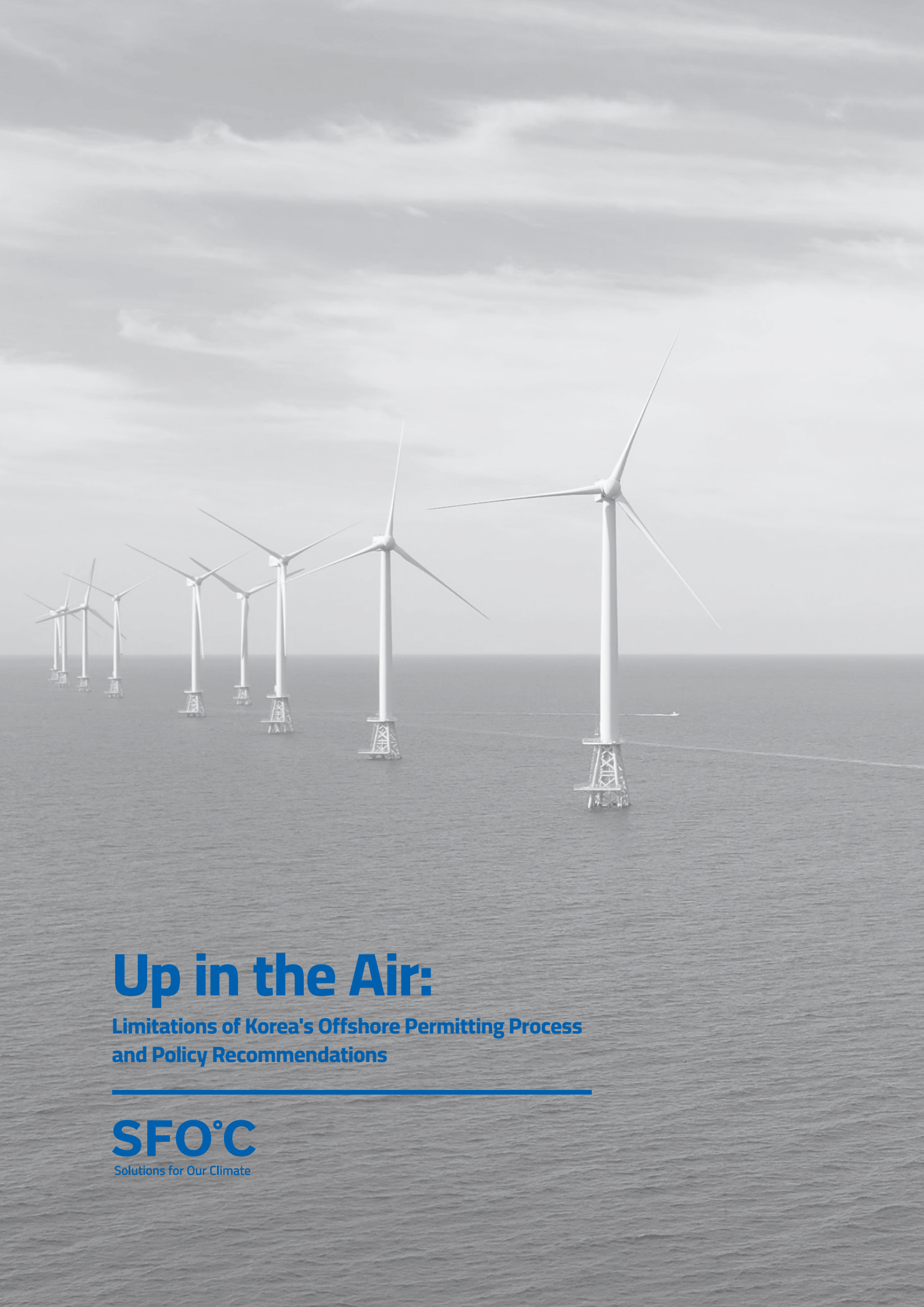




# Up in the Air:

**Limitations of Korea's Offshore Permitting Process  
and Policy Recommendations**





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Solutions for Our Climate

# Up in the Air:

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## Limitations of Korea's Offshore Permitting Process and Policy Recommendations

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Solutions for Our Climate (SFOC) is a nonprofit organization established in 2016 for more effective climate action and energy transition. SFOC is led by legal, economic, financial, and environmental experts with experience in energy and climate policy and works closely with domestic and international partners.

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# Executive Summary

Offshore wind power is increasingly regarded as a vital tool for energy transition and industrial decarbonization in the fight against the climate crisis. However, while countries around the world strive to build out offshore wind, South Korea lags behind. Only one percent, or 124.5MW, of Korea's 2030 offshore wind power installation target is currently in operation. This is despite the fact that 20.8GW of offshore wind projects received electric utility licenses from 2013 to 2022 but remain delayed in the permitting process.

Deployment of offshore wind power remains stagnant in Korea because the responsibility for permitting, from site selection to development, falls solely on business operators. The permitting process itself is riddled with structural delays. This report summarizes the complex permitting processes for offshore wind power in Korea and analyzes the volume of delayed projects in each permitting stage. It further identifies the structural issues hampering offshore wind power permitting and suggests strategies for improvement.

Any business hoping to develop offshore wind power in Korea, must navigate 29 individual laws exercised by as many as ten government ministries. This report categorizes the permitting process into five stages and analyzes the permitting status of offshore wind projects that have received electric utility licenses up to September 2022. Only 25% (5.1GW) of the total number of projects have passed the initial stage of the permitting process by signing transmission contracts. 5% (1.0GW) have completed at least one consultation with government ministry over location while a mere four projects (0.5GW) have completed the final permit stage by receiving licensing to occupy and use public waters. This means that between 2013 and September 2022 just over 2% of projects granted electric utility licenses have been allowed to break ground. Two of these projects (95MW) are currently in commercial operation, and two (453MW) are waiting to begin construction.

There are three core reasons to explain this permitting blockage. Firstly, loopholes in the Electric Utility Act encourage competition in securing optimum locations, leading to higher social costs. The act specifies that projects which install wind condition measuring instruments are given priority for a maximum effective area of 100km<sup>2</sup> around the instrument. Since projects are given priority based solely on gaining permits to install such instruments, the importance of other factors, such as environmental and social costs, are relegated. This not only increases administrative and economic costs but also fuels conflict with other groups, such as the fishing industry.

Secondly, the individually-carried-out negotiations on project locations in the latter stages of development add to project uncertainty. While it is common in other countries to first conduct a review of key location regulations

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before finalizing offshore wind site selection, in Korea, such regulations are reviewed only after the electric utility license is granted. This further complicates licensing for offshore wind generation businesses.

Lastly, the scope of discretion and decision criteria of local governments remains opaque, further complicating permitting. Local governments are practically involved in most of the licensing processes for offshore wind power. But local governments, run by elected officials who are sensitive to community complaints and political relations, are greatly influenced by the voices of residents and political circumstances. Therefore, in many cases, licensing decisions are often swayed by arbitrary decision-making and excessive caution, rather than solid legal grounds.

