

Authority services

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Swedish Environmental Protection Agency
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Finland's response to the notification regarding the planned offshore wind farm project "Ran"

The Finnish Environment Institute hereby acknowledges that Finland has received the notification, dated 10 January 2024, and the consultation documents from Sweden in accordance with Article 3(1) of the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) regarding an environmental impact assessment (EIA) procedure of the planned offshore wind farm project "Ran" in Sweden's territorial waters. The developer, Ran Vindpark AB (owned by OX2 and Ingka Investments) plans to apply for permit to construct and operate the offshore wind farm 'Ran', located approximately 12 kilometers east of the island Gotland. The planned project area of Ran covers about 330 km². The Ran Energy Farm will consist of approximately 90-121 wind turbines. The wind farm will include related equipment such as transformer/inverter stations and submarine cables. The maximum overall height of the wind turbines is expected to be up to 310 meters.

Consultation in Finland

According to the Act on Environmental Impact Assessment Procedure (252/2017), the Finnish Environment Institute is the competent authority and responsible for consultation tasks related to the Espoo Convention. The Swedish Environmental Protection Agency requested an indication whether Finland intends to participate in the EIA procedure and to provide comments on the scope of for the assessment of the environmental impacts of the project on Finland, and to submit any comments that might be received from the public in Finland. The public and authorities were given the opportunity to comment on the consultation documents from 23 January to 22 February 2024. The consultation documents were available, and statements were asked on the website of Finland's environmental administration and on the website of electronic public consultation. The Finnish Environment Institute received 13 statements.



Participation in the EIA procedure and statements received during the consultation

Based on the received statements and deliberating its own views, the Finnish Environment Institute states in accordance with Article 3(3) of the Espoo Convention that Finland intends to participate in the EIA procedure.

Finland wishes to note that planning of offshore wind farms has increased in the Baltic Sea region which has raised concerns, among other things, about the need for an overall assessment. In offshore wind farm project, all contributing factors should be known, and their impacts assessed to ensure that the decision on the implementation of the project is based on firm knowledge of its impacts and on the best possible solution on reducing them. In addition, as cumulative impacts of several offshore energy farms can potentially be ecologically significant, it is important to examine and assess cumulative impacts as widely as possible. Also, the EIA documentation should clearly address transboundary impacts from Finland's perspective and consider the remarks in the statements in further planning. The original statements, which are enclosed to this letter, include important and detailed remarks which need be taken fully into account in the EIA. The Finnish Environment Institute has prepared a summary of the original statements.

Statements received

Finnish Transport and Communications Agency (Traficom)

The planned offshore wind power projects in the Baltic Sea have grown significantly in recent years in both Finland and Sweden. If implemented, a large-scale offshore wind farms, and especially offshore wind farms located near each other, it can have a significant impact on shipping in the Baltic Sea from the perspective of both maritime safety and its smoothness.

When delimiting the area of planned offshore wind power projects, it is important to consider the traffic routes used by shipping also outside the reinforced fairways and routing systems, so that the operating conditions and safety of shipping are considered in the planned project area. The potential combined effects of offshore wind power projects surrounding the project area on shipping in the area should be comprehensively investigated during further planning. Large wind farms located close to each other can centralise and change shipping routes compared to the current ones (to be considered when assessing impacts).

In the spatial planning of areas designated for wind turbines and the placement of individual wind turbine structures, consideration should be given to radar usage as the primary navigation and collision avoidance tool for vessels, and its central role in traffic control. Wind turbines can cause either shading or spillover effects on marine radars, which at worst make it difficult to interpret radar signals. Wind turbines can also affect the satellite positioning of vessels, i.e., the Global Navigation Satellite System (GNSS), in such a way that satellite signals are reflected through wind turbines, causing incorrect positioning of the vessel using the system. The location planning of the area designated for wind turbines, and later for individual wind turbines, consideration should also be given to the potential impacts of wind turbines on maritime and coastal radio systems. The reliable operation of radar and radio systems is an essential part of maintaining maritime and public safety. Effects of wind turbines on radars, radio navigation equipment, etc. The operation of radio equipment important for shipping and traffic control should be considered and ensured.



