

Feedback report on market dialogue conducted in November 2020 concerning Hesselø Offshore Wind Farm tender conditions

Center
Center for Renewables

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Background

The Danish Energy Agency (DEA) and the Danish TSO Energinet conducted a virtual market dialogue on the Hesselø tender on 25-30 Nov 2020, where bilateral meetings with interested market players were held. The market dialogue was based on the dialogue material *Invitation to dialogue* (to be found on www.ens.dk/hesselo) published before the bilateral meetings were held, in order for market players to be able to inform themselves on the proposed main topics and terms of the tender conditions.

As part of the market dialogue, market players had the opportunity of submitting written questions and comments, which, in anonymized form, the DEA and Energinet addresses in this feedback report. The structure of the report follows the themes set out in the dialogue material.

The market dialogue and the related report primarily serve the purpose of collecting questions and comments to the proposed overall elements of the tender and to clarify a range of issues.

The DEA has received a large amount of detailed and constructive input on the issues raised in the invitation to dialogue. This report reflects the received input in a summarized form as well as the feedback from DEA and Energinet in order to secure both confidentiality and appropriate and usable volume of the report. In the same manner, not all questions are reflected and answered concretely in this report.

However, all questions and comments received during the market dialogue are highly appreciated and will be considered when preparing the tender material.

Disclaimer and use of inputs from the dialogue

The information, including the written feedback in this report, provided by the DEA and Energinet during the market dialogue in the fall of 2020 is non-binding to the DEA. The feedback report from the market dialogue is therefore without any legal status during the tender procedure.

The DEA will as far as possible decide finally on the individual topics when preparing the tender material (contract notice, draft concession agreement, draft construction license etc.) which is expected to be published in Q3 2021 and which will formally initiate the tender process.

If you have questions to the tender material when published in Q3 2021, you are encouraged to ask questions at that point in time.

Theme 1: Time table

Summary over input received:

Market players have expressed that the overall timetable for the Hesselø OWF is considered tight but achievable. However, many market players pointed at a risk for delays in the construction phase. Among other, the following views and suggestions have been put forward:

- The compressed timeline favors developers that already have a big market presence in DK and have experience with managing Danish regulatory and stakeholder risk.
- One market player has requested another 30 days added to the pre-qualification.
- Delivery of the environmental surveys and SEA on time is considered important, as delays might impact bid prices, as well as the concession agreement, the issuing process for license for preliminary investigations and the EIA process should be effectuated as quickly as possible after concession winner is found.
- Obtaining the license for preliminary studies as early as possible and the EIA in a timely manner in 2024 is needed to allow the project to reach FID and to facilitate the execution of construction contracts as early as possible in 2025.
- The onshore part of the grid connection is considered challenging, and market players request a clear framework with regards to expropriation etc.
- Some of the market players consider the proposed milestone for grid connection 1 January 2026 as early and suggest flexible approaches or to postpone the milestone to Q3 2026, while others find the date is acceptable and should not be postponed.
- A flexible approach to delays and clear framework for delay events, possibly with predefined milestones that determine grounds for extending the completion date and postponing the completion date of 50 % of the installation of turbines into 2028 has been proposed.

The DEA has noted all input given and will consider the possibilities to meet the proposals put forward.

The 60 days for prequalification will not be prolonged due to the compressed timeline for the tender.

With regards to the date for first power, the concessionaire will have the opportunity to make specific agreements with Energinet about the expected date of utilization of the grid, etc. Modifications of possibilities for opening of the grid connection window and a phasing-in is under consideration and will be decided when the tender material is published.

With regards to the proposed postponing the completion date of 50 % of the turbines into 2028 the DEA does not expect to make changes to the final timeline in 2027 which has been decided politically. However, the DEA will thoroughly consider the framework for delay events and time limit extension for the completion date. The DEA will also seek to include a high level of information on the framework for expropriation as well as to the regulatory framework for both the onshore project and the offshore project in order to derisk the project.

Questions and answers:

Q1.1: Why is the granting of licence for preliminary surveys located Q2 2023 and not Q4 2022 parallel with the announcement of the concession winner?

Provide the license for preliminary investigation immediately after award / or even automatically together with the award. Please come up with creative ideas to make this possible. For example: request a certain set of data at final bid (so not only the bid price) so that this can be processed asap.

A1.1: The notion of Q2 2023 is only an estimation. Before the license for preliminary investigations can be granted, the DEA will have to assess information submitted by the concessionaire on the concrete project offshore and on the investigations planned, underwater noise, an assessment of any impact on Annex IV species etc. Furthermore, there will be conducted a hearing over the draft of the license with other relevant authorities.

The sooner the DEA receives the necessary information from the concessionaire after finalizing of the concession agreement, the faster this process can be initiated.

The DEA has noted the need for the issuance of the permit as soon as possible and will consider if there are any possibilities to speed up the described process and the suggestions put forward.

