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Realizing a Centralized System to Accelerate Offshore Wind Development

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About Renewable Energy Institute

Renewable Energy Institute is a non-profit think tank which aims to build a sustainable, rich society based on renewable energy. It was established in August 2011, in the aftermath of the Fukushima Daiichi Nuclear Power Plant accident, by its founder Mr. Son Masayoshi, Chairman & CEO of SoftBank Group, with his own resources.

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※The websites cited in this document were last accessed on December 14, 2023.

Introduction

The energy and climate crises have increased the urgency of accelerating the deployment of renewable energy. Offshore wind is one means of introducing renewable energy on a large scale, and its deployment is gaining momentum with high goals set in Europe, the United States, and the Asia-Pacific region. In Japan, there are strong expectations for offshore wind due to its potential for large-scale development, and many electric power consumers are beginning to take an interest in offshore wind-derived power.

Under the Renewable Energy Sea Area Utilization Act enacted in 2018, 10 sea areas have so far been designated as promotion zones, and public tenders have been conducted to select developers in eight sea areas (totaling up to 3.5 GW). However, while the national government is responsible for designating sea areas and selecting developers, the developers are responsible for local coordination and sea area surveys. This has been pointed out as a cause of increased burden on developers, local communities, and public authorities, as well as delays in coordination, and there have been calls for greater government involvement. The government is aware of the issues and has been considering the introduction of a "Japanese version of centralized system," and in November 2023 it released the "Draft Operation Policy for the Centralized System for Offshore Wind Power Generation" (hereinafter "Draft Operation Policy"), which summarizes these discussions.

The paper "Recommendations on Accelerating the Offshore Wind Power in Japan," published by Renewable Energy Institute in June 2022 (the English version in August 2022), presents the core contents of the "centralized system" as follows.

In setting a long-term goal, the national government 1) coordinates with local stakeholders and designates zones for offshore development, 2) compiles information necessary for development in advance, including wind conditions, seabed conditions, environmental impact, and infrastructure development, and 3) completes the grid connection and permitting processes before conducting public tender.

The "Draft Operation Policy" defines the "centralized system" as "a system that realizes efficient project development through the leadership involvement of the national government and local authorities." However, the content of the policy is different from the "centralized system" outlined in our recommendations.

The introduction of the "centralized system" must serve the clear objectives of accelerating the deployment of offshore wind and reducing uncertainty in investment and construction schedules by clarifying project prospects. Specifically, coordination with the local community, securing of the grid, basic site investigation, and certain environmental impact studies should be completed at the start of the public tender process to shorten the time required for investigation and design to be conducted by the developers after their selection.

In this recommendation paper, we have once again compiled internationally comparable measures, focusing on the components of the Japanese version of the “centralized system” as indicated in the Draft Operation Policy. The recommendations also reiterate the June 2022 paper. They were compiled based on the exchanges of views with offshore wind developers with various standpoints.

Recommendations for the realization of a centralized system to accelerate offshore wind power (list)

1. Local symbiosis for project development	
Short-term measures	<ul style="list-style-type: none"> Identify areas where offshore wind is expected to be deployed by 2035 Clarify the roles required of the national government, prefectures, and municipalities, and establish a coordination system Proactively utilize private-sector professional human resources for local coordination
Medium- to long-term measures	<ul style="list-style-type: none"> Develop a Marine Spatial Planning Establish an organization or single contact point to centrally manage the procedures for introducing offshore wind Expand human resources of national and local governments Provide grants from the national government to local governments where offshore wind farms are located
2. Survey of fishery conditions	
Short-term measures	<ul style="list-style-type: none"> The national government (Fisheries Agency) should immediately launch a survey on the actual status of fishery resources, accumulate and publish the data
Medium- to long-term measures	<ul style="list-style-type: none"> The national government (Fisheries Agency), in cooperation with prefectures, should identify fishermen in actual operation and promote the preparation of a “Fishermen Map” that shows the status of fishermen in operation
3. Site survey (wind, seabed, meteorological and oceanographic conditions)	
Short-term measures	<ul style="list-style-type: none"> Ensure that the survey data is of a quality that allows operators to use it for planning without the need to collect additional information Provide and publicize survey data at least six months prior to the start of the public tender Share and publish survey data free of charge Establish a mechanism to compensate developers for the cost of preliminary surveys in the target sea area, subject to certain conditions, such as making the survey results available to the government The government should take the lead in obtaining stakeholders’ consent for site surveys
Medium- to long-term measures	<ul style="list-style-type: none"> Conduct surveys in all sea areas where consent has been obtained
4. Securing grid connections	
Short-term measures	<ul style="list-style-type: none"> Immediately apply the Grid securing scheme to the sea areas where offshore wind is expected to be deployed by 2035 Clarify the timing of completion of a new or enhanced grid system under the Grid securing scheme Clarify the policy of establishing a substation/ switchyard near the landing point as part of the “push type” reinforcement policy Allow for efficiency improvements in grid plans taken over by selected developers
Medium- to long-term measures	<ul style="list-style-type: none"> Develop and publicize a comprehensive grid plan for 2050 Establish a system to sell long-distance onshore transmission lines constructed by developers to general transmission and distribution utilities
5. Environmental considerations	
Short-term measures	<ul style="list-style-type: none"> Ensure that survey data is of a quality that allows developers to use it in the preparation of draft Environmental Impact Statement (draft EIS) without additional information collection Provide and publicize survey data at least six months prior to the start of the public tender Share and publish survey data free of charge Establish a mechanism to compensate developers for the cost of preliminary surveys in the target sea area, subject to certain conditions, such as making the survey results available to the government The government should take the lead in obtaining stakeholders’ consent for information gathering and surveys Establish policies to comprehensively organize and efficiently manage opportunities for community and stakeholders’ participation that are implemented through multiple procedures
Medium- to long-term measures	<ul style="list-style-type: none"> Establish a mechanism for the government to consolidate monitoring data and disclose the results to the public Establish an organizational structure within the Ministry of the Environment to take on new roles

6. Others

Short-term measures

- Establish an ambitious overall offshore wind deployment target as well as a target specific to floating offshore wind, and develop a roadmap that clearly defines when projects should begin operations
 - Establish a roadmap to accelerate the development of base ports, with their use to be coordinated by the government
-

Medium- to long-term measures

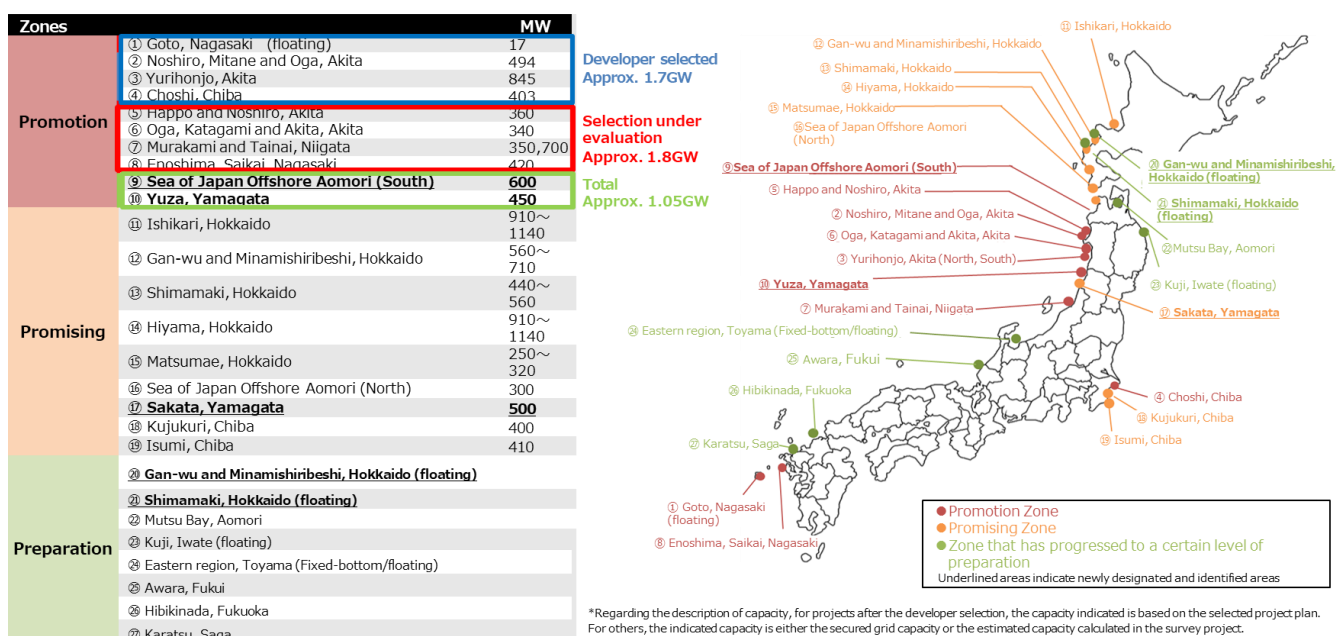
- Set a target to reduce lead time by half, and promote streamlining of procedures, digitalization, and monitoring
-

I . Offshore Wind Development Procedures in Japan Today: Toward the "Japanese Version of Centralized System”

1. Project development under the “Renewable Energy Sea Area Utilization Act”

The Renewable Energy Sea Area Utilization Act (Act on Promoting the Utilization of Sea Areas for the Development of Marine Renewable Energy Power Generation Facilities, hereinafter, “the Act”), which was enacted in 2018, introduced a system whereby the national government designates offshore wind development areas in territorial waters and conduct public tenders to select developers. As of November 2023, 10 promotion zones have been selected and 17 sea areas are in the stage of preparation for designation. The first developer selection procedure (Round 1, total 1.7 GW in four areas) was completed in 2021; a floating project is scheduled to start operation in 2026, and fixed-bottom projects in 2028-2030. In the second round (four areas totaling up to 1.8 GW), developers were selected for three sea areas in December 2023, and the selection result of the remaining one area is scheduled to be announced in March 2024. In October of the same year, as the third round, two sea areas with a total of 1 GW were designated as promotion zones. Eight zones at a certain stage of preparations, preparation zones, and nine promising zones have been announced, with further progress expected in the future.

