige the operator to apply only one specific technique. In addition, energy efficiency and efficiency in the use of materials, and precautions for preventing accidents and limiting their consequences shall be taken into account as needed. Furthermore, provisions on the permit consideration for an installation covered by the directive are laid down in chapter 7 of the Environmental Protection Act.

As a rule, an environmental permit is valid until further notice However, the permit may also be issued for a fixed term. In the permit decision, the permit authority may at the request of the permit applicant and for a justified reason order that the activity may be initiated in accordance with the permit decision regardless of an appeal, provided that the applicant provides an acceptable guarantee. Provisions on the financial guarantees for waste treatment operations are laid down in sections 59–61 of the Environmental Protection Act.

If a project requires an environmental permit and is also linked to other environment-related permits, the applicant may request the permit processor (Regional State Administrative Agency or the municipal environmental protection authority) to coordinate the permit procedures in accordance with the Act on Integration of Certain Environmental Permit Procedures (764/2019, in Finnish and Swedish). More information on the matter is available on the website ymparisto.fi. Provisions on experimental actions associated with new projects are laid down in section 31 of the Environmental Protection Act, and provisions on the notification required for such an activity can be found in section 119 of the same Act.

Additional information:

- Environmental permit (in Finnish and Swedish). Ministry of the Environment (ymparisto.fi)

Registration of activities

Provisions on the registration notification for the registration of an activity are laid down in section 116 of the Environmental Protection Act and, for medium-sized energy production plants, also in the Government Decree on Environmental Protection Requirements for Medium-sized Energy Production Units (the PIPO Decree). Registration is required for activities listed in Annex 2 to the Act, such as an energy production plant with a thermal input of at least 1 but under 50 megawatts, and where the thermal input of each energy production unit fired with solid fuels is under 20 megawatts. When determining the thermal input of an energy production plant, all energy production units of at least 1 megawatt but under 50 megawatts located within the same installation site shall be included in the calculation. However, the activities subject to registration still require a permit when:

- the activity is part of the operations of an installation covered by the directive;
- the activity may cause pollution of a water body, and the project in question is not one requiring a permit under the Water Act;
- conveying wastewater from the activities may lead to the pollution of a ditch, spring, or streamlet;
- the activity may place an unreasonable burden on the surroundings as referred to in section 17 of the Adjoining Properties Act;
- the activities are to be located in a groundwater area important to water supply or otherwise suitable for such use (for more details, see section 30 of the EPA).

A registration notification on a medium-sized energy production plant shall be submitted to the municipal environmental protection authorities at the latest 30 days before the activities are started. For a distribution station for liquid fuel with a total fuel tank volume of at least 10 m³, the registration notification shall be submitted at the latest 60 days before the activities are started. Provisions on the content of the registration notification are laid down in section 117 of the Environmental Protection Act. The notification shall contain the information required for registration of the operator, the activity, and its location and impacts. More detailed requirements concerning the registration notification on medium-sized energy production plants are laid down in section 4 of the PIPO Decree.

The registration forms and instructions regarding a medium-sized energy production plant can be found on the ymparisto.fi website. Applicants may also initiate their matter through the Permits and Supervision service. If the registration notification is incomplete, the municipal environmental protection authority must ask the operator to supplement it. In this case, the time limits for registration are calculated from the date on which the registration notification meets the content requirements set for it.

Registration is by nature a recording measure in which no administrative decisions are taken or orders issued. The municipal environmental protection authority shall register the activity within the time limit described above. The activity may commence once it has been registered. The authority must notify the operator of the registration without delay.

After the registration is completed and the operations have commenced, the supervisory authority shall visit the site to carry out an inspection in accordance with the supervision programme and monitor that the activities comply with the registration and the Decree. The inspections are subject to a fee, and the amount of the fee is determined according to the municipality-specific rate.

Additional information:

- Medium-sized energy production plants (in Finnish and Swedish). Ministry of the Environment (ymparisto.fi)
- Registration procedure (in Finnish and Swedish). Ministry of the Environment (ymparisto.fi)

Procedures under the Water Act

Water permit

The Water Act (587/2011, WA) lays down provisions on permit matters concerning water resources management projects. The regional state administrative agency serves as the permit authority for the purposes of the Water Act. (WA, chapter 1, section 7, subsection 1). Provisions on the application procedure referred to in the Water Act are laid down in chapter 11 of the Act and in the Government Decree on Water Resources Management (1560/2011, WD, in Finnish).

Under the Water Act, water resources management projects are subject to a permit if they may cause changes in the state, depth, water level or flow, shore, or aquatic environment of a water body or the quality or quantity of groundwater, and this change causes impacts described in chapter 3, section 2 of the Water Act. These include, for example, detrimental changes in the natural environment, deterioration in the ecological status of a water body, risk or harm to human health, and harm to fishing or fish stocks or waterborne traffic. A water permit is also required if the change significantly reduces the beauty of nature, causes deterioration in the amenities of the environment or in cultural values or the suitability of the water body for recreational use.

Under chapter 3, section 3 of the Water Act, a water permit is, regardless of the consequences referred to above, always required if the project involves actions such as the construction of a hydropower plant, the closure or narrowing of a main channel, or the placement of a device or another obstruction that hinders the use of the channel. In addition, a permit is required for building a service conduit under a public or main channel and for the dredging of a water area when the quantity of dredged material exceeds 500 m³.

As a rule, the permit application shall be submitted to the permit authority electronically. The permit may be submitted through the local government e-service. The applicant may also initiate their matter through the Permits and Supervision service. If necessary, a natural person acting as the operator may fill out the permit application and its appendices in paper form. Provisions on the contents of the permit application are laid down in chapter 11, section 3 of the Water Act, whereas basic information on the permit application is described in section 1 of the Government Decree on Water Resources. In addition, section 2 of the Water Resources Decree lists the reports to be included in the application.

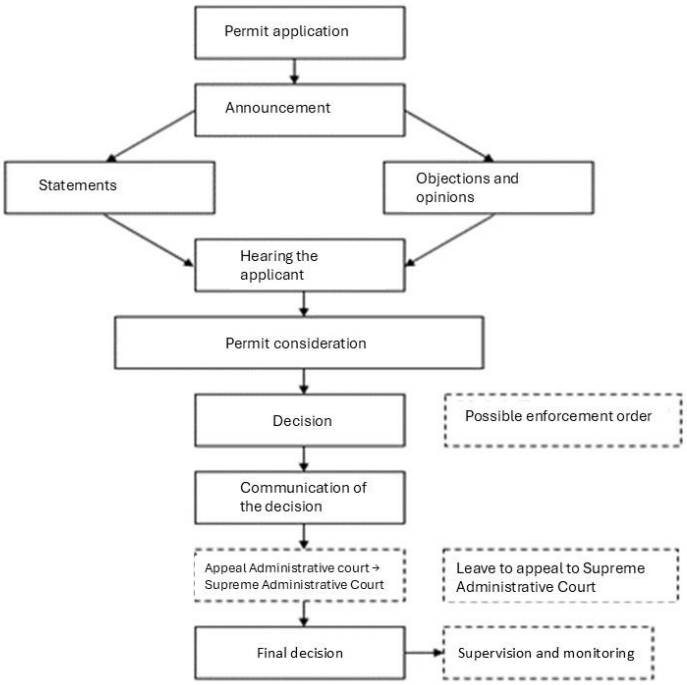


Image 5. Stages of the permit procedure under the Water Act (ymparisto.fi).

A right to use an area, as referred to in chapter 2, sections 12–14 of the Water Act, is an "accessory" to the permit under the Act, and a condition for granting the permit. To obtain a permit under the Water Act, the applicant must have a valid right to the areas required in the project, or the necessary right of use can be established in connection with granting the permit, or the applicant must provide a reliable account of how the rights will be acquired.

The applicant may own the project area or agree on the use of the area with the owner. If necessary, the applicant may request a right of use when applying for the permit. If the applicant intends to acquire access rights to the areas through some other procedure (such as am expropriation permit in accordance with the Expropriation Act), the permit under the Water Act may be granted with certain conditions. The easiest alternative is to procure the areas in advance on a voluntary basis, such as by buying or leasing the property or concluding a permanent contract on the rights of use.

Sometimes a research permit in accordance with the Water Act is also required at the planning stage of the project (WA, chapter 18, section 7). This permit entails a right to examine whether an area belonging to another party would be suitable for the project. The need for a research permit is very rare. The necessary surveys can usually be carried out either under the general right of use or by concluding an agreement with the landowners. If a project requires an environmental or water permit and is also linked to other environment-related permits, the applicant may request the permit processor (Regional State Administrative Agency or the municipal environmental protection authority) to coordinate the permit procedures in accordance with the Act on Integration of Certain Environmental Permit Procedures (764/2019, in Finnish and Swedish). More information on the matter is available on the website ymparisto.fi.

Additional information:

- Small water body guide – Identification of small water bodies and legislation (abstract in English). Reports of the Finnish Environment Institute.
- Water permit. Regional State Administrative Agency (suomi.fi).
- Water permit and notifications.. Ministry of the Environment (ymparisto.fi)

Derogation from the protection of aquatic habitat types

Under chapter 2, section 11 of the Water Act, it is prohibited to endanger the natural state of small water bodies. The protected water bodies include natural coastal lagoons (flada in Finnish) with a maximum area of ten hectares, lakes created by land uplift (kluuvijärvi in Finnish), springs and, outside the region of Lapland, streamlets, and ponds or lakes with a maximum area of one hectare.

The Regional State Administrative Agency may, in individual cases, grant an exception to this prohibition if the conservation objectives of the aquatic habitats are not considerably endangered. The assessment of the conditions for granting a derogation is based on a case-by-case scientific evaluation. The applicant is responsible for obtaining and submitting the information needed to process the application.

The application to derogate from the provisions shall be submitted to the Regional State Administrative Agency either in connection with the permit application or separately. The application may be submitted through the local government e-service. Applicants may also initiate their matter through the Permits and Supervision service.

Additional information:

- An exception from the protection of certain natural habitats. Regional State Administrative Agency (suomi.fi).

Notification of placing a service conduit in a water area belonging to another party

Under chapter 2, section 5a of the Water Act, the project developer has a statutory right to place a water, sewer and power line or telecommunications cable or other similar conduit in a water area owned by another party. Other possible conduits include, for example, natural gas pipes and district heating pipelines.

This provision applies to main channels (such as rivers, narrow channels in a water body, and straits) and brook areas. In other water areas, the right to place a service conduit or pipeline is based on an agreement between the parties or a decision made by an authority. Placing a conduit under a public channel is always considered a water resources management project subject to a permit. The placing of conduits/cables in a public channel or timber floating channel also requires a permit under the Water Act. The right to place a conduit is not valid if the project requires a water permit, if provisions on the placement of the conduit are laid down under the Environmental Protection Act, or if the placement of the conduit causes more than minor harm to the owner of the area.