Based on this analysis, this report suggests the following policies to resolve permitting issues. Firstly, reduce arbitrary decisions by local governments and encourage community acceptance. The central government should lead and implement a planned system for offshore wind power locations. The government should conduct a thorough investigation to search for locations with the least impact on fishing industries and the environment, and with higher economic potential in regards to wind conditions. Furthermore, the government should begin negotiations with stakeholders at the initial location planning stage (search and selection of sites) to ensure local acceptance of the final project. Tendering for project operators after the government-led location selection process would alleviate the aforementioned issues and decrease power generation costs.

Secondly, permitting processes should be unified into a single channel to promote efficiency and accelerate deployment. A single channel overseen and operated by one government agency should be responsible for the review of all permitting processes, including location, development, and business entities.

Finally, when introducing new planned locations, the preexisting projects undergoing follow-up licensing measures after getting electric utility licenses in ocean areas also need to be reviewed. Projects designated as generation districts should be selected as final projects through bidding, and the remaining projects should be re-reviewed through individual assessments to also be included in the generation districts. Such a two-track approach would help the government achieve its offshore wind deployment targets.

# 1. Background

Offshore wind is a key tool in the energy transition in the era of climate crisis. With declining costs and greater power per unit area than photovoltaic sources, countries around the world are focusing on offshore wind to reduce carbon emissions and promote sustainable growth. The United States aims to deploy 30GW of offshore wind power by 2030, and the EU has made offshore wind a central component of its carbon neutrality goals.

As governments strive to expand offshore wind installations, they must fulfill two roles: establish the rules for selecting ocean sites, and process the numerous permits required for projects. Introducing 'One-Stop-Shop' solutions, where a single entity processes all permits, is one positive example that accelerates offshore wind deployment. Denmark's one-stop shop system enables businesses to install an offshore wind project within 34 months.<sup>1</sup> Japan implemented legislation in 2019 (the Act on Promotion of Utilization of Sea Areas for the Development of Marine Renewable Energy Generation Facilities) which speeds up offshore wind projects by leveraging planned locations. While the EU, in its REPowerEU Implementation Plan of May 2022, set out its goal to reduce the permitting period for renewable projects, including offshore wind, to a maximum of two years. The UK's Energy Security Strategy stated that the permitting period will be reduced to one year from the current four, with the aim of 50GW of offshore wind power by 2030.

In contrast, Korea's permitting process for offshore wind projects takes at least 68 months, according to the government.<sup>2</sup> The role of the central government in Korea is starkly different from the efforts put forth by other countries. First, while other governments secure locations and simplify permitting procedures, Korean businesses must look for the optimal project sites themselves. What is more, they must apply for an array of permits that are subject to as many as 29 relevant laws individually overseen by 10 different ministries throughout the entire process. The actual time spent on permits is longer than 68 months. Of the 70 offshore wind projects granted electric utility licenses before December 2022, only two projects (Blueheart Nakwol, and South Jeolla Phase 1) have completed permitting. The remainder of the projects are either stuck at the initial stages or are undergoing delays.

Korea's inefficient permitting structure not only delays offshore wind deployment but also incurs social problems by instigating negative awareness of project operators as they try to secure locations to receive permits, rather than promoting co-prosperity with local communities.<sup>3</sup> It is necessary to take a deeper look at the permitting system as a core reason why offshore wind has lagged in Korea, while other countries push ahead. With the goal of promoting greater offshore wind deployment in Korea, this report analyzes Korea's permitting system, pinpoints the areas contributing to delays, and suggests policy alternatives.

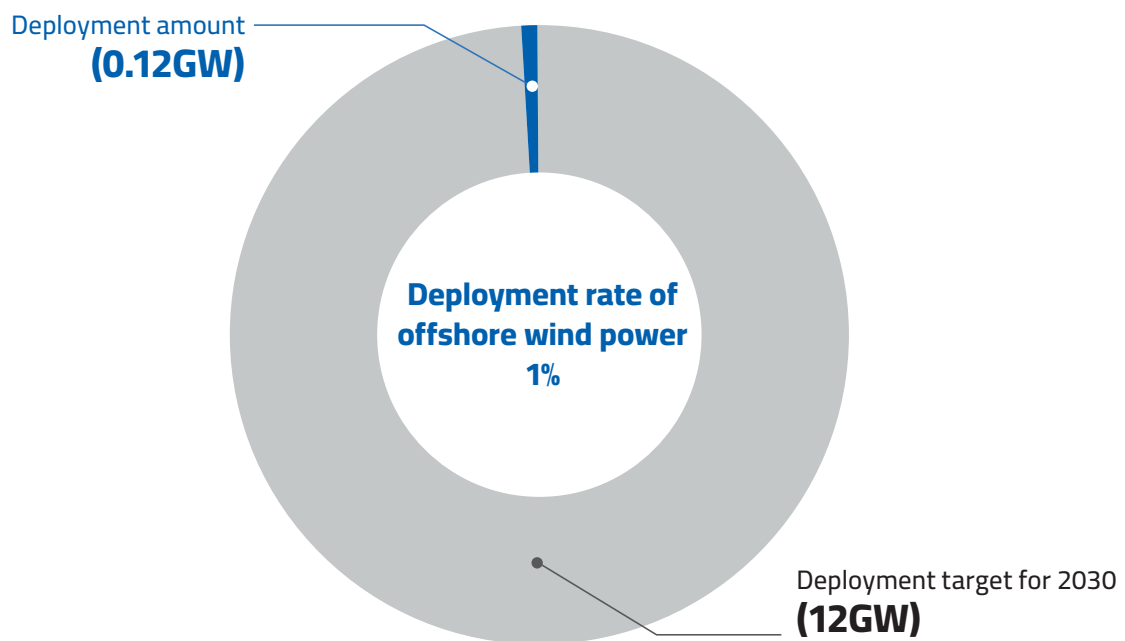
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1. ETNews, Oct 28, 2022, "Denmark's practical permitting system builds trust as an advanced power market"
  2. Estimated time spent for development of offshore wind power calculated by the Offshore Wind Power Generation Support Group of the Korea Energy Agency
  3. In October 2020, the National Federation of Fisheries Cooperatives, a key Korean organization representing the rights of fishing industries, submitted signatures of 530,000 people against the unilateral development of offshore wind power to the government.



## 2. Deployment and Permitting for Offshore Wind Power

### (1) Deployment of offshore wind power in Korea

The Korean government's stated aim is for 36.5GW of solar power and 17.7GW of wind power (12GW of offshore wind) by 2030, as laid out in 2017's Renewable Energy 3020 Implementation Plan. By 2021 only 1.65GW of wind power had been installed (offshore and onshore combined). Offshore wind has failed to achieve even 1% of the government's target of 12GW. (See Figure 1) As of December 2022, 124.5MW of offshore wind power had been installed, with an additional 17.6MW being operated for demonstration purposes.