Theme 2: Conditions for pre-qualification

Summary over input received:

Concerning this theme, the DEA has received quite different input. Some of the market players have expressed that the technical minimum requirements for the prequalification should be reviewed to secure a better level playing field while others assess that the technical requirements presented by the DEA are appropriate. Also with regards to the financial minimum requirements there have been proposals and questions put forward in order to achieve a greater range of possible bidders/constellations of bidders, while other market players find the presented financial minimum requirements appropriate. The DEA has also received different input with regards to the selection criteria in case of more than 10 applicants. Among other, the following views, questions and suggestions have been put forward:

Technical minimum requirements:

- The DEA was suggested to include the following technical minimum requirements: HSE all offshore wind project in development, general offshore installation and operational experience and experiences with such onshore activity and the negotiation with landowners.
- There has been expressed a concern that current Hesselo pre-qualification requirements (in comparison with other countries' OWF projects) are shaped fairly narrow and stringent
- One market player requested more details and required parameters for project planning, design, procurement, execution and quality control in line with what was provided as part of the Thor tender.

Financial minimum requirements:

- Some of the market players have asked the DEA to consider including an alternative financial criterion that is more inclusive while still securing credibility of applicants and the success of the project, since the financial requirements as presented by the DEA could unnecessarily exclude credible investors with for example strong financial backing, access to significant financing, but limited or no turnover from participating in the tender.

Selection criteria if more than 10 applicants apply for pre-qualification:

- Pure price selection criteria are preferred as this will insure that the Danish state gets the most competitive project.
- Some market players have expressed a demand for further details on selection criteria and the evaluation process to be adopted should there be more than 10 applicants, especially with regards to the weighting of the criteria.
- A scoring matrix has been proposed, and among other, it has been proposed that the DEA publishes examples on weighting scenarios in the tender material.

The DEA has noted all input given and will consider the concerns and proposals put forward. With regards to the further specification of the selection criteria, the DEA has noted the concerns, questions and suggestions put forward and will consider if the DEA's assessment of the selection criteria can be specified.

Questions and answers:

Q2.1: Is any form of previous experience working with battery storage or PtX required to fulfill the prequalification conditions?

A2.1: No. Experience with battery storage or PtX will not be part of the minimum requirements for participating in the prequalification.

Q2.2: What is the rationale for linking the technical requirements to a completed OFW/AC-substation as it can be argued that at least 3, if not more, of the 5 key areas also is valid for developers who is currently developing their first OFW where min. 150MW already has been finalized?

A2.2: In the DEA's point of view, the technical minimum requirements are only met when a wind farm is fully commissioned.

Q2.3: How does the DEA deal with investment vehicles which only have one or two year(s) of financial statements available?

A2.3: As for Thor OWF, it is the intention that the applicant must demonstrate a certain annual overall turnover calculated as an average of the latest three financial years available. If the applicant has not existed in three years, the applicant must rely on the economic and financial capacity of other entities. In this case the average overall annual turnover will be calculated based on the total combined turnover of the applicant and such other entities in each of the three latest annual reports available.

Theme 3: Support mechanism

On 26 March 2021, the support mechanism for Hesselø OWF was decided by the political parties behind the Climate Agreement. You can find a description of the support mechanism here www.ens.dk/hesselo

Many of the questions regarding the support mechanism posed in the market dialogue has been concluded in the decided support mechanism. Some additional questions are answered below.

Questions and answers:

Q3.1: Will there be a support mechanism or separate market/policy initiatives to incentivize PtX?

A3.1: Yes, in the climate agreement of June 2020 it was agreed to establish a separate support scheme for PtX. Support will be provided through state tender to PtX-plants. The details as to the design of such tenders are currently being considered.

Q3.2: Will there be a support mechanism or separate policy initiatives to incentivize end users of PtX products to adopt them?

A3.2: There are no specific schemes directed towards incentivize end users of PtX products, but PtX products are included in a scheme together with biofuels and other renewable fuels etc. aiming at reducing wtw emissions (well to wheels) from fuels used in the transport sector (pr. MJ), following the principal methodology from the Fuel Quality Directive.

Q3.3: Will there be any requirement with regard to minimum capacity fed in to the POC? This is amongst others relevant in relation to potential PtX scenarios.

A3.3: There will be no requirement on minimum capacity fed into the collective electricity grid.

Q3.4: Could the Danish Energy Agency please elaborate on the following phrase on page 25 "Installing batteries or PtX assets in connection with Hesselø OWF is optional and will not have any impact on the DEA's assessment of the tenderers offers" as it can be interpreted as somewhat antagonistic in relation to other statements of the latter, thus blur the DEA's intention and expectations on the matter.

A3.4: Please refer to the description of the subsidy scheme [here](#).

Q3.5: We believe the current setup of the CfD will potentially reduce the value of the PtX, and thus may be counter-productive overall. We feel this is because, in the Hesselo material, PtX is primarily viewed as an enabler to supply more power to the grid at times of low wind speeds/high prices, and to supply less power to the grid at times of high wind speeds/low prices. However, our initial investigations indicate that this limits the possible technical configurations and business models for PtX, as it prioritizes the electrical supply to the grid at the expense of the PtX, resulting in an asset which contributes less effectively to the overall energy system. Further investigations of this are however ongoing, the results of which will be communicated when available.

