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Alternative Energy & Power 2023

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Taiwan: Law and Practice & Trends and Developments

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TAIWAN

Law and Practice

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Lee, Tsai & Partners is a Taiwan-based law firm that includes a team of eight attorneys specialising in the energy and power practice area. The firm has a strong track record in advising on government energy policies, especially when it comes to renewable energy and its development. Services include providing legal advice on energy policy and related laws and regulations, advising on investment in the renewable energy sector, obtaining regulatory approvals, and handling government investigations and disputes. Lee, Tsai & Partners' commitment to provid-

ing expert legal services to the energy sector makes the firm a reliable partner for clients seeking assistance in navigating the energy industry's complexities. Clients include renowned offshore wind power companies from Belgium, a well-known German multinational conglomerate corporation, a leading global technology firm, and a well-known US oil and gas company. Lee, Tsai & Partners currently has offices in Taipei, Shanghai, and Beijing – each key locations for serving clients from major countries and regions across North America, Europe, and Asia.

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1. Structure and Ownership of the Power Industry

1.1 Law Governing the Structure and Ownership of the Power Industry

The Electricity Act (EA) is the main law governing each segment of the power industry. In terms of alternative energy, the Renewable Energy Development Act (REDA) covers the promotion of alternative/renewable energy sources (eg, solar, geothermal, wind, biomass) and the relevant incentives provided.

Before the generation market was opened up to private entities in 1995, Taiwan's entire power industry was run by a single state-owned entity named Taiwan Power Company (TPC). TPC currently still has a monopoly over the transmission and distribution segments in Taiwan, which are discussed here.

Generation

Despite allowing private entities to operate power generator plants in Taiwan, Article 5 of the EA still restricted private entities from operating nuclear or hydropower plants with more than 20MW capacity – all of which are currently operated by TPC. Private entities currently operate nine fossil-fuel based power plants and have been involved in the construction and operation of small-scale solar power, hydropower and wind farm projects. An amendment to the EA in 2017 allowed those privately operated power plants to supply power directly to customers without having to sell all their generated power to TPC for dispatch through TPC's main power grid, which is the sole power grid in Taiwan.

Transmission and Distribution

TPC is the sole entity responsible for the transmission and distribution segments of the power industry, pursuant to Article 5 of the EA, which

stipulates that these segments are to be operated by a single state-owned entity. Per Article 10 of the EA and Article 8 of the REDA, TPC is obliged to prioritise the transmission and distribution of power generated by renewable energy sources.

Sales

The EA currently only permits two types of entities to engage in the sale of electricity:

- public utility companies (ie, TPC); and
- private entities that purchase power generated by renewable sources for sale to end users – whether distributed through the TPC grid or not.

1.2 Principal State-Owned or Investor-Owned Entities

TPC is a state-owned entity, with 94% of its shares held by the Ministry of Economic Affairs (MOEA). It currently operates every facet of the power industry in Taiwan, from generation to sales, with monopoly control over transmission and distribution. TPC is set to be restructured in 2026 as a power generation company and two transmission/dispatch/sales subsidiaries. As of May 2023, the publicly available data from the MOEA's Bureau of Energy (BOE) show that TPC operates 12 hydropower plants, 24 fossil-fuel based plants, 18 wind power plants, 16 solar power plants and two nuclear plants in order to achieve a total power capacity of approximately 35.3 GW.

As regards independent power producers, the BOE's publicly available data as of April 2023 shows the following.

- Fossil-fuel based generation – nine entities operating nine plants with a total capacity of 8.29 GW. Currently, seven of the nine plants

are gas-based plants. The Mailiao Plant is the largest plant (at 1.8 GW) and will be converted from coal-based to gas-based generation in 2025.

- Hydropower – four entities operating six plants with a total capacity of 42 MW. The biggest hydropower company is Chianan Industries, which operates three plants with a total installed capacity of 22.5 MW.
- Solar – 121 entities operating 302 solar-based facilities with a total capacity of approximately 1.82 GW. The biggest investor-owned solar power company is Vena Energy, which owns the Xin-Shin Plant that entered into operation in April 2023 with 272 MW capacity.
- Wind – 24 entities operating 49 wind farms and 238 generating sets, with a total capacity of 662 MW. According to the MOEA's forecast in January 2023, the total capacity of wind farms completed and connected to the grid will reach 2GW in 2023. The biggest onshore wind power company in Taiwan, Infravest, operates eight onshore wind farms with a total capacity of just under 400 MW. There are five major offshore wind farms that are (or will soon be) in operation:
 - (a) Formosa1 (Ørsted and JERA Power, approximately 2 GW);
 - (b) Formosa2 (Macquarie, SRE and JERA Power, approximately 378 MW);
 - (c) Yunneng (Skyborn Renewables, approximately 680 MW);
 - (d) Greater Changhua (approximately 900 MW); and
 - (e) Changfang & Xidao (approximately 600 MW).

More are expected to be constructed and enter operation in the near future.

1.3 Foreign Investment Review Process

Apart from the general restriction on investment from the PRC in infrastructure and other sensitive projects, there are few foreign investment restrictions that are specific to the power industry. Investors from the PRC may only invest in the manufacturing of electrical power equipment and not in any part of the process from generation to sales. In addition, owing to TPC's monopoly over transmission and distribution, there is de facto no foreign investment in those areas of the power industry.

Foreign investment in the power industry is reviewed under the same rules as foreign investment in most other industries. Foreign investment review is regulated pursuant to the Statute for Investment by Foreign Nationals and the competent authority is the Investment Commission (IC) of the MOEA. Foreign investments are generally approved through the following process.

- The foreign investor must submit their application and supporting documents.
- The IC has one month to issue an approval after receiving the complete application, which may be extended to two months if the target industry is regulated by another competent authority.
- After approval, the foreign investor must remit all capital in a timely manner. Once the full amount has been remitted, the investor must ask the IC to confirm the invested amount.