The operation of radio links operating in the sea area requires a fully accessible area between transmitter and receiver. Since electronic communications services in coastal and maritime areas depend on radio systems, it is important to ensure that mobile services, radars, and radio links operate sufficiently undisturbed, including in maritime areas. Even small changes in the placement of wind turbines can have a decisive impact on the operation of radio systems in an area. The Finnish Transport and Communications Agency considers it important that these factors are also considered.

In Finnish Transport and Communication Agency's view, it would be justified for Finland to participate in the EIA procedure of the planned project, because considering the location of the project area and other offshore wind power projects planned in the vicinity of the project area, the projects may also have an impact on shipping to and from Finland.

Ministry of Transport and Communications

The Ministry of Transport and Communications has no comments to make on the notification or consultation document, but it would be justified to be able to follow the process also in the future. From Finland's point of view, it would be useful to obtain more information on, for example, the studies and practices used to support planning, especially when coordinating shipping and offshore wind power.

Finnish Meteorological Institute

The Finnish Meteorological Institute has studied the proposal and states the following: Regarding marine physics, the Finnish Meteorological Institute points out that it carries out observation activities related to the monitoring of the Baltic Sea using both automatic measurement methods (such as Argo buoys) and measurements made from ships. The construction of the wind farm particularly complicates the use of automated measurement methods in the area, as their maneuverability is limited. (e.g., Argo buoys are free-floating). Although Ran Park is built in a shoal where Argo buoys do not normally operate, their route cannot be guaranteed. Due to the impacts related to marine observation, the Finnish Meteorological Institute considers that Finland should be involved in the environmental impact assessment to ensure good availability of marine observations also during the construction of the park – for example, by adding an observation station in connection with the park.

Regarding the weather radar network, the Finnish Meteorological Institute has no comments to make on Finland's need to participate in the environmental impact assessment procedure for the planned Ran offshore wind farm in Swedish territorial waters, as the area is more than 20 km away from the nearest weather radar of the institute.

Centre for Economic Development, Transport, and the Environment of Southwest Finland

The Centre for Economic Development, Transport and the Environment of Southwest Finland supports Finland's participation in the environmental impact assessment procedure of the planned project.

The greatest combined effects will affect birds, fish, and marine mammals. The Central Baltic Sea region is an important wintering, nesting, and feeding area for many species of seabirds, and large numbers of seabirds migrate through the region. Bird species nesting in Finland can also make use of Swedish sea areas during migration periods, and essential migration routes may be located in the vicinity of the project area, so the project may have an impact especially



on migratory birds in Finland. Possible synergies with other offshore wind projects planned in the Baltic Sea region are also considered important.

The Centre for Economic Development, Transport, and the Environment of Southwest Finland has studied the consultation document corresponding to the project's environmental impact assessment programme. Regarding impacts on the Baltic Sea, the Centre for Economic Development, Transport, and the Environment of Southwest Finland states that the consultation document should assess the environmental impacts in relation to the indicators of good environmental status of the marine environment and take into account the marine spatial management plan and its objectives. In addition, the effects of cable corridors and marine waste disposal areas on the integrity of the seabed and further on extensive habitats should be considered.

Noise modelling should also be used to determine the impact of a wind farm during operation on underwater noise in the sea area compared to its current level.

Regarding bird populations, the Centre for Economic Development, Transport, and the Environment of Southwest Finland states that the combined effects of wind power projects located on important main bird migration routes may have population level effects that weaken bird populations, especially due to collision mortality. In assessing the impacts on bird populations, special attention should be paid to the location of migration routes in relation to wind turbines and the significance of these impacts should be assessed. It is also important to identify rest and feeding areas during migration and the species most sensitive to wind power. Surveys must be carried out appropriately, using the best possible methods. Available satellite monitoring data can be used as an add-on to the impact assessment. Mitigation measures and opportunities to offset impacts should also be examined.

In addition to the regional impacts of wind turbines, synergies must be considered on a large scale and challenges and uncertainties related to direct assessment must be identified.