Figure 1. Status of designation and identification of offshore wind promotion zones, promising zones, etc. (as of November 14, 2023)



Source: Agency for Natural Resources and Energy (ANRE), “Guidelines for public tender for exclusive occupancy and use based on the Renewable Energy Sea Area Utilization Act,” Procurement Price Calculation Committee (87th meeting, held on November 14, 2023) Document 1 (in Japanese). Translated into English by Renewable Energy Institute.

Until now, offshore wind projects have been driven by developers who, in the early stages of development, have had to negotiate with local communities and fishermen, conduct wind and seabed surveys, and assess environmental impacts, among others. Due to the absence of sufficient information on the marine area from the national government, developers had to carry out their own surveys to obtain the necessary information. As a result, multiple developers were simultaneously conducting similar surveys, increasing the burden on both developers and local communities. To coordinate with local stakeholders, developers attempted to explore initiatives that would meet local characteristics. However, ad hoc responses increased the burden on local communities and fishermen, and the lack of indicators and objective data led to opacity and prolonged discussions.

The Renewable Energy Sea Area Utilization Act mandates that the national government take specific initiatives, regarding site designation and project selection. Additionally, Councils led by the national and prefectural governments are responsible for coordinating stakeholders. This framework aims to facilitate the coordination of interests, reduce the burden on developers and local communities and ensure the steady implementation of qualified projects. The degree of involvement of the national government, however, is not sufficient in the current operation. As a result, the administrative and time costs and other burdens on the parties concerned have not been alleviated, and issues remain in terms of transparency and speed of procedures. For example, the process of designating development zones starts with prefectures providing information to the national government. However, in reality, local governments are approached when developers begin to formulate projects in each area, resulting in municipalities providing information to prefectures, which then provide it to the national government. Furthermore, the lack of information provided by the national government about the site has led to a lack of common knowledge among developers, resulting in developers preparing Exclusive Occupancy and Use Plans over Public Bidding (hereinafter, “Exclusive occupancy and use plan”) based on individual information. The government evaluates the Exclusive occupancy and use plans, each with different conditions, which creates a problematic situation from the point of view of fair and transparent procedures. Besides, the selected developer will have to carry out a further investigation on points where the information is insufficient, which will lead to longer lead time from developer selection to start of construction and operation. Recognizing these issues, the national government has developed a policy to enhance its involvement in a range of procedures. This is known as the “Japanese version of centralized system”. The government has identified its responsibilities for project development and regional cooperations, site survey, grid securing, and environmental impact assessment, and has considered how to gather information and engage in the process. In the year 2020, a law was revised to give the responsibility for site surveys to the Japan Organization for Metals and Energy Security (JOGMEC). In January 2023, the “Operation Policy of the Centralized System for Offshore Wind Power Generation [Outline]” (hereinafter referred to as the “Outline”)¹ was drafted and

¹ ANRE, Ministry of Economy, Trade and Industry (METI), , Ports and Harbors Bureau, Ministry of Land, Infrastructure, Transport and Tourism (MLIT), “Operation Policy for the Centralized System for Offshore Wind Power Generation [Outline]” (January 30, 2023)(in Japanese).

released. In November of the same year, the "Draft Operation Policy for the Centralized System for Offshore Wind Power Generation" was released to outline the policy².

2. Differences from the centralized system practiced overseas

The centralized system refers to a system in which the national government takes the initiative in setting up a framework for development³. The national government coordinates with stakeholders, secures the grid, and collects and shares marine and environmental information necessary for project planning, thereby creating a fair and competitive environment while reducing project risks.

The application of this type of system to project development has enabled many offshore wind developers to participate in the bidding process, which has had the effect of reducing the cost of offshore wind.

The general framework of development procedures stipulated by the Renewable Energy Sea Area Utilization Act can be said to be similar to the concept of the centralized system practiced overseas. However, is the "Japanese version of centralized system," really a system that will effectively promote offshore wind in Japan? To evaluate this, we will compare it with the systems in the Netherlands and Denmark.

The Netherlands decided to introduce a centralized system in 2013, and tenders have been conducted under the system since 2016⁴. The national government (Ministry of Economic and Climate Policy and Ministry of Infrastructure and Water Management) designates the sea areas where offshore wind farms are to be built, and development is not allowed in other sea areas. Environmental impact assessments and site investigations (e.g., seabed and meteorological/oceanographic condition surveys) are conducted by the national government (the Netherlands Enterprise Agency, RVO) and provided to developers, so developers do not conduct these investigations and the costs are borne by the national government. In the environmental impact assessment, a worst-case scenario is considered based on several project elements, and project developers basically plan and implement the projects within the assumed scope (no environmental impact assessment is conducted after developer selection). Tennet, the transmission system operator (TSO) in the country, is responsible for the preparation of the grid, and the transmission

² ANRE, METI and Ports and Harbors Bureau, MLIT, "Draft Operation Policy for the Centralized System for Offshore Wind Power Generation," Joint meeting of the Working Group on Offshore Wind Power Promotion, Subcommittee on Mass Introduction of Renewable Energy and Next-Generation Electricity Networks, Committee on Energy Efficiency and Renewable Energy, Advisory Committee for Natural Resources and Energy, METI, and Subcommittee for Offshore Wind Power Promotion, Environment Subcommittee, Ports and Harbors Subcommittee, Council for Transport Policy, MLIT (hereinafter referred to as "Offshore Wind WG") (20th meeting, held on November 15, 2023) Reference Material 1 (in Japanese).

³ On the other hand, some countries adopt a development method in which the developer takes the lead in selecting the sea area, obtaining permits, and coordinating with the local community and stakeholders, while others adopt a system that combines both. The United Kingdom (UK) is an example of the former, and the United States (US) is an example of the latter. International Renewable Energy Agency (IRENA), Global Wind Energy Council (GWEC) , "Enabling Frameworks for Offshore Wind Scale Up, Innovations in Permitting", (2023) pp18-20.

⁴ For the following statements, see the following references/websites: Netherlands Enterprise Agency, "Dutch Offshore Wind Innovation Guide, Issue 2023", Netherlands Enterprise Agency website "Hollandse Kust (west) Wind Farm Zone", Noordzeeloket website, "Wozep ecological programme", Ministry of the Environment (MOE), Study Group on the Optimal Environmental Impact Assessment System for Offshore Wind Power Generation, "New Environmental Assessment System for Offshore Wind Power Generation," Reference Material Collection (August 2023) (in Japanese).

facilities up to the offshore substation and landing will be installed by the TSO. The public tender procedure for the developer selection is carried out by the national government (RVO). In 2016, the bidding was for competing for the price of Stimulation of Sustainable Energy Production Scheme (SDE), economic support for renewable energy projects, but then the competitive environment for offshore wind projects led to bidding without seeking economic support measures. Since 2018, non-price factors and the amount of contributions made in the development of the project have been the subject for evaluation. After the selection of the developer, the project is to be monitored by the national government (Directorate General of Public Works and Water Management) during the construction and operation phases. Regarding environmental impacts, the national government (Directorate General of Public Works and Water Management) launched the Offshore Wind Ecological Program (Wozep) in 2016. The national government is centrally responsible for monitoring, research, and analysis of impacts on birds, mammals, and other organisms, as well as on marine phenomena. The cumulative impact of multiple offshore wind farms being built is to be studied and utilized in the national roadmap for their introduction.

Denmark, which also uses a centralized system, introduced a national public bidding system in 2003, and since then has been making improvements to the system further⁵. The national government (Danish Energy Agency, DEA) selects and identifies specific areas to be developed from the marine area use plan (marine spatial plan). The government conducts a preliminary site survey and provides information to developers. In terms of environmental impact assessment, a strategic environmental assessment in the relevant sea area and an environmental impact assessment of the land area are conducted by the governmental side (Energinet, the state-owned TSO), and an assessment based on the specific project in the sea area is conducted by the selected developer⁶. The cost of the environmental impact assessment is to be paid by the selected developer. The grid was previously prepared by the TSO up to the offshore substation, but starting with the 2021 bidding, the project developer is to assume responsibility up to the landing point. The public bidding procedure for selecting developers has been competitive since 2009 based solely on the strike price of economic support measures (Contract for Difference) for renewable energy projects, but in the 2022 bidding, the developers' bids were so low that the winning developer would conversely have to pay to the government. After the construction and operation of offshore wind, the government (DEA) monitored and published reports for two offshore wind farms over two periods (2000-2006 and 2007-2012).

⁵ For the following statements, see the following references: Danish Energy Agency, "Offshore Wind Development" (June 2022), Danish Energy Agency, "The Danish Offshore Wind Tender Model" (November 2020) , Dong Energy, Vattenfall, Danish Energy Agency, Danish Forest and Nature Agency, "Danish offshore wind Key Environmental Issues" (November 2006), " Danish offshore wind Key Environmental Issue-a Follow-up" (February 2013), supra note4, "New Environmental Assessment System for Offshore Wind Power Generation," Reference Material Collection.

⁶ However, important surveys that are expected to be used later by the selected developer, such as bird surveys, will be conducted by the TSO prior to the public tender. For the Thor offshore wind farm, tendered in 2021, see: DEA, "Market Dialogue: Process for environmental assessments"(November 2019).

From the perspective of the implementing actors, the main differences between the systems of these two countries and the Japanese system are as follows.