<Figure 1> **Deployment rate of offshore wind power, compared to 2030 targets** (as of Dec 2022)

Source: Ministry of Trade, Industry, and Energy

After the construction of the Tamra Offshore Wind Power Complex (30MW) in 2016, the Yeonggwang Offshore Wind Power Complex (34.5MW) in 2018, and the Southwest Offshore Wind Demonstration Complex (60MW) in 2020, no commercial offshore wind farm has begun construction in Korea.

## (2) Electric utility licensing status for offshore wind power in Korea

While the actual deployment of offshore wind power remains low, the total projected capacity of granted electric utility licenses was 20,811.68MW as of December 2022, which is far above the 2030 target of 12GW.

<sup>4</sup> Per the Electric Utility Act, an electric utility license, the most important and rudimentary permit to initiate an offshore wind power project, grants a preliminary business entity the status of an electricity generation business entity. Since the Southwest Offshore Wind acquired an electric utility license for offshore wind for the first time in Korea in 2013, the number of businesses obtaining the license, as well as project generation capacity, has continuously increased. As illustrated in Table 1, 70 projects have been granted electric utility licenses as of December 2022. <sup>5</sup>

<Table 1> **Electric utility licenses for offshore wind power per year**

	2013	2015	2016	2017	2018	2019	2020	2021	2022	TOTAL
No. of licenses granted	1	3	2	4	5	7	11	22	16	<b>70</b>
Average capacity per project (MW)	60	71	66	111	137	233	225	374	448	-
Licensed capacity (MW)	60	213	132	446	686	1,631	2,246	8,230	7,160	<b>20,812</b>

Source: Electricity Regulatory Commission (Jan 2023)

Such a glaring discrepancy between licenses issued and actual deployment arises from the lengthy permitting process that comes with obtaining a license. As of June 2021, 51.3% of offshore and onshore wind projects were either delayed, deferred or canceled during the permit process, despite having received electric utility licenses.

<sup>6</sup> Since the deployment of offshore wind power is negligible compared to onshore, it is fair to assume that the delays in offshore wind power projects after the electric utility license stage are even more frequent.

4. From here onwards, the report only considers offshore wind farms constructed inland and excludes the ones in Jeju Island authorized by the Jeju Province Governor, per the Special Act on the Establishment of Jeju Special Self-governing Province and the Development of Free International City. As of January 2023, five wind farms (565MW) received permits and are preparing for construction in Jeju.

5. Yeonggwang Offshore Wind Power acquired its electric utility license in 2015 for both offshore and onshore wind power generation (79.6MW), but this report only considers the wind power capacity of 34.5MW.

6. Park Seong-woo, Jeon Eui-Chan (2022), Major Barrier Analysis and Implications of Wind Power Projects in South Korea - From the Perspective of the Wind Power Business Entity

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# 3. Process for Offshore Wind Power Permits

## (1) Process for development of offshore wind power projects

To analyze the issues in Korea's offshore permitting process, it is first necessary to understand the entire process and the types of permits required for each stage.

The first stage of developing offshore wind power is the preliminary feasibility study which determines the adequacy of the project location. In Korea, individual businesses intending to operate offshore wind projects, not the government, should conduct examinations on locations. A preliminary feasibility study entails technical aspects (measurement of wind condition resources, investigation on the power system status, etc.), location-related aspects (marine spatial planning of the project site, subsurface investigation, etc.), and social aspects (acceptance by communities and local fishing industries, etc.)

After finishing a preliminary feasibility study and a one-year measurement of wind power resources, a business entity receives the results on the suitability of the project location through a maritime location consultation, jointly conducted by the Ministry of Oceans and Fisheries, Ministry of Environment, Ministry of Defense, and the Ministry of Trade, Industry and Energy. The business is then eligible to apply for an electric utility license.

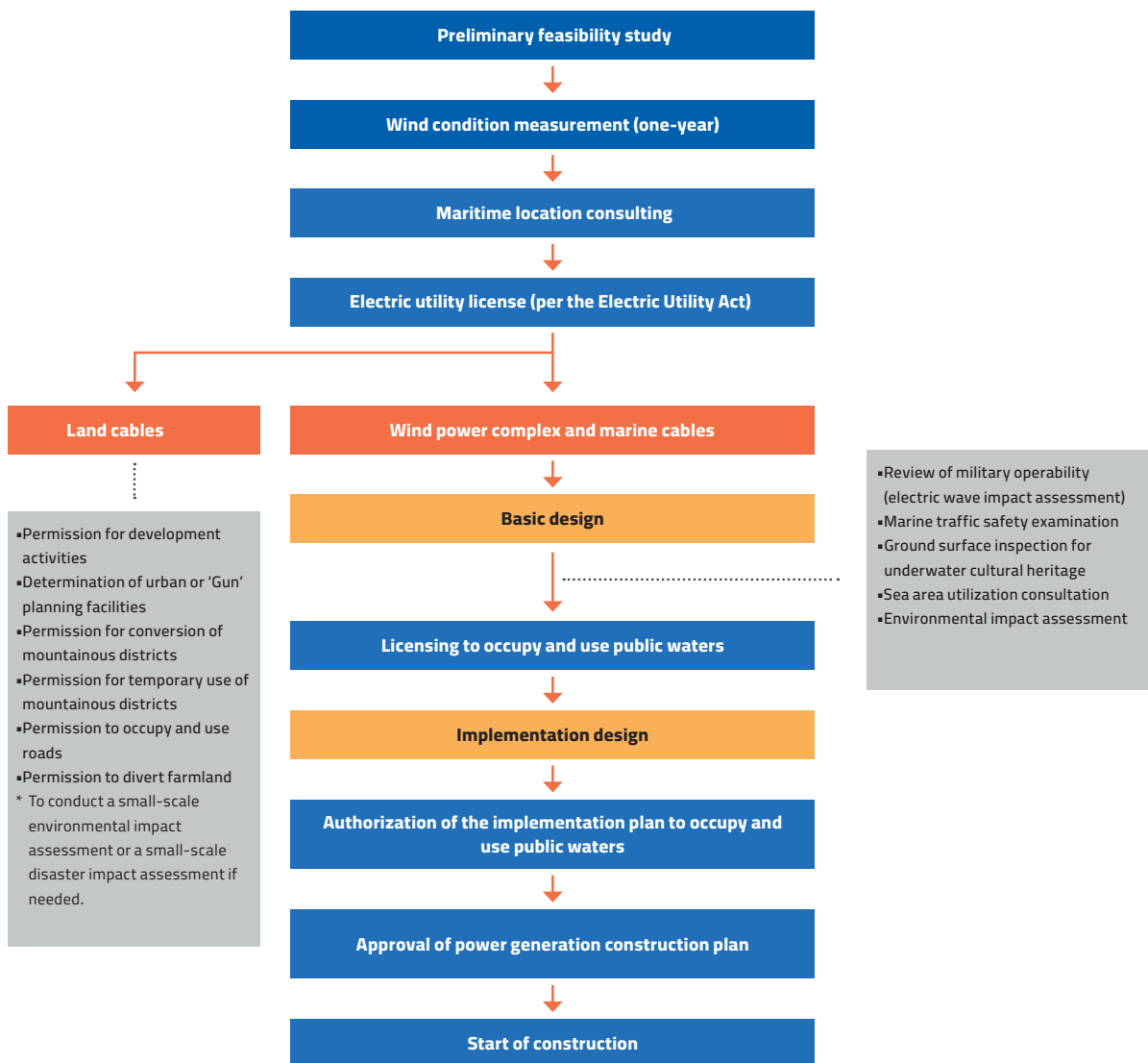
Once an offshore wind project is granted an electric utility license, it then begins the permit processes for location and development. Based on the project site information and wind condition measurements secured from the preliminary feasibility study, the project operator establishes a basic plan including the arrangement of the complex, the capacity of the power generator, and the power system, which constitutes the baseline for further permit processes. On top of the permits regarding the use of oceanic areas to construct an offshore wind farm, permits for location and inland use (land cables, etc.) are also required. Depending on the project size, project site conditions, and land entitlement, different base laws are individually applied to any offshore wind project. This means a business entity needs to acquire permits in accordance with as many as 29 different laws, overseen by ten governmental ministries.<sup>7</sup>

