Renewable Energy

Contributing editor
Eric Pogue

2019

GETTING THE DEAL THROUGH

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Eric Pogue

Hunton Andrews Kurth LLP

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For further information please contact editorial@gettingthedealthrough.com

Publisher
Tom Barnes
tom.barnes@lbresearch.com

Subscriptions
James Spearing
subscriptions@gettingthedealthrough.com

Senior business development managers
Adam Sargent
adam.sargent@gettingthedealthrough.com

Dan White
dan.white@gettingthedealthrough.com

Law Business Research

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87 Lancaster Road
London, W11 1QQ, UK
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Second edition

Getting the Deal Through is delighted to publish the second edition of *Renewable Energy*, which is available in print, as an e-book and online at www.gettingthedealthrough.com.

Getting the Deal Through provides international expert analysis in key areas of law, practice and regulation for corporate counsel, cross-border legal practitioners, and company directors and officers.

Throughout this edition, and following the unique **Getting the Deal Through** format, the same key questions are answered by leading practitioners in each of the jurisdictions featured. Our coverage this year includes new chapters on Aremnia, Indonesia, Iran, Taiwan, Tanzania and Ukraine.

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Every effort has been made to cover all matters of concern to readers. However, specific legal advice should always be sought from experienced local advisers.

Getting the Deal Through gratefully acknowledges the efforts of all the contributors to this volume, who were chosen for their recognised expertise. We also extend special thanks to the contributing editor, Eric Pogue of Hunton Andrews Kurth LLP, for his continued assistance with this volume.

GETTING THE DEAL THROUGH

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Taiwan

Grace Chih-Wen Chou and Sean Yu-Shao Liu

Lee, Tsai & Partners Attorneys-at-Law

Market framework

1 Who are the principal government participants in the electricity sector? What roles do they perform in relation to renewable energy?

The central competent authority of the Taiwan electricity industry is the Ministry of Economic Affairs (MOEA), specifically under the management of the Bureau of Energy (BOE), a department within the MOEA. Pursuant to the amendment of the Electricity Act in 2017, the MOEA will designate an electricity industry regulatory authority to take charge of regulation in the electricity market regulation, the issuance of electricity enterprise licences and the planning of power supply and demand. Currently, the MOEA has not yet done so and the MOEA itself will carry out the responsibilities of the electricity industry regulatory authority before the completion of such designation.

Renewable energy policies and their implementation may also involve several other government authorities. For example:

- the National Development Council (NDC) assists in coordinating various ministries to promote the Four-Year Wind Power Promotion Plan and the Solar PV Two-Year Promotion Project;
- the Ministry of Science and Technology (MOST) implements the National Energy Programme (NEP), which promotes Taiwan's smart grid and fosters the development of other renewable energy technologies;
- the Financial Supervisory Commission (FSC) implements the Green Finance Action Plan and encourages domestic and foreign financial institutions to grant credit to and invest in the renewable energy industry; and
- the Environmental Protection Administration (EPA) is charged with controlling carbon emissions and the establishment and management of the environmental impact assessment (EIA) procedures for renewable energy power facilities.

Taiwan Power Company (TPC) is a state-owned enterprise and is the only company in Taiwan that is responsible for power generation, power transmission and distribution, and power sales. TPC's role in power transmission and distribution is exclusively mandated under the Electricity Act and the Renewable Energy Development Act, thus it is also responsible for providing renewable energy generation facilities with parallel connections to the grid and engaging in wholesale purchase of renewable energy from those generator facilities. The 2017 amendment of the Electricity Act requires TPC to split its power generation department and its power distribution and sales department into two separate companies by the year 2023. However, the electricity industry regulatory authority to be designated by the MOEA may submit to the Executive Yuan a request for a postponement of implementation of such a measure based on its assessment of the development and condition of the electricity market. The postponement may be requested no more than twice. The first postponement shall be limited to two years and the second to one year. The post-reorganisation power distribution and sales entity will be responsible for the aforementioned parallel connections to the grid and the wholesale purchase of renewable energy.

