The Energy Island in the North Sea Teaser for potential investors

November 2022



Investment highlights



Active partnership

An active partnership with the flexibility to bid on projects in the North Sea and optimize business opportunities.



Early entry into Europe's new "green power plant" with opportunities to shape design and business decisions.



First mover

Ability to leverage first-mover advantage for future islands gaining invaluable know-how into one of the first of many islands.



The Energy Island in the North Sea

3 GW by 2033 10 GW by ~2040



Strong project fundamentals

Strong national and international support and attractive location for offshore wind.



Secured cash flow

Availability-based secured cash flow from Danish TSO provides investors high predictability and low risk.



Large, green investment with an investment horizon longer than most infrastructure investments.



Flexible concept

Technological flexibility helps futureproof the island as later platform additions can be tailored to tomorrow's technological solutions.



Contents



Introduction



Technicals and economics



An attractive partnership



Energy islands – the future of large-scale offshore wind power

The political vision for the two Danish energy islands



The energy islands will help "lead the way for Denmark to become a global leader within renewable energy and support an ambitious, **green transition** of conventional industries."



 The decision to establish two energy islands was reached under the climate agreement of 22 June 2020.



► In February 2021, the same parties agreed that the energy island in the North Sea would be built as an **artificial island**.



► The agreement was entered into by the Danish Government and a clear majority of political parties.



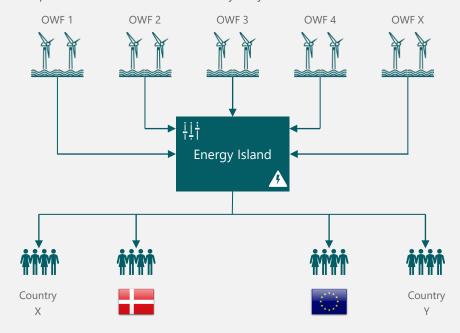
 Additionally, it was agreed that the Danish State would be a majority owner of the island and tender out the minority partnership stake.



Energy islands – hubs for large-scale power distribution

What is an energy island?

- ► An energy island serves as a hub for connecting and distributing power from the surrounding offshore wind farms (OWF).
- ► An energy island can thus pool the power from multiple OWF and transmit this directly to several countries. This represents a change from the previous philosophy of building isolated OWF with a power connection to one country only.



Where will Denmark's first artificial energy island be located?



- ► The energy island in the North Sea will be an artificial island planned to be built approximately 80 km off the coast of Thorsminde, a town on the coast of western Jutland.
- ► The energy island in the North Sea is expected to have an initial capacity to serve 3 GW of offshore wind and later reach full capacity at 10 GW.
- ► The energy island in the North Sea will be one of the first of several hubs in the North Sea, as investments in offshore wind energy in the North Sea is expected to increase significantly in the coming years.

Sources: Climate Agreement of 22 June 2020

Introduction

Strong project fundamentals and ideal location

The case for building an energy island in the North Sea



Denmark believes that the artificial energy island will be a **game-changing concept** that will represent a new method to harvest the enormous offshore wind potential in the North Sea.



Sites close to shore are limited, pushing offshore wind projects further out at sea and driving **cabling costs** higher. However, connecting OWF to a central hub can minimize the use of individual connections and thus reduce costs.



Concentrating offshore wind around an island hub enables connection and interconnection capacity at **scale**.



Creating a hub enables wind farms to be placed further out at sea, thereby decreasing the "not in my back yard" effect and nuisance for the general public.



OWF offer higher speed of wind at a greater consistency relative to onshore wind farms, making offshore wind turbines more **effective and reliable** energy producers than their onshore counterparts.



The scale of production means some electricity can be used for **Power-to-X** (PtX), e.g. fueling ships and planes with green energy, and for other fuel/energy consumers.

Sources: Global Wind Atlas

Introduction

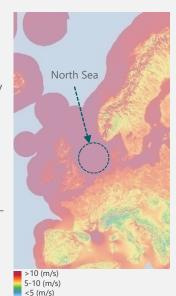
Technicals and economics

Ideal seabed, depth and proximity to a high-caliber service port

- ▶ Preliminary analyses show that the island will be placed in an area with seabed dominated by sand, gravel and coarse sand providing a **good seabed** for OWF. In addition, the area's complex geology is being further investigated (multiple reports published).
- ► The area is also characterized by relatively shallow waters, which should lower construction costs.
- ▶ Proximity to the port of **Esbjerg**, one of the leading ports within the construction and operation of offshore wind projects.