The most relevant permit regarding the location of a power generation facility is the permission to occupy or use public waters per the Public Waters Management and Reclamation Act (hereinafter referred to as the Public Waters Act). To acquire one, a business entity must finish different rounds of negotiations per individual laws in

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7. See Appendix for the list of 29 individual laws (provided by National Assembly Member YangYi Wonyeong)

advance,<sup>8</sup> including the Environmental Impact Assessment Act, Protection of Military Bases and Installations Act, and the Maritime Safety Act. Following the amendment of the Public Waters Act in July 2022, more stringent processes are now required – a business operator must collect the opinions of relevant stakeholders to receive permission to occupy or use public waters. After acquiring permits on location and development, a business entity drafts a detailed implementation plan within the permitted scope, including the construction methods and financing. Upon the authorization of a management agency of public waters, the business may start the construction of an offshore wind farm. Figure 2 summarizes the above processes.



<Figure 2> Offshore wind power development process

Source: Sekwang Co, Ltd. (table edited)

8. When a business entity submits the application to occupy and use public waters to a management agency of public waters (an authorization agency), per Article 4 of the Public Waters Act, the said agency should undergo negotiations or collect opinions from relevant administrative organizations regarding the permit's potential impact, etc., as required by other individual laws.

## (2) Key permits for offshore wind power

Since Korea does not have an integrated development law that applies to all offshore wind power generation process stages, permits are scattered across various permitting authorities per different individual laws. In particular, the relevant laws and permitting authorities on project location are so diverse that a business entity must undergo location-related permit processes separately with each administrative organization. Table 2 summarizes the pertinent base laws and permitting authorities for each permit. As illustrated in the table below, the core permits are categorized into 1) permits for electricity business and 2) permits for the location and development of generation facilities.

It should also be noted that even more permits may be required, depending on the specificities of the project location and additional procedures in the development process. A point in case is where business entities receive licensing to occupy and use public waters for design-related aspects, such as geological drilling surveys, in addition to the purpose of installing wind condition measurement instruments or generation facilities. Such cases require many more permits, which accompany additional negotiations on each law.

<Table 2> Key permits and permitting authorities for offshore wind power

No.	Project stage	Relevant ministry	Base law	Permitting authorities*
<b>Preliminary feasibility study and project preparation</b>				
1	Licensing to occupy and use public waters to install wind condition measurement instruments	Ministry of Oceans and Fisheries	Article 8 of the Public Waters Act	<ul style="list-style-type: none"> <li>▪ Central ministry: exclusive economic zones, state-managed ports</li> <li>▪ Local governments: other public waters</li> </ul>
2	Authorization of the implementation plan for occupation and usage		Article 17 of the Public Waters Act	
3	Completion inspection		Article 18 of the Public Waters Act	
<b>Electric utility license</b>				
4	Permit for electricity generation business	Ministry of Trade, Industry and Energy	Article 7 of the Electric Utility Act	<ul style="list-style-type: none"> <li>▪ Central ministry: generation facilities with capacity that exceeds 3MW</li> <li>▪ Local governments: generation facilities with capacity of 3MW or lower</li> </ul>
5	Application for use of electric installations for transmission and deployment of electric power		Article 15 of the Electric Utility Act	

No.	Project stage	Relevant ministry	Base law	Permitting authorities*
<b>Consultation on project location and development</b>				
* 'Permitting authorities' here refer to consultation authorities				
6	Consultation on utilization of sea areas and sea area utilization impact assessment	Ministry of Oceans and Fisheries	Articles 84 and 85 of the Maritime Environment Act	<ul style="list-style-type: none"> <li>Central ministry: Consultation on utilization of sea (less than 50MW), Sea area utilization impact assessment (50MW~100MW)</li> </ul>
7	Environmental impact assessment	Ministry of Environment	Articles 22 and 42 of the Environmental Impact Assessment Act	<ul style="list-style-type: none"> <li>Central ministry: 100MW or higher</li> </ul>
8	Electric wave impact assessment	Ministry of Defense	Article 13 of the Protection of Military Bases and Installations Act	<ul style="list-style-type: none"> <li>Head of relevant administrative agency, Minister of Defense, or commander of jurisdictional unit</li> </ul>
9	Disaster impact assessment	Ministry of the Interior and Safety	Article 4 of the Countermeasures against Natural Disasters Act	<ul style="list-style-type: none"> <li>Head of relevant administrative agency, head of local government</li> </ul>
10	Ground surface inspection for cultural heritage	Cultural Heritage Administration	Article 6 of the Act on Protection and Inspection of Buried Cultural Heritage	<ul style="list-style-type: none"> <li>Central ministry</li> </ul>
11	Maritime traffic safety examination	Ministry of Oceans and Fisheries	Article 15 of the Maritime Safety Act	<ul style="list-style-type: none"> <li>Central ministry</li> </ul>