The party responsible for the project must notify the owner of the water area and the regional ELY Centre at least 60 days before the measure is carried out (WA, chapter 2, sections 5a and 15). The notification can be submitted using the ELY Centre's notification form Notification of constructing under a water system (available in Finnish). Provisions on the notification to the ELY Centre are laid down in chapter 2, section 15 of the Water Act. The Government Decree on Placing Certain Wires in Water Areas (146/2018, in Finnish and Swedish) contains provisions on the information content of the notification to be submitted to the ELY Centre, the requirements concerning the selection of the conduit location, the method of implementation of the project, and the notification to be submitted of the completion of the project.

Additional information:

- Permits required for small-scale water construction work (in Finnish). Vesi.fi (vesi.fi)
- Notification of constructing under a water system. Suomi.fi (suomi.fi)

Procedures under the Expropriation Act

Exploration permit

An exploration permit issued under the Act on the Redemption of Immoveable Property and Special Rights (603/1977, Expropriation Act) is required for the expropriation of areas needed for renewable energy projects, which are mostly projects involving service conduits. When areas must be acquired through expropriation, an expropriation permit is required. If field surveys are required in the project area before applying for the expropriation permit in order to plan the project and determine the need for expropriation, a research permit is required for this purpose. However, no exploration permit is needed if the surveys may be carried out under everyone's rights or by reaching an agreement with the landowners. For example, in projects concerning a transmission line an exploration permit is needed to determine the exact location of the power line and, in particular, to determine the positions of the utility poles. To this end, the exploration permit is used to, for example, conduct bearing tests on soil and mark the centre line of the planned power cables in the terrain.

An exploration permit is granted upon application by the National Land Survey of Finland. The precondition for obtaining the permit is that the project is necessary in view of public needs and it could be granted a redemption permit in its current form. The exploration permit is valid for a fixed term and can be granted for a maximum of three years. Instructions for applying for an exploration permit can be found in the suomi.fi service.

When applying for an exploration permit, the applicant shall present a report on the basis of which the necessity of the permit and the fulfilment of the permit requirements can be assessed. The application shall be supplemented with a map indicating the area to be explored. In projects involving a service conduit, the area to be explored can also be shown as a line on the map, in which case the application may include specifications describing the width of the exploration zone on both sides of the line in question. If there several possible locations for a project, such as a transmission line, a research permit may be granted to explore all the alternatives. Moreover, the application shall also indicate the research measures that are to be carried out in the area and the time frame for which the exploration permit is applied.

Expropriation permit

As a rule, expropriation measures require an expropriation permit from the Finnish Government. In projects of lower significance, the permit may be granted by the National Land Survey of Finland. No permit is required if a legally binding plan, such as a local detailed plan, enables the expropriation. The basic prerequisite for obtaining an expropriation permit is that the project is required by the public need.

The Government has general competence in expropriation permit matters, meaning it can grant expropriation permits in all types of matters. In contrast, the competence of the National Land Survey is more limited. It may only issue an expropriation permit in cases where the expropriation concerns a so-called conduit project (such as power lines, natural gas lines, or water and sewer lines). The National Land Survey may only issue an expropriation permit if no landowner objects to the project or if the project is of lesser importance to the public and private interests. When processing a permit, the National Land Survey may find that it has no jurisdiction in the matter. In such cases, the application is transferred to the Ministry of Economic Affairs and Employment for a Government decision. If field surveys are required in the project area before obtaining the expropriation permit in order to plan the project and determine the need for expropriation, an exploration permit must first be applied for from the National Land Survey.

Regardless of whether the expropriation permit is granted by the Government or the National Land Survey of Finland, the expropriation proceeding carried out by the National Land Survey will be initiated after the expropriation permit has been granted. In the expropriation proceeding, the user/ownership rights granted in the expropriation permit are established and defined in the terrain, the redeemer is authorised to take possession of the areas, and the payments to be made to the landowners as compensation for the expropriation measures are determined.

The application intended for the Government shall be submitted to the Ministry of Economic Affairs and Employment, which prepares expropriation permit matters on behalf of the Government. Instructions for submitting an expropriation permit application to the National Land Survey can be found in the suomi.fi service.

At the National Land Survey of Finland, the processing of a permit matter proceeds as follows:

- An application is submitted to the National Land Survey, where it is inspected and, if necessary, the applicant is asked to supplement the application or its appendices.
- The National Land Survey consults in writing the landowners and titleholders, meaning the parties concerned, and the authorities referred to in section 8, subsection 2 of the Expropriation Act
    - if a party has agreed to the expropriation in writing, such party shall not be heard. Similarly, if the consultation was carried out in advance at a hearing pursuant to section 9, subsection 4 of the Expropriation Act, a consultation will not be conducted at this stage.
    - If the applicant has already received a statement from the authorities referred to in section 8, subsection 2 of the Expropriation Act, new statements will not be requested, unless it is, for a special reason, considered that a new authority statement should be requested in the matter.
- Decision making
    - Once the parties and authorities have been duly consulted, the National Land Survey will decide on the matter.
- Initiation of an expropriation proceeding
    - Once the expropriation permit has been granted, the expropriation proceeding will be initiated immediately based on the permit and a surveyor will be appointed for the proceeding, who can then be contacted in all matters related to the expropriation proceedings.
- Notification of the decision
    - Once the expropriation permit has been granted, it will be sent to all interested parties.
    - The period of appeal begins for each concerned party after the decision has been delivered to them.
- Appeals to the Administrative Court and the Supreme Administrative Court.
    - A decision in an expropriation permit matter can be appealed to the Administrative Court and further to the Supreme Administrative Court, if the Supreme Administrative Court grants leave to appeal.

When applying for an expropriation permit, the applicant shall present a report required to assess the necessity of the expropriation and the existence of the right to the expropriation. This report may be included either in the application or in its appendices. By means of the report, the applicant shall justify why the project is required by public needs and demonstrate that the application otherwise meets the expropriation requirements laid down in section 4 of the Expropriation Act. Moreover, the applicant shall also indicate in the application which areas the expropriation pertains to, if they are looking to redeem the areas under ownership or user rights, and which rights of use / restrictions of the rights they wish to redeem. The application should also mention if the applicant wishes to apply for an advance possession permit under section 58 of the Expropriation Act, and if they wish to leave the

less important parts of the expropriation site to be verified in the expropriation proceeding under section 10 of the Expropriation Act. In addition, the following documents shall be attached to the expropriation permit application:

- a map of the area to be redeemed (including land division in an area);
- cross-sectional images of the project site, such as a clearing meant for transmission lines, or similar data showing the width of the area to be redeemed and possible restrictions on the use of different zones, if these are not indicated on the map;
- a report on the properties included in the expropriation proceedings and their owners;
- information on the planning situation if the expropriation involves an area covered by a local detailed plan;
- an environmental impact assessment report (EIA) and the competent authority's statement, if one is drawn up for the project;
- an environmental report drawn up for the project if no EIA procedure has been carried out:
- possible contracts concluded with landowners or their consent to the expropriation;
- any statements requested in advance from the municipality, the ELY Centre, and the Regional Council, as well as other official statements the applicant may have requested in advance;
- minutes of the consultation meeting and any written statements issued, if the parties have been heard in advance at a consultation meeting referred to in section 9, subsection 4 of the Expropriation Act;
- in addition, the application shall be supplemented with a project permit issued by the Energy Authority or an explanation of why the project permit is not required in the case of a power line project.

The expropriation proceedings may be continued regardless of possible appeals. If the authority has granted an advance possession permit, the redeemer may take possession of the areas in the expropriation proceeding, unless the court of appeal suspends the enforcement of the expropriation. However, the expropriation proceedings may not be terminated until the expropriation permit is legally valid.

Additional information:

- Expropriation permit and survey permit. Suomi.fi (suomi.fi).
- Expropriation proceeding (in Finnish). National Land Survey of Finland. (maanmittauslaitos.fi)
- Expropriation matters. Ministry of Economic Affairs and Employment (tem.fi).

Permit to disturb a relic and research permit under the Antiquities Act.

The material remains of past human activities in the environment form part of our archaeological cultural heritage. Stationary relics are directly protected under the Antiquities Act (295/1963, AA, available in Finnish and Swedish) with no separate protection decision. Other archaeological sites can be preserved, for example, by means of land use planning. The Finnish Heritage Agency is responsible for the protection of ancient relics on land and in water. With regard to stationary ancient relics referred to in the Antiquities Act, the project operator should proceed as follows:

- The operator shall find out well in advance if the project may affect an ancient relic (by checking the Antiquities record maintained by the Finnish Heritage Agency and/or asking the museum with regional responsibility).
- If the project may affect an ancient relic, the operator must negotiate with the Finnish Heritage Agency on how to alter the project so that it will not damage the ancient relic.
- If it is concluded in the negotiations that the project cannot be altered in a way that prevents any damage to the ancient relic, the operator shall apply for a permit to disturb an ancient relict from the Finnish Heritage Agency. The permit includes guidelines on how the operator shall proceed in order to implement the project.
- If the permit to disturb an ancient relic requires the operator to carry out archaeological studies which are subject to a research permit, the operator must apply for a research permit and act in accordance with the conditions provided in it. The studies are usually carried out at the expense of the operator, except in projects whose costs are covered by the State. The State is responsible for the costs of archaeological studies if they are carried out in connection with smaller construction projects, such as the construction of a single-family house or a leisure residence, or gravel extraction for personal, small-scale use.

In the context of land use planning, it is important to determine in good time if the planning measures concern an ancient relic. Usually this means that an inventory is carried out on the archaeological cultural heritage in the area to determine, for example, whether there are previously unknown ancient relics at the site. Consequently, the

information provided by the inventory and the requirements associated with the protection of archaeological cultural heritage are taken into account in land use planning.

If an unidentified ancient relic is found during the preparation or implementation of the project, the work must be interrupted and the museum with regional responsibility or the Finnish Heritage Agency shall be contacted without delay for further instructions. If the authority so requires, the operator shall apply for a permit to disturb an ancient relic from the Finnish Heritage Agency. In turn, a research permit shall be applied for if it is required in the permit to disturb the ancient relic. Information on ancient relics and other archaeological sites can be found in the Antiquities record maintained by the Finnish Heritage Agency, and the record data can be browsed and downloaded online in the Palveluikkuna service (in Finnish).