2 Who are the principal private participants in the electricity sector? What roles do they serve in relation to renewable energy?

Taiwan first started allowing private investment into independent power producers (IPPs) in 1995. However, it was not until the 2017 amendment of the Electricity Act (which divides the electricity industry into power generation enterprises, power transmission and distribution enterprises, and power sales enterprises) could private entities apply to engage in the electricity retailing business.

Currently, among the private power producer enterprises in Taiwan, nine are based on fossil fuels, five are hydropower, nine are solar and 13 are wind power, with the fossil-fuel-based enterprises generating the most power. For utility-scale power sales, TPC is still the sole electricity retailing utility enterprise; sales of renewable energy-based power are all still done by renewable energy-based generator enterprises on the side.

For private renewable energy-based generator enterprises, the biggest hydropower company is Chianan Industries, which has three hydropower plants with a total installed capacity of 22.5MW. The biggest solar power company in Taiwan is AU Optronics Corporation, which owns BenQ Solar and Evergen Power; the former has six solar power plants with an installed capacity of 24.3MW, and the latter has six solar power plants with an installed capacity of 20.4MW. The biggest onshore wind power company in Taiwan is Infravest, which has eight wind farms (eg, Windfarm Taichung and Windfarm Houlong) with a total installed capacity of more than 324.7MW.

Additionally, the Taiwan government is actively pushing for the establishment of offshore wind power systems. In 2017 Swancor obtained the first commercial operating licence for an offshore wind power system in Taiwan, and the MOEA announced in April 2018 the selection result of capacity allocation under the Offshore Wind Potential Zones Installed Capacity Allocation Scheme pursuant to the Directions for Allocating Installed Capacity of Offshore Wind Potential Zones promulgated by the MOEA in January 2018. Seven developers have been awarded with grid capacity to commission 10 offshore wind farms. Among the seven, five are private companies: WPD, Ørsted, Swancor & Macquarie Group, NPI and CIP.

As for investment and funding in the renewable energy industry, the Taiwan government has established the Green Bond system, which refers to bonds that have been certified by the Taipei Exchange (TPEx) as issued by corporations or banks for eco-friendly investment projects. Currently, of the 16 green bonds recognised by the TPEx, nine are labelled as financing the 'development of renewable energy and energy technology', and are all financial bonds issued by domestic banks (Hua Nan Bank, E.SUN Commercial Bank, Taipei Fubon Bank, Taiwan Business Bank, SinoPac Bank, KGI Bank and CTBC Bank) and a foreign bank (Export–Import Bank of Korea).

3 Is there any legal definition of what constitutes 'renewable energy' or 'clean power' (or their equivalents) in your jurisdiction?

The definition of 'renewable energy' is stipulated in the Renewable Energy Development Act as the direct use or processing of energy such as solar energy, biomass, geothermal energy, ocean energy, wind power, non-pumped storage hydroelectricity, energy from domestic general waste and general industrial waste or other sources of energy

that is determined by the central authority to be sustainable. Biomass energy refers to energy generated by the direct use or processing of agricultural and forestry plants, biogas and domestic organic waste, while geothermal energy refers to energy derived from the soil, rocks, steam or hot springs that are contained below the surface.

4 What is the legal and regulatory framework applicable to developing, financing, operating and selling power and 'environmental attributes' from renewable energy projects?

In Taiwan, the legal basis for the development of and environmental attributes from renewable energy projects is primarily found in the Electricity Act, the Renewable Energy Development Act and the Implementation Regulation Governing Voluntary Renewable Energy Certificates, along with other related rules and regulations.

To promote the development of renewable energy, the Renewable Energy Development Act and related regulations all encourage the establishment of enterprises engaging in renewable energy-based power generation and sales enterprises through a variety of incentives. After the amendment of the Electricity Act in 2017, renewable energy power may be directly sold to end users, detailed rules of which are regulated by the new Regulations on Renewable Energy-Based Power Generation Enterprises Applying for Direct Supply, covering matters such as qualifications and principles of review. For power to be wheeled out through TPC's grid, the Regulations for Favourable Power Dispatching and Wheeling Expenses cover how wheeling fees are to be calculated.