The North Sea offers great wind conditions

- ► The North Sea offers some of the greatest wind conditions in the world for offshore wind energy.
- Generally, the North Sea is dominated by areas with wind speeds above 10 m/s.
- ► In the proposed area in the North Sea, the mean wind speed is approximately 10.5 m/s.
- ➤ The combination of consistently high wind speeds, shallow waters and easy-towork-with seabed makes the North Sea and the proposed area for the energy island a highly attractive proposition.

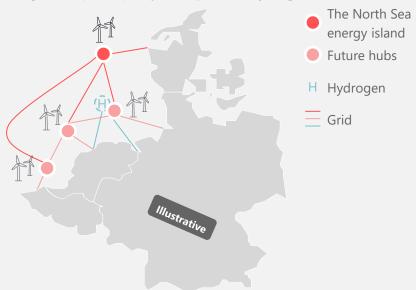


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Pioneering the North Sea as Europe's green power plant

The energy island in the North Sea will serve both Danish and European interests and consumers

- ► The North Sea will become **Europe's new green power plant** for replacing fossil fuels and providing security of energy supply.
- ► The Danish island will be one of the **first** hubs of the North Sea's future energy system.
- ➤ The island's connected OWF will initially produce the annual electricity demand of 3m households, which will increase up to 10m households when the island reaches full capacity, thereby ensuring a great surplus capacity for **exports or hydrogen conversion**.



Sources: Danish Ministry of the State, European Commission, The Esbjerg Declaration, Financial Times, and Finans

Introduction

Financial Times, and Finans

Large renewable capacity will contribute to EU's energy transition



Belgium, Denmark, Germany and the Netherlands have agreed to jointly develop an offshore renewable energy system connecting all four countries and possibly other future partners.



Excess electricity can be stored or transformed into new energy forms, e.g. PtX for green fueling of ships.



The island kicks off the plans for the North Sea to deliver 50% of the required capacity for the EU to become carbon neutral.



The Esbjerg Declaration commits the above four countries to the North Sea plan.

- ► Agreement between Belgium, Denmark, Germany and the Netherlands for the North Sea to become EU's "green power plant".
- ► Combined targets of 65 GW offshore wind by 2030, and 150 GW by 2050.
- ► The declaration explicitly mentions energy hubs as a major component in reaching the set targets.



Contents



Introduction



Technicals and economics



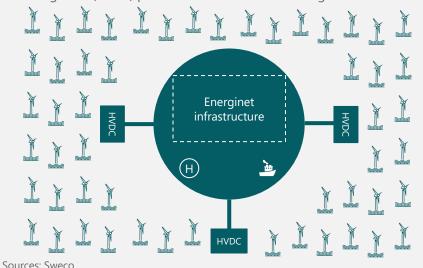
An attractive partnership



A flexible and scalable technical concept

A technical concept for today and tomorrow

- ➤ The island will be constructed as a "flexible island," which provides technological **flexibility** and helps **future-proof** it as later platform additions can be tailored to tomorrow's technological solutions.
- ▶ A flexible island means that transmission capacity for the full 10 GW will be installed on the island. Conversion modules for HVDC will be placed on platforms nearby for the first 3-4 GW of offshore wind with the remaining HVDC conversion modules expected to be placed on platforms closer to the more distant OWF.
- ► Additionally, the island has to include infrastructure for logistics such as a helipad and a service port, while also being able to house Energinet's (ENDK) personnel on the island for longer durations.



ces. Sweeco

Introduction Technicals and economics

Successful integration with Energinet

- ► The Danish TSO, ENDK, plays a vital role in the project, as it will own most of the infrastructure placed on and around the island.
- ➤ Therefore, it is expected that the design process of the island will be conducted in close **coordination with ENDK** as they need space for their infrastructure, access to their equipment, and the ability to move/change equipment and connect it.

Examples of expected key requirements



First 3 GW power

Timely delivery of first 3 GW power in 2033 as expected and avoidance of costly delays.



