

Market dialogue II on the procurement framework for the construction and co-ownership of the Energy Island in the North Sea

Summary of the main findings

December 2021

The Danish Energy Agency (DEA) has conducted a second market dialogue (MD II) for potential tenderers and relevant market operators on the procurement framework for the construction and co-ownership of the Energy Island in the North Sea¹.

The main findings from MD II will be outlined in the following. It should be emphasised that no decisions have been taken regarding these findings. However, they will be a part of further analysis regarding the preparation of the procurement framework of the project.

Overall findings

The market operators generally believe that there will be a demand for 10 GW off shore wind (OSW) in the near future. The market operators requested more information regarding the technical needs in relation to the installation of the transmission network. The market operators gave inputs to significant different technical concepts.

Furthermore, the market operators presented various ways to handle innovative activities in a potential innovation zone. One approach is to settle the size and income from the innovation zone as part of the tendering process, another approach is to leave business development activities to the management team of the jointly owned energy island company.

Finally, the market operators requested clarification regarding the regulatory framework for innovative activities, including mechanisms leaving on-island innovation activities more commercially attractive than shore-based innovation.

¹ [Market dialogue on the procurement framework for the co-ownership of the Energy Island | Energistyrelsen \(ens.dk\)](#)

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Business case

General interest in the project and the transmission zone

The market operators expressed that their interest in becoming the co-owner of the Energy Island is among other things due to the 'know-how' a private partner will attain by engineering, constructing and operating the first energy island of its kind.

Several market operators also stressed the need to – preferably sooner rather than later – provide clarity regarding the expected regulatory framework of and set-up for the island and its business operations, including but not limited to pricing, metering, competition safeguards and interconnectivity.

There is consensus among the market operators that Energinet's rent payment for the island's initial 3 GW of capacity should be on an availability-basis. This would be in order to minimise the revenue risk associated with the project by ensuring a guaranteed initial revenue stream for the Energy Island company. Without such a guarantee, the risk premium for a private co-owner will expectedly be significantly higher.

The potential flexibility zone – incl. size of the island and risk-sharing

There is agreement among the market operators that the size of the island should reflect an actual, market-driven demand for additional capacity, and that the build-out of the island should reflect this demand. Along these lines, various approaches to the island's build-out were suggested.

Several market operators expressed that a scenario where only 3 GW OSW is established will be insufficient in terms of realising the necessary economies of scale and savings in order for the project to become successful, both commercially and in terms of knowledge generation. Building an island only to accommodate 3 GW OSW, in terms of the economy, would not be the most efficient solution. It was also noted that the island should preferably be built for a capacity upwards of 10 GW OSW, either in one or several stages.

On the discussion of a potential announcement of a pipeline for future OSW development in the North Sea, the market operators found that a pipeline could minimise any potential unknown vacancy risks of any additional capacity of the island above 3 GW. The firmer the commitment of such a pipeline, the better the market actors would be able to attribute any value to it, thus affecting their tender bids. Also, it was communicated that any unexpected vacancy risks and related vacancy costs should ideally be covered by the Danish State in order to lower the price (the risk premium) of the private parties' bids in the tender.

The potential innovation zone

The market operators recommended that a potential innovation zone should be established according to commercial principles, and that decisions regarding the scale and scope of the zone should only be made when it is (a) possible to ascertain the purpose of the zone and (b) the terms applicable to its use. Some market operators also suggested that it should be possible to submit binding rental contracts for the innovation zone as part of the tender to ensure demand from the start.

Furthermore, the market operators highlighted that developing innovative activities on the island, all else being equal, will likely be relatively expensive when compared to onshore development. Consequently, for the innovation zone to be commercially viable, the expected cost savings from a reduced need for power transmission equipment (due to the potential ability to utilize the power on the island) should support the business case of the innovation zone. Various ways to enable this were suggested like the availability of OSW power, the possibility of a tailored regulatory framework for the energy island and innovative activities, e.g. price zone, and additional infrastructure apart from the planned grid infrastructure for the island, etc.

Evaluation approach and criteria

Various models and elements for evaluation approach(es) and criteria were suggested by the market operators.

There was a general and supportive consensus regarding the use of a net present value-based approach to the evaluation of price based on rent payments and potentially other elements.