In addition, TPC, as the sole entity authorised to operate the electricity grid, is obliged to apply feed-in tariffs to all electricity generated from eligible renewable energy-based generator facilities. See question 6 for more details.

For environmental attributes, the National Renewable Energy Certification Centre was established in 2017 to formulate and implement regulations in relation to the Taiwan Renewable Energy Certificate (T-REC) mechanism, verification standards and tracking system. After the renewable energy generation equipment and production amount have been verified, the T-REC is the proof for renewable energy usage and environmental benefits. See question 5 for more details.

5 Can environmental attributes be stripped and sold separately?

Taiwan's current renewable energy certification system is a bundled system. Because current regulations only allow for single-use renewable energy certificates, and the transfer of certificates must be registered with the certification centre, the current certification market only consists of one-time transactions between the renewable energy power generation enterprise and the green electricity consumer.

However, where the installer of renewable energy-based self-use generation facilities is able to obtain a certificate, since the entity could use the power for its own purposes and then sell the undeclared certificate individually to those that need it, this is an exceptional case of an 'unbundled' transaction.

Taiwan's renewable energy certificate transactions are currently only at the demonstration project stage. Whether a secondary unbundled certification trading market will be established in the near future remains to be seen.

6 Does the government offer incentives to promote the development of renewable energy projects? In addition, has the government established policies that also promote renewable energy?

The Taiwan government currently provides the following incentives for renewable energy development.

Feed-in tariffs

The law requires that TPC is obliged to enter into power purchase offtake agreements with entities operating renewable energy-based generators. In principle, the feed-in tariff (FIT) as announced by the MOEA according to the Formula for Calculating Feed-In Tariffs of Renewable Energy Power is applied to electricity generated from eligible renewable energy-based generator facilities except for circumstances prescribed by the law. As examples, for installers of offshore wind turbines, who chose the option of a fixed 20-year tariff, the rate for 2018 is NT$5.84/kWh; for solar PV installers, the rate may vary depending on the type of solar PV and capacity size. Except for circumstances prescribed by the law, these power purchase offtake agreements have a term of 20 years.

Demonstration awards and subsidies

The government provides cash incentives or subsidies for the establishment of specific types of renewable energy-based power generation facilities. For example, the Regulations on the Promotion of Offshore Wind Power System Demonstration in 2012 were implemented by the MOEA, which provided incentives to the demonstration of offshore wind turbine generators for up to 50 per cent of the total installed cost of the turbines. In addition, the MOEA is currently implementing the Regulations on the Promotion of Building-Integrated Solar PV Power Generation Demonstration, and for those who meet the relevant criteria, an award of up to NT$50,000 per kWp can be offered for the purchase of a solar power generator facility.

Tax incentives

The government currently provides tax incentives to entities in the power generation business. For example, when retaining a foreign advisor in providing planning and design services prior to the establishment of the generator facilities, the power generation entity may apply to the BOE for special approval to exempt the foreign advisor from paying income tax on the remuneration received. In addition, regarding the importation of a power generation facility, if the imported equipment is not manufactured in Taiwan, it may be exempt from customs tariffs, subject to verification and certification by the MOEA; even if Taiwan does manufacture such equipment, the customs tariff may be paid in instalments, subject to verification and certification by the MOEA.

Green Finance Action Plan

The government has implemented several measures encouraging financial institutions to extend credit and invest in the green energy industry. For example, the FSC has lifted the restriction on the annual revenue of the customer to which a Taiwan branch of a foreign bank is extending credit, when such credit is extended for the installation of renewable energy facilities. Also, the FSC allows the Taiwan branches of foreign banks to issue NTD financial bonds to raise funds for financing the green energy industry. In addition, the insurance industry has been able to invest in the renewable energy industry since 2017, subject to special approval from the FSC.

7 Are renewable energy policies and incentives generally established at the national level, or are they established by states or other political subdivisions?