Lifetime

The artificial island is expected to have a lifetime of +80 years to sufficiently support ~2 generations of OWF.



Capacity

The island is required to be able to service an initial minimum capacity of 3-4 GW on the island itself and a total connection of 10 GW from OWF.



Unobstructed access for Energinet

To enable ENDK to sufficiently setup and operate their infrastructure, it is required for the TSO to have unobstructed access to its equipment.



Access for offshore wind owners

The island is required to give OWF access to go through the perimeter to connect to the point of connection. The same applies to interconnectors.



Weight

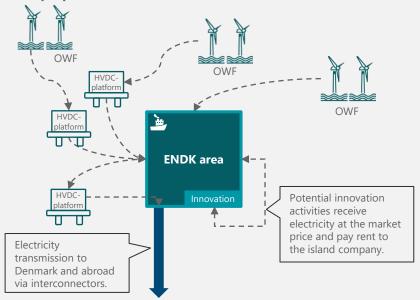
The energy island is required to support the minimum weight required to carry ENDK's equipment and ensure efficient operations for all parties.

... Plus compliance with EU taxonomy for sustainable activities

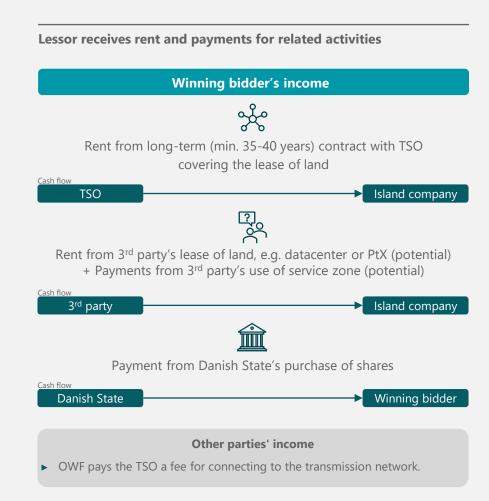
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The winning bidder receives stable income as lessor for the TSO

The winning bidder, together with the Danish State, acts as lessor in the proposed business model

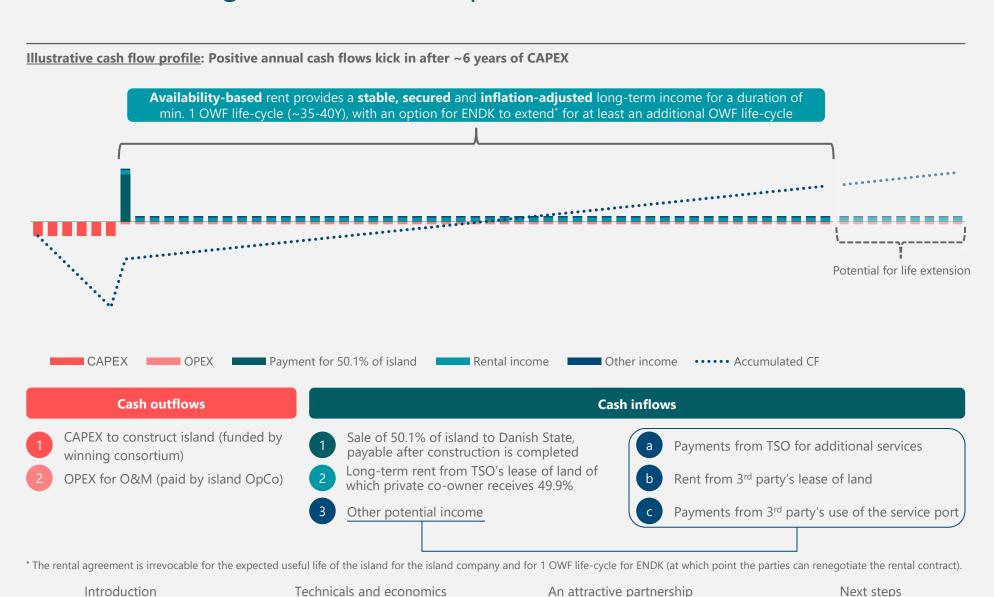


- ► The energy island is primarily leased to ENDK based on servicing min. 3-4 GW. Additionally, an innovation area* can be included which could also generate rent for the island company.
- ➤ OWF are either connected directly to the island or, if located far away from the island, connected by an ENDK-owned HVDCplatform. Thus, timely delivery of the energy island is req. to avoid delays of OWF and transmission networks (CAPEX EUR ~25-30bn).
- ▶ Depending on the design, technical solution and scope of the island, the island's CAPEX will likely be in the range of EUR ~1-2bn.