Incentives for foreign investment in the power industry are further detailed in **3.3 Programmes for the Development of Alternative Energy Sources**. No special protection against expropriation or seizure is provided in law with regard to foreign investment in the power industry. There

are also no specific rules regarding forum, governing law, or the use of ADR such as arbitration.

1.4 Law Governing the Sale of Power Industry Assets

Per the EA, the applicable requirements differ depending on the size of the merger involved.

For transactions below a certain threshold (ie, domestic sales turnover of no more than TWD15 billion in the past fiscal year for the power industry entities participating in the merger and domestic sales turnover of no more than TWD2 billion in the past fiscal year for the merged power industry entity), pursuant to the Business Mergers and Acquisitions Act, the merger participants have 30 days following the shareholder resolution to merge within which they must jointly submit a merger plan – clearly detailing the post-merger business, assets, debts and capital – to the competent authority for approval of the transaction. Upon completion of the merger, the participants have another 30 days in which to ask the same competent authority to void the extinguished entity’s electricity enterprise licence.

For transactions that exceed the aforementioned threshold, the participants must submit the merger plan within 60 days of the shareholder resolution to merge. The request to void the licence once the merger is complete must be submitted within 30 days of the merger consummation date. However, owing to the size of the entities involved, the Fair Trade Commission will be asked to review the merger transaction – a process that may involve additional competition law-related investigations and formalities.

Current Taiwan law does not stipulate any minimum requirements for the purchaser of assets or acquirer of a business.

1.5 Central Planning Authorities

The central competent authority that oversees all aspects of the power industry is the MOEA. It is responsible for policy within the power industry, the supervision and safety management of power industry projects, and technologies involving electrical power. The BOE is responsible for Taiwan’s energy policy, the drafting of regulations, energy supply and demand planning, and the development and allocation of energy resources.

Pursuant to the 2017 amendment of the EA, the MOEA was required to designate a regulatory authority to take over its aforementioned responsibilities. However, it has yet to do so and therefore the MOEA retains its authority over the power industry today.

1.6 Recent Changes in Law or Regulation

Notable changes to laws and regulations relating to the power industry over the past year include the following.

- Amendments to the Regulations on the Registration of Electricity Enterprises (RREE) on 31 January 2023 – changes to the drawings required for submission and the overall application process for issuing or renewing an electricity enterprise licence.
- Amendments to the Regulations on the Administration of Renewable Energy Generator Equipment and Facilities on 19 May 2022 – additional stipulations for power purchase agreements between a solar power facility and a public electricity supplier; new rules regarding contributions to the “Environmentally Friendly Fishing Public Fund in light of relaxing rules regarding the use of green energy facilities in certain fish farm installations.

- Amendment of the Act for Promotion of Private Participation in Infrastructure Projects on December 21, 2022 – expansion of Article 3 to include “green energy facilities” and “recycling and reuse facilities”. “Green energy facilities” in this context also includes all equipment that is necessary for power generation, including those relating to energy storage and conservation, and not just the specific power generation facilities in the REDA.
- A new version of the Model Offshore Wind Farm Development Agreement (Phase 1: Completion and Connection in 2026-2027) was published by the MOEA on February 18, 2023.

1.7 Announcements Regarding New Policies

In terms of material changes, an amendment to the EA passed the Legislative Yuan on 30 May 2023, stipulating additional clauses that impose criminal penalties for larceny, destruction or other activities that endanger the operation of certain electricity facilities, as well as the intrusion into or obstruction of those facilities’ core information systems.

In addition, the MOEA proposed the following amendments to the REDA on 8 December 2022, which passed the Legislative Yuan on 29 May 2023:

- removal of the restriction on development of offshore wind farms outside territorial waters (ie, in open waters);
- requirement for installation of solar panels in new buildings or extensions that meet a certain size threshold;
- removal of the restrictions on building biomass power plants outside industrial zones; and

- new rules concerning the surveying, development and operation of geothermal power.

1.8 Unique Aspects of the Power Industry

Besides the state-run TPC being such a dominant player and the entire island of Taiwan running off a single grid, another unique aspect of the power industry in Taiwan is the relatively substantial role played by nuclear power. Opposition to nuclear power has grown during the past decade, with the 2017 amendment to the EA imposing a 2025 deadline for halting all nuclear power plant operations in Taiwan. Backlash ensued and a 2018 referendum voted to repudiate the above-mentioned EA amendment. While two nuclear power plants remain in operation and geopolitical tensions continue to rise, the fate of nuclear power in Taiwan remains unclear at the time of writing (May 2023).

2. Market Structure, Supply and Pricing

2.1 The Wholesale Electricity Market

The wholesale electricity market only began to emerge in Taiwan when private entities were permitted to participate in the power generation market in 1995. Even then, private power producers were required to sell all their power wholesale to TPC at a price pre-determined by the power purchase agreement (PPA) between the private power producer and TPC. Following the 2017 amendment of the EA, renewable energy generation companies may sell power directly to end users and TPC was required to establish a public and transparent “power trading platform” to enable some level of market competition in the Taiwan electricity market. This power trading platform entered operation in November 2021 and includes a “day-ahead

supplemental services market” and a “reserve capacity market”. The transaction prices on the market are wholesale bid prices and fluctuate based on supply and demand.

The day-ahead supplemental services market refers to competitive bidding over power resources for the next day’s power requirements on a market matching platform. The products involved include modulated reserve capacity, instant reserve capacity and supplemental reserve capacity. As of January 2023, there are 35 market participants providing supplemental services for about 320 MW total capacity, and the total value of transactions executed has surpassed TWD600 million.

The reserve capacity market refers to the trading of reserve power storage capacity. Pricing is based on the value of such storage capacity for use as a long-term reserve. Transactions are matched during April to June of every year.