A3.5: It is not the DEA's view that the PtX assets should primarily allow the concessionaire to deliver more power to the grid at times of low wind speeds/high prices, and to supply less power to the grid at times of high wind speeds/low prices. The concessionaire can for example choose to produce hydrogen with the PtX assets and therefore not deliver the electricity to the grid.

Theme 4: Penalty for defective performance, guarantee etc.

Summary over input received:

With regards to the model for penalties and guarantees posed in the discussion paper, some market players stressed the risks in relation to the proposed SEA/EIA processes, and propose that these risks should be reflected and handled in the tender documents, hereunder in the penalty scheme. Among other, the following views, questions and suggestions have been put forward:

- As the concession winner in the Hesselø tender is responsible for the EIA process offshore, the penalties for defective performance should be subject to exemption in the event a license for construction is not granted or the conditions in the license impose significant restrictions.
- The DEA is encouraged to allow a parent company guarantee which matches the requirements for credit rating as proposed by DEA to avoid costs for well-funded bidders with no negative impact to the DEA, which would potentially result in a lower bid.
- The penalties for delay of completion of the wind farm proposed by DEA, should be subject to appropriate Force Majeure conditions such as delayed grid connection or delays in award of final construction licence due to reasons outside the control of the concession owner. Delay events need to be outlined. The developer should not be held responsible for delays which may result from risks out of the control of the developer.
- It is recommended that the DEA provides in the tender documents a list of clearly defined key milestones and a list of all deliverables should be linked to these milestones (e.g. delivery of Detailed Project Plan, Detailed Programme etc). The penalized milestones ("start of construction" or "95% commissioned" should move automatically (i.e. without necessary application by concession winner) if license for construction and EBA ruling is delayed (Extension of Time application process).
- Rather than large penalties up front, it is recommended, that penalties start off at lower level and ramp up every six months in order to a more balanced and proportionate way to apply penalties.

The DEA has noted all input given and will consider the concerns and proposals put forward. Among other, the DEA will consider the possibilities to reflect the concessionaire's risks following from the SEA/EIA process in the model for penalties and guarantees. In addition, the DEA will thoroughly consider the framework for delay events, as also mentioned under Theme 1.

However, as a clear starting point, events that are outside the concessionaire's control, will establish grounds for time line extension. This also means that no penalties would have to be paid by the concessionaire at that point of time. It is necessary that the DEA makes a concrete assessment to secure, that the concessionaire has made all possible efforts within his control to avoid or shorten the event/delay. Therefore, automatic shift of milestones in certain situations as suggested cannot be implemented. Also, a predefined list of concrete deliveries made by the DEA seems not suitable, since these are dependent on the concrete project plan of the concessionaire.

In the tender conditions, the DEA will also outline terms and conditions regarding situations, where the concession agreement as such would lapse without payment of penalties by the concessionaire. This could be the case if major events outside of the concessionaire's control occur, and other agreements between the

concessionaire and the DEA cannot be reached. Examples on these situations could be appeals against the final approval of the SEA, the onshore EIA or the license for preliminary investigations or the offshore EIA, which result in that the project cannot be implemented as anticipated, or if expropriation processes do not lead to the required license for expropriation.

Questions and answers:

Q4.1: Does the 95% refer to 800-1,000MW or the whole OFW incl. up to 200MW overplanting?

A4.1: The DEA is considering this.

Theme 5: The possibility of overplanting and adding batteries or PtX assets

Summary over input received:

The market players were generally welcoming the possibility of overplanting and adding batteries or PtX assets. A lot of questions and comments were made about the subsidy scheme for Hesselø, the possibility of a subsidy scheme for PtX and the framework conditions including the regulation onshore for adding PtX and batteries.

The subsidy scheme for Hesselø OWF was decided on 26 March 2021 and a detailed description can be found [here](#).

Regarding a support scheme for PtX, please refer to A3.2.

Regarding the regulations onshore for adding PtX and batteries, the concessionaire cannot expect to be allowed to connect third party-owned units to the cables, due to EU rules on unbundling and equal right to access for third parties.

In the light of the input given, the DEA is currently analysing the current regulation on connecting certain units owned by the concessionaire and will outline the applicable framework in the tender material at the latest.

The DEA is in general investigating the rules on direct lines. In relation to Hesselø OWF, this can have an impact on the possibility to feed in all or part of the produced electricity into PtX or battery assets. The DEA expects that the analysis of direct lines will be reported to the political level before the end of 2021.

Besides this, the following views, questions and suggestions have been put forward:

- One market player explained that if overplanting purely is to cover electrical losses and availability, then it is likely that approximately 5% of the maximum export capacity of 1,000 MW could be overplanted. However, if batteries and/or PtX assets are installed, then the maximum permitted 1,200 MW may be considered.