Table 1. Comparison of Japanese systems with European countries that use the centralized system

	Netherlands	Denmark	Japan	
			Until now	Japanese centralized system
Identification of potential development sea areas	Government based on marine spatial planning	Government based on marine spatial planning	—	—
Identification of development areas	Government conducts strategic environmental assessment	Government conducts screening	Government based on information from prefectures, (Developers lobby prefectures)	Same as on the left
Site investigation (seabed, meteorology, oceanography)	Government (RVO)	Government (DEA)	Developer	Government (JOGMEC) (in selected sea areas only)
Grid securing and enhancement	TSO prepares and pays for the onshore grid and offshore substations	TSO to prepare and pay for onshore grid and offshore substation →Developer to prepare to the landing point to connect with onshore grid (from 2021 bidding)	Developer to apply for connection and prepare to the point of connection with the onshore grid	Government requests general transmission and distribution utilities to secure (the scope of preparation and cost sharing by the developers has not yet been clear)
Environmental impact assessment	Government (RVO)	TSO (Strategic environmental assessment of sea areas and Environmental impact assessment of onshore areas) Developers (Environmental impact assessment of sea areas)	Developer	※ Government (Ministry of the Environment) (collection of information on development areas (including some field surveys), design of assessment methods) Developers (environmental impact assessment)
Monitoring	Government (Directorate General of Public Works and Water Management)	There are examples of implementation by the government.	Developer (follow-up study)	※ Government (Ministry of the Environment) and developers

※ Based on a report by the Ministry of the Environment's Study Group on the Optimal Environmental Impact Assessment System for Offshore Wind Power Generation, "New Environmental Assessment System for Offshore Wind Power Generation" (August 2023) (in Japanese)

Source: Compiled by Renewable Energy Institute

The "Japanese version of centralized system" reinforces the role of the national government and is moving closer to the successful European model. However, the main difference between Japan and the above two countries is the involvement of the national government in the identification of sea areas for development. Additionally, the level of

detail regarding each measure implemented by the Japanese government is not as comprehensive as that of the other two countries.

In the following section, we will discuss the "Japanese version of centralized system" in relation to the items in the "Draft Operation Policy" and suggest improvements. There are short-term (1-2 years) and medium- to long-term (3 years and over) recommendations. Under the current situation where offshore wind deployment needs to be accelerated, work should commence immediately, including medium- and long-term efforts.

II. Toward an Internationally Comparable Centralized System

1. Local symbiosis for project development

1. Current Status and the Draft Operation Policy

As mentioned above, in offshore wind development, developers undertake various activities in the community and seek local consensus before developing a project under the current Act. Although the activities of developers and their interactions with local governments play a significant role in providing information to the national government for the designation of promotion zones, the burden on related parties caused by these efforts is a concern.

In order to accelerate the development of offshore wind power, more sea areas need to be designated and the process has to be speeded up. However, as of November 2023, Council meetings of “promising zones” have only been held off Isumi City, Chiba Prefecture (in February 2021) and off Matsumae, Hokkaido (in November 2023), highlighting the growing importance of local coordination for project development.

The Draft Operation Policy outlines the division of roles between the national and local governments for local symbiosis in the early stages of project development, stating that (1) local governments (prefectures and municipalities) should take the lead in coordination, and (2) the national government should provide the necessary support to local governments in their efforts to promote local understanding and to identify the actual fisheries situation, taking into account the needs of local governments.

However, these issues are not addressed in the Draft Operation Policy.

Firstly, the government’s role is limited to promoting understanding and providing support to local governments. There is an assumption that project development will continue to be a bottom-up process. Solutions to current problems will not be found if project development is left to local governments and ultimately to developers. In addition, if large-scale development is under consideration far offshore in territorial waters or in the Exclusive Economic Zones (EEZs) with a view to the eventual introduction of floating offshore wind power, the range of interested parties will extend beyond the boundaries of each municipality or prefecture and even beyond their jurisdictions. When this happens, it is clear that it will be difficult for each local government to coordinate the projects on its own.

2. Recommendations

(1) Identification and coordination of sea areas

The development of large-scale offshore wind needs to consider the impact and coexistence with local communities and fisheries, not only at sea but also on land. There needs to be a process of discussion and debate about the location, timing and scale of offshore wind development. The uses of the sea are many and varied. Work to adapt and promote new uses of the sea (installation of offshore wind farms, establishment of protected areas, etc.), taking into account government policy objectives such as responding to the climate crisis, protecting the natural environment, and

national security, can only be undertaken by the national government. The national government should implement such adjustments in use and draw up a plan.

○ Short-term measures: Identify areas where offshore wind is expected to be deployed by 2035

As discussed below, in order to promote an integrated ocean use policy throughout Japan, a "marine spatial plan" should be formulated which will examine the coordination of the use of the ocean and to designate each use zone at the national level. It is important to note that this process may take some time due to the extensive scale of the sea area to be covered. For this reason, the national government (Ministry of Economy, Trade and Industry (METI) and Ministry of Land, Infrastructure, Transport and Tourism (MLIT), in cooperation with other ministries and agencies and local governments, should first identify offshore areas where offshore wind is expected to be introduced by 2035. In the identification of offshore areas, it is important to take into account factors such as wind conditions and grids, as well as stakeholders and the current use of the sea area. The process should be transparent, with as much information as possible being made public, to encourage stakeholder participation.

○ Medium- to long-term measures: Develop a Marine Spatial Planning

Other countries are developing Marine/Maritime Spatial Planning (MSP) to ensure comprehensive and sustainable management and use of the seas, including the development of offshore wind energy in territorial seas and EEZs. In Japan, the discussion of MSP has been ongoing for some time, and many have emphasized its importance in the context of offshore wind development⁷. The responsibility for overseeing this process and the initiation of procedures for the development of MSP should lie with the Cabinet Office of the national government⁸.

(2) Division of roles and systems among the national, prefectural, and municipal governments, and support for local governments

Policies and permissions related to offshore wind development are spread across multiple ministries at the national level⁹, with each prefecture and municipality having its own corresponding departments. As a result, there is currently no comprehensive national or local government mechanism to oversee the deployment of offshore wind from

⁷ Regarding MSP, the Third Basic Plan on Ocean Policy (Cabinet Decision on May 15, 2018) states, "We will strive to understand the facts of MSP, and we will study needs, issues, and feasibility in light of the reality of the use of Japan's ocean areas and the relationship with existing domestic laws and regulations.(CAO)". CAO stands for the Cabinet Office.

⁸ Relevant ministries and agencies, including METI, MLIT, MOE, the Fisheries Agency, the Ministry of Defense, and the Ministry of Internal Affairs and Communications, need to participate and cooperate in the formulation. The 4th Basic Plan on Ocean Policy (Cabinet decision on April 28, 2023) (in Japanese) states, "Through the sharing of ocean data, we will establish Japan's unique marine spatial planning method. We will appropriately position efforts in designating promotion zones stipulated by the Renewable Energy Sea Area Utilization Act, etc., as a form of marine spatial planning. Based on this, efforts will be made to promote multiple sea area uses more appropriately and effectively." This shows the government's view that efforts to designate promotion zones should be considered as a MSP. Although the framework of the Renewable Energy Sea Area Utilization Act contributes to the adjustment of sea area use near individual promotion zones, it does not assume any necessary coordination nationwide to achieve national policy goals such as national offshore wind installation targets, natural environment protection, and securing sea areas for fishing. It is not sufficient as a framework of MSP on its own.

⁹ For example, METI deals with energy policy and industrial policy, MLIT deals with the use of sea areas and ports, MOE deals with climate crisis countermeasures and protection of the natural environment, the Fisheries Agency deals with fisheries, and the Ministry of Defense deals with national security.

development to operation, which can lead to stove-piped operations between departments if there is insufficient cooperation.

There are also differences in authority and roles among the national government, prefectures, and municipalities. Regarding fisheries, the responsible authorities vary depending on the type of fishery and the sea area of operation. Municipalities have a good understanding of the actual situation in the local sea area, prefectures have jurisdiction over fishing rights and fisheries authorized by the governor, and the national government (Fisheries Agency) has jurisdiction over fisheries authorized by the minister. Therefore, mutual cooperation is necessary for coordination in overlapping sea areas.

In addition to the institutional framework, the resources (both financial and human) that drive the system are essential to promote the cooperation and collaboration necessary for offshore wind development.

- Short-term measures: Clarify the roles required of the national government, prefectures, and municipalities, and establish a coordination system

The national government (METI and MLIT) should promptly address the procedures and issues at each stage of the process, including investigation, zoning, construction, and operation. and clarify the roles of both the national government and the prefectural and municipal governments responsible for these stages. In addition, the establishment of a system of cooperation and coordination between government agencies is essential, as there is a lack of communication between them.

- Short-term measures: Proactively utilize private-sector professional human resources for local coordination

Effective local coordination requires the use of skilled human resources with knowledge and communication skills related to local industries, including offshore wind and fisheries. The active use of specialized personnel from the private sector is important, as national and local government officials alone are insufficient in number and quality for the careful promotion of coordination in the region. The national government (METI) should provide necessary financial support to make it possible to utilize human resources at the prefectural and municipal levels.

- Medium- to long-term measures: Establish an organization or single contact point to centrally manage the procedures for introducing offshore wind

In order to further strengthen cooperation among various ministries and departments, it would be effective to have an agency or contact point that centrally grasps and manages the entire offshore wind installation process. Having such an agency or contact point oversee the entire process, can facilitate the necessary cooperation and communication in a timely manner. In the Netherlands and Denmark, centralized contact points (one-stop-shops) for offshore wind licensing and approval have been established to improve the efficiency of procedures.

- Medium- to long-term measures: Expand human resources of national and local governments

The number of sea areas under development will increase as offshore wind deployment accelerates. Expanding the human resources of national and local governments is essential for ensuring a carefully coordinated response

in each region. In addition to human resources related to policy, promoting the allocation of more specialized personnel for coordination with local communities is also needed.

