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Starting Offshore Wind Projects in Korea

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1. Development process for offshore wind projects in South Korea.

1.1. Renewable Portfolio Standard (RPS) Scheme

- Implemented since 2012, pursuant to the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy ("The New/Renewable Energy Act"). (Prior to RPS, the country had adopted FIT[1] Scheme.)
- The Scheme imposes obligations on companies with generation capability of 500MW or more to generate at least 6% of gross power generation from renewable energy sources. Currently (2021), 23 large power generation companies are subject to this obligation. If there is a chance of their failure to meet the mandatory quota, they may fill the shortage by purchasing REC from the registered renewable energy companies. Failure to meet the obligatory generation quota may result in an administrative fine in the amount equivalent to 1.5 times the average trading price of Renewable Energy Certificates (REC).
- Currently, the mandatory quota stands at 9 percent in 2021 and will go up to 10 percent in 2023 (See table below). It is worth noting that the ratios for the years 2021 and 2022 were adjusted to a higher level, 8% to 9% and 9% to 10% respectively, indicating a keen interest of the President Moon's administration to promote new and renewable energy development.

Year	2017	2018	2019	2020	**2021**	**2022**	**After 2023**
Ratio (%)	4	5	6	7	9	10	10

(Source: Schedule 3, Enforcement Decree of the New/Renewable Energy Act (Revised on 2020.09.29))

1 Feed-in Tariffs.

- Demand for Raising the Ratio

– Despite the recent law amendment revising the mandatory quota to higher rates, numbers of NGOs and renewable power companies have been showing concerns that profitability from renewable energy generation and the predictability of the business are uncertain in South Korea as yet due to the relative low REC price and high volatility of the business. Some critics were skeptical of even pursuing renewable energy business in the country at all.

– In light of such demand for a higher ratio, the Korean Government announced the Renewable Energy 3020 Implementation Plan in December 2017, in which it sets a goal to produce 20% of its energy from renewable sources by 2030 and increase relevant job creation. According to the Plan, the Korean Government will deploy an eco-environment with low-carbon energy and govern energy system adapting to the new climate regime. Major topics of the Plan are, *inter alia,* RPS for energy supplier and FIT for small renewable users; PV deployment to agricultural area and buildings; Raising eco-environmental energy fund for utility scale renewable projects; and Demonstrating eco-environmental and energy-independent cities. In line with such government policy, MOTIE[2], as the primary governmental authority responsible for energy-related matters, has been consistently trying to facilitate the policies and accommodate the demand and concerns in the industry.

2 While MOTIE is the main agency responsible for establishing and implementing energy policies and plans, it delegates some of its duties to other agencies as well. For example, Korea Electric Power Corporation (KEPCO) manages REC matters, the New and Renewable Energy Centre deals with reviewing and issuing RECs to eligible companies, and local governments have the authority to issue licenses for installation of renewable power plants located in their jurisdiction.

1.2. Renewable Energy Certificate (REC) weight value

- REC is based on each megawatt hour (MWh) of electricity generated from a renewable energy resource. RECs are issued by the New and Renewable Energy Centre and are tradable in South Korea.
- Typically, RECs are sold to one of the 22 large power generation companies that are obliged to comply with the RPS meet the obligatory generation quota imposed under the RPS Scheme.
- In June 2018, REC weighting was adjusted in order to address concerns over concentrated investments in bioenergy, rather than other forms of renewable energy. As a result, REC weighting for offshore wind farms has been raised to the range 2-3.5 units, while REC weighting for bioenergy has been significantly lowered or, partially abolished. Current REC weighting for offshore wind farms are set out in the table below.

Division		Current Weighting	Calculating Formula
REC weighting for **Offshore Wind Power**	Coastline distance* of 5km or below	2.0	N/A
	Coastline distance of 5-10km (Compound)	2.5	Compound weighting value applies; (5X2.0) + (Coastline distance – 5) X 2.5 Coastline distance
	Coastline distance of 10-15km (Compound)	3.0	Compound weighting value applies; (5 X 2.0) + (5 X 2.5) + (Coastline distance – 10) X 3.0 Coastline distance
	Coastline distance exceeding 15km (Compound)	3.5	Compound weighting value applies; (5 X 2.0) + (5 X 2.5) + (5 X 3.0) + (Coastline distance – 15) X 3.5 Coastline distance
Offshore Wind Power + ESS		4.0	N/A

(Source: MOTIE)

N.b. "Coastline distance" is the linear distance between 'the coastline'[3] and 'the centerpoint of the wind turbine nearest from the coastline'. The shortest direct distance between the turbines within the wind farm may count towards the "coastline distance"

3 Coastline shall be indicated with the boundary of land and sea level when the sea level reaches the approximate highest high water (referring to the highest sea level that is turned out after observation and analysis of tide for a certain period). (Article 6(1)-4 of the Act on the Establishment, Management, Etc, of Spatial Data).

1.3. The Third Basic Plan for Energy (for the years 2019 - 2040)

- The Third Basic Plan for Energy ("the New Plan") was announced by the Moon administration in June 2019. In the New Plan, the government reaffirmed its energy initiative to phase out nuclear energy and sought to increase the proportion of renewable energy in the total energy supply.
- In accordance with the New Plan, the government is contemplating, *inter alia,* –

– (i) reducing total energy consumption by 18.6% to 171.8 million tonnes of oil equivalent by 2040;

– (ii) improving energy efficiency by 38% by regulating energy demand by sector;

– (iii) forging agreements with energy-intensive businesses to encourage them to reduce energy consumption;

– (iv) introducing a new fuel efficiency standard for medium-sized to large cars by 2022; and

– (v) rationalizing the energy pricing model by adopting green pricing or implementing corporate power purchase agreements (PPA).