- One market player explained that the current levels of density (between 4 and 4,9 MW/km²) would not preclude developing a project up to 1,200 MW but the attractiveness of doing this will steadily erode if the buildable area reduces following consenting and survey works.
- Both PtX and batteries are new technologies and still surrounded by many uncertainties, and the feasibility of adding such to the wind farm project depends on many different factors. These include possible locations, where both onshore and offshore locations are considered, hydrogen infrastructure, the proximity to offtakers, the proximity to a district heating grid, future network charging arrangements, the lack of large biogenic CO₂ sources along Gilbjerg Hoved and Hovegård, and the possibilities of batteries of supplying ancillary services and the stable contracts for this.
- Provided that they decide to install a PtX asset at the Hesselø site, market players are mostly considering green hydrogen production.
- Flexibility regarding when the PtX asset should be installed (at the same time as commissioning the wind farm or at a later stage would improve the business case
- Adding flexibility to the commissioning date of the wind farm in the case where the PtX assets are installed offshore.
- It should be possible to deliver up to 1,200 MW at the POC at the start of the generation phase to reserve the possibility to install PtX at a later stage.
- Regarding the needed area for at PtX asset, a rule of thumb is mentioned saying that PtX requires approx. 10m²/MW for electrolysis excluding service area, area required for ancillary systems and passive safety barriers.
- Some market players prefers to have the possibility to choose only to connect some of the turbines to the grid, while the rest of the turbines are dedicated to PtX, while others prefer to connect all turbines to the grid and consume the required power for the electrolysis before the POC, which would make it possible to bypass the electrolysis unit at times of high electricity prices and thereby supply more electricity to the grid at times of high demand.
- Several market players point out that they do not see a business case in not connecting the OWF to the electricity grid at all even if allowed.
- Several market players prefer to have the option to also source electricity from the collective grid, since some PtX-technologies require a relatively stable power flow, which means that it would be necessary to draw power from the grid during periods of low wind resources.
- Small PtX asset would be used for local consumption in proximity to production. E.g. used as fuel within heavy transport – either directly as hydrogen or through further processing into PtX products (for example ammonia for shipping). Direct hydrogen used in industry is not feasible due to the lack of heavy industry on Zealand
- Large PtX asset would be connected to larger offtake location/hydrogen grid for further processing into e-fuels, sold to a general hydrogen market place either at market prices or through offtake agreements, which would require infrastructure and a market setup to be in place at the time of commissioning, or sold to large single point offtakers with a point-to-point hydrogen infrastructure.

Questions and answers:

Q5.1: Will the option to increase the POC capacity in the future be known prior to the bid? Only if this is known prior to the bid will the bidders be able to include this in the strike price.

A5.1: The DEA intends to give an update regarding whether it will be allowed to deliver up to 1,200 MW to the grid (instead of 1,000 MW) at the latest in connection with the publication of the tendering material in Q3 2021.

Q5.2: Can overplanting adding extra turbines also be done later in the concession period (subject to renewed EIA)

A5.2: The DEA is considering to allow the concessionaire to add additional turbines later on during the concession period, provided that it can be covered by the initial EIA approval for the offshore installation or a supplementary EIA and provided that this does not result in an increase of the amount of subsidies paid to the concessionaire. Final decision on this issue will be made before the tender material is published.

Q5.3: Can installed batteries deliver ancillary services or only time shifting?

A5.3: The DEA is considering this.

Q5.4: Can a behind the meter setup pull electricity through Hovegård and what conditions would apply i.e. tariffs, max effect pull or demand of using Energinet's upcoming interruptibility tariffs?

A5.4: It will not be allowed to pull electricity through Hovegård, since this would pose a negative effect on the collective electricity grid on Zealand, and probably also would make it more difficult to argue that the cables should not be unbundled.

Q5.5: Will it be allowed to connect other generation sources i.e. solar PV before the POC? Will special measurements be required?

A5.5: The DEA will consider this and expects to integrate information on such possibilities in the tender material.

Theme 6: Co-existence with fisheries

Summary over input received

The main emphasis in the input received was a preference for dialogue, either pre-bid award, i.e. during the tender phase (to allow the concessionaire to count in any information received in the bid) or post-bid award and a reluctance towards allowing bottom trawling in the wind farm area. The reluctance for some was universal while it for others was caused by the lack of detailed information about local seabed conditions and on the applied fishing methodologies and logistics, etc. at this point in time. It was also pointed out that any constraints on the concessionaire's right to full optimization of the layout would affect the business case.

Experience shows that the risk of a considerable compensation if the fishing vessels were to harm turbines and cables would in reality deter the fishing boats from wanting to fish in the area, in part because no insurance company would be likely to take on the liability.

The following suggestions were put forward:

- That the DEA make as much information as possible available regarding fish and fisheries in the area, seabed conditions and an analysis of insurance and liability issues if trawl fishing over cables should be allowed
- A scientific study on the effects of wind farms on commercial fishery and experience from other countries where trawl fishing is not prohibited
- Development of a model or a range for compensation for loss during construction/operation
- Deeper investigations of the export cable corridors
- Investigation of co-existence with careful/low impact fishing methods in the offshore wind farm

The DEA has noted all input given and will consider the concerns and proposals put forward.