- Medium- to long-term measures: Provide grants from the national government to local governments where offshore wind farms are located

The Power Supply Location Measures Grant, the grant for areas where certain power sources (nuclear, hydroelectric, and geothermal) are located should be extended to include areas where offshore wind farms are located, so as to support regional development.

In addition, as an economic incentive to prefectures, which play a key role in local coordination, the prefectural governments should be granted a fee for occupying sea areas.

2. Survey of fishery conditions

1. Current Status and the Draft Operation Policy

For fishermen, the impact of offshore wind on fishery is a matter of great concern. In order to reach a consensus, it is essential to understand the current situation of the fishing industry and to carry out impact studies. Developers conduct surveys based on discussions with fishermen and other stakeholders. However, offshore wind is still in its infancy in Japan, and there is a lack of objective data and knowledge of survey method. As a result, the process is currently in a state of exploration.

The Draft Operation Policy categorizes surveys on actual fishery conditions in and around the target sea area into two types: "actual fishery operations status" and "actual fishery resources status". It was decided that prefectures would take the lead in organizing information on the actual fishery operations status, while a survey on "actual fishery resources status" will be carried out before construction begins. The required items will be determined after discussions at the Council of each zone under the Act, and the selected developer will be responsible for conducting the survey.

However, interested parties, including fishermen, may face difficulties in determining whether the candidate area for the promotion zone will hinder fishery due to the lack of data on fishery resources in the target area and the unknown actual situation. Consensus building may be challenging as there is no objective basis for discussion. In addition, as candidate areas expand further offshore, coordination across prefectural borders will become increasingly necessary. Therefore, relying solely on information gathering led by prefectures alone will not be sufficient.

2. Recommendations

- Short-term measures: The national government (Fisheries Agency) should immediately launch a survey on the actual status of fishery resources, accumulate and publish the data

Fishermen are concerned about the future of the fishing industry, including the effects of offshore wind, the intensifying climate crisis and the problem of poor catches. Conducting a fishery resource survey is essential

not only to assess the impact of offshore wind, but also to examine the state of the fishery industry, promote its development, and to ensure objective and transparent discussions among stakeholders.

In order to analyze whether offshore wind has a negative impact, data must be collected for several years prior to the construction of offshore wind turbines, taking into account multi-year fluctuations in sea area conditions. Areas such as preparation zones should be immediately surveyed.

- Medium- to long-term measures: The national government (Fisheries Agency), in cooperation with prefectures, should identify fishermen in actual operation and promote the preparation of a "Fishermen Map" that shows the status of fishermen in operation

The Fisheries Agency keeps track of operations in minister-licensed and governor-licensed fisheries, while prefectural fisheries departments keep track of fishermen operating in the prefecture area. The Fisheries Agency should promote the creation of a "Fishermen Map" that clarifies fishermen's operational status using digital technology by synthesizing information from "MDA Situational Indication Linkages (MSIL)," local governments, fishers in the field, Automatic Identification System (AIS) and smart phone applications, among others.

3. Site survey (wind, seabed, meteorological and oceanographic conditions)

1. Current Status and the Draft Operation Policy

As stated earlier, the information provided by the government regarding the site has not been adequate for bidding purposes. Developers had to carry out their own research, resulting in increased burdens on them and local communities, longer lead times, and challenges in ensuring fairness and transparency in project evaluation during the bidding process.

The national government has also recognized the issue and revised the law to allow JOGMEC to conduct seabed geotechnical surveys in 2022. Subsequently, surveys began in three “preparation zones” in Hokkaido in 2023, and are scheduled to begin in three sea areas in 2024 (one in Yamagata Prefecture and two in Hokkaido) ¹⁰.

The site survey should address the above issues and allow for more efficient and timely implementation under the central system.

The proposed outline for the site survey of the Draft Operation Policy is as follows..

- ① JOGMEC shall conduct the survey.
- ② The target areas shall be those that conform to the conditions specified by the relevant ministerial ordinances and where prefectures are proactively involved in and initiating local coordination. From among these areas, priority shall be given to the study of areas on the basis of estimated capacity and wind conditions.
- ③ Regarding the contents and specifications of the survey, the government will establish the "Basic Specifications" and JOGMEC will prepare the specific survey contents based on the individual circumstances of each area as "Individual Specifications". In preparing the Individual Specifications, JOGMEC will seek opinions from experts and developers, as necessary.
- ④ The cost of the survey shall be borne by the selected developer.

The government has proposed a draft of "Basic Specifications" regarding the contents and specifications of the survey. Concrete discussions are currently underway through questionnaires for developers and briefing sessions by JOGMEC. It is important that the contents are comprehensive enough to prevent developers from having to redo work.

On the other hand, there is a concern that the selection of target area may be unreasonably narrow depending on the interpretation of relevant ministerial ordinances and the concept of conditions for priority areas. It is necessary to obtain the understanding of the local community for site surveys as a precondition, but it is unclear how the

¹⁰ METI press release “Designation of promotion zones based on the Renewable Energy Sea Area Utilization Act, areas subject to central survey and candidate areas for GI Fund (floating demonstration)” (October 3, 2023) (in Japanese).

government will coordinate to obtain such understanding¹¹. Additionally, it is also unclear at what stage of the tendering process the survey results will be made public.

2. Recommendations

(1) Survey content and data sharing

- Short-term measures: Ensure that the survey data is of a quality that allows developers to use it for planning without the need to collect additional information

If the government's survey data is inadequate, the developer will need to conduct a new survey after being selected. This will not only result in financial costs for the developer, but also delay the start of the power plant's operation. To prevent such situations, the data provided should be of sufficient quality to enable developers to assess the economic feasibility and financing of the project, and to use it in the conformity assessment verification procedure with technical regulations.^{12 13}

In the past, the technical standards conformity verification/assessment procedure may have required a new survey to be carried out on the basis of an expert opinion, which was a time-consuming process. To prevent the need for repeating studies during the process, JOGMEC must seek opinions from a diverse group of experts and developers during the survey stage and incorporate them into the survey¹⁴. With regard to investigation methods, it is important to increase efficiency by integrating international standards and knowledge.

- Short-term measures: Provide and publicize survey data at least six months prior to the start of the public tender

Developers will need to base their projects based on the site survey data provided by JOGMEC and develop their Exclusive occupancy and use plans. Accordingly, JOGMEC should provide and disclose all available information as early as possible to enable bidders to fully develop their projects for their Exclusive occupancy

¹¹ Although there is no mention in the Draft Operation Policy, the explanatory material of the government states, regarding the main body responsible for local coordination in text ② above, "(above omitted) Even when JOGMEC conducts coordination, the prefectures should engage in coordination with local stakeholders, etc." It appears that coordination by JOGMEC is expected. ANRE, METI, Ports and Harbors Bureau, MLIT, "Issues related to the formulation of centralized system operation policy and revision of promotion zone designation guidelines," Offshore Wind WG (20th meeting, held on November 15, 2023) Document 2 (in Japanese), p.9.

¹² This is a procedure introduced in the 2022 amendment of the Electricity Business Act, and effectively replaces the previous wind farm certification procedure conducted by a third-party certification body. The content generally corresponds to a project design certification by a third-party certification body.

¹³ In the Netherlands, the government provides data that has been certified by a third party and can be used in the design of future offshore wind power plants. For example, see: DNV-GL, "Certification Report Site Conditions Assessment"(October 17, 2019).

¹⁴ In November 2023, JOGMEC held research briefing session for developers planning to participate in the bidding and conducted a questionnaire regarding the research plan. Additionally, the organization has concluded a basic agreement with Nippon Kaiji Kyokai (ClassNK), a registered conformity verification body, and has announced a collaboration utilizing know-how and human resources. JOGMEC web page, "Information on the 1st centralized system survey briefing session in FY2023" (2023)(in Japanese), ClassNK press release, "Basic agreement aimed at accelerating the formation of domestic offshore wind power generation projects concluded with JOGMEC" (October 5, 2023)(in Japanese).

and use plan submission. JOGMEC is required to provide and disclose all information necessary to prepare the projects at least six months before launching the public tender.

○ Short-term measures: Share and publish survey data free of charge

Data collected through site surveys should be shared and disclosed as much as possible because they are of public interest and can be used outside of offshore wind project development. If the Draft Operation Policy is implemented, where the costs are borne by the selected developers, ensuring the quality of the data as described above is essential.

○ Short-term measures: Establish a mechanism to compensate developers for the cost of preliminary surveys in the target sea area, subject to certain conditions, such as making the survey results available to the government

As developers have already conducted surveys in many sea areas, it would be inefficient for the national government to conduct duplicate surveys in the same areas. Therefore, a possible solution would be for the national government (METI) to manage and share the results of surveys that have already been conducted. Additionally, developers who cooperate in submitting survey results, should be compensated for their investment in the survey costs¹⁵.

(2) Identifying the sea areas for survey and obtaining stakeholders' consent

○ Short-term measures: The government should take the lead in obtaining stakeholders' consent for site surveys

In order to accelerate offshore wind deployment, preparations for project development must be carried out as far in advance of the current schedule as possible. Since basic surveys require a certain amount of time, they should be started as early as possible in areas with potential for offshore wind development, whether fixed-bottom or floating, to prevent survey delays from becoming a bottleneck in project development.

As with local symbiosis for project development, obtaining consent for surveys should not be left up to the developers, but should be led by the national government (METI) with the cooperation of local governments.

○ Medium- to long-term measures: Conduct surveys in all sea areas where consent has been obtained

Resource constraints may exist for surveys at the beginning of the introduction of the centralized system. However, it is important to avoid narrowing down the target area based on this assumption. It is necessary to ensure that resources are made available to carry out surveys that meet the targets and roadmaps for installing offshore wind. JOGMEC's medium-term goals, medium-term plans, and other plans should be formulated on the assumption that the necessary budget and personnel for the survey can be secured.