^{*)} Including an innovation area may not affect timely delivery of the area to ENDK and the expected minimum requirements for successful integration with ENDK.

Attractive, long-term cash flow profile

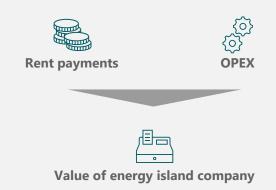


Bids are evaluated on price and quality

The expected price criterion

- ► The owner of the energy island is expected to receive an availability-based lease income from ENDK, regardless of the number of wind farms connected to the island.
- ► The rent is set in the terms of the bid for the tender and will be the key price input for the tender evaluation.
- ▶ When the island is constructed according to tender requirements, the island is expected to be paid-in-kind to the energy island operating company in return for 50.1% of the offered price of the island in cash and 49.9% of the shares in the company.
- ► The purchase price of 50.1% of the company is expected to be set to 50.1% of the net present value of the company's future cashflows.

Indicative elements of the purchase price



Examples of expected qualitative criteria



Organization and risk management

- ▶ Process management tools, methods and capabilities to organize and control the construction process.
- Risk management methods and capabilities for handling the distinctive risks of the project and avoiding delays.
- ► Leveraging a bidder's competencies to create value in the proposed organization, including how the risk management of the bidder's organization allows it to minimize delay risk and how its organizational structure supports an effective construction process.
- ► Focuses on managerial and organizational robustness as well as mitigating initiatives to avoid delays.



Execution

- ► Demonstration of a realistic and robust time and execution plan which minimizes the risk of delays.
- ► Focuses on a bidder's time and risk management tools and capabilities to avoid and minimize delays, in addition to timely delivery to ensure first 3 GW power in 2033.

The island and partnership offer opportunities for innovation

Besides the significant innovation associated with the energy island itself, several innovation options are possible



The bidder is **free** to add additional land area to the island to support/house innovative activities. However, said area and any income therefrom will not be evaluated as part of the tender.



The energy island company is **free** to perform innovative activities on any surplus area/space in connection with the island and its perimeter (e.g. datacenters or energy storage).



The energy island company is **free** to bid on any future tenders and concessions in the North Sea on equal terms with other market participants.

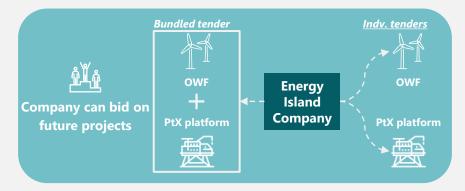
Key terms and conditions for innovative activities

- ► All innovative activities and uses of land must ultimately be decided and conducted within the purview of the jointly-owned, public-private energy island company.
- ► As a consequence, it will not be possible to enter into binding contracts pertaining to innovative activities as part of a tender offer.
- ▶ Any innovative activity will have to go through the same full regulatory approval processes as any other commercial activity before the energy island company can engage in said activity.
- Access to the island will likely be subject to security screening measures due to the island's likely partial status as critical infrastructure.

Options to add land, exploit surplus land, and leverage first-mover experience in submitting future bids on market terms









Contents



Introduction



Technicals and economics



An attractive partnership

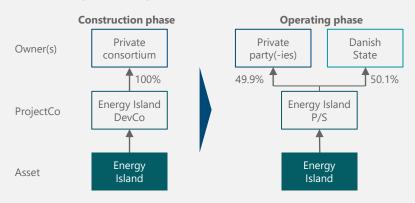


An active partnership of equals

Partnership structure

- ► The partnership will be structured as a jointly owned limited partnership company (in Danish "P/S").
- ► The privately held company ("Energy Island P/S") will as of the commencing of the island be owned 50.1% by the Danish State and 49.9% by the private party(-ies).
- ▶ Energy Island P/S owns and manages the energy island.
- ► Construction of the island is carried out by the private consortium in a separate development company (DevCo) that will handle CAPEX.
- ► The Danish State will purchase 50.1% of the island at its commencing at a price expected to be set to 50.1% of the company's NPV.