Renewable energy policies and incentives in Taiwan are mainly driven by the national government. In terms of implementation methods, the Executive Yuan sets the overall direction of the policy, which is then implemented by the administrative agencies at various levels under the Executive Yuan. For example, after the Executive Yuan launched the Green Energy Technology Industry Promotion Plan in 2016, the administrative agencies discussed the policy and launched specific promotional plans for solar power and wind power in October 2016 and August 2017 respectively.

The national government provides subsidies to local authorities to incentivise the promotion of renewable energy. For example, the BOE has promulgated the Guidelines for Subsidies in Promoting Renewable Energy at Municipality/City/County Levels, by which local authorities may receive subsidies to investigate the regional feasibility of renewable energy and promote the relevant works. This has led to a clear increase in the number of renewable energy power generator installations.

8 What mechanisms are available to facilitate the purchase of renewable power by private companies?

As stated above, since 2017 the MOEA has implemented the Taiwan Renewable Energy Certificate (T-REC) mechanism as proof of identity for green electricity, which will act as a form of green electricity resumé. Through certificate management, power sources purchased or used by the user can be traced, thus certifying the use of green electricity.

In addition, some counties and cities have enacted their own regulations requiring consumers with greater electricity needs to install their own renewable energy power generator facilities. For example, Tainan City has already made it mandatory for consumers whose chartered capacity of electricity consumption is greater than 800kW to generate

at least 10 per cent of their own power through their renewable energy-based generators; similarly, Taoyuan City requires consumers whose chartered capacity of electricity consumption is greater than 5MW to generate 10 per cent or more of such power requirements through renewable energy.

9 Describe any notable pending or anticipated legislative proposals regarding renewable energy in your jurisdiction.

The draft amendment of the Renewable Energy Development Act was submitted to the Legislative Yuan in January 2018 for debate and consideration. The key points are:

- a goal of 27GW total renewable energy generation capacity by 2025;
- the simplification of the application procedure for renewable energy power generation facilities with a capacity of less than 2MW;
- the addition of a mechanism allowing for renewable energy-based generation enterprises to choose whether to sell their electricity via direct supply, wheeling or wholesale to TPC; and
- the requirement for heavy electricity users to build a certain capacity of renewable energy-based generator or storage facilities, or alternatively, to purchase a certain amount of T-REC or pay a substitute amount dedicated to renewable energy development.

Although Taiwan is not a signatory to the Paris Agreement, it passed the Greenhouse Gas Reduction and Management Act in 2015 to control greenhouse gas emissions in order to comply with the Agreement. The National Climate Change Action Guidelines and Greenhouse Gas Reduction Action Plan were further promulgated pursuant to the statute to achieve cutting greenhouse gas emissions by at least 50 per cent by 2050 compared to 2005.

10 What are the biggest drivers of change in the renewable energy markets in your jurisdiction?

As an island nation with nearly zero natural resources for energy production, Taiwan is extremely reliant on imported energy sources. However, public awareness of Taiwan's energy issues has rapidly increased in recent years with ever-rising electricity costs during the summer season, and the aftermath of the Fukushima nuclear disaster in Japan turning a notable portion of the public against nuclear energy, which has since become a politically charged issue. The development of renewable energy-based power has therefore received general support in government and from the people, leading to the aforementioned national plan of having at least 20 per cent of power generated from renewable sources by 2025, which is likely to be the biggest driver of change in the renewable energy markets.

11 Describe the legal framework applicable to disputes between renewable power market participants, related to pricing or otherwise.

There is no specific statutorily mandated forum for dispute resolution between renewable energy market participants. However, for disputes between renewable generator operators and the electricity industry (ie, other generator operators or TPC with respect to power dispatch and sales), there is a compulsory mediation session at the MOEA before the parties may engage in arbitration or litigation. The MOEA mediation session is private, and the MOEA will invite a panel of academics and professionals to participate in the session, depending on the nature of the case.

Utility-scale renewable projects

12 Describe the primary types and sizes of existing and planned utility-scale renewable energy projects in your jurisdiction.

Based on the information made available to the public by the BOE, Taiwan's current utility-scale renewable energy sources include hydropower, solar power and wind power.