¹⁵ Germany has shifted to a centralized system in 2017, and at that time, it established a program to compensate advanced project developers for for the costs of investment in preliminary study; this can serve as a reference (Offshore Wind Energy Act (WindSeeG 2017), Section 10a, etc.)

The requirements for the target area are set by the ministerial ordinance ("Ministerial Ordinance Concerning Business Operation, Finance and Accounting, and Personnel Management of JOGMEC"), but the provisions should not be interpreted in a restrictive manner to unreasonably narrow the target area. Article 17, Item 1 requires that, "Areas where it is deemed difficult for operators to fully conduct voluntary activities related to the survey of the sea area, judging from the natural conditions of the sea area, technical conditions related to the installation of wind power generation facilities, and other conditions." However, it would be difficult and costly for developers to conduct voluntary surveys in sea areas where the selection is uncertain, assuming a public tender procedure under the Act. Therefore, all sea areas that could be subject to public tender under the Act would fall under the first item. Furthermore, according to Item 2 of the same article, it is required to identify "areas where there is a risk of interference with fisheries and other activities resulting from surveys conducted by two or more operators individually". Since there is no rule prohibiting individual surveys by developers, it should be interpreted that implementing multiple individual surveys poses a risk of interference with fisheries and other activities in areas with strong potential for offshore wind, as these areas would be of interest to multiple developers¹⁶.

¹⁶The applicability of the said item should be determined on the basis of the objective circumstances of the sea area, such as the potential for offshore wind and the use of the sea area. For example, even in cases where local stakeholders oppose surveys by developers other than a particular developer, making individual surveys by two or more developers virtually impossible, it is not appropriate to judge that the requirements of item 2 of the said article are not met solely on the basis of that fact.

4. Securing grid connections

1. Current Status and the Draft Operation Policy

In March 2023, the Organization for Cross-regional Coordination of Transmission Operators (OCCTO) published the “Long-term policy on cross-regional networks - the Master Plan on cross-regional networks” (hereinafter referred to as the "Master Plan"). The Master Plan was formulated based on the assumption of a 45 GW offshore wind installation target, as set in the "Vision for Offshore Wind Power Industry (1st)”¹⁷. Prior to this, in February of the same year, the Japanese government had stated in its “Basic Policy for the Realization of GX (Green Transformation)” that it would install a high-voltage direct current transmission line connecting Hokkaido and Honshu would be realized by FY2030, and studies towards its realization have been underway. A "nationwide coordination scheme" has been established to distribute the cost burden for the development of interregional connection lines across the country. This includes the use of the renewable energy surcharge system under the "Act on Special Measures concerning Promotion of Renewable Energy Electricity Use" (Subsidy for Grid Installation) and the inter-market price difference earnings of the Japan Electric Power Exchange (JEPX) (Subsidy for the Development of Interregional Networks). As for the local grid, the construction cost of intra-regional bulk transmission lines will follow the same scheme as the interregional connection line. Specific conditions for application are currently being developed. Discussions are also underway to determine how to fund the construction of other types of local grids¹⁸.

Under these circumstances, the government has introduced a new system for securing grid connections during the early stages of offshore wind development. This system is called the “Grid securing scheme” and involves the government carrying out “traffic control” for grid connections. The policy summary published in June 2023 outlines the details of this scheme is as follows¹⁹. The government conducts a preliminary survey as part of the Grid securing scheme and requests General Electricity Transmission and Distribution Utilities (TDSOs) to conduct a general study. The government then (1) sets the range of power generation capacity that will be subject to public tender, and (2) establishes the preconditions for system impact study applications to be made by the developers. The contents of (1) and (2) shall be stipulated in the Guidelines for public tender of exclusive occupancy and use. The government will then request a Capacity Reservation of the network²⁰ from TDSOs through OCCTO (see Figure 2-2 below).

¹⁷ Public-Private Council on Enhancement of Industrial Competitiveness for Offshore Wind Power Generation, "Vision for Offshore Wind Industry (1st)" (December 15, 2020).

¹⁸ ANRE, "On the Next-Generation of Electricity Networks," Subcommittee on Massive Introduction of Renewable Energies and Next-Generation Electricity Networks, Committee on Energy Efficiency and Renewable Energy / Electricity and Gas Industry Committee, Advisory Committee for Natural Resources and Energy, METI (hereinafter "Subcommittee on Massive Introduction of Renewable Energy") (55th meeting, held September 27, 2023), Document 2 (in Japanese), ANRE, "Next-Generation of Electricity Networks," Subcommittee on Massive Introduction of Renewable Energy (57th meeting, held December 5, 2023), Document 2 (in Japanese).

¹⁹ ANRE, METI, and Port and Harbor Bureau, MLIT, "Review of 'Grid Securing Scheme'" Offshore Wind WG (19th meeting, held June 16, 2023), Document 1 (in Japanese).

²⁰ The power generation facilities concerned shall be treated as if they were connected to the transmission system (excluding interregional connection lines). (Article 92 of Network Codes)

The scope of the scheme was identified as the five areas in Hokkaido that have already been the subject of the grid survey, as well as preparatory zones and sea areas that have not been designated as zones. (However, this scheme does not apply if the developer has provided the national government with information on the secured grid connection and intends to offer it for public tender, and the prefecture has also provided the government with information on the relevant area on the assumption that the grid will be used.)

The implementation of the Grid securing scheme will streamline the grid securing procedures carried out individually by the developers and avoid duplication of procedures and equipment. The "general study" requested by the government to TDSOs will be equivalent to the system impact survey conducted at a later stage in response to the Guidelines for public tender for exclusive occupancy and use. This will accelerate the survey and enable the selected developers to smoothly connect to the grid after the public tender. It is also expected to speed up the process.

On the other hand, securing grid connection for offshore wind cannot be solved solely by introducing the Grid securing scheme. It requires a more enhanced role for the government.

The plan for developing the local grid on the onshore side has many undetermined aspects. The Master Plan assumes the cost of grid enhancement in the Hokkaido area, which has high potential for offshore wind, but does not provide a specific enhancement plan for the local grid.

The recommendation paper published by Renewable Energy Institute in June 2022 highlighted that the TDSO's long lead time to improve local grids has resulted in developers having to lay long-distance power lines on land on their own to speed up their project development, significantly increasing costs. As of December 2023, these conditions remain unchanged.

To construct or enhance transmission lines, agreements must be reached with the relevant land and sea area users. However, this coordination process takes time and requires the initiative of the national government.

2. Recommendations

(1) Developing plans for grid enhancement

- Short-term measures: Immediately apply the Grid securing scheme to the sea areas where offshore wind is expected to be deployed by 2035

The Grid securing scheme should be applied to the government-designated sea areas where offshore wind is expected to be deployed by 2035 and preparations for grid connection and enhancement should begin.

From April 2023, "Non-firm Access"²¹ has begun to be applied to local grids throughout Japan. Despite the benefits of early connection for power plants, delaying grid expansion could prevent full offshore wind

²¹ A method of connecting a new power plant by utilizing the available capacity of transmission and substation facilities. While it enables a new electricity generation plant to be connected without grid reinforcement, since, even during normal times, curtailment is applied to newly-connected plants with Non-firm Access contract when congestion occurs. See the OCCTO website, "Explanation: Electricity network" and "Reform of Electricity Network Utilization." (in Japanese)

deployment. Non-firm Access should be based on the premise that the necessary grid reinforcements will be made, and as a temporary measure until such reinforcements are made, appropriate reinforcements should be implemented under a cost-benefit analysis to ensure that this does not become a permanent measure. The application of the Grid securing scheme can trigger grid planning by TDSOs, and is important in encouraging earlier cost-benefit analysis.

○ Short-term measures: Clarify the timing of completion of a new or enhanced grid system under the Grid securing scheme

As previously stated, the profitability of a power plant connected to the grid without grid expansion under Non-firm Access is largely dependent on the estimated transmission capacity under the unlimited and uncompensated curtailment. For developers, the completion date of the new or enhanced power grid is fundamental information when considering participation in the public tender process. Under the Grid securing scheme, the national government (METI) should ensure that the TDSOs clearly indicate the completion date of new grids through dialogue with those utilities.

○ Medium- to long-term measures: Develop and publicize a comprehensive grid plan for 2050

In order to develop local grids in a planned and efficient manner, it is necessary to develop a comprehensive plan that takes into account the potential of renewable energy sources and the speed of their introduction; since the development of a new or reinforced power grid takes time²². The national government (METI) should create a framework involving OCCTO and TDSOs, and formulate and publicize a nationwide plan that deepens the Master Plan to include plans within each TDSO's area. To optimize the plan for future power supply and grid flexibility²³, it should be formulated under the national government and OCCTO while consolidating the plans of each TDSO's area.

To encourage early grid development by TDSOs, it is also necessary to clearly position it in the evaluation items in the revenue cap system. The evaluation criteria should be made very clear to include the formulation and early implementation of grid development plans for the integration of renewable energy, including offshore wind, and the quantity of renewable energy deployed.

²²The UK is working to reduce maintenance costs and environmental impact by reassessing transmission lines to land built thus far by offshore wind developers and having electricity transmission utilities build, consolidate, and organize offshore substations and large capacity transmission lines. This effort is being undertaken as a comprehensive plan in conjunction with the necessary onshore grid development plan. National grid ESO, Pathway to 2030 -A holistic network design to support offshore wind deployment for net zero, July 2022

²³OCCTO shall formulate a Cross-regional network development plan for the reinforcement of bulk transmission lines that occurs in conjunction with the reinforcement of interregional connection lines. In addition to this, the government has established a policy that OCCTO will consider starting a Planning process of a Cross-regional network development plan, in cooperation with TDSOs, in the case where intra-regional bulk transmission lines concerned are not reinforced integrally with interregional connection lines but its reinforcement contributes to interregional transactions. If the Planning process is started, OCCTO will formulate a Cross-regional network development plan and periodically check its progress. On the other hand, an issue of how to proceed with the reinforcement of the intra-regional bulk transmission line for the purpose of efficiently connecting power plants remains to be discussed in the further. Supra note18, ANRE, "Next Generation of Electricity Networks," Subcommittee on Massive Introduction of Renewable Energy (57th meeting, held on December 5, 2023), Document 2 (in Japanese).