<b>Permits on project location and development</b>				
	Permission for development activities	Ministry of Land, Infrastructure and Transport	Article 56 of the National Land Planning and Utilization Act	<ul style="list-style-type: none"> <li>Local governments</li> </ul>
12	<b>Permits deemed granted for development activities (19 Acts)</b> Public Waters Act, Mining Industry Act, Agricultural and Fishing Villages Improvement Act, Farmland Act, Road Act, Act on Funeral Services, Private Road Act, Erosion Control Work Act, Industrial Cluster Development and Factory Establishment Act, Mountainous Districts Management Act, Small River Maintenance Act, Water Supply and Waterworks Installation Act, Coast Management Act, Installation and Utilization Of Sports Facilities Act, Grassland Act, Act on the Establishment and Management of Spatial Data, Sewerage Act, River Act, Act on Urban Parks and Green Areas			
13	Licensing to occupy and use public waters to install wind farms	Ministry of Oceans and Fisheries	Article 8 of the Public Waters Act	<ul style="list-style-type: none"> <li>Central ministry: exclusive economic zones, state-managed ports</li> <li>Local governments: other public waters</li> </ul>
14	Authorization of the implementation plan for occupation and usage		Article 17 of the Public Waters Act	
15	Completion inspection		Article 18 of the Public Waters Act	

\* The term 'permitting authorities' is used as a legal term that covers the acts of approval, permission, authorization, report, designation or determination, licensing, consultation, agreement, cancellation, deliberation, and registration, per the formulation review criteria of relevant laws

Source: Electricity Regulatory Commission 2023.1.

# 4. Delays in Offshore Wind Power Permits

As previously stated, the total power capacity of offshore wind projects granted electric utility licenses already exceeds the 2030 deployment targets by a great margin. This part examines the detailed permit status of projects that received electric utility licenses. To render the analysis more meaningful, the permitting process for offshore wind projects is categorized into five stages – beginning, early, mature, final, and distribution deployment.

<Table 3> Stages of offshore wind project permit process

Offshore wind project permit stage	Index
<b>Beginning</b> (received a power generation business permit)	Power generation permit granted
<b>Early</b> (secured power system)	Transmission contract complete
<b>Mature</b> (finished consultation for at least one key assessment)	Finished consultation for at least one of the following: military operability review, environmental impact assessment, and maritime traffic safety examination
<b>Final</b> (received licensing to occupy and use public waters)	Received licensing to occupy and use public waters to construct an offshore wind complex
<b>Deployment</b> (began commercial operation)	Began commercial operation after construction

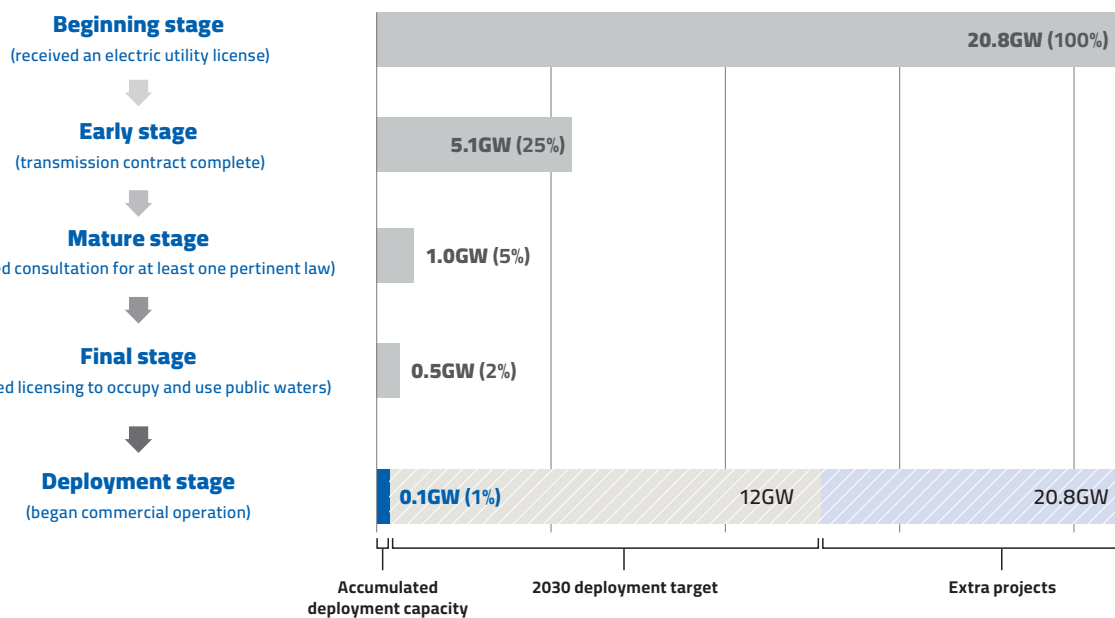
Acquiring a power generation business permit, which signifies the initial process for the development of an offshore wind power project, is marked as the identifier of the *beginning stage*.<sup>9</sup> The *early stage* is for projects that have signed the electric equipment utilization contracts for transmission and deployment purposes with KEPCO, Korea's national electric power company. The *mature stage* includes businesses that have finished at least one key consultation through interviews with offshore wind project operators, among the necessary location-related consultations per each individual law. The three key consultations are the military electric wave impact assessment, environmental impact assessment, and maritime traffic safety examination. Next, projects that have acquired licensing to occupy and use public waters, which finalizes the location, are categorized

9. Technically, the beginning of the permit process for offshore wind power is the license to occupy and use public waters to install wind condition measurement instruments during the preliminary feasibility study. However, since the total capacity per project is yet to be determined in the preliminary feasibility study stage, this part is excluded from the report's analysis.

under the *final stage*. Lastly, *deployment* projects are those that have finished all permit processes required for offshore wind power generation, finished construction, and started commercial operation.

The subject of the analysis is offshore wind power projects that received electric utility licenses from 2013, when the electric utility license for offshore wind power was first granted, until September 2022. The analysis is based on the Korea Power Exchange's quarterly progress reports on power plant construction, EIASS data, and the list of offshore wind power projects that have finished transmission contracts with KEPCO.<sup>10</sup>

An analysis of the power capacity for each offshore wind permit stage shows that among the businesses that received electric utility licenses from 2013 to September 2022, 28 projects (combined capacity of 5.1 GW) have finished transmission contracts. Significantly fewer projects with lower capacity are included in the next stage, the consultation on individual laws. A mere 5% of the projects granted electric utility licenses, or 9 projects (1GW), are in the mature stage. Only four projects (548MW) have acquired the licensing to occupy and use public waters, one of the final permits required for the location and development of offshore wind power. In terms of capacity, the four projects account for 2% of the total licensed volume, which stands in contrast to the total capacity of projects granted electric utility licenses exceeding the government's 2030 offshore wind power deployment goals. Among those four, only two projects (95MW) have finished construction and begun commercial operation. Simply put, the total capacity of offshore wind power distributed in Korea for the past decade merely comes down to 0.1 GW. Figure 3 briefly summarizes this point.