With respect to solar power, most are small-scale rooftop solar panel installations, and the aforementioned Evergen Power Sixth Phase is the largest plant but has a capacity of only 9.8MW. The government is pushing for more surface solar panel installations in salt work areas, severe land subsidence areas, water space areas and landfills that are difficult for other general industries to use in order to increase power generation. The total solar power capacity in 2017 was approximately 1,733MW and is expected to reach 20,000MW by 2025.

With respect to wind power, currently the main source of electrical energy is the onshore wind turbines in the western coastal areas. The largest is the Luwei ChangBin First Phase Wind Power Station, with a total of 21 wind turbines and an installed capacity of 48.3MW. For offshore wind turbines, two demonstration turbines were completed in 2017, and in 2018 the Taiwan government adjusted upwards the target capacity of offshore wind farms by 2025 from 3GW to 5.5GW. Among the seven developers selected by the MOEA this year for offshore wind farm development (see question 2), WPD has the highest capacity, with its planned Yunneng Wind Farm off the coast of Yunlin County to have a capacity of up to 708MW

13 What types of issues restrain the development of utility-scale renewable energy projects?

The main factors holding back the development of utility-scale renewable energy projects in Taiwan include:

- Environmental impact assessment (EIA) policy: the law requires an environmental impact assessment to be conducted for the installation of any generator facility greater than 2MW in capacity, and this is not an easy procedure to pass in Taiwan. For example, many offshore wind farm projects have been delayed as a result of the EPA's repeated requests for re-examination of the environmental impact assessment process. Even some companies that were originally awarded grants by the MOEA to set up demonstration models of wind turbines eventually lost the opportunity for development because they could not successfully pass the EIA requirements in the requested time-frame.
- Financing difficulties: neither the government nor state-owned enterprises participate in sharing the financing risks associated with the renewable energy industry. Currently, there are only fragmented policies encouraging financial institutions to extend credit or invest in renewable energy, and many financial institutions balk at the risk of financing non-traditional and large-scale investments such as offshore wind power projects.
- The slow construction speed of the electrical grid: offshore wind power must be intergrated with the relevant transformation and transmission facilities to connect to the electrical grid, but TPC's work on offshore substations and transmission facilities is likely to be outpaced by the construction of offshore wind turbines, which may mean a portion of the completed turbines will remain off the grid by 2025. In response, TPC is making efforts to promote the Offshore Wind Power Electrical Grid Enhancement Project Phase I in order to expedite construction speeds.

Hydropower

14 Describe the primary types of hydropower projects that are prevalent.

According to the Renewable Energy Development Act, pumped-storage hydroelectric plants are not considered renewable energy-based. Of the 15 hydroelectric plants in Taiwan, most are run-of-the-river, and 10 are owned by TPC, while the remaining five are privately run. The total power output capacity is 2,089MW, about 40 per cent of Taiwan's renewable energy generation capacity.

As large hydroelectric plants have a significant impact on the neighbouring environment, there are not many places suitable for the construction of large hydroelectric plants. However, Taiwan has a high density of tributaries and streams, along with sharp sloping hills, making it highly suitable for small-scale hydroelectric plants as part of on-site distributed generation. With typically less than 1MW output capacity, small-scale hydroelectric plants have relatively less of an impact on the environment, and are easier and quicker to construct.

To promote the construction of small hydroelectric plants, the Council of Agriculture and the Water Resources Agency have chosen the appropriate waterways for private evaluation and development. Further assessment is needed regarding subsequent promotional activity (power sales to TPC or direct supply).

15 What legal considerations are relevant for hydroelectric generation in your jurisdiction?

Because of the need to conduct an EIA for large hydroelectric plants and their impact on the neighbouring environment, large hydroelectric plant construction projects face considerable difficulties in

obtaining government approval. Other local matters such as geological concerns and irrigation water also require the approval of the relevant departments or agencies, rendering development difficult. As a result, Taiwan's hydropower capacity is only expected to increase from 2,089MW in 2017 to 2,150MW in 2025, which is significantly less than the growth in other types of renewable energy.