In addition, setting incentives for TDSOs to encourage grid enhancement should be considered. For instance, they could be obliged, under certain conditions, to compensate power generators for curtailment caused by grid capacity constraints.

Furthermore, it is crucial for the government to proactively coordinate with onshore and offshore users during the grid enhancement phase based on the established plan.

(2) Increased efficiency in grid enhancement

- Short-term measures: Clarify the policy of establishing a substation/ switchyard near the landing point as part of the “push-type” reinforcement policy

The developers are responsible for the laying of long-distance power lines (so-called “access lines”) and for bearing the costs of such lines. This should be changed, and interconnection facilities should be installed close to the landing point under the responsibility and at the cost of the TDSOs. In areas where offshore wind has great potential and where multiple offshore wind farms are expected to be connected, an efficient grid formation with low social costs is required, taking into account the burden on the local community in a cost-benefit analysis, also compared to the case where many power lines are laid. This will also facilitate comprehensive and efficient planning of the onshore grid to optimize the overall cost of the offshore wind farm and the onshore grid enhancement.

In areas where there will be several large-scale offshore wind farms including floating farms, TDSOs should consider installing offshore substations as an option.

- Short-term measures: Allow for efficiency improvements in grid plans taken over by selected developers

When a selected developer receives a grid plan secured through the Solicitation Process for Generator Interconnection or the Collective Study Process for Generator Interconnection, it may not be efficient to implement the inherited grid plan as it is, due to differences between the plan of the entity that secured the grid and the plan of the selected developer. Therefore, if a more efficient plan is presented by the selected developer, it should be made possible to amend the plan.

- Medium- to long-term measures: Establish a system to sell long-distance onshore transmission lines constructed by developers to TDSOs

In some cases, it is more efficient for a TDSO to maintain long-distance transmission lines than for a power producer to do so. In cases where there are delays in reinforcing the local grid reinforcement and the power producer is forced to construct a long-distance onshore transmission line, it should be possible for the power producer to sell the line to the TDSO after it has been constructed²⁴.

²⁴ In the UK, there is a system whereby a submarine transmission line installed by an offshore wind developer is sold to another entity for operation and maintenance (Offshore Transmission Owner, OFTO). The selection of the maintenance operator is determined by a national tender. Ofgem website “Offshore Electricity Transmission (OFTO).”

5. Environmental considerations

1. Current Status and the Draft Operation Policy

The environmental impact assessment (EIA) procedures are not associated with the procedures for public tender process under the Act, and developers considering the development of offshore wind are required to go through the EIA procedures individually. As a result, as in the case of site surveys, multiple developers conduct duplicate surveys in the same offshore area, which is inefficient and increases the burden on developers, local communities, and other interested parties, as well as government agencies. In addition, the procedures are said to take four to six years²⁵, and the timing of their initiation and streamlining are also issues.

In response to these issues, the Ministry of the Environment (MOE) has launched a project in which the ministry will collect information in offshore areas where offshore wind is expected to be introduced and provide it to developers. One area (off the coast of Yuza Town, Yamagata Prefecture) was selected for the 2022 project and two areas (off the coast of Tainai City and Murakami City, Niigata Prefecture and Isumi City, Chiba Prefecture) were selected for the 2023 project as target areas.

In August 2023, the "Study Group on the Optimal Environmental Impact Assessment System for Offshore Wind Power Generation" published a report on the system design²⁶. In November of the same year, a subcommittee of the Central Environment Council (an advisory body to the Minister of MOE) discussed a draft report to the Minister²⁷ based on the Study Group's report. The draft report proposes a new procedure whereby MOE collects information and conducts on-site surveys from an early stage in the sea area where the project is expected to be implemented, analyzes the environmental impact, and indicates how appropriate environmental considerations should be ensured. MOE's findings would be made public, and items to be considered would be fed back to METI and MLIT in their procedures for designating promotion zones. After the developer selection, the developer would conduct an EIA of the specific project plan based on the results of the study by MOE. In order to address uncertainties arising from lack of data on sea and the environmental impact of offshore wind, monitoring during construction and operation, and collecting and managing environmental information are also proposed.

The recommendations in the Study Group's report and the draft report of the subcommittee will help to avoid duplication of surveys in the same sea area and speed up the surveys. On the other hand, some issues remain unclear, such as the linkage with the Act and the division of roles between the government and developers.

²⁵ Environmental Impact Assessment Division, MOE, "Environmental Impact Assessment for Offshore Wind Power Generation," Offshore Wind WG (18th meeting, January 30, 2023), Document 3 (in Japanese).

²⁶ Study Group on the Optimal Environmental Impact Assessment System for Offshore Wind Power Generation, MOE, "A New Environmental Assessment System for Offshore Wind Power Generation" (August 2023) (in Japanese).

²⁷ "Draft Report on the Environmental Impact Assessment System for Wind Power Generation Projects (First Report)," Central Environment Council, General Policy Committee, Subcommittee on the Environmental Impact Assessment System for Wind Power Generation (1st meeting, held on November 6, 2023), Document 3 (in Japanese).

2. Recommendations

The new procedures will be introduced by amending the Environment Impact Assessment Act after 2024 and will come into effect after a certain period of notification and preparation. The following recommendations include medium- and long-term initiatives that are based on the new system, but should be considered prior to its introduction in order to prepare for the new procedure.

(1) How the MOE should collect information and conduct field surveys

- Short-term measures: Ensure that survey data is of a quality that allows developers to use it in the preparation of draft Environmental Impact Statement (draft EIS) without additional information collection

As with site surveys, if the survey data provided by the government (MOE) is inadequate, a new survey by the developer will be required after the developer is selected. In order to avoid having to repeat the process, the data provided should be of a quality that will allow the selected developer to prepare a draft EIS. If there is a discrepancy with the developer's specific plan, the selected developer will have to redo the survey. Therefore, the government (MOE) needs to engage in dialogue with developers considering participating in a public tender and prepare to provide sufficient information and conduct appropriate procedures. Furthermore, even at the evaluation stage, there is a risk that developers will have to rework due to the gap in interpretation of the evaluation criteria. It is also important to clarify these and promote a common understanding with those involved in the evaluation.

- Short-term measures: Provide and publicize survey data at least six months prior to the start of the public tender

In order to ensure that developers have sufficient information, MOE should provide and publicize relevant information necessary for the preparation of Exclusive occupancy and use plans, at least six months before the public tender process begins.

- Short-term measures: Share and publish survey data free of charge

The information gathered through EIA should also be utilized to protect the natural environment which is of great interest to the community. Surveys on fish species can also be used for research and studies on fisheries beyond the survey area, promoting fisheries as the oceans are interconnected.

Such data should be actively shared and published, except for information that is unsuitable for disclosure due to resource and environmental conservation or national security concerns. This data should be used for community level discussions, dialogue, and technological development.

It is appropriate for the government to bear the cost of conducting the field survey. The survey serves the purpose of ensuring that the government takes the environment into account when designating promotion zones, and the data should not be used exclusively for offshore wind projects, as previously mentioned.

- Short-term measures: Establish a mechanism to compensate developers for the cost of preliminary surveys in the target sea area, subject to certain conditions, such as making the survey results available to the government

As in the case of site surveys, a mechanism should be established for the government (MOE) to manage and share the results of surveys that have already been conducted, while also considering compensating developers who cooperate in submitting survey results.

(2) Identification of the survey sea area and obtaining consent from stakeholders

- Short-term measures: The government should take the lead in obtaining stakeholders' consent for information gathering and surveys

The new procedures envisioned in the draft report cover the sea areas that are expected to be designated as promotion zones under the Act. As mentioned above, the national government should take the initiative in identifying sea areas, rather than relying on local governments to provide information. The government (METI and MOE) should also take the lead in obtaining consent for environment-related surveys, with cooperation from local governments in the process of identifying sea areas.

(3) Coordination of EIA Procedures with the Act and Others

- Short-term measures: Establish policies to comprehensively organize and efficiently manage opportunities for community and stakeholders' participation that are implemented through multiple procedures

EIA procedures should provide information and a forum for dialogue to local communities and stakeholders, ensuring adequate opportunities for participation. At the same time, there are expected to be many opportunities to participate in the development process. These include providing information and being involved in other coordinating activities, such as site surveys by JOGMEC and the preparation of marine spatial plans for the area concerned, as well as attending Council meetings under the Act. Carrying out these tasks separately may be complicated and difficult to understand from the stakeholder's perspective and may also increase the burden on the parties involved, prolong procedures, and raise administrative costs. The national government (METI, MLIT, and MOE) should identify the "participation opportunities" for offshore wind development and present them to stakeholders in an easily understandable manner. It is also necessary to establish policies to integrate these opportunities in practice where their objectives overlap.

(4) Monitoring

- Medium- to long-term measures: Establish a mechanism for the government to consolidate monitoring data and share the results to the public

As the draft report also points out, it is crucial to monitor the environmental impact of offshore wind, especially since scientific knowledge on the subject is not yet fully accumulated. If significant impacts are

identified, appropriate action must be taken to ensure environmental considerations in subsequent projects. Given the potential for large-scale deployment of offshore wind, it is crucial to assess the cumulative impact of installing multiple power plants rather than just one. As ocean and offshore spaces are interconnected, consolidating information at the national level is essential. Monitoring data can provide the necessary information for the national government (MOE) to identify sea areas for future development.