The Finnish Heritage Agency shall always be contacted in connection with maritime and water work projects. In other matters, museums with regional responsibility which handle cultural environment matters service as experts in archaeological cultural heritage in their areas. Operators should already contact the museum with regional responsibility at the planning stage of the project to determine whether the project concerns archaeological cultural heritage. At the same time, they will also find out what kinds of issues they need to consider in the implementation of the project. Moreover, negotiations with the Finnish Heritage Agency or the museum with regional responsibility serving as an expert in cultural environment are also required to determine how to take sites protected in the land use plan into account and which surveys should be conducted in the context of the project.

Underwater cultural heritage, such as shipwrecks, must also be taken into account when planning projects. For example, the developer of a water engineering project must find out in advance whether the work will damage underwater relics. Since the information on underwater relic locations is incomplete, an underwater inventory must often be conducted during a construction project's preparation phase.

According to the law, the developer will be responsible for the costs of archaeological surveys conducted due to public or large private construction projects. A separate decision will be made for every construction project on the types of surveys that are required. In small private land use projects, the Finnish Heritage Agency shall bear the costs of surveys associated with ancient relics.

Permit to disturb a relic

If the project poses a need to tamper with an ancient relic, a permit to disturb a relic shall always be applied for from the Finnish Heritage Agency. A permit granted under another act for the implementation of the project, such as a building permit or land extraction permit, does not remove the obligation to apply for an additional permit to disturb an ancient relic if there is a stationary ancient relic in the project area. Under section 11 of the Antiquities Act, a permit may be granted for disturbing an ancient relic if the relic causes disproportionate harm in relation to its significance. The permit may be granted to a landowner or other operator who intends to carry out an operation that may have an impact on an ancient relic.

A matter concerning a permit to disturb an ancient relic may be initiated by submitting a written application to the registry of the Finnish Heritage Agency. The application can be submitted, for example, by using the form (in Finnish) available on the Finnish Heritage Agency's website. More detailed instructions on applying for a permit to disturb an ancient relic can be found on the website of the Finnish Heritage Agency.

As a rule, permit applications are processed within 60 days. However, especially operators applying for permits to disturb extensive ancient relics should be prepared for a longer processing period. The same also applies to cases where the processing of the permit requires a field inspection of the relic.

The processing time of the permit covers the time between the initiation of the case and its resolution. The application becomes pending when it reaches the Finnish Heritage Agency's registry If the application is incomplete, the Finnish Heritage Agency will ask the applicant to complete the application within the deadline. The need to supplement the application will increase the time it takes to process the application. The processing of a permit to disturb an ancient relic is subject to a fee.

Additional information:

- Applying for a permit to disturb an ancient relic. Finnish Heritage Agency (museovirasto.fi).

Research permit

If the permit to disturb an ancient relic granted by the Finnish Heritage Agency requires the operator to conduct archaeological examinations that disturb an ancient relic, the operator shall apply for a research permit under section 10 of the Antiquities Act. A basic prerequisite for obtaining a research permit is that a person trained as an archaeologist must be in charge of the fieldwork. The applicant must ensure that sufficient human and financial resources are allocated to the studies.

Based on the Antiquities Act, the Finnish Heritage Agency may also grant a permit and determine the conditions for conducting research on an underwater relic. In addition to methods that disturb a relic, other operations that require a permit include the systematic documentation of an underwater entity by photographing and/or measuring it. Permits for research that does not disturb the relic may be granted to people who are not trained as archaeologists. However, it is important that the permit applicant has taken part in marine archaeology courses intended for hobbyists and that before conducting any practical documentation work the staff of the Finnish Heritage Agency is consulted.

The application for a research permit is submitted in writing from the Finnish Heritage Agency, either by filling out a form or writing a free-form application. A free-form application must include all the information requested in the application form. When preparing the application, the applicant should study the Quality instructions on archaeological fieldwork. The research permit application must be accompanied by a research plan providing reliable information on the research entity, goals, methods, resources and other factors affecting the realisation of the plan. The research plan can be drawn up on the Finnish Heritage Agency's form or in a free-form document. A free-form plan must include all the information requested in the form. Uniform and comprehensive details will facilitate and speed up the processing and comparison of applications. For field studies conducted in the Sámi Homeland, the research permit application must include a prior consent from the Sámi Parliament (see(Akwé: Kon Voluntary Guidelines, abstract in English). The application must be submitted well before the planned start date of fieldwork. More detailed instructions on applying for and issuing a research permit can be found on the website of the Finnish Heritage Agency.

Research permit applications are typically processed within 30 days. However, especially when applying for a permit for more extensive and long-term research, the applicant should prepare for a longer processing time. The processing time begins when the application process is initiated and ends once a decision has been reached. The application becomes pending when it reaches the Finnish Heritage Agency's registry office. If the application is incomplete, the Finnish Heritage Agency will ask the sender to complete the application within the given deadline. The need to supplement the application will increase the time it takes to process the application. In urgent cases, the Finnish Heritage Agency shall be contacted immediately. The research permit is subject to a fee. The fee will be charged even for a negative permit decision. The research permit fee associated with an ancient relic is issued individually for each project/research permit.

Additional information:

- Research permits for ancient relics. Finnish Heritage Agency (museovirasto.fi).

Archaeological studies

Archaeological research includes, for example, archaeological fieldwork such as discovery site reviews, archaeological inventories, excavations, and the processing and analysing of the resulting material. Archaeological fieldwork services are provided by various operators. The Finnish Heritage Agency maintains a list of the service providers it is aware of However, the Finnish Heritage Agency cannot guarantee that all those working in the field are included in the list. The listed operators are responsible for their own services, the quality of their work, and the results.

In cooperation with other operators in the field of archaeology, the Finnish Heritage Agency has drawn up Quality instructions on archaeological fieldwork in Finland, which are intended for operators who assess, order, or implement archaeological fieldwork. The purpose of the guidelines is to harmonise the practices of archaeological

field studies. The aim is that all parties shall take the quality instructions into account in their own activities. Furthermore, the goal of the quality work has been to define the matters required by the Finnish Heritage Agency as the issuer of research permits and the assessor of fieldwork.

Additional information:

- Town planning and the archaeological cultural heritage. Finnish Heritage Agency (museovirasto.fi).
- Quality instructions on archaeological fieldwork in Finland (in Finnish). Finnish Heritage Agency (museovirasto.fi).

Obstacle permit procedure under the Aviation Act

Provisions on when an aviation obstacle permit is required are laid down in section 158 of the Aviation Act (864/2014). In practice, all structures with a height of more than 30 metres that are located close to airports and structures with a height of more than 60 metres throughout Finland require an aviation obstacle permit. A permit is required if an aviation obstacle:

- extends to a height of more than 10 metres above the earth's surface and is located within a rectangular area around a runway of an aerodrome, light aviation aerodrome or emergency landing site, with the long sides of the rectangle at a distance of 500 metres from runway centreline and the short sides at a distance of 2500 metres from runway thresholds;
- extends to a height of more than 30 metres above the earth's surface or water level and is located outside the area referred to in paragraph 1, but no farther than 45 kilometres from the reference point of an airport;
- extends to a height of more than 30 metres above the earth's surface or water level and is located outside the area referred to in paragraph 1, but no farther than 12 kilometres from the reference point of an emergency landing site or an aerodrome other than an airport;
- extends to a height of more than 60 metres above the earth's surface or water level and is located outside the areas referred to in paragraphs 1–3;
- penetrates an obstacle limitation surface; or
- affects the obstacle clearance altitude/height (OCA/H) in operating procedures.

The permit is applied for from the Finnish Transport and Communications Agency Traficom. Operators may apply for the permit using an online application. Applicants may also initiate their matter through the Permits and Supervision service. Once Traficom receives a permit application, it requests an aviation obstacle statement from Traffic Management Company Fintraffic Ltd and other parties at its discretion. The permit application must include the exact location of the site, the height of the structure, and details on the ground level height. The permit requirement applies to the erection of new aviation obstacles, increasing the height of an existing obstacle, or changing the location of an obstacle.

An obstacle permit granted for a permanent obstacle, such as a wind turbine, is valid for approximately two years at a time. If the obstacle cannot be erected by the date specified in the permit, an extension shall be applied for from Traficom. An extension period must be applied for before the existing permit expires. Traficom will process the extension application free of charge while the old permit is still valid, but if the erection period mentioned in the permit has expired, the application will be processed as a new project. If a wind turbine is to be located in a marine area (area adjacent to the coast), the contractor of the obstacle must also obtain a statement from the Finnish Border Guard.

The permit conditions for an obstacle affecting air traffic require that Traffic Management Company Fintraffic Ltd be notified in advance of when the erection of the obstacle begins. The notification must be submitted by e-mail at least 12 weeks before starting the building work on the obstacle. The notification shall contain information on the aircraft warning lights and markings to be placed on the wind turbine. In accordance with the terms and conditions of the aviation obstacle permit, a completion notification shall be submitted to Traficom to update the obstacle register after the wind turbine has been set up.

Additional information:

- Apply for an obstacle permission. Traficom (traficom.fi).

Notification of a wind farm under the Compensation Act

Under section 2 of the Act on Wind Power Compensation Areas, the Energy Authority carries out the statutory duties. In the wind power compensation area, the Defence Forces' control system has been developed so that the construction and commissioning of a wind turbine in the area no longer requires the Defence Forces to conduct a separate investigation into the impacts of the turbine on Finland's regional control, the regional operating conditions of the Defence Forces, and military aviation.

The Compensation Act entered into force on 1 July 2013 and currently it applies to the compensation area of the Bay of Bothnia. The Bay of Bothnia compensation area comprises an area of approximately 2,425 square kilometres located in the municipalities of Hailuoto, Lumijoki, Raahe, Siikajoki, and Pyhäjoki. The boundaries and coordinates of the area are marked on the map attached to the Compensation Act: Compensation area of the Bay of Bothnia. Pursuant to section 5 of the Compensation Act, an electricity producer who controls a wind turbine in the compensation area is obliged to pay a turbine-specific wind power fee to the Energy Authority.

The matter is initiated by submitting a notification to the Energy Authority before the commercial deployment of the wind turbine. A free-form notification can be submitted to the Energy Authority primarily by e-mail to kirjaamo@energiavirasto.fi or by post to the address: Energy Authority, Lintulahdenkuja 2 A, 00530 Helsinki. Applicants may also initiate their matter through the Permits and Supervision service. The first payment is due within six months of submitting the notification. The fee is EUR 50,000 per turbine. The wind power fee shall be made in five instalments, each comprising 20 % of the total payment.