Even with small hydroelectric plants designed to avert some of the difficulties above and some potential sites already being picked out, these projects are still currently at an early funding stage, so their actual efficacy remains to be seen.

Distributed generation

16 Describe the prevalence of on-site, distributed generation projects.

Distributed generation is still very much in its infancy in Taiwan. While the dramatically reduced costs of solar panels in recent years have made solar the energy source of choice in distributed generation, details on cohesive efforts in establishing and maintaining a distributed generation project are sparse.

17 Describe the primary types of distributed generation projects that are common in your jurisdiction.

As mentioned above, the type of distributed generation in Taiwan that has seen the greatest results so far is solar energy. The Taiwan government has provided incentives for using higher efficiency polysilicon and thin-film solar panels certified by the Bureau of Standards, Metrology and Inspection by giving a 6 per cent bonus on the FIT rate for the electricity generated. As installation of rooftop solar panels requires either ownership of the equipment and the rooftop premises to install panels or rooftop space that can be rented out to solar panel operators, and signing promotional offtake arrangements with TPC provides greater incentives than generating solar power for self-use alone, it is not generally economically feasible to install solar panels for self-use, and most of the power generated from solar power for self-use is still actually sold to TPC under the FIT scheme.

Other distributed generation projects in Taiwan include the aforementioned promotion of small hydroelectric plants, smaller wind farms and biomass generation. As these projects are all mostly in the development stage, capacity and usage are still limited.

Nevertheless, given the use of renewable energy certifications and the promulgation of other incentive policies, the direct supply of power to end users by renewable energy-based power generator facilities (regardless of the energy source) is expected to rise in the future.

18 Have any legislative or regulatory efforts been undertaken to promote the development of microgrids? What are the most significant legal obstacles to the development of microgrids?

The costs of establishing a microgrid are extremely high and require advanced energy storage capabilities. As a result, current microgrids in Taiwan are experimental in nature and are limited to offshore and emergency and backup generators based primarily on solar or wind power. Since widespread use and commercialisation of microgrids are still some time away, the government has not yet devoted significant efforts to establishing regulations in this area.

19 What additional legal considerations are relevant for distributed generation?

As mentioned above, solar panel installations in Taiwan may be carried out by the owner of the premises, or the owner may rent out the rooftop or other parts of the premises for the installation of solar panels by energy service companies, who will also handle the administrative process on behalf of the owner (see below). However, there is not yet an industry standard prescribing the legal relationship between such an owner and the energy service company installing solar panels, and it remains to be tested how potential contract performance issues, such as the suspension of business by the energy service company, lower than agreed power sales revenue and sharing of solar panel maintenance costs, may be resolved in court.

In addition, the current administrative process for obtaining approval to install renewable energy generator equipment is a time-consuming process. For example, for installing a rooftop solar panel, the user will have to apply for a parallel connection to TPC's grid, enter into power purchase offtake agreements with TPC, obtain certification for the equipment from the BOE, and then apply for a usage permit from the Construction Management Office. The entire process generally takes several months to complete.

Energy storage

20 What storage technologies are used and what legal framework is generally applicable to them?

There are two pumped-storage hydroelectric plants with a total power output capacity of 2.6GW in Taiwan. However, to attain 20 per cent renewable energy overall by 2025, the Taiwan government has set out a NT$1.6 billion, eight-year Regional Energy Storage Technology Demonstration and Certification Plan for the development of distributed energy storage facilities of 1–5MW in capacity installed in-front-of-the-meter in TPC's grid as part of its policy. The government promotion effort will first start in the southern part of Taiwan, where solar power facilities are more prevalent. By the end of 2018, the project expects to set up two grid storage facility demonstration areas, each with a capacity of 1MW. The battery types involved in the demonstration areas are expected to be primarily lithium-ion, lead-carbon or redox flow batteries.