Centre for Economic Development, Transport, and the Environment of Southwest Finland – Fisheries Authority

According to the Fisheries Authority, Finland should participate in the EIA procedure of the RAN project in the future. Finland has fishing rights in the project area, in Swedish territorial waters, and the area is well suited for trawling. In addition, fish stocks in the Baltic Sea are shared, and fishing is regulated at EU level.

The Authority notes that, in accordance with Article 5(2) of Regulation EU 1380/2013 of the European Parliament and of the Council, Finnish fishing vessels have the right to fish in the outer areas of Swedish territorial waters (4 to 12 nautical miles from the Swedish baseline) where the planned wind power production area is located. Fishing by Finnish vessels or vessels landing in Finland in the project area and its neighbouring areas is currently sporadic. Despite this, the Fisheries Authority considers the potential of the project area to be significant for Finland's security of supply and the development of fisheries. Fish stocks important for Finnish fisheries, especially Baltic herring, Baltic sprat, and salmon, circulate in the project area. Construction activities and continuous operations may affect fishing, fishing opportunities, the value and availability of catches, fish migration routes, reproductive success, and contaminant concentrations, and thus Finnish fisheries. In addition, the Authority considers that the ecological impact of such a large project on the ecosystem of the jointly exploited marine area



and thus on the common fish stocks could be significant. The Ran project is one of a number of projects that may be implemented simultaneously in the Baltic Sea. The impacts of significant projects alone can multiply and permanently change the marine environment. For this reason, all impacts must also be assessed from the point of view of synergistic effects.

The consultation document identifies the importance of the project area for fisheries and the fisheries operating in the area reasonably well. Finnish fishing in the nearby area is not recognised. The document recognizes that the project will cease fishing in the production area altogether, but there is no analysis of the wider impact. There is also a complete lack of more detailed research into fisheries, which means that the effects cannot be assessed. Strategies to mitigate the impact of fishing are not provided. The document does not take a position on the fact that a significant part of the project area is reserved in the Swedish maritime spatial plan for commercial fishing (*riksintresse yrkesfiske*), not for energy production. According to the maritime spatial plan, fishing vessels should be able to fish in these areas (*Förutsättningar för att bedriva yrkesfiske ska bibehållas. God tillgänglighet för yrkesfiskefartyg till hamnar och fiskeområden lämpliga utifrån variationer över säsonger och år ska beaktas.*), which conflicts with the project plans.

The Authority considers that the following issues need to be thoroughly clarified:
 Current state of fishing and permanent changes in fishing opportunities: Wind farms and their remnants prevent trawling, as also stated in the consultation document. It is necessary to find out the current fishing use of the area for all EU countries and how the project will affect fishing opportunities. Potential trawl routes and lifting sites shall be identified (through VMS data and interviews). Areas where trawling becomes impossible must be put on the map. Where appropriate, how fishing can be enabled (e.g., trawling corridors, changes to project area boundaries) shall be provided. Long-term consequences after a possible decommissioning or disaster must also be considered. The dismantling capacity of power plants and other structures shall be assessed. In the view of the Fisheries Authority, the technical conditions for safe trawling do not exist when the distance between power stations is less than 3 km. The Fisheries Authority is aware that, as things stand, fishing by Finnish vessels in the area is very low. However, the area has potential significance for Finnish vessels, and considering the interests of the vessels currently operating in the area also secures fishing opportunities for the Finnish Navy.

Impact of sediment emissions during construction on fish stocks: Dredging, cabling and disposal operations cause extensive turbidity and sediment emissions. The scale of the project refers to an emissions period of several years within a radius of at least tens of kilometres. Modelling of the passage of sediment clouds caused by construction work shall be carried out and the impact on the chemical-physical conditions of the water (e.g., O₂ and nutrients) shall be assessed, both in terms of construction activities and the resulting changes in the bottom profile. Timing options for expected sediment discharges shall also be presented so that disruptions can be related to other future projects. On this basis, an assessment shall be made of the harmfulness of this to the spawning grounds, benthic fauna, and the oxygen status of the underwater in the affected area. Where appropriate, proposals shall be made on how to avoid overloading sensitive areas (e.g., technical solutions, construction strategies such as construction breaks).