According to the law, an electricity producer who controls a wind turbine in the Bay of Bothnia must:

- submit a notification of the wind turbine to the Energy Authority before the commercial commissioning of the power plant;
- pay the wind power fee to the Energy Authority, insofar as the Energy Authority considers that the electricity producer is liable to pay the fee;
- notify the Energy Authority of any changes in the number of wind turbines and of transferring the control over a wind power plant to another operator.

The processing of a permit matter proceeds as follows:

- Initiation of the matter by a notification;
- possible supplementation of the notification;
- decision on instalments;
- communication of decisions;
- appeal: lodging an appeal with the Energy Authority → Administrative Court → Supreme Administrative Court (with leave to appeal)
- final decision
- payment of instalments.

Additional information:

- Compensation of wind power (in Finnish). Energy Authority (energiavirasto.fi).

Defence Forces' statement on the acceptability of building wind farms

The Finnish Defence Forces shall issue a statement on the acceptability of wind power construction. Whether the opinion in the statement is positive or negative is determined by estimates on how the wind power project will interfere with the Defence Forces' statutory functions assigned to it under other acts.

The Defence Forces will issue separate statements on land use planning (the Defence Forces Logistics Command) and projects (the Defence Command). It is advisable to request a wind power statement from the Defence

Command as early as possible during the project development phase. This helps the operator to avoid additional project development costs. The Defence Command Operations Division prepares the Defence Forces' statement by collecting the viewpoints of all divisions into its own statement.

To receive the statement, the applicant must submit a request for statement form (in Finnish) on the wind power project to the Defence Command in accordance with the instructions (in Finnish and Swedish) on the Finnish Defence Forces' website. At the Defence Command, wind power matters are handled by the Defence Command Operations Division. More information on the statement process can be found on the Finnish Defence Forces' website.

In respect of projects, the Defence Forces usually provide on request separate statements regarding the need to conduct a more specific impact analysis and the acceptability of a wind energy project from the Defence Forces' perspective. If necessary, an impact assessment must be carried out by VTT. On the basis of more specified data obtained on the planned wind turbines, the Defence Command (Operations Division) assesses whether a more specified investigation is required. Such data include the maximum heights, location coordinates, and numbers of wind turbines.

The investigation of the impacts of the wind turbines is the responsibility of the wind power developer or land-use planner. If an impact analysis is needed, it must be carried out at the latest in the detailed planning phase. If a planned wind turbine is expected to cause significant harm, the Finnish Defence Forces will have to issue a negative statement on the planned wind turbine. In such a situation, the wind power operator may present a so-called minimum project proposal (lower/fewer turbines) in which the project is still profitable for the operator.

Additional information:

- Wind power projects (in Finnish and Swedish). Finnish Defence Forces (puolustusvoimat.fi).

Permit to explore and survey the sea bottom under the Territorial Surveillance Act

Offshore wind power projects in particular may require surveys of the sea bottom. Under section 12 of the Territorial Surveillance Act (755/2000), systematic exploration of the composition and topography of the sea bottom is not allowed without permission. The permit authority in such matters is the Defence Command. Permit applications shall be sent to the Defence Command by e-mail either to the registry office or the permit administration. The application must indicate the party performing the survey, the technology used, the quality of the measurement (such as side scanning, bar sweeping, or sediment samples), the customer, and the intended use of the material.

Additional information:

- Sea surveys (in Finnish and Swedish). Finnish Defence Forces (puolustusvoimat.fi).

Right of exploitation and consent for construction in Finland's exclusive economic zone under the EEZ Act

Under the Act on the Exclusive Economic Zone of Finland (the EEZ Act), commercial exploitation of the exclusive economic zone and all research carried out for this purpose require a consent (a Government Resolution) from the Finnish Government (plenary session). As a rule, a separate research permit is first required in order to gain an actual construction permit. Projects involving commercial exploitation also require a permit under the Water Act from the competent Regional State Administrative Agency. Moreover, a consent from the Government is needed, for example, for research activities related to the development of offshore wind power projects and for construction work and the use of the wind farm.

The exclusive economic zone (EEZ) is not part of the territory of the Finnish State. Instead, under the United Nations Convention on the law of the sea, it is considered an international maritime area. However, a coastal State may exercise its sovereign rights to exploit the zone and its natural resources, excluding the right of ownership. No state, natural person, or legal person may take over any part of the seabed area of the EEZ. All parties have the

freedom of laying submarine cables and pipelines, as well as the freedom to use the sea for all other purposes approved by international law, including the freedom of navigation and overflight. However, the coastal state has the right to take reasonable measures to study the continental shelf (=exclusive economic zone), to exploit its natural resources, and to prevent, reduce, and monitor pollution caused by the infrastructure.

Under section 6 of the EEZ Act, the Government may, upon application, give its consent for the exploitation of natural resources of the seabed and its contents within the EEZ, for carrying out research aimed at such exploitation, and for conducting other activities in the EEZ aimed at the commercial exploitation of the zone (right of exploitation). According to the preliminary work on the Act, such other activities would include, for example, producing energy from waves and wind. Under section 7 of the EEZ Act, the Government may, upon application, consent to the construction and use of equipment and other structures required for the activities referred to in section 6, as well as to the construction and use of other equipment and structures that may interfere with the exercise of rights that Finland enjoys in the EEZ under international law.

The (free-form) applications shall be sent to the Ministry of Economic Affairs and Employment (MEAE), which prepares and presents the matter to the Government for decision. The application must be submitted to the MEAE at least six months before the planned start date of the activities. The application must contain all necessary information on the project, and the MEAE will use the data to request statements from the relevant authorities and regional stakeholders (permit holders) (see Government Decree on Finland's Exclusive Economic Zone 1073/2004, in Finnish and Swedish). The processing time depends on, for example, whether the project requires an actual EIA procedure. Projects subject to the EIA procedure are defined either in the list of projects included in the EIA Act or on a case-by-case basis. Moreover, the total processing time also depends on how comprehensive the application is in terms of its contents. In terms of projects, it is advisable to contact the MAEA already before submitting an application and, if necessary, during the processing. Moreover, applicants may, if they so desire, initiate a procedure referred to in section 7 of the EEZ Act through the Permits and Supervision service.

As regards energy projects of common interest in the European Union, it shall be noted that energy projects of common interest referred to in the relevant Regulation (EU) No 347/2013 of the European Parliament and of the Council require the consent of the Finnish Government. The Energy Authority serves as the coordinating competent authority. There are no separate legal requirements for the Government’s consent (right of use or the right to place structures). According to the justifications in the Government proposal, when deciding on the right to build, the construction must not interfere with the use of generally recognised maritime routes that are essential for international shipping. Furthermore, the consent consideration should take into account all aspects related to the monitoring and safeguarding of Finland’s territorial integrity. Based on the application practice, the decision-making concerning the right of exploitation has focused on analysing the right to commercial exploitation, impacts of the project on the state of the environment, maritime safety and other projects, and the potential damage to third parties (such as the Nord Stream 2 AG natural gas pipeline project). Moreover, issues such as the EU’s energy policy objectives have also been taken into account.

The Government’s consent lais down such conditions for the project that are necessary for safeguarding overall safety and the rights of the state. The consent may be given either for an indefinite or a fixed period, such as for the service life of the wind farm. Moreover, the consent may, upon application, include the possibility of so-called immediate implementation.

So far, no Government consents for the exploitation of or construction in the exclusive economic zone have been given to offshore wind power projects (no permit applications have been received). In terms of the Finnish EEZ, the authorised projects (infrastructure) are primarily located in the Gulf of Finland and in the southern Baltic Sea. The projects include the following:

- Nord Stream 1 and 2 gas pipeline systems;
- Balticconnector gas pipeline;
- C-Lion submarine telecommunications cable between Finland and Germany;
- submarine telecommunications cables between St. Petersburg and Kaliningrad (2 pcs);
- EstLink 1 and 2 power cables between Finland and Estonia;
- FennoSkan 1 and 2 power cables between Finland and Sweden.

In addition, measuring devices monitoring the state of the marine environment may be located in the marine area. The Finnish Defence Forces and the Border Guard also monitor Finland’s territorial integrity in line with their

specific duties. In connection with EEZ projects, the Defence Command grants permits for surveying the sea bottom in Finnish territorial waters.

Procedures under the Chemicals Safety Act

Handling and storage permit

The Finnish Safety and Chemicals Agency (Tukes) serves as the permit authority for the storage and use of dangerous chemicals referred to in the Act on the Safe Handling of Dangerous Chemicals and Explosives (390/2005, Chemicals Safety Act, available in Finnish and Swedish). The scope of a plant's operation is determined by the quantity and hazard class of the chemicals. When determining the scope of the activities, all hazardous chemicals handled and stored in one location under the same operator's control are taken into account. In order to determine the scope of the activities, a chemical inventory is required, listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are indicated in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio calculator in KemiDigi (the national chemicals data repository and service). (Chemicals Safety Act, sections 23 and 24). Further provisions on the permit referred to in section 23 of the Chemicals Safety Act and on applying for said permit are laid down in the Government Decree on the Monitoring of the Handling and Storage of Dangerous Chemicals (in Finnish and Swedish).

The permit procedure shall be initiated by submitting a written application before making any detailed implementation decisions or starting the construction of the production plant. The applicant may initiate the matter through the Permits and Supervision online service. One of the stages of the application process includes consultations and requests for opinions. The permit application shall contain general information on the activities, the results of hazard and risk identifications, reports on the location of the production facility, as well as the principles governing the implementation of the plant (section 8 of the Government Decree on Safety Requirements for Industrial Handling and Storage of Dangerous Chemicals, 856/2012, Chemical Safety Requirement Decree; available in Finnish and Swedish). The content requirements for permit applications are set out in Annex II to the Decree.

Operators engaged in large-scale storage and use of chemicals are further divided into actors who require a permit, a major accident prevention policy, or a security report. The categorisation is determined by the quantity and classification of the chemicals to be stored and used. In addition to a permit from Tukes, facilities that require a major accident prevention policy shall draw up the necessary documents. (Chemical Safety Requirement Decree, section 13). Facilities that require a security report shall draw up the required report on safety matters. (Chemical Safety Requirement Decree, section 14). The content requirements for said documents are laid down in Annexes III and IV to the Decree.

Upon application, Tukes will issue a permit decision describing the operations indicated in the permit, the location of the plant, details on the chemicals to be stored, maximum quantities of the chemicals, and the permit conditions. Moreover, Tukes shall describe how the environmental impact assessment has been taken into account in the decision. (Chemicals Safety Act, section 10).