2.2 Electricity Imports and Exports

There is currently no basis in Taiwan law for engaging in the import and export of electricity, as Taiwan’s grid is completely isolated and has no connection to the grid in any other jurisdiction. Further, Taiwan’s relative lack of natural resources for power generation means virtually all of its generated power comes from imported fuel (eg, natural gas), so Taiwan power plants do not generate the surplus electricity that may be considered for export.

2.3 Supply Mix of Electricity

As mentioned in 1.2 **Principal State-Owned or Investor-Owned Entities**, coal- and gas-based power generation still makes up a significant majority (approximately 78%) of the supply mix in Taiwan. Hydropower comes a very distant second (approximately 8%) and nuclear has

fallen behind hydropower in recent years. The remaining 10% is evenly split between solar and wind.

2.4 Law Governing Market Concentration Limits

As mentioned in 1.1 **Law Governing the Structure and Ownership of the Power Industry** and subsequent relevant sections, TPC still plays a very dominant, central role in electricity supply in Taiwan – with only power generation and certain sales opened up to private entities. As such, Taiwan law has never contained any concentration limits regarding the percentage of a single entity’s control of the electricity supply.

General market concentration limits can be found in Taiwan’s main competition law, the Fair Trade Act (FTA) (see 2.5 **Surveillance to Detect Anti-competitive Behaviour**) – as regulated by the Taiwan Fair Trade Commission (TFTC), the competent authority for market competition in Taiwan – as well as in other laws and regulations for certain industries.

Please see 1.4 **Law Governing the Sale of Power Industry Assets** for the relevant turnover thresholds in M&A between entities in the power industry. As mentioned, a merger involving entities that exceed the aforementioned sales turnover thresholds will trigger a market competition review by the TFTC.

2.5 Surveillance to Detect Anti-competitive Behaviour Powers and Enforcement Procedure of the TFTC

The TFTC is authorised to investigate and penalise violations of the FTA, including concerted action, abuse of monopoly position, and other behaviour that restricts competition.

The TFTC does not have search and seizure powers but does have the power of administrative investigation, which includes the power to conduct on-site investigations, conduct interviews, and request the submission records and documents. If a competition law matter involves the violation of other laws, the TFTC will co-ordinate with the relevant regulatory authorities in order to determine the division of jurisdiction.

Abuse of Market Power in the EA

Article 23 of the EA provides that if an electricity enterprise has been penalised by the TFTC for abuse of market power and threatening the trading order, the MOEA may either directly revoke its licence or order the electricity enterprise to submit an improvement plan within a certain period of time. Subsequent failure to submit this improvement plan in a timely manner also constitutes grounds for the MOEA to revoke the licence.

Although there is no express delineation as to what the TFTC or the MOEA is responsible for in an investigation into an electricity enterprise's alleged abuse of market power, it is understood that the TFTC will take the lead in investigating conduct that may impede competition. By way of example, from 2012 to 2013, the TFTC took the lead in investigating allegations that the private power provider enterprises operating the nine fossil-fuel based power plants (see **1.2 Principal State-Owned or Investor-Owned Entities**) were engaging in concerted action against TPC and imposed a fine of more than TWD6 billion in total.

Penalties and Sanctions

The TFTC may order the offending enterprise to stop or rectify the anti-competitive conduct and may also impose a fine. A fine imposed for abuse of dominant market position or engaging

in concerted action is capped at TWD100 million, but for cases that are considered a serious violation of the law, such as the aforementioned investigation of the nine private power provider enterprises, the fine may be up to 10% of the violator's sales turnover in the past fiscal year. For vertical restriction to competition, the fine imposed is capped at TWD50 million.

For all anti-competitive practices except mergers, failure to comply with the TFTC's order to cease will result in criminal liability that is punishable by a prison sentence of no more than three years.

3. Climate Change Laws and Alternative Energy

3.1 Climate Change Law and Policy

Taiwan's current climate change statute is the Climate Change Response Act (CCRA). It was previously known as the Greenhouse Gas Reduction and Management Act when it became law in 2015 and the name was changed to the current version in January 2023. One of the primary long-term aims of the CCRA is to attain net zero greenhouse gas (GHG) emissions by 2025 and a number of administrative regulations were stipulated in relation to this goal.

The competent central authority for the CCRA is the Environmental Protection Administration (EPA) of the Executive Yuan. It is expected to be upgraded to ministry level by the end of 2023, whereupon a new "Climate Change Administration" will be established.

Under the CCRA, if an entity installs any source of emissions that fall within the categories specified by the EPA (eg, a turbine generator), an emissions check must be conducted and the

results entered into the EPA's designated data platform within a certain deadline. If the entity is installing or changing a source of emissions that reaches a certain scale, then it must offset the emissions based on a certain percentage of the increase in emissions. Instead of making an offset, the entity may choose to pay a sum agreed by the EPA. The entity may also propose a "Voluntary Emissions Reduction Programme" to the EPA to apply for reduction credits (Articles 21, 24 and 25).

The CCRA also authorises the EPA to impose carbon fees for "direct emissions" and "indirect emissions"; the exact rates are determined and published by the EPA's Tariff Review Committee. However, as of the time of writing, the EPA is still working on the rates and the carbon fee targets (Article 28). A generator operator may apply for reductions to the direct emissions from power generation by providing supporting documents that evidence the power consumed from such emissions (Article 28, Paragraph 2).

With regard to total emissions and a carbon trading platform, the CCRA authorises the EPA to set the total GHG emission control and establish a cap-and-trade scheme (Article 34). The CCRA also authorises the EPA to work with the Taiwan Financial Supervisory Commission (FSC) or other agencies with regard to voluntary reductions, allocation of emissions allowances and credit trading. As of late April 2023, the most recent development is that the EPA, the FSC, the MOEA and other agencies have entered into discussions on the matter and will be working with the Taiwan Stock Exchange Corporation to jointly establish a carbon credit trading exchange.