- Changes in flow conditions and stratification: the wind turbine area is large enough to allow effects on surface flows (wind weakening, upwelling and subsidence). These can affect



water stratification, temperature and concentrations of nutrients, salt, and oxygen at different depths. In theory, stronger stratification could alter nutrient concentrations in surface water, causing changes in fishing production and blue-green algae blooms. Expected changes in flow conditions and their impact on physicochemical conditions shall be modelled and the ecosystem and fish impact assessed.

- Toxic emissions and potential for accumulation in fish: List of substances/compounds, estimated emission rates and time intervals and an estimate of their accumulation in commercial fish. At least the following shall be considered as possible sources: sediments, drilling chemicals, protective paints, lubricants for turbines and moving parts, coolants for transformers. There are also accidents and e.g. The potential emissions scenarios of sabotage (worst-case) must be assessed in terms of their impact on fisheries.
- Research-based assessment of how wind farm structures and possible artificial reefs affect ecosystem structure and fish stocks (reef effect): The positive reef effect mentioned in the document is a theory that needs to be proven in the conditions of the project site. The document also mentions that there are no significant populations of target species in terms of depth in the production area. The reef effect is a change in natural ecosystems that must be approached primarily on the precautionary principle.
- Alien species strategy: The Baltic Sea is vulnerable to alien species that can also adversely affect fish stocks. If other wind power projects are realised, the import of construction and dredging vessels and foundations from outside the Baltic Sea seems likely. Such equipment may be a more suitable platform for the establishment, survival, and domestication of various organisms than ordinary merchant vessels. The project manager must understand the risk of invasive alien species and a strategy on how to respond to it. The steppingstone effect of the park's artificial structures must also be considered, for example, when choosing different building materials. The thermal and reef effects (local eutrophication) shall also be assessed in this context. Permanent species monitoring is desirable.

The Association of Bothnian Bay Fishing Communities

The construction of the RAN offshore wind farm may have significant adverse cross-border environmental impacts. These target both local and migratory fish stocks and commercial fishing. That is why we feel the need to make a statement.

At the moment, massive offshore wind farm projects are being planned in the northern parts of the main basin of the Baltic Sea and in the entire Gulf of Bothnia, including the Bay of Bothnia, both on the Swedish and Finnish sides, and especially in the exclusive economic zones. The impact of these on migratory fish or local fish stocks and commercial fishing has not been sufficiently investigated and assessed. For example, how large sea areas will offshore wind farms completely close to commercial fishing? In particular, the cumulative impacts of projects have not been assessed at all. The cumulative effects must be assessed objectively and critically examined, so that the same does not happen in marine areas as what happened with the construction of free-flowing rivers in the past.

In the Bay of Bothnia, most of the annual stocking of migratory fish (sea salmon, trout, and Baltic whitefish) is carried out in the estuaries of built rivers. In addition, the most important rivers for the natural reproduction of Atlantic salmon in the entire Baltic Sea region (Torne River



and Simo River (Simojoki) are in the Bay of Bothnia. The migratory fish mentioned above feed all the way to the main basin of the Baltic Sea, when they move through offshore wind farm areas when they go to feed and return to spawn in their home rivers in the Bay of Bothnia. At present, there is no reliable research data on the effects of offshore wind farms and their cable lines on migratory fish. These must be investigated before wind power is built uncontrollably in marine areas. The studies must be commissioned by an impartial party (e.g., SLU and Luke) at the expense of the party responsible for the project.

With reference to the above, it is imperative that Finland participates in the offshore wind power construction projects planned in Sweden and the exclusive economic zone.

Finnish – Swedish Transboundary River Commission

The Finnish-Swedish Transboundary River Commission points out that although the project area is located outside the geographical scope of application of the Transboundary River Agreement (91/2010), the project may have impacts on the Torne River through the impact on migratory fish. Salmon in the Torne River will migrate even to the southern Baltic Sea, probably through the project area or over submarine cables that lead the generated electricity to land. For the purpose of the Transboundary Rivers Convention, particular attention must be paid to the conservation and sustainable use of fish stocks (Art. 2.2.d). The Commission underlines that the Commission is interested in this area, as marine activities such as large-scale offshore wind energy may have a potential impact on migratory fish stocks.