Handling and storage notification

Chemicals Safety Act Minor handling and storage, as referred to in the , is supervised by the rescue authority. The scope of a plant's operation is determined by the quantity and hazard class of the chemicals. When determining the scope of the activities, all hazardous chemicals handled and stored in one location under the same operator's control are taken into account. In order to determine the scope of the activities, a chemical inventory is required, listing the maximum storage volume of all the chemicals stored at the site as well as their hazard class, category and statements, which are indicated in the safety data sheet for each chemical. The ratio needed to determine the scope of operations can be calculated using the ratio calculator in KemiDigi (the national chemicals data repository and service) or the table of chemicals (in Finnish) published by the rescue departments' partnership network. (Chemicals Safety Act, sections 23 and 24).

The rescue authority monitors the compliance and functioning of the technical implementation and operating methods of installations referred to in the Chemicals Safety Act that engage in minor industrial handling and storage activities, as well as the production facilities' compliance with applicable regulations. Under section 24 of the

Chemicals Safety Act, any minor handling and storage of dangerous chemicals that exceeds the notification limit shall be reported to the rescue authority. Further provisions on the matter are laid down in section 5 of the Monitoring Decree (in Finnish and Swedish).

A matter is initiated by submitting a written application. A notification on the minor industrial handling and storage of dangerous chemicals shall be submitted to the regional rescue authority at least one month before the start of operations. The contact details of the rescue departments and the notification form can be found on the department network's website (in Finnish). Applicants may also initiate their matter through the Permits and Supervision service. The basic details to be included in the notification (permanent activities) are listed in section 33 of the Monitoring Decree The notification shall be made in writing at least one month before the start of industrial handling or storage activities.

The processing of a handling and storage notification proceeds as follows:

- Initiation
    - Customer needs to handle and store an amount of dangerous chemicals that exceeds the notification limit.
    - The customer submits a chemical notification.
- Chemical decision
    - The rescue authority begins the processing of the received notification.
    - Further clarification or supporting documents may be requested for the notification during the processing.
    - The decision and its terms are drawn up and forwarded to the party concerned without delay.
    - Appeal instructions under the Administrative Judicial Procedure Act are attached to the decision.
    - The decision is sent to the Regional State Administrative Agency and the municipal environmental protection and building control authorities for information.
- Commissioning inspection and report
    - Before commissioning, the rescue authority carries out an inspection, i.e. an inspection visit.
    - An inspection report is drawn up based on the inspection visit, including a hearing of the parties concerned.
    - The final report is drawn up after the hearings, and the report constitutes an administrative decision subject to an appeal process. The report shall describe how the implementation of rectification orders will be monitored, and it shall be accompanied by appeal instructions.
    - The report is sent for information to the Regional State Administrative Agency, the municipal environmental protection authority, and the building control authority.
- Follow-up supervision
    - The customer shall, within the given deadline, submit a report on rectifying any detected shortcomings.
    - Follow-up supervision is carried out either during a control visit or via documentation (also calls must be documented).
    - A new administrative decision, i.e. an inspection report, is drawn up.

For sites that require a notification, the rescue authority shall process the notification, make a decision on it, and carry out a commissioning inspection at the site before the operations are started. Next, an inspection report shall be drawn up, indicating the deficiencies detected at the plant and the measures required to remedy them. The rectification of these deficiencies is monitored through follow-up supervision. After this, the rescue authorities monitor the operations periodically according to the monitoring plan. If the operation consists of temporary, minor industrial processing and storage activities lasting for a maximum of six months, the requirements of section 34 of the Monitoring Act shall be complied with in terms of the content of the notification.

On the basis of the notification, the rescue authority will make a decision on the matter, specifying the conditions that are, in terms of chemical safety, necessary for the performance of the activities. The rescue authority will check the safety of the minor handling and storage activities of dangerous chemicals before the operations may commence. Even if the reporting obligation is not applicable, operators shall comply with the safety requirements laid down for the handling of dangerous chemicals and explosives. Care and caution must be exercised when stor-

ing chemicals, and they must be stored in packaging that complies with the requirements in areas specifically reserved for them. The rescue authority may take action on any negligence that may be detected in the storage or use of chemicals during fire inspections.

Additional information:

- Industrial treatment and storage of dangerous chemicals. Tukes (suomi.fi).
- Dangerous chemicals in industry. Tukes (tukes.fi).
- Industrial handling and storage of hazardous chemicals. Rescue services (pelastustoimi.fi).
- Table of chemicals (in Finnish). Partnership network of rescue departments (pelastuslaitokset.fi).

Registration of pressure equipment under the Pressure Equipment Act

Under section 51 of the Pressure Equipment Act, the owner or holder of pressure equipment shall enter any equipment that can cause a significant hazard into the pressure equipment register maintained by Tukes. The registration limits for pressure equipment can be found in the Pressure Equipment Safety Decree (Government Decree on Pressure Equipment Safety 1549/2016, section 6, available in Finnish and Swedish). When the registration limit is exceeded, the owner or holder of the pressure equipment shall contact an inspection body (link in Finnish) and order the first periodic inspection. In addition, an operations supervisor and a stand-by operations supervisor shall also be appointed for the pressure equipment. The inspection body inspects the pressure equipment and handles the registration with Tukes. Tukes adds the pressure equipment to its pressure equipment register. (Pressure Equipment Act, section 52).

For example, the following pressure equipment must be registered:

- compressed air tanks, pressure (in bars) x volume (in litres) if their input exceeds 3,000; LPG tanks, pressure (in bars) x volume (in litres) if their input exceeds 1,000; pressure accumulators, pressure (in bars) x volume (in litres) if their input exceeds 10,000 or gas pressure (in bars) x volume (in litres), if their input exceeds 3,000;
- steam boilers, excluding small steam generators;
- hot water boilers using solid fuels with power exceeding 1 MW, or using oil or natural gas with power exceeding 10 MW.

More detailed instructions on the registration limits and application of the limits are available from inspection bodies. During the registration process, details involving the pressure equipment, namely the technical data and location of the equipment, the contact details of the owner and holder of the pressure equipment, and the personal details of the operations supervisor of the pressure equipment and the stand-by operations supervisor, shall be reviewed with the inspection body. Moreover, periodic inspections must be carried out on registered pressure equipment at regular intervals. (Pressure Equipment Act, section 53).

Additional information:

- Requirements for pressure equipment. Tukes (tukes.fi).
- Inspection bodies (in Finnish). Tukes (tukes.fi).

Procedures under the Natural Gas Decree

Compliance with the Natural Gas Decree (available in Finnish and Swedish) is monitored by the Finnish Safety and Chemicals Agency (Tukes). The construction of natural gas pipelines and refuelling stations (section 5 of the Natural Gas Decree) and the storage of natural gas (section 9 of the Natural Gas Decree) require a construction permit granted by Tukes. The smallest applications, however, do not require a permit from Tukes. The Natural Gas Decree also applies to the technical use of biogas and to the pipelines and equipment intended for the recovery, transmission, distribution, and use of biogas.

Construction permit for biogas and biomethane pipelines

Refined biogas, mainly methane-containing biogas, is subject to the same legislation and requirements as natural gas. Refined biogas is supplied to the natural gas pipeline network, refuelling stations, and various other applications. If the methane content of biogas is 80 % or more, the storage permit limits are the same as for natural gas. The interface between the pipelines for unrefined and refined biogas is usually the refining unit.

A construction permit from Tukes, as referred to in section 5 of the Natural Gas Decree, is required for the natural/biogas pipeline system in the following cases:

- building a biogas pipeline system outside the plant (both unrefined and refined biogas);
- technical use of biogas (operator outside the biogas plant) when the total nominal fuel power of operational equipment is at least 1.2 MW;
- construction of a public natural gas filling station;
- biogas recovery from a landfill. In landfills, the recovery pipelines themselves are not covered by the natural gas regulations, but the application of the law starts with the system after the recovery pipeline.

Operators can apply for a construction permit through e-services. Applicants may also initiate their matter through the Permits and Supervision service. The permit application shall contain general information on the operation, reports on the location of the pipelines and/or storage facilities, technical information on the equipment and pipelines, as well as a hazard and risk assessment and a contingency plan in case of said risks. According to section 5 of the Natural Gas Decree, a permit application concerning the construction of a transmission pipeline must contain the information and reports referred to in paragraph 1 of Annex I to the Decree. Moreover, a permit application concerning distribution and installation pipelines shall contain the information and reports referred to in paragraph 1 of Annex II to the Decree.

It is advisable to apply for the permit from Tukes well in advance before starting construction work. The target processing time for a natural gas/biogas pipeline permit is 80 days. Upon application, Tukes will issue a permit decision describing the operations covered by the permit, the location of the pipelines and/or storage facilities, information on the maximum quantities of natural gas/biogas to be stored and any other chemicals, as well as the permit conditions.

Construction permit for natural gas storage and gas storage notification

Under section 9 of the Natural Gas Decree, the storage of natural gas or biogas refers to the storage of gas outside the natural gas pipeline system. The storage of natural gas or biogas requires a construction permit from Tukes when the amount of gas to be stored is at least 5 tonnes. If the amount of gas to be stored exceeds 0.2 tonnes but is less than 5 tonnes, a notification of storage must be submitted to Tukes. The construction permit application or storage notification shall be submitted before making detailed implementation decisions and well before starting construction work on the storage facility.

Table 28. Storage of refined biogas, notification and permit limits (minimum methane content 80 %)

	Unprocessed biogas (methane content less than 80%)			
	From 1 to under 5 tonnes	From 5 to under 10 tonnes	From 10 to under 50 tonnes	≥ 50 tonnes
Procedure	Notification to the rescue authority	Permit from Tukes	Major accident prevention policy (permit from Tukes)	Security report (permit from Tukes)

Applications for a construction permit for gas storage and gas storage notifications can be submitted through the e-services. Applicants may also initiate their matter through the Permits and Supervision service. The permit application shall contain general information on the operation, reports on the location of the pipelines and/or storage facilities, technical information on the equipment and pipelines, as well as a hazard and risk assessment and a contingency plan in case of said risks.

The target processing time for a natural gas storage permit is 8 months when the storage volume is at least 5 tonnes. The target processing time for notifications submitted to Tukes is 80 days. The aim of the permit procedure is to ensure safe placement, construction and equipment of natural gas pipelines and equipment, their conformity, and acknowledgement of the surrounding area, traffic, residents and other operations. One of the stages of the application process includes consultations and requests for opinions. Upon application, Tukes will issue a permit decision describing the operations covered by the permit, the location of the pipelines and/or storage facilities, information on the maximum quantities of natural gas/biogas to be stored and any other chemicals, as well as the permit conditions.