Illustrative partnership structure



Introduction Technicals and economics

A flexible and symmetrical partnership

- ➤ The energy island company is expected to be established with a **wide statutory basis** to be set out in the company's articles of incorporation and supported by the island's regulatory framework.
- ➤ The private partner is expected to be an **active long-term strategic partner** that will play a significant role in developing, maturing and realizing the island's business case and commercial potential. The partnership will be **symmetrical** (according to ownership share) and **fair** as such, the state and the private party(-ies) will be partners on equal terms.
- ➤ The partnership will be flexible in the sense that a private party after a lock-up period to be specified in the share purchase agreement will be free to exit the partnership.

Governance

- ► Energy Island P/S will be managed and operated on a **commercial** and arms-length basis with a professional management team and independence from political intervention, which have proven successful in other firms partly owned by the Danish State.
- ► The composition of the board will expectedly reflect ownership shares, and some **minority rights** in terms of access to information and veto rights in terms of significant strategic decisions will likely be included in the shareholder's agreement.
- A guiding principle for the island and its conduct will be to ensure compliance with the latest ESG agenda and a clear commitment to sustainability.

An attractive partnership

Strong, capable and committed public partner

Denmark has a solid track-record of co-owning strong companies

- ▶ The state of Denmark is an **experienced** business partner with ownership stakes in several important organizations in Denmark, e.g. DSB (danish train operator), PostNord (postal services), Ørsted, Copenhagen Airport, Danske Spil, and SAS (airline).
- ▶ Additionally, Denmark is one of the **safest** countries in which to invest and finance with a solid credit rating (AAA by Fitch, Moody's and S&P), its currency pegged to the Euro, a stable political system and strong enforcement of laws and regulations.
- ▶ Lastly, Denmark's environmental commitments are aligned with the objectives of the energy island as Denmark aims to phase out fossil fuels to become climate neutral by 2050.

Cases of partnering with the Danish State



Denmark has a strong business environment and incentives for

- essential tasks for the population but where co-ownership with private parties can help deliver a "commercial view that has often led to more efficient operations, lower prices and better quality in conformity with consumer demand".
- ▶ In 2022, Denmark overtook Switzerland as the "World's most competitive nation" in a ranking published by IMD Business School primarily due to the robustness of the Danish economy through the Covid-19 pandemic.
- ▶ Additionally, Denmark is considered one of the **best** places for doing business globally due to its one-stop-shop for business registration, great workforce, strong economy and lack of corruption.



 Ørsted A/S is a listed company owned 50.1% by the Danish State and a globally leading developer of offshore wind.

► Since its IPO in 2016, Ørsted has delivered stable net profits and a strong stock performance (not accounting for exogenous shocks).



- Københavns Lufthavne A/S operates Copenhagen and Roskilde airports and is 39.2% owned by the Danish State
- ► The company trades notably above comparable airport operators, such as operators of Zürich, Frankfurt and Vienna airports, respectively.



- Danske Spil A/S is the leading Danish gaming provider owned 80% by the Danish State.
- Danske Spil entertained roughly one-third of Denmark's population in 2021, leading to a record high result of DKK 1.5bn since the Danish gaming market liberalization in 2011.

Sources: Capital IQ, Danish Ministry of Finance, Ørsted A/S, Corporate Knights, Bloomberg, TMF Group, Danske Spil A/S, Statistics Denmark, Ministry of Foreign Affairs of Denmark

ENERGINET – a strong and stable tenant

A stable and reliable tenant

- ► ENDK is an independent public enterprise 100% owned by the Danish State. It owns, operates and develops all of the transmission systems for electricity and gas in Denmark.
- ➤ The regulatory framework under which ENDK operates is stable and predictable, as it has not changed since 2005, when ENDK was created. The company is regulated through the 'Act on Energinet,' which stipulates that the overall electricity and gas infrastructure that ENDK is responsible for shall remain public property.
- ► ENDK has an **AA-/stable/A-1+** credit rating from Standard and Poor's, most recently confirmed in December 2015.