There is a common understanding that the evaluation criteria must be transparent and ensure equal treatment among the tenderers. The criteria should be as detailed and objective as possible. Furthermore, there is a common understanding that the submitted tenders must be comparable and, accordingly, the procurement framework cannot encompass a wide range of very different solutions in the tenders.

Funding

The market operators expressed an interest in having the possibility to obtain Danish mortgage financing. They therefore suggested that the project should seek to create financial and structural conditions that would enable this. Moreover, the market operators supported the idea of utilising milestone payments instead of a lump sum payment at the end of the construction period for the Danish State's purchase in order to minimise the project's financing costs.

Risk allocation and operations and maintenance (O&M)

As a general comment, it was remarked that risks should be borne by the party closest and best able to influence the risks. In addition, some market operators said that it would be important for the handling and mitigation of project risks to formulate a detailed risk register early in the project.

Furthermore, it was suggested by the market operators that O&M costs could be agreed as part of the tender for the first 5 to 10 years of the island's operations (the maximum of 10 years being due to the inherent uncertainty of long-term cost projections). In this respect, it was pointed out by the market operators that since any possible reinvestments would be decided by the Energy Island company, and any additional equity injections would be covered according to ownership share (meaning the private partner would pay 49.9% thereof), then this aligns the incentives of the co-owners and reduces the need for the private partner to bear the overall risk/cost of reinvestments for a longer period of time.

Shared ownership of the Energy Island and corporate structure

Due to tax considerations, several market operators expressed a strong preference for another corporate structure than "A/S". Instead, they suggested a limited partnership company (in Danish: "kommanditselskab K/S" or "partnerselskab P/S").

As for the State's purchase of 50.1% of the Energy Island, some market operators questioned the models (Model A and Model B) described in the discussion paper. For the sake of clarity, the models are explained in more detail in the following as inquired by the market operators. Some market operators have expressed that they prefer Model B (based on the current understanding of the models), although others were indifferent as to the choice of model. It should be noted that no decisions regarding the State's purchase of 50.1% of the Energy Island have been made, and other models could come into play.

Model A: The Danish State establishes the company Energy Island A/S and capitalises the company with 50.1% of the offered price of the island. After completion of the construction of the island by the private partner, the private partner delivers the island as a contribution in kind to Energy Island A/S in return for payment of 50.1% of the offered price of the island in cash and 49.9% of the shares in the company.

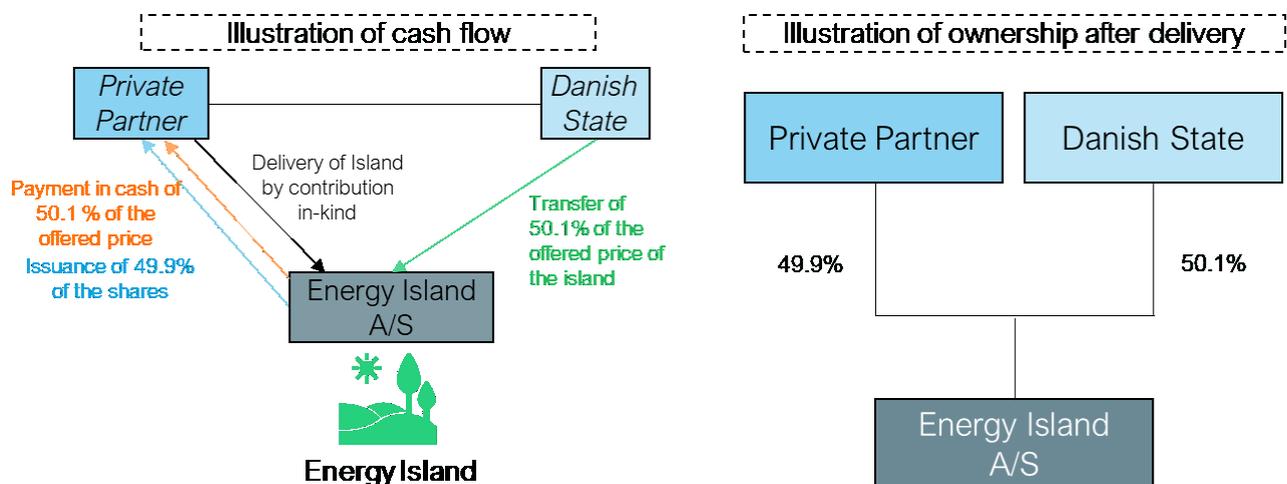


Figure 6.1 Model A - Cash flow and ownership structure

Model B: The private partner establishes Energy Island A/S and constructs the Energy Island in this company. The private partner will ensure that the company is in a pre-agreed shape upon the purchase of 50.1% of the shares in Energy Island A/S by the Danish State (and customary warranties and purchase price adjustments will apply).