Operators engaged in large-scale storage and use of chemicals are further divided into actors who require a permit, a major accident prevention policy, or a security report (links in Finnish). The categorisation is determined by the quantity and classification of the chemicals to be stored and used. In addition to a permit from Tukes, facilities that require a major accident prevention policy according to section 13 of the Monitoring Decree shall draw up the necessary documents. Facilities that require a security report shall, under section 14 of the Monitoring Decree, draw up the required report on safety matters. The content requirements for said documents are laid down in Annexes III and III to the Decree.

Table 29. Storage of refined biogas, notification and permit limits (minimum methane content 80 %)

	Refined biogas (minimum methane content 80 %)			
	From 0.2 to under 5 tonnes	From 5 to under 50 tonnes	From 50 to under 200 tonnes	At least 200 tonnes
Procedure	Notification to Tukes	Permit from Tukes	Major accident prevention policy (permit from Tukes)	Security report (permit from Tukes)

Additional information:

- Biogas. Tukes (tukes.fi).
- Natural gas storage.. Tukes (tukes.fi).
- Natural gas pipework and filling stations. Tukes (tukes.fi).
- Applying for a construction licence and notifications. Tukes (tukes.fi).

Procedures under the Electricity Market Act

Project permit for building a power cord

Provisions on a project permit for the construction of a high-voltage power cord, as referred to in the Electricity Market Act (588/2013, available in Finnish and Swedish), are laid down in section 14 of the Act. The project permit is granted by the Energy Authority. The construction of a high-voltage connecting wire with a rated voltage of 110 kV or more requires a project permit from the Energy Authority. In contrast, the Ministry of Economic Affairs and Employment serves as the permit authority for power cords with a nominal voltage of at least 110 kV that cross the national border. However, a project permit is not needed for building an internal power cord for a property or a corresponding property group.

Operators may initiate a permit matter by submitting a signed permit application to the Energy Authority primarily by e-mail to kirjaamo@energiavirasto.fi or by post to the address Energy Authority, Lintulahdenkuja 2 A, 00530 Helsinki. Applicants may also initiate their matter through the Permits and Supervision service. The project application shall include the following details:

- Information on the developer.
- The main technical data and the management master plan map.
- A cost estimate and construction schedule.
- A report on the need for management to secure the transmission of electricity, unless the cord is a connecting wire.
- A report on the environmental impacts of the cord and its suitability in terms of land use in the area.
- A statement from the network operator to whose main grid the high-voltage cable is to be connected.
- Statement from the distribution system operator in the area of responsibility.
- Other information necessary for processing the permit application.

A prerequisite for granting a project permit for a power cord is that the construction of a power cord is necessary to secure the transfer of electricity. The placement of the power cord is not addressed in the project permit. A project permit may be granted without a means test if the project involves a connecting wire that will be used to connect an electricity consumer or one or several power plants to the nearest network of at least 110 kV. Land-use factors are not considered when evaluating distances. If the electricity consumer or power plant is to be connected to some other cord than the nearest high-voltage power cord, the applicant must demonstrate that the construction of the cord is necessary to secure the transmission of electricity.

The project permit must be obtained before building the power cord. The project permit is valid for five years from the date on which the decision gains legal force. The power cord specified in the project permit must be completed within this period. If the validity of the project permit expires while the cord construction is still in progress, a new project permit must be applied for.

The stages of permit processing and construction proceed as follows:

- initiation of the matter with a permit application;
- possible supplementation of the application;
- permit consideration;
- decision;
- communication of the decision;
- appeal to the Administrative Court (to the Supreme Administrative Court with a leave to appeal);
- final decision;
- supervision and monitoring;
- obligation to report when the construction work is complete.

Additional information:

- Apply for a project permit for building a power cord (link in Finnish). Energy Authority (energiavirasto.fi).

Notification of the construction and decommissioning of a power plant

Under section 64 of the Electricity Market Act, the electricity producer shall notify the Energy Authority of the construction plan and commissioning of a power plant, as well as of long-term or permanent decommissioning the plant. More detailed provisions on the content of the notification and the notification procedure are laid down in the Government Decree on the Electricity Market (65/2009, available in Finnish and Swedish).

The operator of a power plant with a capacity of at least one mega-volt-ampere shall notify the Energy Authority of plans to construct a power plant, the decision to increase the plant capacity, and of the commissioning of the plant, as well as of the long-term or permanent decommissioning of the power plant. One mega-volt-ampere is roughly equivalent to one megawatt.

When the plant capacity is at least one mega-volt-ampere, the plant operator shall notify the Energy Authority of the following:

- decision on the construction of a power plant or on increasing the plant's capacity within one month of the date of the decision;
- commissioning of the power plant or of the power increase within one month after the power plant or its power increase has been commissioned for production;
- decommissioning of the plant for at least one year or permanently or a permanent power reduction in the power plant within one month of the decision being taken, however, at least six months before the planned date of implementation of the measure.

The matter can be initiated by submitting the notification form (in Finnish) to the Energy Authority by e-mail to kirjaamo@energiavirasto.fi or by post to the address: Energy Authority, Lintulahdenkuja 2 A, 00530 Helsinki. Applicants may also initiate their matter through the Permits and Supervision service.

The notification shall include information on the operator and owner of the power plant, details on the capacity, energy sources and key technical features of the power plant, and information on the date of commissioning of the power plant or its power upgrade. In the case of decommissioning the plant for at least one year or permanently or of a permanent power reduction at the plant, the planned date of implementation of the measure shall also be indicated.

When reporting a new power plant or power increase, the processing steps are as follows:

- initiating the matter by notification within one month of the investment decision;
- notification of the commissioning of the plant or its power increase within one month of the date of commissioning;
- possible supplementation of the notification;
- the power plant is added to the Power Plant Register or the information in the register is updated.

Regarding notifications on the decommissioning of a power plant, the processing steps are as follows:

- initiating a case by advance notification at least six months before the planned date of implementation;
- notification once the decommissioning is complete;
- the power plant is removed from the Power Plant Register.

Additional information:

- Report the commissioning of a power plant and any changes (in Finnish). Energy Authority (energiavirasto.fi).

Municipal consent under the Electricity Market Act

Section 17 of the Electricity Market Act lays down provisions on the municipality’s role in the placement of service conduits. Municipal consent must be obtained for the route of a high-voltage power line (110 kilovolts), if the right to place the conduit is not based on an expropriation procedure in accordance with the Expropriation Act and the service conduit is to be built outside the area reserved for this purpose in the plan.

The municipality may not withhold the consent or impose conditions for granting it without valid reasons related to land use planning, environmental considerations, or other factors, if the withholding or the conditions would cause unreasonable harm to securing the transmission of electricity or to the applicant. Furthermore, it should be ensured that the conduit route is appropriate in terms of the system entity with regard to the requirements of the power system and environmental considerations, especially when the service conduit is to be built in the area of several municipalities.

The distribution system operator shall make sure that the municipalities are informed of any planning work concerning the construction of a distribution network. Moreover, the distribution system operator shall, together with the municipalities in its area of responsibility, also otherwise ensure that sufficient cooperation takes place, so that considerations pertaining to land use in the municipalities are taken into account in the placement of the network.

Procedures under the Act on Animal By-products, the EU Regulation on Animal By-products, and the Fertilizers Act

Animal by-products are those parts of an animal or animal products which are not intended for human consumption. These include dead animals, former products of animal origin, former food of animal origin, catering waste taken to composting plants, and waste from the slaughtering of animals that are not used for human consumption. Derived products are products obtained from one or more treatments, transformations or steps of processing of animal by-products. Provisions on animal by-products are laid down in the Animal By-products Act (in Finnish and Swedish) and the EU Regulation on Animal By-products.

The possibilities of disposal or recovery of animal by-products are primarily determined by the category of the products assigned under the Animal By-product Regulation. Animal by-products are classified into three categories (link in Finnish) according to the degree of risk involved for human or animal health. Animal by-products can be used, for example, as a raw material for fertilising products when subjected to appropriate processing. The processing prevents possible animal diseases from spreading to the food of animals or humans through fertilisers. To carry out the processing, a plant approval must be obtained from the Finnish Food Authority. All by-product plants must be approved or registered prior to commencing operations. The EU Commission requires a list of all plants that are approved under the Animal By-product Regulation, and the list (in Finnish) is maintained on the Finnish Food Authority's website.

Plant approval procedure

The plant approval procedure under the Animal By-product Regulation applies to all establishments handling animal by-products or storing products manufactured from them. The activities requiring approval are listed in Article 24 of the Animal By-product Regulation. If the operations of an animal by-products establishment give rise to a considerable degree of risk to public and animal health, the plant must be approved by the competent authorities before commencing operations. The approval may only be obtained if the operation of the plant is proven to meet the requirements laid down in the Animal By-product Regulation. The plant applying for approval must have a pending or valid environmental permit. If no environmental permit is required for the operations, a written report of this must be obtained from the environmental permit authority. The competent authorities who may, under the Act on Animal By-products, approve by-product plants and operators are the municipal veterinarians and the Finnish Food Authority.

Table 30. Plants that require a plant approval from the Finnish Food Authority under the Animal By-product Regulation. Note: Plants producing fertilisers may use animal by-products of Category 2 and Category 3 as raw material. By-products of Category 2 which may cause a risk of infection must be satisfactorily pressure-sterilised.

The Finnish Food Authority approves:
Processing plants: Category 1, 2 and 3 processing plants process Category 1, 2 or 3 materials using standard or alternative processing methods in accordance with Annex IV to the Implementation Regulation (EC) No 142/2011.
Composting plants: breaking down products of animal origin biologically under aerobic conditions.
Biogas plants: breaking down products of animal origin biologically under anaerobic conditions for the production and recovery of biogas.
Storage facilities: storing organic fertilisers and soil improvers.

Hygiene units: taking care of the hygienisation of by-products before they are transferred to a biogas or composting plant (intermediate plant).

Table 31. Plants that require a plant approval from the municipal veterinarian under the Animal By-product Regulation.

The municipal veterinarian approves in their area of operation:
Incineration and co-incineration plants: burning whole animal bodies.
Installations burning manure (located on an animal farm)
Storage facilities: storing recovered derived (processed) by-products before they are either transported for disposal by incineration, delivered to an approved landfill, or used as fuel.
Intermediate plants: storing recovered unprocessed by-products or carrying out so-called intermediate operations, such as freezing, salting or cutting the by-products, before they are delivered to their final destination.

An approval under the Animal By-product Regulation is also required for plants that process animal by-products for purposes other than fertilisers, such as energy production. A plant approved under the Animal By-product Regulation shall have in place a hygienisation process, in which a temperature of at least +70 °C is achieved in a closed process for a period of at least one hour, when the cut size of the material to be treated is at most 12 mm. Alternatively, a validated hygienisation treatment with proven performance may be used. Exceptions to the aforementioned processing requirements may be made with the permission of the Finnish Food Authority. The approval and hygienisation requirements do not apply to manure treatment on farms when the manure is used on the same farm or transferred from one farm to another as manure in accordance with a contract.