3.2 The Early Retirement of Carbon-Based Generation

As mentioned in 2.3 Supply Mix of Electricity, per TPC's data, just over 77% of Taiwan's power generation is fossil fuel-based today – of which about 34% is from coal and about 43% is from gas. The MOEA plans to reduce the total fossil fuel-based power generation to about 70% by 2030, with about 50% from gas and only 20% from coal, whereas renewables will cover 27–30%. Owing to the reliance on coal-based plants for power generation in the near future, there is no currently no law or programme in Taiwan that incentivises the early retirement of coal-based power plants.

That being said, the MOEA currently has no plans for the construction of any additional coal-based power plants and nine currently active ageing coal-based power plants will be shut down by 2030. TPC has said that it would not close the newer coal-based plants – this is down to power demands and also the newer plants' greatly reduced carbon footprint compared with the older plants.

3.3 Programmes for the Development of Alternative Energy Sources

As mentioned in 3.2 The Early Retirement of Carbon-Based Generation, the current plan in Taiwan is for the overall generation from renewable sources to reach about 30% of the total power generated by 2030 and further increase to more than 60% by 2050. Specifically, the REDA calls for attaining 27 GW in power output capacity from renewable energy facilities by 2025 – of which, 20 GW will be from solar (and increase by 2 GW each year until 2030) and 5.6GW will be from offshore wind farms (and increase by 1.5 GW each year until 2030). By 2050, the goal is for solar power to reach up to 80 GW, offshore wind power to attain 50 GW, and all other renew-

able energy generation (eg, geothermal, biomass and ocean power) to reach about 15 GW.

Taiwan has implemented a number of programmes to incentivise the development of alternative energy sources.

Feed-In Tariffs

TPC is obliged under law to enter into power purchase offtake agreements with entities operating renewable energy-based generators. The feed-in tariff (FIT) is announced by the MOEA (based on the Formula for Calculating Feed-In Tariffs of Renewable Energy Power) and, in principle, is applied to electricity generated from eligible renewable energy-based generator facilities – except for in circumstances prescribed by the law. By way of an example, the rate for installers of offshore wind turbines is TWD4.5085/kWh in 2023, whereas the rate for solar photovoltaics (PV) installers may vary – depending on the type of solar PV and capacity size – from TWD3.8680 to 5.8952/kWh. Unless circumstances prescribed by the law apply, 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. In 2012, for example, the MOEA implemented The Regulations on the Promotion of Offshore Wind Power System Demonstration – whereby incentives of up to 50% of the total installation cost were provided for demonstration offshore wind turbine generators. 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 TWD50,000/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. By way of an example, when retaining a foreign advisor to provide 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. Even if the service provided is not “technical” in nature, a foreign advisor who is also a for-profit entity may still be entitled to reduce the tax burden by deducting the relevant costs from taxable income or by applying the net profit margin and contribution margin ratio to determine the taxable income.

In addition, imported power generation equipment that is not manufactured in Taiwan 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 – again, subject to verification and certification by the MOEA.

Finally, the Income Tax Act also entitles a foreign for-profit entity engaged in international shipping, construction contracting, providing technical services or equipment leasing services to apply for a fixed percentage (10% for international shipping, 15% for all others) of income derived within Taiwan to be set by the tax authority as its income tax obligation if its costs and expenses are difficult to calculate.

Green Finance Action Plan

The government has implemented several measures encouraging financial institutions to extend credit and invest in the green energy industry, with the following results.

- On 28 January 2022, the FSC announced a domestic bank credit line incentive programme to entities engaging in the six key strategic industries, which include the green/renewable energy industry. As of the end of 2022, domestic banks have provided credit lines totalling TWD2.4 trillion to the green energy industry, which is an increase of 17% from the TWD2.04 trillion before the FSC's programme.
- As of December 2022, the amount of FSC-approved investment into green energy power plants from the insurance industry was about TWD16.15 billion – with two life insurance companies investing about TWD4.2 billion in offshore wind farms. Insurance companies have also invested a total of TWD76 billion in green bonds.
- As of December 2022, Taiwan has issued 138 bonds with a total value of TWD384.7 billion in relation to sustainable development (102 green bonds valued at TWD280.5 billion, 24 sustainable development bonds valued at TWD80.8 billion, ten social responsibility bonds valued at TWD19.9 billion, and two sustainability-linked bonds valued TWD3.5 billion).

4. Generation Facilities

4.1 The Construction and Operation of Generation Facilities

The principal laws governing the construction and operation of generation facilities are the EA and the RREE.

4.2 Obtaining Approvals for the Construction and Operation of Generation Facilities

The regulatory process is described in Article 3 of the RREE as part of the overall procedure for

registering an electricity generation enterprise. There are three stages – namely, applying for the establishment permit, applying for the construction work permit, and applying for the issuance of the licence. The details of each stage, however, will vary depending on the type of generation facility in question. As such, only the general rules that apply to most circumstances are described here.

Establishment Permit

During the establishment stage, the electricity enterprise needs to submit an application and supporting documents to the relevant industry authority or the county/municipal authority responsible for the approval of electricity enterprise matters. Among the supporting documents to be submitted are the generator facility establishment plan (including the finances plan) and the environmental impact assessment certification documents.

An environmental impact assessment is required if the generator facilities in question may negatively affect their surrounding environment. This includes offshore wind turbines, the installation of solar power facilities in key wetlands, or geothermal generator facilities with a capacity of 10 MW or greater. If the assessment concludes that the proposed facility will seriously impact the environment, a second-phase environmental impact assessment must be conducted, along with the performance of certain other obligations – for example, the publication of an environmental impact assessment explanatory report in the neighbourhood nearest the proposed facility site, followed by convening a public hearing. The electricity enterprise may go straight to convening the aforementioned public hearing if the second-phase environmental impact assessment is not required.