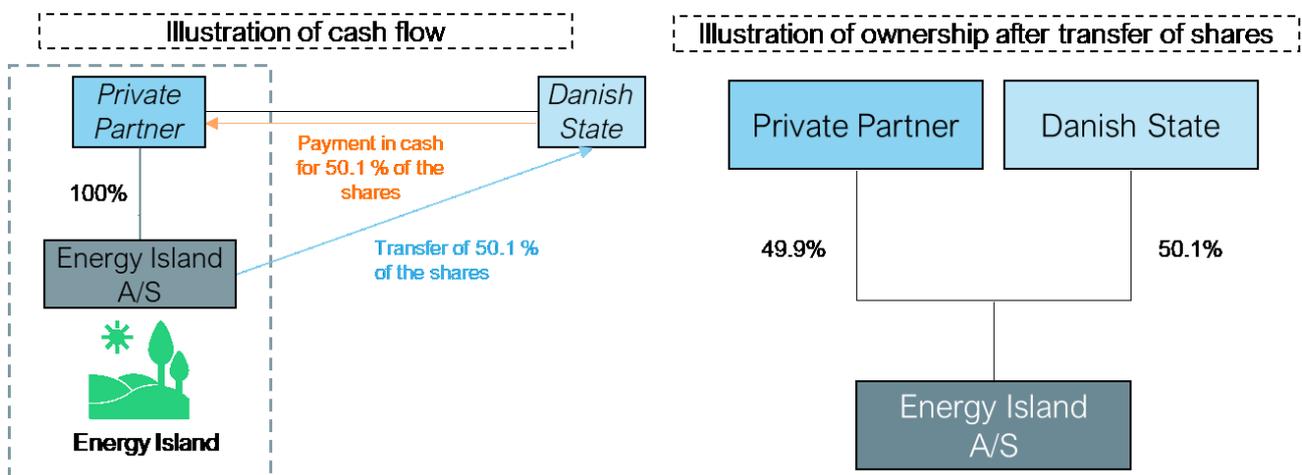


Figure 6.2 Model B - Cash flow and ownership structure

Construction and Technical Requirements

The overall feedback from the market operators in relation to the level of detail of the functional requirements of the Energy Island is that the functional requirements should allow for the market operators to choose the optimal technical solution for the construction principle and layout of the island. Other operators expressed, however, that it may be a challenge to identify the optimal solution if all options are left open.

The operators emphasised that functional requirements related to the required method of installation and the operation and replacement of equipment owned by Energinet should be set out in detail to ensure that all interfaces are clearly defined in the tender material. Energinet expressed, however, that it may be a challenge to specify interfaces in detail if all options for the solution are open.

Most market operators recommended a modular approach with the electrical equipment produced, constructed and tested onshore and transported to the island in major modules in order to reduce installation time on the Energy Island. Following this approach and replying to the questions in the material sent out prior to the market dialogue, some operators see benefits in placing some of the electrical equipment on foundation structures next to the Energy Island. Energinet estimates that the transmission equipment (HVDC system + HVAC) may include modules with a weight

of 10,000 – 30,000 tonnes, if provided in one unit and depending on installation location and installation methods.

It was generally pointed out that access to onshore facilities such as harbour and docks is an important resource when constructing the island as well as the electrical equipment. The general feedback by the market is that existing facilities should be used, and there is no need for the DEA to include onshore facilities in the pre-investigation programme.

The market operators generally agree to the interfaces for the electrical transmission systems and scope of the tender presented in Discussion Paper II. Some operators provided feedback in relation to PCC and voltage level. It was pointed out that expansion of the island to 10 GW can be done without disruption of existing power production if such expansion of the Energy Island to a capacity of 10 GW is included in the scope from the beginning. Market operators emphasised that it is crucial to include the planning for expansion (up to 10 GW) in the tender material, and that the bidders as part of their design prepare a detailed Seabed Master Plan.