The Finnish-Swedish Transboundary River Commission considers Finland's participation in the consultation on the offshore wind power project Ran important. The Commission stresses that transboundary effects cannot be excluded, especially regarding migratory fish stocks.

At the time of writing, there is still limited information on the potential impact of marine wind power on migratory fish stocks. In view of the large amount of planned offshore wind power in the Baltic Sea and the Gulf of Bothnia, the Commission stresses the importance of acting according to the precautionary principle. It is important to thoroughly investigate the potential combined and cumulative impacts on migratory fish stocks from all planned wind power projects in the entire Baltic Sea region.

The Finnish Professional Fishermen's Association (SAKL) states that, a large number of offshore wind industry areas are currently planned for the Bothnian Sea, the Bay of Bothnia and the northern parts of the main basin of the Baltic Sea without greater coordination and analysis of synergies. In practice, the project areas will become fishing prohibition zones.

The above-mentioned sea areas are important for the Finnish fishing industry. In November 2023, Luke published a report entitled "Fishing areas of the Finnish trawl fleet in the Baltic Sea in 2010–2022."

The impact of a possible Ran offshore wind industry area on fish harvesting (especially Baltic herring, Baltic sprat, salmon) and Finnish fisheries needs to be thoroughly investigated. The long-term significance of the project area for commercial fishing shall be assessed. It is particularly important that the cumulative effects of the project with other planned offshore wind industry areas are investigated.

With reference to the above, SAKL considers it essential that Finland participates in the EIA



procedure for the planned Ran project in Sweden and monitors its progress.

Finnish Heritage Agency

The Finnish Environment Institute has given the Finnish Heritage Agency the opportunity to comment on Finland's need to participate in the EIA procedure for the planned Ran- offshore wind farm in Swedish territorial waters. The Finnish Heritage Agency comments on the matter from the perspective of underwater cultural heritage.

According to the experience of the Finnish Heritage Agency, underwater cultural heritage sites related to a construction project on the high seas are, above all, shipwrecks that may have historical connections to different states. International exchange of information related to wrecks and their protection and research is common practice, which is a prerequisite for understanding the background of the sites and for their benefit in terms of conservation. However, underwater cultural heritage sites are physical remains located in a limited area for which mapping, conservation and research activities do not have concrete cross-border environmental impacts.

From the point of view of taking underwater cultural heritage into account, there is no need for Finland to participate in the environmental impact assessment procedure for the planned Ran offshore wind farm project in Swedish territorial waters.

The Government of Åland

The Government of Åland decides to issue the following statement: As far as the Åland Islands are concerned, there is no need to participate in the environmental impact assessment procedure of the Ran Wind Farm east of Gotland in the Swedish exclusive economic zone. The distance is large, over 200 kilometres to waters of Åland and just over 250 kilometres to the coast of Åland that direct consequences for Åland are considered unlikely.

Finnish Safety and Chemicals Agency, Finnish Border Guard and Finnish Transport Infrastructure Agency

The above-mentioned organisations stated that they have no specific comments to make at this state at the process.

Service Development Director

Heli Karjalainen

Senior Officer,
 Point of Contact to the Espoo Convention
 and the Protocol on SEA

Ulla Helminen

This document has been electronically signed. The electronic signatures can be verified from the register office of the Finnish Environment Institute.



Appendices Received statements in Finland

For information Ministry for the Foreign Affairs of Finland
 Ministry of the Environment
 Ministry of Transport and Communications
 Finnish Transport and Communications Agency (Traficom)
 Finnish Meteorological Institute
 Finnish Transport Infrastructure Agency
 Government of Åland
 Finnish Association of Professional Fishermen (SAKL)
 The Finnish Border Guard
 Finnish Heritage Agency
 Finnish Safety and Chemicals Agency (Tukes)
 Finnish – Swedish Transboundary River Commission
 The Association of Bothnian Bay Fishing Communities
 Centre for Economic Development, Transport of Southwest of Finland
 Centre for Economic Development, Transport of Southwest of Finland – Fisheries Authority