With regards to the level of information regarding fisheries, Energinet conducts an investigation of fish and fisheries which will be published 1 April 2022 at the latest. The investigation will include a study of the conditions for fish and fisheries in the Hesselø OWF area and along the export cable corridor that the future concessionaire will be able to use to assess the potential impact of the project on the environment and fishing interests. The surveys will be based on existing available data, interviews with fishermen/fishing associations supplemented by field surveys.

The field surveys will include an inventory of landings and the value of fishing in the area and can be used for the concessionaire's later assessment of fishermen's potential for exploitation of the fishery resource, including an assessment of the fishermen's potential short-term and long-term losses due to Hesselø OWF.

Background reports for the studies will include mapping of fish species and fish communities, mapping of fishing interests in the Hesselø OWF area (incl. export cable corridors). This includes mapping of the following:

- VMS data for the affected ICES squares (vessels over 24 meters since 2007, vessels over 15 meters since 2009 and vessels over 12 meters since 2012) divided per. gear or fishing
- Landings from squares in species / weight and value
- Statement of art / weight and value for smaller vessels under <10 meters in the nearest ports. The statements must cover a 10-year period
- Reporting should include the most important tow lines for the area

The collected data as well as the results of the analysis will be provided in a data file in a relevant format.

The DEA will look further into facilitating some kind of early dialogue between the future prequalified tenderers and the fishermen/fishing associations prior to bid award. Dialogue between the future concessionaire and the fishermen will be up to the concessionaire to facilitate, as well as the negotiations about the compensation. The DEA will not get involved in developing a range or method for calculation of compensation. The Fisheries Act, see Consolidating Act no. 261 of 21 March 2019 with later amendments regulates the compensation and is administered by the Ministry of Food, Agriculture and Fisheries of Denmark.

Questions and answers:

Q6.1: Which type of fisheries will be affected by the installations?

A6.1: The fine-screening of the Hesselø OWF area (to be found on www.ens.dk/hesselo) mentions fairly extensive fishery for Norwegian Lobster (*Nephrops norvegicus*), which are caught using bottom trawling. The present preinvestigations will obtain a detailed description regarding the types of fisheries used and affected by the wind farm, see also the previous description.

Q6.2: Will compensation for the affected fisheries be expected by the concession?

A6.2: Yes, compensation paid by the concessionaire to the affected fisheries should be expected.

According to the Fisheries Act, see Consolidating Act no. 261 of 21 March 2019 with later amendments, the concessionaire is required to compensate commercial fishermen for any losses caused by the construction or operation of the wind farm.

The fine-screening of the area (to be found on www.ens.dk/hesselo) mentions fairly extensive fishery for Norwegian Lobster (*Nephrops norvegicus*), which are caught using bottom trawling.

Q6.3: Has the dialogue with fisheries already been initiated?

A6.3: As a part of Energinet's preliminary investigations, information meetings concerning the pre-investigations and planning process has been initiated with the Danish Product Organisation (PO) who represents local fishing vessels and fishermen. Local fishermen participated in an initial meeting

Theme 7: Offshore grid connection, onshore facilities and Point of Connection

Summary over input received:

Regarding to the grid connection, the DEA and Energinet have not received concrete input and suggestions, but a range of questions on practical and technical specifications and requirements. To the extent possible at this point of time, those questions are answered below.

Questions and answers:

Q7.1: Are we limited to using buried cables for the onshore route or is it possible to use overhead lines?

A7.1: The general principle in Denmark is to minimize the environmental impact from the electricity grid as far as possible. Burying of cables is possible in this case, which is why buried cables is included in the onshore EIA, that Energinet prepares and which will be transferred to the concession winner.

Q7.2: Reference to Figure 11.2. If we choose to have a nearshore substation close to the landfall, is an additional substation at Hovegård optional or a requisite? If one onshore substation is sufficient, can it be located anywhere along the cable route?

A7.2: A nearshore substation and a substation close to Hovegaard will be included in the IEA. If the concessionaire choose any other solution, it will require a new IEA. As the POC is 400 KV in Hovegård, a substation close to Hovegård with transformation will be needed.

Q7.3: Is it optional to use air insulated switchgear (AIS) instead of gas insulated switchgear (GIS) at the onshore substation?

A7.3: The IEA will only include GIS solutions for the 2 substations. If the developer choose to use AIS, it will require a new EIA.

Q7.4: What is your curtailment practices?

A7.4: Curtailment of production follows the market rules. If production from renewable sources are curtailed, the producer will be compensated. For more details refer to market codes on Energinet's webpage. Rule E1 [Markedsforskrifter | Energinet](#)

Q7.5: Can the DEA confirm that it is the developer that decides the amount of MWh supplied to POC at any given time as long as it does not exceed the capacity limit?

A7.5: Yes.

Q7.6: Please confirm if any payments to ENDK are expected in this tender other than for the surveys?