Relevant government bodies or local residents may submit their comments regarding the electricity enterprise's statements at the public hearing to the electricity enterprise within 15 days after the public hearing, along with a copy to the competent authority and the industry authority. The competent authority is responsible for inviting the industry authority, relevant organisations, scholars, experts and residents to present their comments after the public hearing.

Construction Work Permit

The establishment permit provides the electricity enterprise with a three-year period in which to obtain the construction work permit and commence construction of the generator facility. The application documents for the construction work permit include:

- the construction plan;
- approval/consent for use of the facility site;
- documents showing the convening of a local explanatory hearing, which is another public participation opportunity similar to the aforementioned public hearing during the establishment stage; and
- documents indicating approval/consent from indigenous tribes (if relevant).

The MOEA will issue the construction work permit after confirming that the application is compliant with the EA and the RREE.

The construction work permit has a five-year term for the construction of the proposed generator facilities. If extra time is needed, the enterprise must apply to the industry authority for an extension.

Issuance of the Electricity Generation Enterprise Licence

Within 30 days following the completion of the construction work, the electricity enterprise must submit a request for issuance of the electricity generation enterprise licence to the industry authority or the county/municipal authority responsible for the approval of electricity enterprise matters before commencing operations. Documents to be submitted include:

- the registered drawings and schematics;
- the recorded document certifying permission to install renewable energy generator facilities (if renewable generator facilities are involved);
- the executed power purchase agreement or the relevant certification documents or affidavits for participating in TPC's power trading platform (see 2.1 The Wholesale Electricity Market).

The electricity generation enterprise licence has a term of 20 years, which may be renewed one year prior to expiration for up to ten years per renewal.

4.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of Generation Facilities

There is no basis in the EA or the RREE for the relevant authority to stipulate specific terms and conditions that an electricity enterprise must meet in order to obtain the aforementioned establishment permit, construction permit or the electricity generation enterprise licence – only statutory requirements that an electricity generation enterprise operating the type of generator facility would have to comply with in all cases (eg, emissions requirements).

4.4 Eminent Domain, Condemnation or Expropriation Rights

The electricity generation enterprise generally has no expropriation-related power to take private land for its own use. Per Articles 38 and 39 of the EA, the electricity generation enterprise is allowed to use public land (including rivers, drains, bridge structures, levees, roads, parks and woods) for easement/access purposes only during installation or maintenance of its transmission lines and must notify the competent authority of the need to do so beforehand. If necessary, the electricity generation enterprise may lay the lines above or below private land/structures, but it must notify the owner or occupant of such land or structures at least seven days before commencing work.

However, as part of current policy to promote renewable energy, per Article 14, Paragraph 1 of the REDA, an electricity generation enterprise operating renewable energy generator facilities with a capacity greater than 2 kW may use private and public land for easement/access purposes in relation to its generator facilities as well as transmission lines.

As regards compensation, Article 41 of the EA simply states that the electricity generation enterprise must minimise its use of public or private land as much as possible and that compensation will be provided for any losses incurred. There is, however, no language in statute, administrative interpretations or court decisions as to how such compensation should be calculated. The only interpretation by the MOEA was dated in 2002 and merely stated that compensation will be provided based on the “actual damages incurred”.

4.5 Decommissioning a Generation Facility

In general, Taiwan has no rule obliging electricity generation enterprises to fund the decommissioning of its generator facilities. The electricity generation enterprise is obliged under Article 3 of the RREE to amend its registration information if there is a change to the type, capacity or location of its generator facilities. Decommissioning a primary generator facility also requires the electricity generation enterprise to submit the reason(s) for the decommissioning for approval.

If an electricity generation enterprise is looking to temporarily suspend or shut down its business, per Article 19 of the EA and Article 3 of the RREE, it must submit a termination or suspension plan to the local authority for approval up to six months prior to the suspension or shutdown. Once the local authority approves, the matter will be transferred to the industry authority for further review and approval. If the generator facilities are still functional, per Article 20 of the EA, the competent authority regulating the electricity enterprises will negotiate with other electricity generation enterprises to take over the operation of those facilities in order to maintain the supply of electricity.

On a related note, as Taiwan’s policy continues to move away from nuclear energy, the government has set up a decommissioning fund designed to assist TPC in the maintenance of nuclear plant safety during decommissioning and the disposal of nuclear fuel waste.

5. Transmission Lines and Associated Facilities

5.1 Regulation of the Construction and Operation of Transmission Lines and Associated Facilities

The EA and the RREE are the principal laws governing the construction and operation of transmission lines and associated facilities. However, the EA does not distinguish between transmission and distribution of power, so “transmission and distribution” is always grouped together in Taiwan. For ease of reference, only “transmission” will be used for the responses relating to transmission lines.

As described in **5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities**, an environmental impact assessment is required.

5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities

Although a regulatory process for the construction and operation of transmission lines and associated facilities exists in law, please note that Article 5 of the EA currently provides that an electricity transmission enterprise must be state-run and only one such entity may exist. As such, TPC is the only entity authorised to engage in such activities in Taiwan. As such, the following description of the process is for reference purposes only.

The Establishment Permit

Pursuant to Article 7 of the RREE, an entity intending to operate power transmission and dispatch shall submit the following documents to obtain an establishment permit:

- a power transmission operations plan;
- certification documents relating to the environmental impact assessment; and
- consent from the industry authority.

The establishment permit has a term of three years and may be extended once for up to two years.

An environmental impact assessment is required if the proposed transmission facility could negatively affect its surrounding environment. An environmental impact assessment is required for the installation of transmission lines carrying a voltage of 161kV or higher if the lines are 50km or longer (either overhead or underground) or if they “pass through land reserved for indigenous peoples”.