<Figure 3> Offshore wind projects per each permitting stage (as of Sep 2022)

Source: KPX, EIASS, KEPCO

10. Provided by National Assembly member Lee Dong-ju



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## 5. Issues in Offshore Wind Power Permit Process

As illustrated above, despite the numerous offshore wind power projects that have acquired electric utility licenses in Korea, the progress of subsequent permit procedures is very slow. This report conducts a legal, institutional, and literature review to diagnose the structural issues within the permitting system, identify the core reasons for the delay, and suggest methods for improvement. The underlying problems for offshore wind power are 1) the loopholes in the Electric Utility Act that instigates competitive location securing, 2) unfit timing and individually-carried-out consultations adding onto uncertainty of projects, and 3) an unclear scope of discretion of local governments. Such structural flaws in the permitting scheme increase both administrative costs and negative awareness of offshore wind power generation itself, eventually leading to delays in permitting procedures and poor deployment outcomes.

### **(1) Electric Utility Act granting 'priority' for electric utility licenses encourages competitive location-securing**

In Korea, the business entities themselves, not the government, should search and occupy locations for offshore wind power projects. Accordingly, they look for the project locations themselves and apply for permits to occupy and use public waters. However, since the electric utility license system provides a 'priority right' for the licensees in public water permits, operators often engage in unnecessarily fierce competition. Some businesses even sell development priority rights to other business at a premium. This, in effect, grants location-wise priority to any business entity that underwent initial licensing procedures, even when they are yet to follow through with subsequent verification on the actual feasibility-related capacity. This effectively creates a legal loophole for businesses to abuse.

The legal basis for such competition over locations and use of oceanic areas can be found in the Electric Utility Act, which constitutes the legal foundation for electric utility licenses. Under the [Appendix 2] 'Application Standards for Measurement of Wind Power Resources and Overlapping Locations for Wind Power Generation' of the 'Notice on Detailed Permitting Criteria for Electricity Generation Business, Calculation of Electricity Prices Standards, Permissible Errors for Electric Meters and Power System Operation', businesses are mandatorily required to submit one-year data of wind condition measurements to apply for an electric utility license. Per this notice, the Ministry of Trade, Industry and Energy, once a wind condition measuring instrument has been in operation for more than a year, defines the square area centering around the measuring instrument with a radius of 5km (maximum of 100km<sup>2</sup>) as a 'valid area' to grant priority to. In other words, whoever receives the

installation permit for a wind condition measuring instrument also gets priority in obtaining the electric utility license. Such a scheme that effectively equates the installation permit with a utility license creates a motive for preoccupying locations in a hasty manner, and failing to carry out adequate examination of location-related limitations and prohibitions.

Furthermore, this scheme makes room for business entities to buy and sell installation permits for wind condition measuring instruments. According to Appendix 2 of the above Notice, if a business that acquired the licensing to occupy and use public waters to install the instrument 'consents' that another business may install offshore wind power facilities in their valid area, that area legally becomes usable by the new entity.

Such competition to preoccupy project locations to get priority rights or transfer licenses, observed uniquely in Korea, further complicates the deployment of offshore wind power by aggravating conflicts with local communities and the fishing industry that also use the public waters. In contrast, in Germany and Denmark, the government first selects the optimal locations for offshore wind generation and then opens a bidding process to select the final business operators. This reduces the unwanted side effects of location-securing that Korea is experiencing.

## **(2) Location-related consultations delayed and individually carried out adding to project uncertainty**

While other countries go through a review of key considerations for location-related regulations in advance, such a process is conducted through a series of location permit procedures only after acquiring an electric utility license in Korea. Relevant administrative organizations should undergo a review before the project begins, but since the current process relies on individual laws after the electric utility license stage, significant uncertainty exists in offshore wind power licensing. Added uncertainty in business projects means that the final decision on the objective business feasibility will inevitably be delayed for a long time. This, in turn, wastes a lot of time and resources for all relevant stakeholders, including businesses and the government.

For an offshore wind power complex to be constructed, it first needs a license to occupy and use public waters, which requires prior 'consultation' for each law and process specified in Table 4, including discussion on the usage of oceanic areas, environmental impact assessment, and review of military operability. The real issue here is that uncertainty grows significantly at this stage, as it is difficult to discern the go or no-go of the project until all relevant administrative organizations with review authority present their opinions. Even if all other organizations offer positive opinions, it is hard to move on to the next permitting stage even if only one votes against it. For instance, the 99MW-capacity Shinan Jaeun Island Offshore Wind Power Project, while it underwent successful consultations for the marine traffic safety examination, electric wave impact assessment, and small-scale environmental impact assessment, it ended up receiving a non-consent opinion from the

Ministry of Defense (Air Force) after its review of military operability. This partial non-consent greatly delays the permit process unless the business operator negotiates with the Ministry, because if the next procedures take place without completion of the military operability review, it may face a cancellation request from the relevant authorities.<sup>11</sup>

<Table 4> **Key laws regarding the location of offshore wind power projects**

No.	Stage	Relevant Ministry	Base law	Details
1	Consultation on utilization of sea areas and sea area utilization impact assessment	Ministry of Oceans and Fisheries	Articles 84 and 85 of the Maritime Environment Act	Negotiation and consultation with the Minister of Oceans and Fisheries regarding the appropriateness and potential impact on sea areas before the licensing to occupy and use public waters; required for projects with a capacity of 50MW or higher
2	Environmental impact assessment	Ministry of Environment	Articles 22 and 42 of the Environmental Impact Assessment Act	Assessing a project's potential environmental impacts and preparing measures to reduce the impact; applies to implementation plans that have impact on the environment
3	Review of military operability (electric wave impact assessment, etc.)	Ministry of Defense	Article 13 of the Protection of Military Bases and Installations Act	Ensuring the protection of military bases and equipment, assessing impacts to military operations, and preparing measures to reduce the impact; applies to cases of consultation requests on exercising property rights within military areas, including the permission of implementation plans
4	Disaster impact assessment	Ministry of the Interior and Safety	Article 4 of the Countermeasures against Natural Disasters Act	Assessing the potential causes of disasters arising from 'development projects' that have an impact on natural disasters and preparing countermeasures
5	Ground surface inspection for cultural heritage	Cultural Heritage Administration	Article 6 of the Act on Protection and Inspection of Buried Cultural Heritage	Conducting a ground surface inspection for cultural heritage in advance to determine if cultural heritage is buried or distributed across the construction area
6	Maritime traffic safety examination	Ministry of Oceans and Fisheries	Article 15 of the Maritime Safety Act	Assessing the potential causes of risks on maritime traffic; applies to projects that have impact on maritime traffic safety

11. Per Article 13, Paragraph 10 of the Protection of Military Bases and Installations Act, the Minister of Defense or the commander of the jurisdictional unit, etc. may request the head of the relevant administrative agency to cancel permission, etc., in case they granted permission, etc. without undergoing consultation with the Ministry of Defense.

