WATSON FARLEY
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OFFSHORE WIND FACT SHEET
TAIWAN

POLICIES AND LEGISLATION

KEY FACTS

Fossil fuels
Approx. 92.84% of energy needs currently met by fossil fuels

Paris Climate Accord target
Taiwan is not a party to the Paris Agreement but voluntarily passed the Greenhouse Gas Reduction and Management Act in 2015 (溫室氣體減量及管理法) which legislates for a 50% reduction in greenhouse gas emissions from 2005 levels by 2050

Renewable energy (including wind and hydro) target
29.923GW or more by 2025, 20% of power generated from renewable sources by 2025

Wind target
6.7GW by 2025

Offshore wind target:
5.5GW of wind-power capacity by 2025 from the first 2 rounds of tenders/ auctions. There are plans to award an additional 4.5-5GW of projects (scheduled COD: between 2026 and 2030) in a third round of tenders/auctions, details of which are expected to be made public late 2019/ early of 2020.

Zones of Potential (ZoP):
36 ZoPs (a total area of 3,084.5 km2) in the Taiwan Straits identified as possible sites for offshore wind farms

Offshore wind potential:
147GW (but only 15.2GW of this potential is feasible)

There is no doubt that Taiwan has been the "hot" market for offshore wind in Asia. The growth of the Taiwan offshore wind sector from a standing start has been phenomenal. This briefing provides insight into offshore wind in Taiwan, highlighting key projects, opportunities and challenges which are shaping the current trends in the sector.

RECENT UPDATES IN TAIWAN

- The key government linked entities involved in the Taiwan offshore wind sector are:
  - The Bureau of Energy ("**BoE**") of the Taiwan Ministry of Economic Affairs ("**MoEA**") (經濟部能源局) – The BoE sets policies for electricity businesses and issues (i) related regulations and (ii) electricity generation licences.
  - The Industrial Development Bureau ("**IDB**") (經濟部工業局) of the MoEA – The IDB is responsible for promoting and implementing Taiwan's plan for the development of the offshore wind supply chain and (amongst other things) approves the localisation plans for each offshore wind project.
  - Taiwan Power Company (台灣電力公司) ("**Taipower**") – Taiwan's state owned company power producer which has a monopoly over the country's power transmission and distribution.
- The following key legislative changes were implemented in support of the Taiwanese government's policy to promote renewable energy projects:
  - The Electricity Business Act (電業法) ("**EB Act**") - The EB Act was substantially amended in January 2017 to further liberalise the Taiwanese electricity market and promote renewable energy generation. The following key changes were made in 2017:
    - renewable power generators are now expressly permitted to sell power directly to end users. Previously all energy generated had to be sold to Taipower;
    - Taipower's electricity generation business has to be unbundled from its transmission and distribution business by 2026; and
    - Taiwan's existing nuclear power plants were to be phased out by 2025. However a referendum was passed in the 2018 municipal elections to revoke the above 2017 amendment and the Taiwanese government is obliged to give legal effect to the above referendum.
  - The Renewable Energy Development Act (再生能源發展條例) ("**RED Act**") - Enacted in 2009 and amended on 12 April 2019. Amongst other things, the RED Act provides for the range of incentives for renewable energy producers (including the FiT regime).
- **FiT**: The Taiwanese offshore wind FiT system provides for a fixed tariff for a period of 20 years by way of a power purchase agreement ("**PPA**") with Taipower. The 2018 FiT rate was NTD 5.8498 per kw/h for the full 20 year period or (at the option of the developer) NTD 7.1177 for the first 10 years with a lower FiT of NTD 3.5685 per kw/h for the second 10 year period). The 2018 FiT rate applies only to PPAs entered into on or before 2 Jan 2019.