If the assessment concludes that the proposed facility will seriously impact the environment, a second-phase environmental impact assessment must be conducted along with the performance of certain other obligations – for example, the publication of an environmental impact assessment explanatory report in the neighbourhood nearest the proposed facility site, followed by convening a public hearing. If the second-phase environmental impact assessment is not required, the public hearing may be convened directly.

Relevant government bodies or local residents have up to 15 days following the public hearing in which to submit their comments regarding the transmission operator’s statements at the public hearing to the transmission operator, along with a copy to the competent authority and the industry authority. The competent authority is responsible for inviting the industry authority, relevant organisations, scholars, experts and residents to present their comments after the public hearing.

The Construction Work Permit

The transmission operator entity must then obtain the construction work permit and commence construction of the power transmission facilities during the three-year term of the establishment permit. The application documents for the construction work permit include the construction plan, approval/consent for use of the facility site and documents indicating approval/consent from indigenous tribes (if relevant). If such consent is required and obtained, a “mutual participation and profit-sharing mechanism” approved by the indigenous tribe involved should be attached as a condition of the construction work permit under Taiwan’s rules regarding obtaining the approval and participation of the indigenous peoples. However, there is no record of any such indigenous tribe “participation and profits-sharing mechanism” attached to any construction work permit obtained by TPC.

The construction work permit has a five-year term for the construction of the proposed power transmission facilities. The term may be extended by one year for as many times as needed.

The Issuance of the Electricity Transmission Enterprise Licence

Within 30 days following the completion of the construction work, the transmission operator must submit a request for an inspection of the constructed power transmission facilities to the competent authority responsible for the approval of electricity enterprise matters. Once the facilities pass the inspection, the electricity transmission enterprise licence will be issued and the facilities may commence operations. The electricity transmission enterprise licence has a term of 20 years, which may be renewed one year prior to expiration for up to ten years per renewal.

5.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of a Transmission Line and Associated Facilities

As no private entity can apply to become an electricity transmission enterprise, there is no precedent concerning the terms and conditions that may be imposed in the approval for the construction and operation of a transmission line and associated facilities. As mentioned in **5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities**, there is no record of any approval of a TPC power transmission facility project subject to an indigenous tribe participation and profit-sharing plan.

5.4 Eminent Domain, Condemnation and Expropriation Rights

The electricity transmission enterprise is under the same rules as the electricity generation enterprise with regard to the use of public land for easement/access purposes. Per Articles 38 of the EA, the electricity transmission enterprise may only use public land (including rivers, drains, bridge structures, levees, roads, parks and woods) for easement/access purposes during the installation or maintenance of its transmission lines and must first notify the competent authority of the need to do so. Per Article 39 of the EA, if necessary, the electricity transmission enterprise may lay the lines above or below private land/structures – as long as the lines will not interfere with the original use of such land/structure or the safety to do so – but it must notify the owner or occupant of such land or structures at least seven days before commencing work. If the owner or occupant objects, the electricity transmission enterprise may apply to the local competent authority for approval to commence work.

As TPC is the sole electricity transmission enterprise, compensation for damages incurred as a result of the aforementioned land use involves state compensation rules. As mentioned in the corresponding section in 4.4 **Eminent Domain, Condemnation or Expropriation Rights**, there is no express guidance available as to the standard or quantum of compensation if the land is privately owned – only that compensation should be provided based on the actual damages incurred. If the use involves state-owned, non-public land, however, Taiwan’s National Property Administration of the Ministry of Finance has published an administrative order regarding the possible forms of state compensation, which can be summarised as follows.

- No compensation is provided for overhead lines.
- For underground lines, compensation is paid pursuant to the “Fee-Charging Standards for Usage of Urban Roads” if the surface is a public-access road (but not an urban road). Otherwise, compensation is paid pursuant to sewer fee-charging standards. In principle, a lump sum will be paid based on a 50-year use.
- For utility poles and supports, a one-time compensation is paid out pursuant to compensation guidelines published by TPC.
- For transformer facilities, compensation is paid pursuant to the “Fee-Charging Standards for Usage of Urban Roads” or 5% of the reported valuation of the land lot in question. In principle, a lump sum will be paid based on a 50-year use.

5.5 Monopoly Rights to Provide Transmission Services

Currently, Articles 2 and 5 of the EA specifically stipulate that TPC is the sole entity authorised to engage in power transmission. As the geo-

graphic territory covers all of Taiwan, TPC has a state-authorised monopoly on transmission services in Taiwan.

5.6 Transmission Charges and Terms of Service

Article 49 of the EA provides that the MOEA shall establish the formulas for power transmission charges. The fee rates are discussed at review meetings attended by government agency representatives, experts, scholars and relevant private organisations invited by the MOEA and are updated and announced each year by the Electricity Tariff Council of the BOE.

Supplemental Service Fees

Article 9 of the EA provides that an electricity transmission enterprise may provide the necessary supplemental services for a fee to meet the needs of electricity generation enterprises and own-use generator facilities. The supplemental service fees should be based on the carbon emissions coefficient of the power generated and reviewed by the BOE Electricity Tariff Council.

As an example, for 2023, the supplemental service fee for “zero-carbon emissions” renewable energy “generated without using waste products such as garbage and tires” is TWD0.0207/kWh. The average fee across all fuel types is TWD0.0414/kWh.

Power Dispatch Fees

Article 10 of the EA provides that a renewable energy-based electricity generation enterprise or an electricity sales enterprise may request an electricity transmission enterprise to handle the distribution of the electricity that they generated or sold in exchange for paying a power dispatch fee.

The power dispatch fee is also dependent on the type of fuel used to generate the electricity. For 2023, the power dispatch fee for “zero-carbon emissions” renewable energy “generated without using waste products such as garbage and tires” is TWD0.008/kWh. The average fee across all fuel types is TWD0.0797/kWh.