To enable objective data-based evaluation and accumulate knowledge, multiple private research organizations should be allowed to analyze data in addition to MOE. Publishing the results will promote understanding among local communities and stakeholders. Therefore, the national government should establish a mechanism to consolidate monitoring data and publicize the results²⁸.

(5) Establishment of an appropriate organizational structure

- Medium- to long-term measures: Establish an organizational structure within MOE to take on new roles

Under the new procedures, MOE is responsible for developing its own survey methodology, conducting surveys including (on-site surveys), and evaluating the results. This is a different role from the one it has played so far, under the Environmental Impact Assessment Act, which is to submit opinions. With the expected increase in offshore wind projects, a significant number of surveys will be required, and expert personnel will be needed. MOE should establish an organizational structure that can meet these demands.

²⁸ The submission of monitoring data by developers could be encouraged, for example, by specifying the provision of information as a condition of bidding in advance at the time of the announcement of the public tender (in the guidelines for public tender of exclusive occupancy and use) under the Act. Article 6 of the Act stipulates the obligation of those who operate offshore renewable energy power generation projects to make efforts to conserve the marine environment, and such a condition in the guidelines does not appear to go against the principles of the Act. The accumulation of knowledge through the aggregation of monitoring data will facilitate coordination with the various stakeholders in the sustainable promotion and development of offshore wind. In this respect, it is also beneficial for developers. At the same time, however, the provision of data should not be overly burdensome (financially and administratively), and from this perspective, the division of roles between developers and the government in monitoring is important. The degree of data disclosure may be considered in accordance with the nature of the data, the recipient, and the purpose of its use.

6. Others

1. Elements of the centralized system not being in the Draft Operation Policy and national government's initiatives

The surge in fossil fuel prices that began in 2021 was further accelerated by Russia's invasion of Ukraine the following year. This has had a major impact on the energy security of many countries. European countries, in particular, are accelerating the deployment of renewables and have significantly increased their offshore wind targets (Table 2).

Table 2: Examples of European countries raising their offshore wind installation targets

Country/Region	Target values	Year the target was set
United Kingdom	50 GW by 2030 (incl 5 GW of floating type) ← 40 GW by 2030	2022 2020
Netherlands	21 GW by 2030/31 50 GW by 2040 70 GW by 2050 ← 11.5 GW by 2030	2022 2017
Denmark	At least 14 GW by 2030 35 GW by 2050 ← 5.3 GW by 2030	2023 2022 2019
EU	111 GW by 2030 317 GW by 2050 ← At least 60 GW by 2030 300 GW by 2050	2023 2020

Source: Compiled by Renewable Energy Institute based on information from the countries and the region.

Meanwhile, the “ambitious level” of offshore wind installed in 2030 set by Japan is only 5.7GW. In addition, the target of “forming 10 GW of projects by 2030 and 30-45 GW of projects by 2040,” which was compiled by the Public-Private Council in 2020, does not include a specific roadmap for when and where project development will proceed.

The actual installed capacity of offshore wind has reached 63 GW worldwide (as of the end of 2022). However due to the limited supply chain manufacturers, developers and wind turbine manufacturers are likely to prioritize other markets over Japan, which remains a small market with only a small number of orders of small sizes. If the current situation continues, the market is likely to experience a relative decline compared to other countries, including investment in building supply chains.

Furthermore, in terms of the climate crisis, developed countries are particularly required to decarbonize their power sector by 2035²⁹. Offshore wind is a key power source that will help achieve this goal, and it is therefore imperative to increase the speed and scale of its deployment. To accelerate project development, it is essential to promote sea area designation, grid construction, port development, and coordination of port use for power plant construction under the leadership of the national government. It is also important to streamline licensing procedures.

2. Recommendations

- Short-term measures: Establish ambitious overall offshore wind deployment targets as well as targets specific to floating offshore wind, and develop a roadmap that clearly defines when projects should begin operations

Increasing market predictability is needed to create an attractive investment environment for both domestic and overseas investors and developers. First, a roadmap for decarbonizing the electricity sector by 2035 and the entire energy sector by 2050 should be formulated. By doing so, it can identify the bottlenecks that need to be resolved and clarify the specific actions required to achieve the installation targets. The government should raise its current goals and formulate a roadmap that back casts from the goals. In particular, it is essential for Japan to set ambitious targets for the introduction of floating offshore wind, which has great potential and is expected to be fully deployed in the future. To realize an attractive and competitive market involving a diverse range of domestic and overseas developers and to promote industry development and investment, it is necessary to set a target of at least 20 GW or more for the fixed -bottom type and 10 GW or more for the floating type to be in operation by 2035.

To set new targets and formulate a roadmap, it is essential to restart the public-private council as soon as possible and revise the “Vision for Offshore Wind Power Industry (1st)” to the “2nd Version.”

- Short-term measures: Establish a roadmap to accelerate the development of base ports, with their use to be coordinated by the government

MLIT identified the conditions required for base ports at the “Study Group on Base Ports for Achieving Carbon Neutrality in 2050,” and conducted a survey throughout Japan to gather their opinions. In September 2022, the study group compiled a list of ports (wharves) that intended to be designated as base ports. The government (MLIT) should immediately clarify the roadmap for developing base ports to meet deployment targets and accelerate development.

The cost-sharing system in which the initial user of the base port bears the risk of covering the entire improvement cost, which is later adjusted with subsequent users, should be abolished. Instead, the burden should be distributed fairly and predictably among developers, considering the long-term use of the base port³⁰. In the

²⁹ International Energy Agency, "Net Zero Roadmap: A Global Pathway to Keep the 1.5°C Goal in Reach -2023 Update-," p. 63. The "G7 Hiroshima Leaders' Communiqué" also clearly mentioned "a 1.5°C pathway and our collective goal for a fully or predominantly decarbonized power sector by 2035."

³⁰ As an example, a daily or per unit area fee could be established.

current situation where there are not enough base ports, delays in construction by initial users will significantly impact the construction schedule of subsequent users. To optimize the start of operation and accelerate deployment, the government (MLIT) should take the initiative in coordinating the use of ports and harbors, rather than leaving the coordination to the developers.

- Medium- to long-term measures: Set a target to reduce lead time by half, and promote streamlining of procedures, digitalization, and monitoring

Under current practices, the lead time after selecting a developer is said to be 6 to 8 years. Shortening lead times is also a focus in the UK and EU³¹. Procedures should be centrally managed through a single point of contact, and all procedures should be monitored to avoid duplication, to allow parallel procedures and to identify bottleneck regulations and enable timely improvements. To streamline procedures, digitalization should be actively promoted.

³¹ The UK : "British Energy Security Strategy" (April 2022).

Europe : European Commission, Proposal for a DIRECTIVE OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL amending Directive (EU) 2018/2001 on the promotion of the use of energy from renewable sources, Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency (18.5.2022); COMMISSION RECOMMENDATION (EU) 2022/822 of 18 May 2022 on speeding up permit-granting procedures for renewable energy projects and facilitating Power Purchase Agreements.

Column 1: Toward reducing lead time

The development period can be shortened by a well-implemented government-led survey. As mentioned above, if all the information needed for project planning is available at the time of developer selection, there is no need to repeat the survey or conduct additional studies. This allows the selected developer to focus on specific procedures and arrangements for construction. Assuming that the appropriate government investigations are carried out, the time from selecting the developer to the start of operation can be reduced to about 4.5 years, even if current permitting

procedures are followed (see Figures 2-1 and 2-2). Specifically, this means that the time required for EIA procedures and conformity assessment of technical standards, which normally takes 4-5 years, can be reduced to around 2 years.

To reduce the lead time, it is not only necessary to further reduce the said period, but also to reduce the periods at the stage of designating sea areas and selecting developers. Further research will be conducted on these matters.

Figure 2-1 Procedural flow from investigation to operation (current status)