The 2019 FiT rate is NTD 5.5160 per kw/h for the full 20-year period or (at the option of the developer) NTD 6.2795 for the first 10 years with a lower FiT of NTD 4.1422 per kw/h for the second 10-year period. A cap of 4,200 annual full-load hours is imposed before the FiT is reduced to 75% of the FiT with a further reduction to 50% of the FiT above 4,500 annual full load hours.

OPPORTUNITIES

- Generally foreign investor friendly: The Taiwan government has generally welcomed foreign investment and involvement in its offshore wind sector. There are presently no restrictions on foreign ownership in offshore wind project. However selling down of an interest in an offshore wind project may be subject to BoE approval.
- Government support for supply chain and grid enhancement: The Taiwanese government has taken steps to enhance its offshore wind supply chain and supporting infrastructure. 10.7 GW of grid capacity is scheduled to be added to the Taiwan national grid by 2025 as part of its grid enhancement program and parts of the Port of Taichung, Hsin ta Harbour and Changhua Fishery Port are earmarked to accommodate the requirements of the offshore wind industry.
- Consultative approach: Major policy decisions affecting the industry (such as those relating to the FiT and Taiwan flagging requirements (see below)) tend to be made after consultation with industry stakeholders. This gives stakeholders an opportunity to raise concerns on proposed changes.

CHALLENGES

- Adverse weather: Taiwan suffers from frequent earthquakes and typhoons. These events reduce the window for construction, increase the risk of component fatigue and may affect how risk is allocated between the parties.
- Localisation/Supply chain: The tender requirements for the later projects allocated under the FiT system, require the developers to use local Taiwanese equipment and services for the construction of their projects. We expect localisation requirements to be imposed for future projects as well. Bespoke localisation plan for each such project have to be agreed with the IDB. Although steps have been taken to develop the local supply chain, the local offshore wind supply chain in Taiwan still remains fairly limited. The absence of a significant local supply chain are likely to make the satisfaction of the localisation commitments challenging and more costly and creates greater concentration risk in the local suppliers who are able to provide key components and services.
- Expected Taiwan flagging requirement: The BoE and the Taiwan Maritime Port Bureau (交通部航港局) announced in April 2019 that they may be looking to implement local Taiwan flagging requirements for vessels employed in the construction of offshore wind projects. While the matter is still subject to ongoing consultation, it is our understanding that some Taiwan flagging restrictions are, in practice, already in effect. Taiwan's shipping laws generally require Taiwan flagged vessels to be majority owned by Taiwanese entities and have a chairperson who is Taiwanese. Moreover there are elements of the local ownership requirement that are open to debate and these will need to be clarified. Quite apart from the above, the implementation of a Taiwan flagging requirement is likely to create challenges given the limited number of qualified Taiwan flag vessels that meet the required specifications for offshore wind construction work. This issue will be more acute for the more specialised offshore wind construction vessels such as turbine installation vessels. Taiwan's restriction on the use of vessels built in the People's Republic of China will further limit the pool of vessels which can be drawn on by developers.
- Availability of debt financing: The concentration of projects scheduled to complete construction in 2024 and 2025, has raised concerns about the availability of Taiwan dollars in the debt markets for these later projects. Taiwan dollar funding from institutional investors (such as the Taiwanese insurance companies) remains an option. While current legal restrictions on investments on projects under construction may create challenges to accessing such funds these challenges are not insurmountable and we expect to see the Taiwanese lifecos feature in Taiwan offshore wind financings shortly.
- Unbundling of Taipower: Taipower is presently required to unbundle its electricity generation business from its transmission/distribution and retail electricity business before 2026. The details regarding Taipower's unbundling plan are still being developed but, from Taipower's 2018 Sustainability Report and the drafts plans which we are aware of, the intention appears to be for the existing Taipower entity to become a holding company with the generation and transmission/distribution businesses hived down into 2 separate subsidiaries. While we understand that the Taipower off-taker under any Taipower PPAs should continue to remain controlled by the Taiwan government, the above uncertainty may create bankability concerns amongst international financiers looking to finance offshore wind projects in Taiwan.

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