A7.6: Please see the document describing the subsidy scheme [here](#), where costs to be included are mentioned in the end of the document.

Q7.7: Please clarify to what extend HDD is expected to be used at landfall connecting to near shore substation?

A7.7: Energinet expects that HDD is expected at the landfall and this will be a prerequisite for the EIA.

Q7.8: Please confirm that the Concessionaire can use active elements within his own systems such as online tap changers on transformers, reactors and wind turbine converters to reduce voltage deviations from 1 pu and the durations of such deviations.

A7.8: All assets owned by the concessionaire can be used by the concessionaire for operation provided the technical connection requirements at the POC are fulfilled at all times.

Q7.9: Should the onshore cable be removed at the end of the concession period as part of the decommissioning of the windfarm?

A7.9: According to applying regulation under the DEA's competence, there is no obligations with regards to the decommission of the onshore cables. However, possible decommission obligations might follow from other regulation, among other environmental protection rules. These are outside of the DEA's competence. Also, the DEA might in the tender material reserve the right to claim decommission at a later point of time.

Q7.10: Will Energinet buy the onshore cable at the end of the concession period?

A7.10: No, this is not the plan. However, in certain situations even during the concession period, Energinet might be entitled to take over the cable to secure compliance with the EU rules on unbundling, which will be described in the tender material.

Definition of upper limit to capacity

Q7.11: Please confirm how the upper limit to capacity will be interpreted (max. nameplate capacity similar to Thor?)

A7.11: The DEA expects that the upper limit to capacity could be interpreted similar as for Thor OWF. Here, the concessionaire is allowed to install a capacity corresponding to the nearest turbine rounded up to the nearest nominal number of turbines over the concessionaire's bid in MW. Installed capacity = (Bid MW/Turbine Size) and rounded up * Turbine size. Turbine size is defined on the basis of the nameplate capacity, i.e. on the basis of the nominal MW capacity or rated power, as stated in the turbine type certificate. However, in the case of Thor, any actual capacity beyond the tendered capacity must not be used to ensure an overall larger production from the offshore wind farm. Therefore, these rules might be amended for Hesselø in the light of the overplanting possibilities that are expected to be integrated in the tender. Further specifications will be published in the tender material.

Furthermore, the DEA expects to communicate more about the regulation on boosting in the tender material.

Theme 8: Environmental assessments, MetOcean and Seabed investigations

Summary over input received:

Several market players have stressed that early and thorough investigations, preparations and contact to relevant stakeholders both onshore and offshore are important to lower the risk for delays and complaints. Among other, the following views, questions and suggestions have been put forward:

- Generally, market players have stressed, that uncertainties and increased risks always lead to a higher bid price, as this is factored in. An additional risk has to be taken into account if the EIA for the onshore part of the project has not been approved prior to final bid. How this risk will influence on the bid price will depend on the reason why the EIA has not been approved. The same applies for the SEA. Since granted consent for the onshore part is outside the bidders' control, submission of final bid with subject to consent granted for onshore part should be considered. If issues are significant it could lead to not submitting a bid.
- The inclusion of the land cables will lead to higher bid levels for two reasons: 1) the concessionaire will have to factor in a risk buffer for production down time for onshore cable issues. 2) the CAPEX for the 50km onshore cable >400mDKK. This will be factored into the bid level.
- One market player has stated that an approved EIA will constitute a fixed starting point of the negotiations with landowners and stakeholders in general. An approved EIA, including a certain width of the proposed cable corridor, will, thus, impact the strategy of obtaining necessary land rights for the project and thereby also the bid price.

Onshore consenting process and cable installation

- Among other, early identification possible archeological sites, avoidance of major infrastructure, roads and water crossings etc. as well as inclusion of two cable routes in the EIA have been suggested. Further, early contact to landowners prior to the tender and a list over affected landowners together with the concession agreement has been recommended.
- Considering the timeline presented it is important to make draft version of the studies/surveys available to the developers as early as possible.

Offshore investigations etc.

- The need for as much information as possible to be made available has been stressed in order to enable sufficient and effective preparations. This information needs to be site specific and not of a general nature.
- Among other, early stakeholder engagement (Danish Defense, fishermen, local citizens', summerhouse owners, sailors, interest groups, Sweden), and thorough pre-investigations, securing of Natura 2000 issues etc. has been recommended.
- There has been made a request for a typical EIA program for an OFW project in the tender materials.

The DEA has noted the market's views on risk for higher bid prices on the basis of among other things the long cable route and the possible expropriation processes onshore, especially in the case, if the onshore EIA is not issued prior to the final bids.

As for Thor OFW, all information on results from preliminary studies etc. will be published in an ongoing process as soon as they are available both before and during the tendering process. Please find already available reports and information on upcoming reports etc. and a time schedule on the DEA's webpage <https://ens.dk/en/our-responsibilities/wind-power/ongoing-offshore-wind-tenders/hesselø-offshore-wind-farm/preliminary>. Information on the process for the environmental assessments for Hesselø OWF including hearings etc. can also be found at the DEA's [website](#) (Danish only).