21 Are there any significant hurdles to the development of energy storage projects?

Energy storage facilities are expected to see greater use with the greater power consumption of homes and businesses in the future, but other than the aforementioned promotional efforts in energy storage connection to the grid, the Taiwan government has no concrete plans regarding energy storage for other commercial uses, and it is currently difficult to forecast the future results of industrial movements in this area (eg, the Taiwan Energy Storage System Industry Alliance, which was established in early 2018).

Foreign investment

22 May foreign investors invest in renewable energy projects? Are there restrictions on foreign ownership relevant to renewable energy projects?

There is no restriction on foreign investment in renewable energy-based power generation and sales businesses. However, investors from the People's Republic of China (PRC) may only invest in the manufacturing of electrical power equipment and not in power generation, distribution, transmission and sales businesses.

23 What restrictions are in place with respect to the import of foreign manufactured equipment?

There is no restriction on the importation of foreign-manufactured equipment (such as solar panels, inverters and other renewable energy equipment) into Taiwan. However, PRC-manufactured equipment (including renewable energy-based equipment) may not be imported unless the laws have expressly allowed otherwise. For example, foreign-manufactured Wind-Powered Generator Facility Sets (CCC code: 8502.31.00) may be imported to Taiwan, but if they are made in the PRC, they may not be imported. Whether a specific piece of PRC-manufactured equipment may be imported can be determined through searching the CCC code for the item to see whether there is any importation restriction present.

Also note that, according to the Directions for Allocating Installed Capacity of Offshore Wind Potential Zones promulgated by the MOEA in January 2018, those who wish to engage in offshore wind power projects in Taiwan must participate in the selection process. Under the aforementioned selection rules, the winning vendors then need to gradually implement the commitment to localise the supply chain. For example, the vendor must have committed to localise the towers, underwater foundations, power facilities and marine engineering in participating in the selection. As such, entities intending to engage in offshore wind power projects in Taiwan are advised to take note of the above requirements.

Projects

24 What government authorisations must investors or owners obtain prior to constructing or directly or indirectly transferring or acquiring a renewable energy project?

Investors wishing to invest in renewable energy-based electricity generating enterprises are required to obtain prior approvals from the Electricity Industry Regulatory Authority to be designated by the MOEA, as well as the local government for the application for an electricity enterprise licence for the installation, transfer and procurement of renewable energy-based power generator facilities.

For the installation, transfer and procurement of renewable energy-based self-use power generator facilities, depending on the capacity of the generator and how the mandate of authorisation is carried out, approval is needed from either the MOEA or from local government.

Depending on the specific circumstances of each case, approvals from other competent authorities may also be required for the installation and transfer of renewable energy-based self-use generator facilities. For example, if the generator is installed on the ground, a written opinion is needed from the local Land Administration office; if it is installed on the roof, construction or other miscellaneous licences may be needed from the competent authority for buildings. Installation of generator facilities by electricity generation enterprises may trigger the requirement to conduct an environmental impact assessment; installation of offshore wind power generators may involve fishing rights, vessel safety and coastal development, thereby requiring respective approvals from local fishermen's associations, the Ministry of Transport and Communications and the Ministry of the Interior.

25 What type of offtake arrangements are available and typically used for utility-scale renewables projects?

As stated in questions 1, 4 and 6, TPC is currently the only electricity company in Taiwan that is obliged to offtake power from renewable energy under the FIT scheme. See question 6 for more details regarding the offtake arrangements.

26 How are long-term power purchase agreements procured by the offtakers in your jurisdiction? Are they the subject of feed-in tariffs, the subject of multi-project competitive tenders, or are they typically developed through the submission of unsolicited tenders?

As mentioned in questions 6 and 25, the enterprise in charge of power transmission and distribution (ie, TPC) is obliged under law to purchase renewable energy wholesale under the applied FIT scheme. Nonetheless, offshore wind power companies that have won the right to develop on certain wind farms through the price bidding procedures held by MOEA in June 2018 will have to sell the power at their bidding price.

27 What government authorisations are required to operate a renewable energy project and sell electricity from renewable energy projects?