Unlike in Korea, the examination of location-related regulations is done in advance overseas. Therefore, projects whose locations have been verified to meet the required standards for offshore wind power generation seldom experience uncertainty due to delayed permitting procedures. In Denmark, the government selects the appropriate locations first, then undergoes bidding to choose the operators, effectively minimizing the delay risks from location and development-pertinent regulations. Taiwan also invites all relevant government ministries in charge of maritime traffic, military bases, marine ecosystem, and fishing rights, and jointly reviews the compliance of regulations to project locations before selecting the business operators. Clearly, any business entity facing sudden uncertainty at a later point in time due to limitations specified in relevant laws, after already having completed various administrative procedures, lead to administrative, economic, and social costs – both countries are aiming to prevent this by reducing uncertainty earlier in the process.

### **(3) Unclear local government discretion and criteria contributing to delays in the permitting process**

The permitting authorities of offshore wind power projects vary, including many central ministries and local governments. In particular, local government agencies are practically involved in all stages of the permitting process, as most offshore projects are located within the administrative boundaries of local governments. Local governments exercise permission rights over regulations on land and at sea, and are involved in giving opinions related to individual laws. These local elected officials are heavily influenced by residential complaints and political sensitivity. As such, there are cases in which the permitting procedures are swayed by discretionary decision-making and arbitrary standards, rather than solid legal grounds. Establishing objective criteria and improving the overall scheme on how much authority and discretion local governments can hold is urgently required.

A representative case in point is found in the electric utility licensing procedures. According to Article 7, Paragraph 7 of the Electric Utility Act, and Article 7 of the Enforcement Rule of the same Act, an electric power business utilizing wind power should prove that it is capable of the actual project implementation. One assessment criteria for project implementation capacity is the high local acceptance of the project location. According to [Appendix 1] of the Notice on Permitting Criteria for Electricity Generation Business, the Electricity Regulatory Commission categorizes acceptance into consent, non-consent, or partial consent, which local governments can determine.

This system, which grants the authority to assess the local receptivity to local governments which are politically tied to the residents, causes permitting processes to be influenced by arbitrary standards. In particular, given the current lack of clarity in discerning 'community acceptance,' heads of local governments often choose to be on the safe and conservative side and ask business entities to get '100% consent' from residents and fishers.

Because of this, among offshore wind power projects that applied for electric utility licenses, the proportion of projects being delayed for the reason of insufficient community acceptance is getting larger. The meeting minutes from 2017 to 2021 of the Electricity Regulatory Commission show that there has been an annual increase in 'community acceptance' delays (See Table 5). In 2020, all of the 12 delayed projects were due to insufficient acceptance levels. The Commission announced that the reviews for such projects will only be resumed once they secure enough local consent – which will put the schedule behind, delaying the deployment of offshore wind power.

<Table 5> **Offshore wind power projects delayed at the electric utility licensing stage**

Category		2017	2018	2019	2020	2021
<b>No. of licenses</b>		4	5	7	11	22
<b>No. of delays</b>		2	0	1	12	23
<b>Reason codes</b> (multiple choices allowed)	Community acceptance	1	0	1	12	13
	System & technology	0	0	0	0	8
	Location & others	2	0	0	6	9
<b>Proportion of delays arising from community acceptance</b> (community acceptance count/ total count)		50%	0%	100%	100%	56.5%

Source: Meeting minutes from 2017 to 2021 of the Electricity Regulatory Commission

Local governments often influence permits even when they are not the permitting authorities. In Ulsan, the 8th local government requested the central government to consider the nullification of a 9.6GW-capacity offshore wind project which had already been undergoing permit procedures. In another example, in 2019, the ministry of Oceans and Fisheries requested cooperation from the local government regarding Cheongsaspo Offshore Wind Project in Busan City. However, the local government continually denied or delayed requests for cooperation, citing changes in utilization areas or the non-consent of residents. As a result, that project is yet to finish discussions on sea area utilization. Local governments that are disposition agencies and not discussion authorities, sometimes choose not to respond to cooperation requests for the cause of community acceptance, which is not a criterion included in the key discussion points for sea area utilization, leading to delays in permitting procedures.

The current structure in which local governments make discretionary decisions on community acceptance without a standard guidance, not only delays but compromises the pivotal social discussion that is the residents' receptivity levels. It is not a surprise that offshore wind projects are being slowed down under such a scheme. The Netherlands and Japan, which adopt a planned location system for offshore wind, necessitate coordination and discussion among stakeholders from the location planning stage to minimize social conflicts and ensure the smooth undertaking of the projects. Korea should also have ample institutional support where the government coordinates and negotiates with relevant stakeholders, including residents and the fishing industry. A clear government-established guideline is also required to ensure that discretionary and arbitrary decisions of local governments are not reflected in the processes.

## 6. Overseas Cases

Denmark, which became an offshore wind powerhouse after it built the world's first offshore wind farm in 1991, shows exemplary practices in location selection and development permits. This chapter introduces Denmark's corresponding legal system and highlights its significance to Korean policies.<sup>12</sup> The key pillars of Danish offshore wind power policies are (1) planned locations, (2) selection of business entities through bidding, and (3) a unified single channel for permitting procedures, or One-Stop-Shop.

Under the planned location system, government agencies, not private businesses, lead the identification and designation of offshore wind project sites. The Danish government conducts preliminary studies on sea areas, etc., to establish a sea area plan that also includes adequate locations to develop offshore wind power. In such a process, the participation of relevant stakeholders is also ensured, effectively preventing the involvement of private businesses attempting to preoccupy such locations.

After identifying the suitable project sites, interested businesses engage in competitive bidding to be selected as project operators. Since the candidates are to start projects in locations where the government has already finished the necessary procedures to guarantee appropriateness in environmental, economic, and residential aspects, there is little to no uncertainty in the subsequent procedures. On top of the competitive bidding to occupy government-chosen locations, Denmark also has an 'open-door system' where businesses themselves can identify and develop optimal project sites.

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12. Relevant contents from here and onwards are based on the "Offshore Wind Development (DEA, 2022)."

Having a unified channel for all procedures, or the One-Stop-Shop, means that a single agency supports all the permit process, from beginning to end. It is dedicated to engaging in consultation and coordination with various relevant government agencies. In Denmark, the DEA (Danish Energy Agency) acts as the One-Stop-Shop for offshore wind power. Since offshore wind power permits should consider various aspects including the legal zones, marine ecosystem, fishing rights, and community acceptance, having to separately conduct coordination and communication across different stakeholders greatly adds to the difficulties in the permit process. The ultimate goal of the One-Stop-Shop scheme is to minimize risks, including project delays arising from inefficient administrative processes, by providing a single channel for all relevant communications.

The Danish case demonstrates the effectiveness of the government playing a central role in reviewing the key location-related regulations before the operators are selected. In the offshore wind development process, the DEA functions as the sole channel for permit proceedings, minimizing unnecessary delays in permit procedures. Table 6 compares the Danish case to Korea's.