A well-known economic framework

- ► ENDK is not required to generate a profit. The regulation of allowed return is based on cost-cover principles that permit ENDK to recognize necessary costs of efficient operations plus a return on equity roughly equal to inflation.
- ➤ Thus, ENDK is required to adhere to a break-even principle. Consequently, Danish energy consumers are charged a fee that covers necessary costs related to ENDK's operations and development of Denmark's energy system.
- ► Over time, ENDK's annual financial result equals zero when disregarding ENDK's (low) return on capital.

Business areas



ENDK operates and develops electricity and gas networks as well as gas storage in Denmark and establishes international (inter)connections.



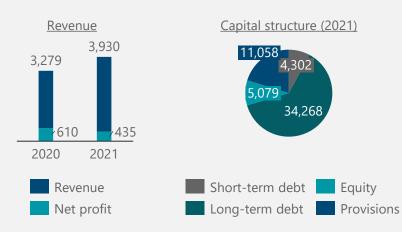
end long-term
operator
responsibility for the
Danish electricity and
gas system.



energy markets and market rules in Denmark, the Nordic countries and the EU.

Next steps

Financial snapshot (DKKm)



Finding the right, responsible partner(s)

General expectations

- ▶ Due to the long-term and expectedly close partnership, identifying the right private partner is of paramount importance.
- ► Considering the scope, size and complexity of the project, it is expected that interested parties will have to form consortia to muster the required financial, commercial, technical and organizational resources in order to bid for the tender.
- ▶ The energy island will likely to some degree be classified as 'critical infrastructure'. Hence, the investment will be subject to the new Danish investment screening law, which seeks to prevent foreign investments from posing a threat to national security or public order, particularly with regards to state-owned or -directed investors.

The right consortium will contribute...

Financing

Managerial excellence

Technical expertise





Strategic vision



Business acumen



Innovation



... and an ability to scale the energy island concept globally

Expected steps and mechanisms that over the lifetime of the project will ensure responsible partners and investors

Tender phase Competitive dialogue

Prequalification

Demands to technical and financial capabilities. With 3-4 consortiums progressing (expectedly).

Competitive dialogue

Through a discussion of dialogue topics, the tender material will be refined.

Award of construction contract

Investment screening and merger control (pot.)

Screening of tender winner for threats against national security and public order cf. danish law on investment screening as well as (potential) merger control.

Evaluation

Evaluation of final tender based on evaluation criteria.

Construction phase

Clauses - construction contract

Change of control and change of partners require prior acceptance from the state.

Possibly new investment screening

Change of control/partners can initiate new investment screening.

Establishing common ownership

Investment screening

Screening of the investment in the commonly owned company cf. danish law on investment screening.

Operation phase

Clauses – ownership

Change of control and change of partners require prior acceptance from the state.

Criteria for buyer(s)

Co-owners and later buyers of the private shares of the company may not run afoul of certain criteria concerning areas such as corruption, terror financing, money laundering etc.



Introduction









Technicals and economics An attractive partnership Next steps



Contents



Introduction



Technicals and economics



An attractive partnership



Status of approvals and permits

Introduction to preliminary site investigations and permits

- ▶ ENDK is conducting the preliminary site investigations. These investigations are the first steps towards the realization of the energy island and include geophysical (e.g. sonar studies where the seabed is screened) and geotechnical studies (e.g. drillings into the seabed) as well as environmental studies (e.g. fish, birds and benthic animals) and metocean investigations.
- ► The area for the preliminary geotechnical site investigations for the artificial island spans a 2.5 x 2.5 km. project site.
- ► It is generally expected that the DEA will support that site investigation permits can be obtained within a timeframe to be specified in the contract, provided that the private party has correctly and sufficiently completed applications in time.

Environmental Impact Assessments (EIAs)

The overall environmental assessment process for the energy island consists of several elements:

- ▶ Preparation of a strategic environmental assessment (SEA) of the plan for the energy island. Due by ~2024.
- ▶ The preparation of an EIA of the onshore facility.
- ▶ When the respective tender winners for the construction of the island and the OWF have been designated, the winners must carry out EIAs of the specific designs / projects for the island and the OWF.

* Non-exhaustive list of investigations. Complete list can be found at DEA's website.