Please find guidelines on the SEA and Energinet's preliminary investigations for Thor OWF, which present the same model as it will be used for Hesselø OFW, on the DEA's [website](#).

In order to secure the best level of information and security for the bidders, The DEA will seek to include a high level of information on the framework for expropriation as well as to the regulatory framework for both the onshore project and the offshore project in order to de-risk the project.

With regards to the input and concerns about the onshore consenting process etc., a preliminary study generally has shown very few challenges. These challenges will all be addressed in the EIA. All landowners will be invited to participate in the public consultations. When the EIA is approved, the basis for the concessionaire's landowner negotiations are in place. With regards to the concerns about costs for the establishment of the cable route, acquisition of land to the cable routes is not needed. Instead, rights to lay the cable is acquired and the concessionaire has to compensate the landowner for this.

Regarding the onshore EIA, alternative possibilities for the cable route will be investigated. However, only one route can be included in the final EIA. This is due to the requirement from the Danish Environmental

Authority, that EIA shall evaluate a specific project. The cable route will consist of a corridor of about 300 m and therefor there will be a certain room for adjustments of the final route.

Concerning archaeology, Energinet will perform a archival archaeological study. There will be no fieldwork performed by archaeologist for the onshore EIA.

Finally, there will be issued a national planning directive, which will establish the planning consent for both the possible nearshore booster station and the extensions of Hovegård electrical station in order to secure the establishment of both the concessionaire's and Energinet's facilities in those areas.

With regards to the offshore investigations etc., early stakeholder contact will be secured in connection with the hearing on the scoping of the strategic environmental assessment (SEA) which has been conducted in February and March 2020. Concerning the Danish Defense and their interests, Energinet is preparing a report on radio and radar systems. Information on the scoping of the strategic environmental assessment (SEA) and other reports to be prepared and published can be found on the DEA's website.

All reports and relevant data will be made available, either on the DEA's webpage or on an Energinet's server.

Questions and answers:

Q8.1: Are there requirements for distance between the windturbines?

A8.1: There are no general requirements regarding distance between turbines. The layout, including distance between the turbines, is up to the developer. However, the EIA reflecting this will have to be approved by the DEA, and shipping safety, effects on radar and possibly bird protection etc. might have an impact on the possible distances between turbines.

Also, the ongoing reinvestigations will show if there are any restrictions in the area, and if so will this be reflected in the tender material before final bids.

Q8.2: Who will be responsible for an EIA of the sea area and for the potential PtX system?

A8.2: The concessionaire will be responsible for the offshore EIA and potential PtX assets both offshore and onshore.

Q8.3: Will there be environmental and risk assessments prepared by the DEA?

A8.3: The DEA will conduct a strategic environmental assessment for the plan for Hesselø both onshore and offshore (SEA). The SEA will not cover risk assessments on project level offshore. This will be the concessionaire's task in connection with the offshore EIA which is to be conducted by the concessionaire. Energinet will undertake an onshore EIA with complete environmental assessments for the project onshore. If the concessionaire wants to make changes from the project investigated in that EIA, the concessionaire has to apply for changes at the Danish environmental protection agency and possibly conduct a supplementary EIA. Please find more information on the SEA, the onshore EIA and the preliminary investigation conducted by Energinet at the DEA's website as indicated above.

Q8.4 Have you considered WTG boost optionality as a way to reach maximum capacity? For example if there is a fault on one or more installed WTGs, can other installed WTGs be boosted?

A8.4: In the EIA, the concessionaire must study the wind turbines they are planning to install, including possible consequences of boosting these turbines. E.g. the EIA will have to document that boosting does not compromise compliance with the noise limit, cf. Executive order no 135 of 7 February 2019 on noise from wind turbines. Adding to this, the concessionaire must secure that the maximum allowed capacity delivered to the POC is not exceeded at any time.

Q8.5: The Nature Board of Appeal has not settled the EIA permit for Vesterhav South yet - after 4 years of case handling. How can we reduce this risk at Hesselø?

A8.5: In the Danish Climate agreement from 2020 it has been decided to allocate DKK 15 mill. in order to secure a maximum of 6 months for the case processing time of complaints about RE projects in the Energy Board of Appeals.

For Hesselø, the SEA and the onshore EIA are expected to minimize any risks of appeals and to identify any potential issues as early as possible. With regard to the license for construction of the offshore wind farm, the risk of appeals will be dealt with in the tender material, where extensive processing times at other authorities might provide a basis for time line extensions for the concessionaire.

Q8.6: The SEA will be carried out by Energinet. Will a public hearing of the SEA be conducted and if yes, will all responses from stakeholders be available for the developers?

A8.6: A hearing on the scoping of the strategic environmental assessment (SEA) has already been conducted from 12 February to 19 March 2021. Based on the inputs received during the consultation, the DEA has adjusted the scoping compared to the draft version that was published as part of the consultation material. The scoping contains the DEA's requirements for the environmental report, including the topics and environmental impacts which must be highlighted in the report and how comprehensive and detailed information the report must contain. You can find the scoping at the DEA's [website](#) (in Danish only). During the second quarter of 2021, the DEA expects also to publish a consultation note, which will contain a description of the inputs received together with the DEA's comments. It will also include a description of how the inputs received were included in the further environmental assessment process.