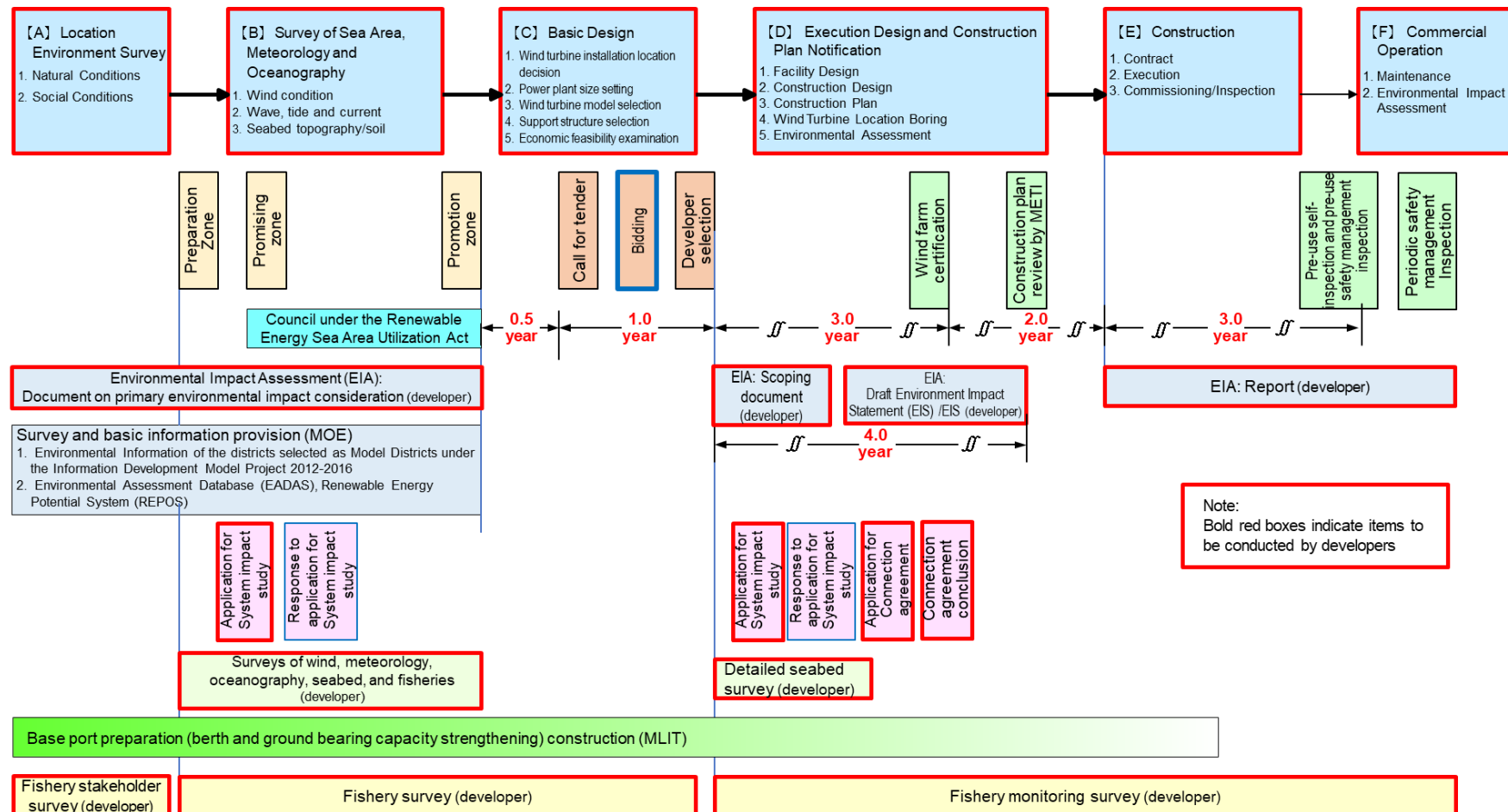
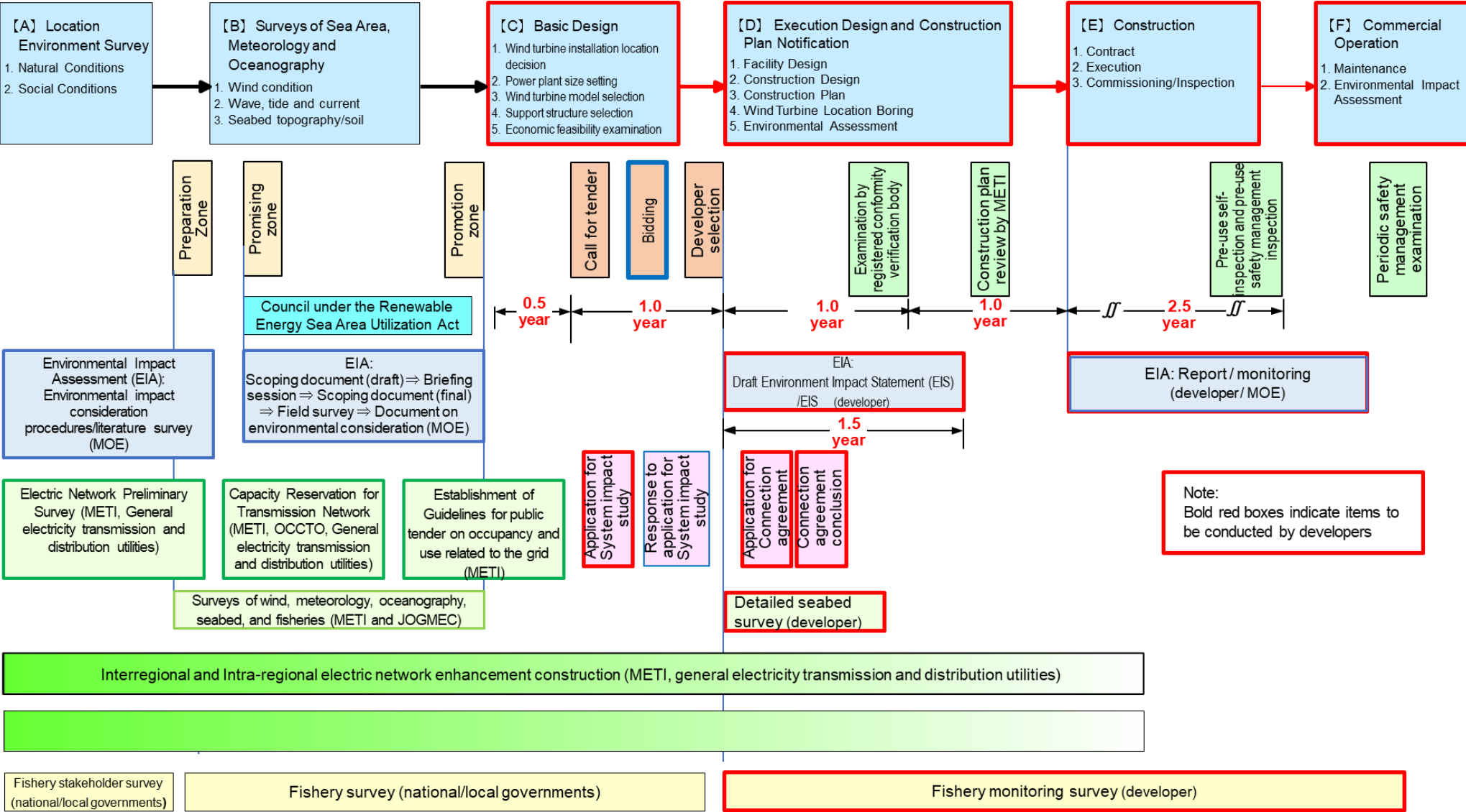


Figure 2-2 Procedural flow from investigation to operation (speed-up case)



Reference materials (all in Japanese):

- New Energy and Industrial Technology Development Organization (NEDO), "Guidebook for Introducing Fixed-Bottom Offshore Wind Power (Final version)" (March 2018)
- NEDO, "Guide to Expedited Environmental Assessment Methodology - Focusing on the Methodology of Front-load Environmental Investigation - Wind Power Plant General Overview" (first edition March 30, 2018, revised March 31, 2019)
- MOE, Environmental Impact Assessment Information Support Network webpage, Environmental Assessment Guide "2-1 Procedures for Environmental Assessment"
- Environmental Impact Assessment Division, Minister's Secretariat, MOE, "Enforcement Status of Environmental Impact Assessment System" (June 23, 2021)
- ANRE, METI and Ports and Harbors Bureau, MLIT, "Issues for consideration of the 'Japanese version of Centralized System" (January 14, 2022)
- Marine Fisheries Technology Council, "For the Implementation of Fishery Impact Study on Offshore Wind Power Facilities" (June 2022)
- ANRE, METI, and Port and Harbor Bureau, MLIT, "Review of 'Grid Securing Scheme" (June 16, 2023)
- MOE, "History of Studies and Future Plans for the Environmental Impact Assessment of Offshore Wind Power Generation Projects" (November 6, 2023)
- MOE, "The Future of Environmental Impact Assessment for Wind Power Generation Projects (First Report) (Draft)" (November 6, 2023)

Source: Compiled by Renewable Energy Institute

Column 2: Centralized system and two-stage bidding

The transition to a centralized system that is internationally comparable is expected to eliminate duplication, speed up procedures and facilitate coordination during the project development phase. However, even after the selection of the developer, a certain lead time will still be required for the solidification of the project plan, EIA, and construction. Under the Act, the price for the supply of electricity from offshore wind is determined at the time of the selection of the developer (from the developer's perspective, at the time of the formulation of an Exclusive occupancy and use plan for the tender). After that, the developer will bear the risk of market fluctuations (such as energy prices, prices in the supply chain, exchange rates, etc.) that may occur during the lead time.

In recent years, the market has undergone rapid changes that were unforeseeable due to rising energy prices and the wind industry's rapid expansion, and it is therefore necessary to minimize the risk of market fluctuations caused by the scheme. One possible measure is to push back the timing of setting the price of electricity supply. A reduction in the lead time between the determination of the price of the electricity supply and construction can reduce the period of exposure to risk. The current bidding method, which determines the sea area occupant and supply price (FiT/FiP price) simultaneously, could be replaced with a two-stage bidding method. This method would separate the determination of the sea area occupant and supply price, and the supply price would be determined at a more mature stage of the project plan.

This type of mechanism has been introduced in the UK and the US. Acquiring the right to occupy the sea area enables exclusive project development, giving the developer an advantage in investing resources towards realizing the project from an early stage and promoting specific dialogues with the local community. To prevent delays in development due to limited government resources and the inability to conduct surveys, developers who have acquired the right to occupy the sea area can undertake detailed site surveys. This type of public bidding system for offshore

wind development in the EEZ is also being discussed in Japan. Some experienced operators who have invested and operated overseas have voiced their support for the two-stage system³².

To accelerate the deployment of offshore wind, strong government initiative in the early stages of project development is crucial, including designating sea areas, coordinating with stakeholders, and collecting and providing the necessary information. Improvements to procedures, including changes to the bidding system, should be considered in future discussions, with a focus on implementing the core aspects of the centralized system.

³² ANRE, METI, and Port and Harbor Bureau, MLIT, "Discussion Points for Offshore Wind Power EEZ deployment," Offshore Wind WG (20th meeting, November 15, 2023), Document 3 (in Japanese); as an example of developers' opinions, see Marubeni Offshore Wind Development Corporation, "Toward the Expansion of Offshore Wind Power Installation," Procurement Price Calculation Committee (88th meeting, held on October 27, 2023), Document 5.(Introduction of a two-step public bidding system for the development of the floating offshore wind industry) (in Japanese).

Realizing a Centralized System to Accelerate Offshore Wind Development

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