Introduction Technicals and economics

Completed and expected preliminary site investigations

Deliverable*	Currently scheduled	Published
Metocean		
Wave buoy measurement and current measurement reports	Apr 2022	/
Temperature and salinity measurements report	Apr 2022	/
Metocean assessment report for the island	Jun 2023	
Plausibility statements from certification body	Dec 2023	
Strategic environmental assessment (SEA)		
Scoping of SEA	Nov 2022	
SEA report	Sep 2023	
SEA plan and summary statement	Feb 2024	
Technical reports and reports on environment		
Radar and radio interference	Nov 2022	
Underwater noise and vibrations	Mar 2023	
Benthic fauna and flora	Apr 2023	
Visibility analysis	May 2023	
Fish populations	Aug 2023	
Marine mammals and birds (final)	Mar 2024	
Seabed investigations		
Geology and sea-level, archaeological analysis (desk studies)	Nov 2021	/
UXO threat and risk assessment	Feb 2022	\ \ \
Geophysical site survey report	May 2022	/
Desk study of the geological succession below the artificial island site	May 2022	/
Marine archaeology: Geo-archaeological analysis	Dec 2022	

An attractive partnership Next steps

Next steps towards expected final bid in 2025

A competitive dialogue is coming up soon...

- ▶ In the spring of 2023, a competitive dialogue will be initiated by the publication of the entire draft tender material, where interested consortia will have to prepare for the pregualification.
- ▶ Following the pregualification, pregualified consortia will submit 1st dialogue bids based upon the draft tender material.
- ▶ Based on the dialogue bids, meetings between the contracting entity and the tenderers are conducted, which will lead to exp. publication in late 2024 of the final tender material reflecting these dialogues.
- ► Hereafter, final bids can be submitted based upon the final tender material until the expected deadline in the spring of 2025.
- ▶ Award of tender is then expected to be in the autumn of 2025.

... requiring actions to be taken soon by interested private parties



Teaming



Prequalification



- Competitive dialogue

 The competitive dialogue is beginning soon with pregualification in the late spring of 2023. Thus, interested parties should prepare now for the upcoming tender process.
 - ▶ Interested parties are encouraged to seek out potential consortium partners in order to be ready in time for the tender.
 - ▶ Prequalification criteria may include req. to technical capabilities and expertise, financial robustness, as well as the size/ability to finance the construction of the energy island.



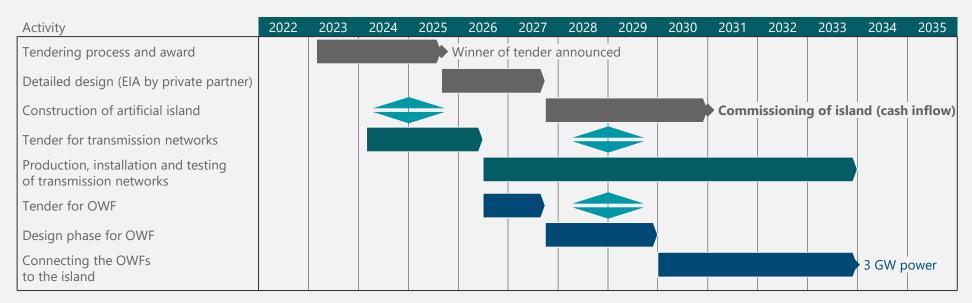


ATTENTION: Potential investors/consortia must be aware that information in this teaser is based upon the current expectations and might change before initiating the competitive dialogue. It is solely the published tender material that will form the basis of the competitive dialogue.

Introduction An attractive partnership Technicals and economics Next steps

The process from tender to island commission and cash inflow

Indicative timeline for the energy island in the North Sea





► Timeline is being optimized with initiatives to e.g. align the timeline of OWF with the timeline of the transmission networks. As such, the energy island developer will likely be involved in optimizing opportunities and risk mitigation measures for the three major tender processes.

Dependency on Energinet

- ▶ It is expected that the tendering, design and construction/production of the energy island, of the OWF and of ENDK's transmission network equipment will run in parallel.
- A number of significant **interdependencies** are thus to be expected, which will necessitate some collaboration and information sharing regarding key design and technical choices that will have to be aligned to achieve a successful integration between the three tenders.

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