Power Wheeling Fees

Article 10 of the EA provides that an electricity transmission enterprise engaged in power wheeling may charge the renewable energy-based electricity generation enterprise or the electricity sales enterprise a fee for such service.

The power wheeling fee is dependent on the type of fuel used to generate the electricity. For 2023, the transmission part of the wheeling fee for “zero-carbon emissions” renewable energy “generated without using waste products such as garbage and tires” is TWD0.0183/kWh and the dispatch part is TWD0.034/kWh. The average fee across all fuel types is TWD0.183/kWh for transmission and TWD0.3402/kWh for dispatch.

5.7 Open-Access and Non-discriminatory Transmission

Article 46, Paragraph 2 of the EA requires the electricity transmission enterprise to provide the electrical grid for use by electricity generation enterprises and electricity sales enterprises in a fair and transparent manner and to collect power wheeling fees without discriminatory treatment. However, this does not apply if there is proper cause and the competent authority responsible for regulating the electricity enterprises has approved of such conduct.

According to the publicly available data, at the time of writing (May 2023), no electricity transmission enterprise in Taiwan has ever received

permission to refuse to provide the electrical grid or wheeling services to a particular entity.

6. Distribution

6.1 Law Governing the Construction and Operation of Electricity Distribution Facilities

Please refer to 5.1 Regulation of Construction and Operation of Transmission Lines and Associated Facilities. The EA does not distinguish between transmission and distribution/dispatch – hence there are no separate laws or regulations for distribution/dispatch only.

6.2 Obtaining Approvals for the Construction and Operation of Electricity Distribution Facilities

Please refer to 5.2 Obtaining Approvals for the Construction and Operation of Transmission Lines and Associated Facilities.

6.3 Terms and Conditions Imposed in Approvals for the Construction and Operation of Electricity Distribution Facilities

Please refer to 5.3 Terms and Conditions Imposed in Approvals for Construction and Operation of a Transmission Line and Associated Facilities.

6.4 Eminent Domain, Condemnation or Expropriation Rights for the Construction and Operation of Electricity Distribution Facilities

Please refer to 5.4 Eminent Domain, Condemnation and Expropriation Rights.

6.5 Monopoly Rights for Electricity Distribution Entities

Please refer to 5.5 Monopoly Rights to Provide Transmission Services.

6.6 Electricity Distribution System Charges and Terms of Service

Please see 5.6 Transmission Charges and Terms of Service and 5.7 Open-Access and Non-discriminatory Transmission.

There is no mechanism in the EA whereby an entity can appeal or challenge the decision of the BOE's Electricity Tariff Council regarding fee rates. Although it is possible in theory to characterise the Electricity Tariff Council's fee rate decision as an "administrative decision" and thus seek administrative relief pursuant to the Administrative Procedure Act, there is no record of this having been successfully attempted.

Trends and Developments

Contributed by:

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Lee, Tsai & Partners is a Taiwan-based law firm that includes a team of eight attorneys specialising in the energy and power practice area. The firm has a strong track record in advising on government energy policies, especially when it comes to renewable energy and its development. Services include providing legal advice on energy policy and related laws and regulations, advising on investment in the renewable energy sector, obtaining regulatory approvals, and handling government investigations and disputes. Lee, Tsai & Partners' commitment to provid-

ing expert legal services to the energy sector makes the firm a reliable partner for clients seeking assistance in navigating the energy industry's complexities. Clients include renowned offshore wind power companies from Belgium, a well-known German multinational conglomerate corporation, a leading global technology firm, and a well-known US oil and gas company. Lee, Tsai & Partners currently has offices in Taipei, Shanghai, and Beijing – each key locations for serving clients from major countries and regions across North America, Europe, and Asia.

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Recent Alternative Energy Policy Trends

Taiwan imports 98% of the fuel it uses for power generation. The government therefore wishes to develop renewable energy-based power generation so that Taiwan can achieve energy self-sufficiency.

Net zero emissions by 2050

Under the Greenhouse Gas Reduction and Management Act (currently known as “the Climate Change Response Act”), the original plan was to reduce greenhouse gas (GHG) emissions in 2050 to 50% of GHG emissions levels 2005. However, in response to climate change, on Earth Day 2021 (April 22) the Taiwan government announced its ambition to attain a goal of net zero emissions by 2050 – along with a set of corresponding plans and amendments of law.

On 30 March 2022, the National Development Council announced the “Taiwan 2050 Net Zero Emissions Path and Policy Overview”, in which a change of energy type is the first of four main strategies. The National Development Council followed this up on 28 December 2022 with its “12 Key Strategic Action Plans for the Shift to Net Zero Emissions” – six of which involve the use of renewable energy sources such as wind, solar, hydrogen (fuel cells), geothermal and biomass, as well as energy storage, energy conservation, carbon capture and others. The key strategic action plans were finalised in April 2023.

The amendment of the Greenhouse Gas Reduction and Management Act on 10 January 2023 came with the aforementioned change of name to the Climate Change Response Act. The 2050 net zero emissions plan was also codified in the statute. The Climate Change Response Act further stipulates a tiered carbon credits system that will go live in 2024, thereby increasing the demand for green energy.

Green development

In 2017, the Taiwan government announced the complete phase-out of nuclear energy through the decommissioning of all nuclear power plants by 2025.

The push for offshore wind energy started in 2012, followed by solar energy in 2015. The goal is that, by 2025, renewable energy-based generation will be able to output 27 GW (about 20% of Taiwan’s total power generation capacity). There are further plans for renewable energy-based generation to reach 60-70% of Taiwan’s total power generation capacity by 2050.

To meet sustainable development targets, the Taiwan government is pushing for less reliance on fossil fuel-based sources in the hope of promoting low-carbon emissions in power generation. Owing to the greater carbon emissions from coal-based power plants compared with fuel gas-based plants, recent policy has naturally called for a reduction in coal-based power generation and an increase in natural gas-based power generation. As a result, there will not be any new coal-based power generation facilities constructed until 2025 and all current coal-based facilities will be decommissioned and converted to gas-based facilities. The aim is to increase natural gas-based power generation from 35% to 50% of Taiwan’s power generation capacity.