Applications for approval must be submitted in writing to the competent authority using the given form (in Finnish). Applicants may also initiate their matter through the Permits and Supervision service. The applicant shall demonstrate that the plant produces safe and suitable fertilising products or their raw materials. The application shall describe the following:

- the raw materials to be processed and their storage;
- the manufacturing process including hygienisation;
- information on the products to be manufactured;
- storage of the finished products and information on any remote storage facilities.

The application must be accompanied by a process diagram, site plan and self-monitoring plan, as well as an environmental permit or application thereof. The processing of the application may begin once all the required documents have been submitted to the Finnish Food Authority.

Before granting the approval, the authority shall verify that the plant meets the conditions laid down in the Animal By-product Regulation. If the operations change substantially at a later time, the alteration must be approved before the modified operations may begin. If the pant inspection reveals that the requirements for the plant's structures and equipment are met, but there are still shortcomings in the operation in terms of the other requirements, the competent authority may grant a conditional approval for the plant. The final approval may be granted based on a new inspection, which shall be carried out within three months of the granting of conditional approval. If the inspection shows that progress has been made but the plant still does not meet all the relevant requirements, the authority may extend the conditional approval. However, the period of the conditional approval shall not exceed a total of six months.

The competent authority monitors the approved operators based on the risks involved and in accordance with an annual control plan prepared by the Finnish Food Authority. The approval of a plant may be withdrawn either definitively or temporarily if the plant no longer meets the conditions for approval. The plant must cease its activities if the authority withdraws its content or, in the case of conditional approval, does not grant the final approval. The registration numbers of approved plants can be found on the Finnish Food Authority's website. In addition, the EU Commission requires a list of all plants that are approved under the Animal By-product Regulation, and the list (in Finnish) is maintained on the Finnish Food Authority's website.

Registration as an operator under the Animal By-product Regulation

Establishments in the by-products sector that process certain low-risk by-products or derived products do not need an approval for their operation. Instead, registration as an operator in accordance with the Animal By-product Regulation is sufficient. These establishments are mainly plants that manufacture technical products. However, plants producing organic fertilisers and soil improvers require an approval, as do plants that produce an end product such as biodiesel using an alternative method described in Article 20 of the Animal By-product Regulation.

The registration obligation also applies to certain operators that transport or supply animal by-products or derived products. Moreover, operators using animal by-products and derived products for specific purposes must also be registered. Such special purposes include, for example, the research use of animal by-products and derived products. The competent authorities who may, under the Act on Animal By-products, register by-product plants and operators are the municipal veterinarians and the Finnish Food Authority.

The Finnish Food Authority registers, among others, compound feed plants and such facilities producing organic fertilisers that do not require an approval. The municipal veterinarian registers, for example, assembly centres and farm mixing lines (located elsewhere than in connection with the slaughterhouse) in its operating area. Registration is not required, for example, in the following situations:

- animal by-products are produced on farms or other premises where animals are kept, bread or taken care of (such as by-products generated at veterinary stations and farms);
- fertilisers of animal origin are used on farms where no farmed animals are kept;
- the operator stores and sells fertilisers in bags of no more than 50 kg;
- manure produced on the farm is used on the same farm in an unprocessed or processed (such as composted) form;
- an approved or registered operator engages in transport activities as a secondary activity (retrieval of raw materials for own plant or distribution of products from own plant).

Applications for registration shall be submitted in writing to the competent authority using the given form (in Finnish). Applicants may also initiate their matter through the Permits and Supervision service. The application shall include information on the category of the by-products or derived products to be used, and details on the nature of the activities in which the by-products or derived products will be used. The authority may register the plant without an on-site inspection before the operations may commence. The registration can be made based on the information provided by the operator.

Registered operators are also subject to supervision. The competent authority monitors the registered operators based on the risks involved and in accordance with an annual control plan prepared by the Finnish Food Authority. The authority may prohibit the activities temporarily or permanently if it detects or receives information that the statutory requirements set for the activities are not met and, therefore, the activities may pose a risk to human or animal health.

Additional information:

- Animal by-products (in Finnish). Finnish Food Authority (ruokavirasto.fi).
- Animal by-product legislation (in Finnish). Finnish Food Authority (ruokavirasto.fi).
- Approval and registration of by-product plants (in Finnish). Finnish Food Authority (ruokavirasto.fi).
- Classification of animal by-products (in Finnish). Finnish Food Authority (ruokavirasto.fi).

Notification procedure under the Fertilizers Act

Biogas plants that do not require plant approval in accordance with the Animal By-product Regulation are required to submit a written notification to the Finnish Food Authority before starting the manufacture or marketing of fertilising products. Any substantial changes or termination of operations shall also be reported. The notification shall include information on the nature of the activities, the product categories of fertilisers, and the quality system. (Fertilizers Act (711/2022), section 14). Written notifications are mainly submitted via the online Touko service or by sending the notification form by e-mail (Finnish Food Authority, 2024).

According to section 7 of the Fertilizers Act, the components of a fertilising product must meet the requirements laid down in national legislation and in Annex II to the EU Fertiliser Regulation. Fertilising products shall meet the requirements set for the product category or categories. The categories are as follows:

- inorganic fertilisers
- organic fertilisers
- organic mineral fertilisers
- liming materials
- organic soil improvers
- growing media
- biostimulants
- fertilising product blends.

Under the Fertilizers Act, the components used in the manufacture of a fertilising product shall be included in the list of components (in Finnish) maintained by the Finnish Food Authority. Applications for adding a new component to the list may be submitted to the Finnish Food Authority (section 8 of the Fertilizers Act).

Under the Fertilizers Act, fertiliser manufactures shall implement a quality system. A written description shall be prepared on the quality system and submitted to the Finnish Food Authority. The quality system shall contain details on all technical solutions and procedures related to manufacturing, quality control, and quality assurance. Furthermore, all inspections, tests and their frequency both before, during and after the manufacturing process shall also be included in the quality system. (Fertilizers Act, section 17).

Additional information:

- Product categories and components (in Finnish). Finnish Food Authority (ruokavirasto.fi).
- Quality system (in Finnish). Finnish Food Authority (ruokavirasto.fi).

Emissions permit under the Emissions Trading Act

Under section 27 of the Emissions Trading Act (1270/2023, in Finnish and Swedish), an emissions permit is issued by the Energy Authority. Provisions on the emission permit referred to in the Emissions Trading Act are laid down in chapter 6 of the Act. A permit matter may be initiated by contacting the Energy Authority at least 6 months before the planned start of operations. The primary method of contact is by e-mail to the address paastolupa@energiavirasto.fi. Applicants may also initiate their matter through the Permits and Supervision service. Based on the contact, the Energy Authority creates an application template in the electronic FINETS system, where a person authorised by the operator can fill in an application.

To complete the permit application, the operator shall complete an electronic form to provide information on the operator and the plant, and to submit any attachments. In addition to the emissions permit application, the operator must simultaneously apply for approval of a monitoring plan from the Energy Authority. When preparing the monitoring plan, the requirements of national and European Commission regulations and the guidelines of the Energy Authority must be taken into account. Provisions on the minimum content of the monitoring plan are laid down in the Commission Implementing Regulation (EU) 2018/2066. The Energy Authority will process the application by assessing whether it meets the requirements of the statutes. If necessary, the operator may be requested to supplement the application during the processing period. The processing of a permit matter proceeds as follows:

- Initiation of the matter
- electronic permit application
- possible supplementation of the application
- permit consideration
- decisions (emissions permit and monitoring plan)
- communication of the decisions
- appeal to the Administrative Court and the Supreme Administrative Court (appealing to the Supreme Administrative Court requires a separate leave to appeal)
- final decision
- supervision and monitoring.

The application shall be accompanied by a report on the plant, its operations and sources of emissions necessary for permit consideration, and a plan to monitor emissions and submit emissions reports to the emissions trading authority. In addition, before the permit is granted, a report must be submitted to the emissions trading authority to clarify that the operations of the plant may be carried out under environmental protection regulations. The emissions permit will only be granted if the monitoring plan is adequate and appropriate, and the plant is allowed to operate based on environmental protection regulations.

Additional information:

- Apply for an emissions permit and approval of the monitoring plan 2021–2030 (in Finnish). Energy Authority (energiavirasto.fi).

Other procedures

The Act on Permit Procedures for Renewable Energy Production Plants and Certain Other Administrative Procedures covers the most common procedures needed for renewable energy production projects. However, even other permits and administrative procedures outside the scope of this Act may be needed in a renewable energy production plant project.

Notification of ditch drainage

Excess water can be discharged from the desired land area by laying out ditches or pipelines, or by clearing brooks and main ditches. A notification of other than minor ditch drainage shall be submitted to the Centre for Economic Development, Transport and the Environment (ELY Centre) before commencing the drainage work. A notification of drainage is always required if the work is carried out in groundwater areas or acid sulphate soil areas. No notification is required for minor ditch drainage, which includes:

- drainage of a small wood area;
- digging a ditch necessary for the draining of a building site on one's own land;
- drainage of a minor field block;
- subsurface drainage and subsoil drainage of a field block.

The authorities use the drainage notifications to assess whether a water permit or ditch drainage proceedings are necessary for the project. Furthermore, the notifier will receive guidance on how to complete the ditch drainage work without causing unnecessary harm to the environment. Based on the ditch drainage notification, the drainage work and the possible environmental permit granted for the area are assessed in terms of their connection to water management, such as in the aftercare of a peat production area. The existing water treatment structures in the area will be utilised if possible. Sometimes the extent and impacts of ditch drainage are so significant that a permit must be applied for from the Regional State Administrative Agency. Usually, however, a ditch drainage notification to the ELY Centre is sufficient.

Additional information:

- Drainage notifications. ELY Centre (suomi.fi).

Junction permit

a junction permit is required for connecting a private road to a main road. In terms of road management, the issues associated with the permit procedures include especially the road safety, functionality of traffic, and impacts on road maintenance. Key issues to be addressed in the permit procedure also include the junction’s impacts on land use development.

Junction permits for highways are granted by the ELY Centre. A junction permit is required for the following activities:

- construction of a new junction;

- moving a junction;
- modifying a junction by, for example, improving or expanding it;
- changing the intended use of the junction.

In certain situations, no actual junction permit is required. In such cases, the operator shall apply for instructions for building the junction in the same way as they would apply for a junction permit. This procedure applies, for example, to agricultural and forestry junctions used to cross a ditch on the side of a highway for which no road is built as an extension, and to junctions designated for the highway in the local detailed plan.