The establishment of an enterprise intending to operate a renewable energy-based generation business shall obtain the prior approval of the electricity industry regulatory authority to be designated by the MOEA. Additional prior approval is not required for the sale of electricity to TPC under the FIT scheme, or for the sale of electricity to renewable energy-based electricity sellers .

A renewable energy-based electricity generator enterprise may sell power to end users directly by installing connecting powerlines, or indirectly via TPC. Due to concerns regarding the quality of power from the generator enterprise, direct supply requires the approval of the regulatory authority for the electricity industry, while indirect supply does not.

A company limited by shares that has not yet installed generator facilities may apply for an electricity sales licence from the electricity industry regulatory authority to be designated by the MOEA to engage in renewable energy-based electricity sales business. The sale of electricity to users does not require prior approval. Currently, there are no renewable energy-based electricity sales enterprises in Taiwan.

Renewable energy-based generation enterprises intending to sell power through means other than the FIT scheme may sell the Taiwan Renewable Energy Certificate (T-REC). See question 5 for details.

28 Are there legal requirements for the decommissioning of renewable energy projects? Must these requirements be funded by a sinking fund or through other credit enhancements during the operational phase of a renewable energy project?

Renewable energy-based generators and sellers looking to temporarily suspend their business or shut down their business altogether shall, within six months prior to the termination or suspension, submit a termination or suspension plan to the local government for approval. Once the local government approves, the matter will be transferred to the electricity industry regulatory authority to be designated by the MOEA for further review and approval.

Decommissioning of renewable energy-based self-use power generator facilities with a generating capacity of more than 500kW shall apply for the termination of registration from the same competent authority to whom the approval application was originally submitted.

Transaction structures

29 What are the primary structures for financing the construction of renewable energy projects in your jurisdiction?

The renewable energy industry in Taiwan is mainly focused on solar power and wind power at the moment. In addition to its own funds, most projects obtain financing from financial institutions or issue corporate bonds to raise the needed capital. Taking offshore windfarm construction as an example, most projects in the sector are headed by

理慈 Lee, Tsai & Partners
A GREATER CHINA LOCAL FIRM

Grace Chih-Wen Chou **gracechou@leetsai.com**
Sean Yu-Shao Liu **seanliu@leetsai.com**

9F, 218 Tun Hwa S. Road
Section 2
Taipei 106
Taiwan

Tel: +886 2 2378 5780
Fax: +886 2 2378 5781
www.leetsai.com

a special purpose business company (SPV) that obtains financing from banks. The ratio of the SPV's own funds versus the amount loaned may be as much as 3:7.

In practice, when deciding whether to finance an SPV company and the collateral to provide, the bank will consider the future earning power of the SPV based on the generation capabilities and the terms of the power purchase contracts. Other factors include considerations of technological skill in the construction work, the procured insurance policies, etc. Most banks will require from the SPV an obligation to notify it of company policy decisions and a veto right on major issues for the protection of its investment. For collateral, based on publicly available information, there have been some cases in Taiwan where the bank required the parent company of the SPV to pledge its assets up to the entire amount financed, and there have also been cases where letters of credit were issued by the Export Credit Guarantee System, such as the Export Kredit Fonden (EKF).

Since local banks have limited experience and foreign banks face certain statutory restrictions with respect to the amount they can loan and to whom they can grant loans, usually a local bank and a foreign bank branch in Taiwan will work together for a renewable energy construction project. That said, as of the end of 2017, banking regulations have been loosened to encourage foreign banks to finance and become the lead banks for renewable energy projects. As an example, a foreign bank branch in Taiwan may now provide financing to a single legal person or affiliate for up to NT$7 billion, or twice the branch's net value, whichever is greater.

30 What are the primary structures for financing operating renewable energy projects in your jurisdiction?

Currently in Taiwan, only the solar power industry has matured to the point where operational financing has begun to take shape. Financing is still typically done by bank loans, and the bank will consider a variety of factors that contribute to the ability of the company to pay, such as the solar power generation capabilities, subsidies from the power company, the land use terms and restrictions, vulnerability to natural disasters and other factors to consider the amount of financing to provide and the term of the loan.

Getting the Deal Through

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