<Table 6> **Comparison of location selection and permit procedures between Korea and Denmark**

	Korea	Denmark
In charge of location selection and development	<ul style="list-style-type: none"> <li>Business entities do their own location scouting and development</li> </ul>	<ul style="list-style-type: none"> <li>The government selects planned locations for offshore wind projects</li> <li>Business entities for the planned locations are selected through open bidding</li> <li>Open-door (business entities looking for project sites other than planned locations) option also possible</li> </ul>
Single unified channel for permit procedures	<ul style="list-style-type: none"> <li>None</li> <li>Business entities contact the permitting administrative agencies on an individual basis</li> </ul>	<ul style="list-style-type: none"> <li>DEA (Denmark Energy Agency) acts as the One-Stop Shop</li> </ul>

## 7. Suggestions and Conclusion

### **(1) Government-led location selection and public recruitment of business**

To resolve problems existing in location-related permits, the model for the selection of locations and business operators should change. The government should identify suitable project sites for offshore wind power through marine spatial planning, etc. Business with feasible projects, sufficient financial, and technological capabilities, that bid for lower prices, should be selected. This would resolve the existing issues regarding location selection and eventually contribute to lessening development costs.

Involvement of relevant stakeholders, should be guaranteed from the initial location identification and selection stage. The current method of holding public hearings as a mere formality after receiving the electric utility license is likely to cause misunderstanding and conflicts with residents after the project has kicked off. A better way to identify locations would be to invite relevant government ministries, fishing industries, and experts to undertake consultation based on objective data to assess the project site suitability, including legal zones, characteristics of the oceanic environment and its usage, fisheries activities, and economic feasibility before finally deciding on the project locations.

### **(2) Creating a single unified channel for permit procedures**

Since the permitting authorities for offshore wind power generation are scattered across various government ministries and local governments, Korea encourages administrative wastes, both for government and for businesses, as well as delays in procedures. Considering overseas cases such as Denmark's One-Stop-Shop, Korea should also opt for a similar system. A sole government agency should be in charge of functioning as the One-Stop-Shop to reduce any ineffectiveness resulting from unnecessary administrative procedures.

But such an agency cannot exercise authority transcending government ministries (i.e., being entrusted with all permitting authorities from relevant organizations) – rather, it should play the liaison role of bridging communication between business entities and relevant government agencies. The agency, on behalf of business would conduct consultation and coordination with relevant government ministries that have the permitting authority and provide necessary procedural information.



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### **(3) Suggestion on setting offshore wind power generation areas for the existing business operators**

If the suggested location selection system is introduced, projects with electric utility licenses that are already engaged in the permitting process should be considered. As of June 2022, there were 176 businesses granted licenses to occupy and use public waters,<sup>13</sup> 70 of which also received electric utility licenses by December 2022. If the government were to introduce the planned location selection scheme, businesses with existing electric utility licenses could be designated as projects within or outside new designated generation areas.

If the original business locates within a new designated power generation area, they could be incentivized (i.e., giving additional points in the bidding process) to support the ongoing project. If not, complementary measures to include the ongoing projects that meet certain criteria in the designated areas may be considered.

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# Appendix

## Laws and permits relevant to the development of offshore wind power projects

No.	Relevant law	Details of permits and consultations
1	<b>National Land Planning and Utilization Act</b>	Decision on urban or Gun management plans, authorization of development activities, designation of business entities performing urban or Gun planned projects, approval of implementation plans
2	<b>Urban Development Act</b>	Approval of actions within urban development zones
3	<b>Road Act</b>	Approval of performance of road works, approval of permission to occupy and use roads
4	<b>Private Road Act</b>	Approval of building permits for private roads
5	<b>River Act</b>	Approval of performance of river works, approval of permission to occupy and use rivers, approval of permission to use river water
6	<b>Public Waters Management and Reclamation Act</b>	Permission to use and occupy public waters, authorization or report of implementation plans, reclamation license of public waters, consultation or approval of reclamation by the government, etc., approval of implementation plan for reclamation of shared waters
7	<b>Water Supply and Waterworks Installation Act</b>	Approval of installation of exclusive waterworks, approval of installation of exclusive industrial waterworks
8	<b>Natural Parks Act</b>	Approval of actions within park areas
9	<b>Farmland Act</b>	Change and cancellation of agricultural promotion areas, approval and consultation of permission to divert farmland, report on diversion of farmland, permission to temporarily use farmland for other purposes
10	<b>Mountainous Districts Management Act</b>	Approval of conversion of mountainous district, report on conversion of mountainous district, permission and report to temporarily use mountainous districts, approval of gathering earth or stones
11	<b>Creation and Management of Forest Resources Act</b>	Approval and report of standing timber, etc.
12	<b>State Forest Administration and Management Act</b>	Approval of lease and use of state forests
13	<b>Erosion Control Work Act</b>	Approval of lumbering, etc., cancellation of designation as land of erosion control

No.	Relevant law	Details of permits and consultations
14	<b>Protection of Military Bases and Installations Act</b>	Consultation on approval of administrative agencies, etc.
15	<b>Grassland Act</b>	Approval of change of form and quality of grassland, approval of conversion of the use of grassland
16	<b>Harbor Act</b>	Approval of implementation of harbor development projects, approval of harbor development project implementation plan
17	<b>Act on Funeral Services</b>	Approval of reburial
18	<b>Mining Industry Act</b>	Disposition of non-permission, cancellation of mining rights or reduction of mining areas
19	<b>Countermeasures Against Natural Disasters Act</b>	Consultation on disaster impact assessment, etc.
20	<b>Electric Utility Act</b>	Approval of electric utility business
21	<b>Natural Environment Conservation Act</b>	Consultation on impact on natural scenery
22	<b>Act on Protection and Inspection of Buried Cultural Heritage</b>	Consultation on the results of ground surface inspection for cultural heritage
23	<b>Cultural Heritage Protection Act</b>	Permission of acts on state-designated cultural heritage
24	<b>Agricultural and Fishing Villages Improvement Act</b>	Permission to use agricultural infrastructure
25	<b>Maritime Safety Act</b>	Maritime traffic safety examination
26	<b>Act on the Maintenance and Improvement of Road Networks in Agricultural and Fishing Villages</b>	Permission to use and occupy roads
27	<b>Landscape Act</b>	Deliberation on landscapes of development projects, deliberation on landscapes of buildings
28	<b>Wetlands Conservation Act</b>	Permission of acts within wetland protection areas
29	<b>Aids to Navigation Act</b>	Approval of establishment and management of aids to navigation, establishment and management of aids to navigation marking construction zones, report of establishment and management of wreck markings

Provided by National Assembly Member YangYi Wonyeong



# Up in the Air:

**Limitations of Korea's Offshore Permitting Process  
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