Later on in the process, there will be conducted a public hearing on the SEA report in Q2 2022. In this connection, the DEA will also publish a consultation note, with a summary over the responses given and the DEA's feedback (in Danish only).

Q8.7: We assume a typical business case need to be defined before performing the preliminary investigations for the offshore part (additional EIA). Will this definition be based on a worst-case scenario?

A8.7: Energinet is performing a strategic environmental assessment (SEA) of the plan for Hesselø OWF as well as additional preliminary investigations offshore to lower project risk and secure as much data as possible for the tenderers prior to the bids. It is the concessionaire who has to conduct the offshore EIA after receiving the concession agreement and the license for preliminary investigations. The SEA is a strategic assessment on a global level and will not provide an assessment of any *concrete project*. Even though tentative project examples will be assessed for some of the topics in the SEA report (for example for visualisation examples of Hesselø OWF seen from different places in Denmark and Sweden), the SEA will not be able to assess all scenarios and turbine sizes etc. And the examples used should not be seen as worst-case scenario as they do not limit the design choices for the concessionaire.

Q8.8: Please confirm that the intended cable route from landfall near Gilleleje to the POC will be below ground and will not require an EIA or local zoning permit from the municipalities obtained by the concession owner?

A8.8: A complete EIA for the onshore part will be conducted by Energinet before the call for tenders is concluded and transferred to the concession winner. Only underground cable will be taken into consideration in the EIA. Generally, cable routes do not require local zoning permits from the municipalities.

Q8.9: Are the four points mentioned in section 14 in the expected chronological order? Desk studies would normally come first, and survey activities tailored after identified hazards via line spacing and main/cross line direction. Will desk studies come first in the process?

A8.9: Desk Studies are performed first, and the same procedure as for the Thor Project will be used.

Q8.10: Are there limitations in the number of offshore wind turbines that can be installed?

A8.10: The limit is on the installed capacity and not on the number of offshore wind turbines. In connection with the EIA of the specific project offshore, the concessionaire will assess whether it is possible to install the desired number of turbines etc.

Theme 9: Other issues

Summary over input received:

In addition to the themes and questions raised in the invitation to dialogue, the DEA has received comments and questions about other issues. Among other, the following input and questions have been put forward.

Questions and answers:

Q9.1: When is DEA planning to provide further details to the third offshore tender that has been announced?

A9.1: In connection with the political agreements with regards to the Energy Islands, it has been decided that the third OWF from the Energy Agreement 2018 should be integrated the first phase of the Energy Islands. Therefore, there are currently no plans for a further tender of a single radial OWF similar to Thor and Hesselø OWF. Please find more information on the Energy Islands at the DEA's website at <https://ens.dk/en/our-responsibilities/wind-power/energy-islands>.

Q9.2: Are renewables allowed to bid into the capacity market in Denmark, and how is the methodology to calculate capacity market revenues?

A9.2: The DEA will clarify this issue of whether renewables are allowed to bid into a capacity market before the tender material is published.

Q9.3: Are offshore wind farms allowed to provide ancillary services in Denmark? (e.g downward regulation to stabilize frequency, etc.) If so, which ancillary services are allowed and how are these remunerated/allocated?

A9.3: Energinet plans to implement these possibilities, but the time schedule is not in place.

Q9.4: Will it be possible to receive Guarantees of Origins (GoOs) on top of the CfD scheme. If this is the case and we think about using some power generated by the turbines to produce hydrogen, is the power used to generate hydrogen (and therefore not injected into the grid) also eligible for GoOs? In other terms, does the right to emit one unit of GoO comes to life when a MWh is produced or when it is feed into the grid?

A9.4: It will be possible to receive Gurarantees of Origin. There are new rules coming up on GoO's which are expected to be in force from 30 June 2021 due to the implementation of the RED II directive, and which among other require that other forms of energy than electricity i.e. gas including hydrogen, heating and cooling can request the issuance of GoOs. Please find information on the draft legislation that is still under consideration [here](#). According to the expected new rules, it will not be possible to receive GoOs for electricity that is not injected into the grid (consumption behind the meter). For the hydrogen being produced and metered GoO's can be issued according to the expected new rules given the rules for issuance are abided. The tender material will contain more information on the rules for GoO's.

Q9.5: It has been proposed that the length of the concession period should be 30 + 20 years in order to allow the bidder to plan for repowering or lifetime extension with lower bid prices as a consequence. A buy back model where the Danish state buys back the export system etc. is not deemed feasible, as it will introduce a range of uncertainties for the new owner which will lower the value of the used asset.

A9.5: The DEA will consider the input given, but at the time being there are no plans to change the possibilities for extension of the concession period compared to Thor OWF, where the concessionaire can apply for 5 years of extension, and there is a buy back model implanted as described.