The market operators noted that the first 3 GW offshore wind is expected to be transmitted to the market as electrical power through electrical interconnectors, whereas it is currently uncertain how much of the energy from the following up to 7 GW offshore wind which should be transmitted as electrical power, as hydrogen and/or utilised on the island or transmitted by other means. Some market operators see this uncertainty as a risk which should be mitigated by the Danish State.

Energinet explained that they consider Energinet as TSO being responsible for 400kV system stability on the island and potential implementation of synchronous generators if required. The grid codes (equal to existing requirement specifications for generators) are [expected to be placed on the island and the](#) potential need for StatComs and harmonic filters within the operator's scope must be designed accordingly. Energinet will aim for the most cost-efficient solution for all parties, potentially with cost optimisations for the operators as a consequence.

It was pointed out by the market operators that the functional requirements for the innovation zone should be left open so that the tenderer is free to design the innovation zone to fit the potential tenants of the zone. Others suggested that DEA define the functional requirements for the innovation zone, i.e. load bearing capacity and size.

The market operators generally agree that sustainability should be part of the tender. It was, however, pointed out by some operators that no obvious market standard for certification of sustainability is available, and that LCA calculation and/or functional minimum requirements are the most likely approach for securing a sustainable island.

It was emphasised by market operators that uncertainty regarding the availability of sufficient sand resources is an important risk that should not be placed on the private

partner. It was also emphasised by market operators that pre-investigations should be made available to the tenderers as soon as possible.

The Joint Procurement Process

In relation to the time schedule for the procurement process, some market operators suggest that the prequalification period be initiated at an earlier stage than suggested in Discussion Paper II by initiating the prequalification prior to publishing the complete tender material (following directive 2014/23/EU). The DEA, however, notes that this tender process is subject to the Public Procurement Act² which requires that the complete tender material is published at the time of publication of a contract notice.

The market operators recommended that the prequalification phase be extended, and that losing tenderers should be compensated for some of their incurred costs via a loser fee.

Some market operators commented that the negotiation phase seemed short and that the time to complete final bids may need to be extended if the revised final tender material contains several amendments to the technical specifications.

The overall time schedule

Several market operators pointed out that access to relevant data is crucial for the planning of the process.

Based on political agreements on location and site investigations, Energinet is – on behalf of the Danish Energy Agency and the Ministry of Climate, Energy and Utilities – undertaking site investigations for the Energy Islands in the North Sea and the Baltic Sea.

The DEA has held another market dialogue on the geophysical, geotechnical and environmental site investigations for the Energy Islands in the North Sea and the Baltic Sea. For further information on this market dialogue and publication of data please see: <https://ens.dk/en/our-responsibilities/wind-power/energy-islands/energy-island-north-sea/market-dialog-preliminary>

The results of the above-mentioned site investigation will be a strategic environmental assessment (SEA) of the plan for the Energy Island. Subsequently, an Environmental Impact Assessment (EIA) will be needed. However, the EIA can only be initiated after a winning tenderer has been found and the design has been specified.

The general perception in the market is that the period for the construction of the island from contract signing to completion of the island will be around 6 years. Furthermore, the market operators pointed out that constructing the island is not the most critical in the overall time schedule. The critical activities are the procurement and construction of the transmission network. In that context, the market operators

² An unofficial translation of the Public Procurement Act is available here: <https://www.en.kfst.dk/media/54435/the-public-procurement-act.pdf>

pointed out that the island could be operational at an earlier stage if modular concepts are applied, and the procurement process for the transmission network is initiated and installed in parallel with the construction of the Energy Island. It was further suggested that the initiation of offshore wind farm tender processes could be made in parallel with island and transmission network procurement and installation phases. The DEA will look further into these possibilities.

The further process

The feedback received from the market operators during the market dialogue is now being examined, and the relevant findings will be incorporated in the further analysis, considerations and preparations of defining the final procurement framework. The final procurement framework will afterwards be subject to political approval.

As suggested by the market operators and due to the current uncertainties of the technical needs of Energinet in relation to the transmission network, the DEA plans to conduct another market dialogue (MD III) which will enable more detailed specification of the technical requirements of the island.

Invitation to the next market dialogue will be published on <https://ens.dk/en/our-responsibilities/wind-power/energy-islands/energy-island-north-sea/market-dialogue-procurement> and <https://ted.europa.eu>. Potential tenderers and relevant market operators should stay updated on information on the websites.

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