1.4. Domestic Wind Power Development Status

Company	Capability	Type (On/Off-shore)	Development stage
Doosan Heavy Ind. & Constr.	3MW, 3.3MW	Amphibious	Commercialization Completed
	5.5MW	Offshore	On Empirical test phase
	8MW	Offshore	Under development
Unison	0.75MW, 2MW, 2.3MW	Onshore	Commercialization Completed
	Unison	Amphibious	On Empirical test phase
Hyosung	2MW	Onshore	Commercialization Completed
	Hyosung	Offshore	On Empirical test phase
Hanjin Ind.	1.5MW, 2MW	Onshore	Commercialization Completed
	Hanjin Ind.	Onshore	Under development

(Source: Korea Wind Energy Industry Association KWEIA)

1.5. Still at an early stage, but bright future ahead

- Korean government is enthusiastically supporting the new and renewable energy business. The vision of the government is to increase the energy contribution of new and renewable energy, from the current 7.4%, to 25.8% of the total energy production by 2034. Specifically, the government seeks wind farms to contribute 35.1% of the total renewable energy production[4].

– Figures from 2019 supports such vision of the government. MOTIE announced it "would actively support so as to facilitate solar and wind power industries' gaining global competitiveness" boasting how "the Wind Division increased its annual sales by 21.2% in 2019 year-on-year"

- Korea has a renowned manufacturer for the wind tower, called "SC wind", as well as shipyards that can produce/manufacture foundation compounds for the power plants. Furthermore, "Human Composites", a competent blade-manufacturing company in Korea, has been producing wind turbine blades of satisfactory quality, which were installed in several wind farms including the testing farm located in southwest area of Jenobuk Province. By contrast, neighboring countries such as Japan and China are yet to embark on offshore wind power business and relevant technologies they hold are, arguably, falling behind on that of Korea. Consequently, Korea is expected to serve as the technological hub for the offshore wind power business.

4 http://www.epj.co.kr/news/articleView.html?idxno=26775

2. Challenges that developers are facing

2.1. Difficulties in vetting the land for the offshore wind plant.

- Individual applicant must file for permits related to zoning, LiDAR, and power generator. As the process is quite complex and complicated, applicants' shoddy preparation often causes problems and delay in many cases.

2.2. Cannot expect institutional support in gaining Resident Approval

- Project owner has sole duty to obtain approval from the residents and thus this phase often causes significant delay in establishing wind farms.
- However, the regulatory support for the project owners is very few and almost none, and the relevant authorities are rather reluctant to side with the project owners without sufficient rationale to intervene provided in the law.

2.3. Public complaints can be obstacles in obtaining Permits.

- Obtaining 'Environmental effect evaluation' and other permits, such as 'Construction permit', 'Permit for occupation/use of the public waters', etc) might not be possible where the approval from the residents is not obtained or the members of the public file complaints containing environmental concerns.
- Once a complaint is filed, the relevant Local government, the primary authority that issues relevant permits, does not have enough rationale to actively help project owners, however much it wants to push ahead with their business.

3. Key permits and approvals for the development of an offshore wind farm

3.1. License for installation of renewable power plants

- Issuing Authority: Relevant Local Government.
- A license must be obtained from the relevant local government, that of the district in which you wish to install the turbines. (i.e. MOTIE delegates its authority to issue these licenses to the local governments).
- Contacting with the relevant local government is necessary as each local government requires a different set of documents to be accompanied by the application for the license. Commonly required documents include a written business plan (with a description of generating units), certified copy of corporate registration, design drawing and/or pictures of the site.
- Usually takes around 30-60 business days.

3.2. Permission for Development Activities

- Granting Authority: Head of the relevant district.
- Governed by the National Land Planning and Utilization Act; and Enforcement Decree of the National Land Planning and Utilization Act.
- An application with the permitting authority for development activities must be filed. The application needs to be accompanied by written plans for building infrastructure related to such development activity, preventing danger & environmental pollution, securing a site required, and protecting scenery & landscape therein.
- The permitting authority would be; the Special Metropolitan City Mayor, a Metropolitan City Mayor, a Special Self-Governing City Mayor, a Special Self-Governing Province Governor, ***or*** the Head of a Si/Gun[5].
- Permission or Non-approval as to the application for permission would be granted by the authority within 15 days (*excluding* a period for deliberation or consultation); in total, takes around 15-30days.

3.3. Certificate from New and Renewable Energy Centre.

- Relevant Authority: The New and Renewable Energy Centre
- A Certificate must be obtained from the New and Renewable Energy Centre in order to be qualified to trade the RECs with other power companies.
- In terms of timing, this application will need to be filed *after* constructing the power plants, obtaining the Certificate of Completion Inspection, and entering into a Power Supply Contract with the Korean Electric Power Corporation (KEPCO).
- The application filing page can be directed from the website of the New and Renewable Energy Centre. The process is basically to register your entity on the RPS system. In the last stage of the application process, you will be required to upload a list of supporting documents. The documents required to all the applicants are a Permission for Development Activities, certified copy of corporate registration, a copy of the Power Supply Contract with KEPCO, Agreement to provide information, etc. Additionally, for offshore wind power development applicants specifically, documents such as Agreement for electric equipment, Drawing (including specification; accompanied by coastline distance) are required.

5 'Si' or 'Gun' is an administrative unit in Korea, similar to the unit of 'county'.

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CSBrand-50465-Legal-Update-Offshore-Wind-Power_03 — 19/02/2021