Primarily, permit applications shall be submitted through the e-services. Applications may also be sent by filling out an online application form or printable form and sending it either by e-mail or by post to the Pirkanmaa ELY Centre, Registry, P.O. Box 297, 33101 Tampere. The application shall be sent to the Pirkanmaa ELY Centre regardless of the municipality in which the junction is located.

The conditions for granting the permit are as follows:

- The junction is necessary for the use of the real estate, and no other passage can be arranged.
- It must be possible to detect the junction from a sufficient distance, and the requirements set for a lateral clearance area on both sides of the junction must be met.
- The minimum distances and maximum frequencies of junctions are determined by the functional class, speed level and land use factors of the road.

The junction permit shall include both the work permit and instructions for building the junction. The owner of the junction is responsible for the maintenance of the junction in all respects.

Additional information:

- Junctions (in Finnish and Swedish). ELY Centre (ely-keskus.fi).
- Junction permit for a road. ELY Centre (suomi.fi).

Exemptions for construction on a highway buffer zone or lateral clearance area

Sections 44–47 of the Highways Act include provisions on land use restrictions pertaining to areas outside the highway area. In the immediate vicinity of highways, construction has been restricted for traffic safety reasons and, on the other hand, due to impacts that reduce the comfort of living of those turning from the highway. The purpose of lateral clearance areas is to ensure traffic safety by maintaining good visibility in bends on the highway or near junctions. The lateral clearance area is a zone in bends on the highway and near junctions and level crossings where road safety requires visual clearance be kept free of any impediments.

The buffer zone is an area outside the highway area. As a rule, it is prohibited to construct buildings, structures or equipment in the buffer zone or the lateral clearance area. The buffer zone primarily extends to a distance of 20 metres from a regional or connecting road, 30 metres on highways and main roads, and 50 metres on motorways and semi-motorways from the centre line of the carriageway or, if there are several carriageways, of the nearest one.

On application, the ELY Centre may, for a special reason, allow construction if it or the use of the building, structure or equipment does not pose a risk to traffic safety or harm to road maintenance. Exemptions shall usually be applied for through the e-services. Operators may also apply by drawing up a free-form application and sending it either by e-mail to: kirjaamo.pirkanmaa@ely-keskus.fi or by post to Pirkanmaa ELY Centre, Registry, P.O. Box 297, 33101 Tampere. Instructions for drawing up a free-form application can be found here (in Finnish and Swedish).

Additional information:

- Construction in a highway buffer zone (in Finnish). ELY Centre (ely-keskus.fi).
- Permit for construction in a road protection zone. ELY Centre (ely-keskus.fi).

Construction permit for a hydrogen transmission pipeline

Construction of hydrogen transmission pipelines is always subject to a construction permit from Tukes. The permit must be applied for well before starting the operations. The permit will only be granted if the safety requirements

laid down in the Act on the Safe Handling of Dangerous Chemicals and Explosives (390/2005, chapter 2, Chemicals Safety Act) are met. The construction permit issued by Tukes lays down requirements for the inspection procedures of the pipelines.

A permit application for the construction of a hydrogen pipeline shall include, among other things, a written location plan, details on the planned location and properties of the pipeline, description of the location of the pressure reduction and pressure increase stations and valve stations, an assessment of the significant environmental impacts of the pipelines and a plan to prevent them, an assessment of the accident risks associated with the pipelines and pressure increase and reduction stations and preparation for them in location planning, and an explosion risk assessment and, where appropriate, an explosion protection document.

Additional information:

- Safety of hydrogen handling and storage. Tukes (tukes.fi).

Further information on the topics

Bio-CHP and bioheating plants

Association of Finnish Cities and Municipalities and Finnish Energy. Placement of conduits serving the community (in Finnish). 8 March 2018

LHT network / Joint authority of Tampere City Region Development and planning of regionally significant bioeconomy and circular economy areas (in Finnish). Report of 3 April 2018.

Motiva. Bioenergy (in Finnish).

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Vihanninjoki, Vesa. Hajautettu energiantuotanto Suomessa – Nykytila ja tulevaisuus sekä vaikutukset ilmanlaatuun (Decentralised energy production in Finland – Current state and future as well as impacts on air quality; in Finnish). The Finnish Environment Institute (SYKE), 30 June 2015.

Ymparisto.fi. Medium-sized energy production plants (in Finnish).

Ministry of the Environment. Ohje: Government Decree on Environmental Protection Requirements for Medium-sized Energy Production Units (in Finnish).

Ministry of the Environment, Ministry of Agriculture and Forestry, Finnish Food Safety Authority Evira. . Tuotantoeläinten lannan käyttö polttoaineena polttoaineteholtaan enintään 50 MW:n kattiloissa (Use of livestock manure as fuel in boilers with a maximum fuel capacity of 50 MW; in Finnish). Guidelines 14 November 2018.

Biogas.

Association of Finnish Cities and Municipalities and Finnish Energy. Placement of conduits serving the community (in Finnish). 8 March 2018

LHT network / Joint authority of Tampere City Region Development and planning of regionally significant bioeconomy and circular economy areas (in Finnish). Report of 3 April 2018.

Motiva. Biogas (in Finnish).

Paukku, Eelis. Maatalouden biokaasuvoimaloiden sääntely – Markkinahäiriöistä potentiaalin hyödyntämiseen (Regulation of agricultural biogas power plants – From market disturbances to exploiting potential). Ympäristöjuridiikka 1/2020.

Paukku, Eelis. Maatalouden biokaasulaitoksen ympäristöluvat ja alueen kaavan mukainen käyttö (Environmental permits for an agricultural biogas plant and the use of the area in accordance with the plan). Ympäristöjuridiikka 2/2020.

Finnish Environment Institute. Environmental permits for agricultural biogas plants – A guide to operators and permit and enforcement authorities (abstract in English). Reports of the Finnish Environment Institute 33/2013.

Finnish Safety and Chemicals Agency (Tukes) Natural gas and biogas.

Finnish Safety and Chemicals Agency (Tukes) Safe handling of natural gas (in Finnish). Tukes guidelines 7/2015.

Vihanninjoki, Vesa. Hajautettu energiantuotanto Suomessa – Nykytila ja tulevaisuus sekä vaikutukset ilmanlaatuun (Decentralised energy production in Finland – Current state and future as well as impacts on air quality; in Finnish). The Finnish Environment Institute (SYKE), 30 June 2015.

Ymparisto.fi. Medium-sized energy production plants (in Finnish).

Ministry of the Environment. Ohje: Government Decree on Environmental Protection Requirements for Medium-sized Energy Production Units (1065/2017, in Finnish and Swedish). 11 May 2020.

Onshore wind power

ECO2 – Eco-efficient Tampere 2020 project. Everyone's guide to using small-scale wind power (in Finnish). 2011

Motiva. Small-scale wind power (in Finnish).

Motiva. Wind power (in Finnish).

Traficom. Information for wind farm contractors.

Finnish Government's analysis, assessment and research activities. Advancing wind power construction – Means for streamlining of project development and for coordination of various objectives (abstract in English). Publications of the Government´s analysis, assessment and research activities 2021:51.

Ministry of the Environment. Modelling of wind turbine noise (abstract in English). Environmental Administration Guidelines 2/2014.

Ministry of the Environment. Planning wind power construction (abstract in English). Update 2016. Environmental Administration Guidelines 5/2016.

Offshore wind power

European Commission. Communication from the Commission on the EU Strategy to harness the potential of offshore renewable energy for a climate neutral future.

Motiva. Wind power (in Finnish).

Traficom. Information for wind farm contractors.

Finnish Government's analysis, assessment and research activities. Advancing wind power construction – Means for streamlining of project development and for coordination of various objectives (abstract in English). Publications of the Government´s analysis, assessment and research activities 2021:51.

Ministry of the Environment. Planning wind power construction (abstract in English). Update 2016. Environmental Administration Guidelines 5/2016.

Ministry of the Environment. Environmental impact assessment.

Solar power

Finnish Energy. Mikrotuotannon liittäminen sähkönjakeluverkkoon (Connecting microproduction to the electricity distribution network; in Finnish). Network recommendation YA9:13. Updated on 3 December 2019.

Finnish Energy. Sähköntuotantolaitoksen liittäminen jakeluverkkoon (Connecting an electricity production plant to the distribution network; in Finnish). Instructions 12/2011. Updated on 27 April 2016.

Motiva. Solar heating (in Finnish).

Motiva. Solar power (in Finnish).

Helsinki-Uusimaa Regional Council 2017. Energiaa auringosta – Vinkkejä teollisen mittakaavan aurinkoenergian tuotantoon Uudellamaalla (Solar energy – Tips for producing industrial-scale solar energy in Uusimaa; in Finnish)

Helsinki-Uusimaa Regional Council. Uudenmaan aurinkoenergiaselvitys – Aurinkoenergian tuotannon edistämisen mahdollisuudet Uudellamaalla (Solar energy survey in Uusimaa – Opportunities for promoting solar energy production in Uusimaa; in Finnish). Publications of the Helsinki-Uusimaa Regional Council, E 193-2017.

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Heat pumps

Motiva. Heat pumps (in Finnish).

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Ministry of the Environment. Energy well – ground-source heat in one-family houses (abstract in English). Environment Guide 2013.

Geothermal energy

Institute of Seismology – University of Helsinki 2019. Selvitys geotermisen energian syväreikäporaamisesta, siihen liittyvistä ympäristönäkökohdista sekä riskienhallinnasta – Opastava tietoa lupaviranomaisille (Report on deep-hole drilling of geothermal energy, related environmental aspects and risk management - Guidance for permit authorities; in Finnish)... Report S-68

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Hydropower

Motiva. Small-scale hydropower (in Finnish).

Motiva. Hydropower (in Finnish).

Finnish Environment Institute. Small water body guide – Identification of small water bodies and legislation (abstract in English). Reports of the Finnish Environment Institute 36/2019.

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Ministry of the Environment. Uudistunut vesilaki 2011 – Keskeinen sisältö ja tärkeimmät muutokset (Renewed Water Act 2011 – Key content and the most important changes; in Finnish). Reports of the Ministry of the Environment 1/2012.

Production of fuels

Motiva. Liquid biofuels (in Finnish).

Ministry of Economic Affairs and Employment. Biofuels.

Prime Minister's Office. Study on electricity self-production, energy communities and energy projects related permit procedures (abstract in English). Publications of the Government´s analysis, assessment and research activities 2019:73.

Production of hydrogen

Gasgrid. Development.

Motiva. Hydrogen (in Finnish).