Amendment of law

Reform of the Electricity Act

The most important change in the 2017 amendment of the Electricity Act was to allow renewable energy generation enterprises to sell electricity directly to customers other than Taiwan Power Company (TPC). As TPC was the sole power transmission and distribution enterprise, as well as the sole power sales enterprise, independent power producers were forced to sell all

of their generated power to TPC. Following the amendment, however, renewable energy generation enterprises may either sell power to end users directly or through TPC's grid. Not only did this encourage the establishment of renewable energy generation facilities, it also created a power sales market. More and more power sales enterprises have appeared on the market ever since and, in 2021, TPC opened up a power trading platform.

Amendment of the Renewable Energy Development Act

The amendment of the Renewable Energy Development Act (REDA) in 2019 included:

- the aforementioned plan to increase to 27 GW output capacity by 2025;
- the ability to proceed in parallel or switch between direct/transfer supply and wholesale of renewable energy-based electricity to TPC;
- the requirement for certain high consumption users to install renewable energy-based generator facilities/power storage facilities or purchase a specific amount of renewable energy-based power and credits.

The most recent amendments to the REDA were passed by legislators on 29 May 2023. Key changes among this round include:

- requiring new buildings of a certain size to install a specified number of solar panels;
- removing restrictions on the installation of offshore wind power generation facilities in open sea areas;
- new stipulations in relation to geothermal energy, including surveys, development and operation; and
- fewer zoning restrictions on biomass-based power plants (ie, these plants are no longer restricted to industrial zones only).

Based on the foregoing, the strong promotion of offshore wind power and solar power use has been a clear policy trend in Taiwan in recent years. This shall be discussed further in subsequent sections.

Offshore Wind Power Development

Taiwan's offshore wind power development is split into three phases – the first of which began in 2012 and ended in 2021 with two pilot offshore wind farms that have a total power output of 237 MW. The second phase started in 2018 and planned for 5.5 GW capacity to come online by 2025; however, owing to COVID-19 pandemic-related delays, the second phase is now expected to be completed in late 2026.

The third phase started in July 2021 and planned for a total of 15 GW. This phase follows a more gradual structure, with an average of 1.5 GW capacity coming online each year and an initial 9 GW-capacity sub-phase completed and connected to the grid by 2026. There is no firm timeline set for the subsequent sub-phases at the time of writing (May 2023) – although the entire 15 GW-capacity phase is expected to be completed and connected to the grid by 2035. Another of the third phase's key differences is that the site of the wind farm may be freely chosen by the developer enterprise – with certain restrictions (eg, being at least 1.2 km away from any other wind farm) – instead of being predetermined by the government.

As such, Taiwan's current goals for offshore wind power output capacity are 5.6 GW by 2025, 13.1 GW by 2030, and 20.6 GW by 2035.

Outlook for developers

From the developer enterprise's perspective, the third phase of offshore wind power development

has more stringent requirements compared with the second phase.

Localisation requirement

After some initial pushback against the proposed requirement for third-phase enterprises to use “100% localised products”, the ratio is now reduced to 60%. The localisation requirement remains a significant step up from the second phase, nonetheless. The later the enterprise enters the offshore wind farm market, the more likely it is to face a higher localisation requirement.

Customer power purchase agreements and bank financing

Given that TPC is not automatically involved in the purchase and sale of power generated by third-phase wind farms, third-phase enterprises must enter into customer power purchase agreements (CPPAs) with end users on their own. This may affect the enterprise’s ability to receive financing, as it would depend on the creditworthiness of the other party to the CPPA rather than the state-operated TPC.

Interactions with government agencies

Offshore wind farm development not only involves an environmental impact assessment and passing a selection process held by the Ministry of Economic Affairs (MOEA)’s Bureau of Energy. The developer enterprise must also navigate issues concerning the fishing industry and the protection of ocean cultural resources, as well as military and airspace restrictions. This includes obtaining consent from the relevant authorities in charge of the aforementioned issues.

Outlook for government

The government needs to work on accompanying policies, rules and standards as the develop-

ment of Taiwan’s offshore wind power continues into its third phase.

Localisation requirement

The third-phase localisation requirement must be accompanied by a strengthening of the domestic supply chain so that it is possible to supply developer enterprises in the first place. It remains to be seen whether the government will provide additional policy support or assistance for domestic manufacturers or whether the government will loosen the localisation requirement in the future.

Share transfers

The MOEA recently approved a share transfer by a wind farm operator; however, the operator continued to suffer from financing and operational issues, which led to significant public outcry. As a result, it is unclear how the MOEA will handle future proposed share transfers by wind farm enterprises while the wind farm(s) they operate are still under construction.

Distributed grids, smart grids and power storage facilities

Taiwan’s current electrical supply structure is highly centralised. However, as more and more renewable energy-based operators connect their generation facilities to the main grid, the Taiwan government recognises the need and is actively pushing for the development of distributed grids, smart grids and power storage facilities in light of the intermittent availability periods and decentralised nature of renewable energy-based generation.

Solar Energy Development

The Taiwan government started promoting solar energy-related plans and policies in 2015. As of February 2023, the output capacity from solar power is approximately 10 GW, which is a sev-

en-fold increase compared with 2016. The current goals are 20 GW by 2025, 31 GW by 2030 and 40–80 GW by 2050.

Geographically, the central and southern regions of Taiwan see a substantial amount of sunlight on average, but the main challenge solar energy poses to a small island like Taiwan is obtaining the space needed to install the facilities. Indeed, the development of solar panel facilities have resulted in protests by environmental protection groups and other complaints from local residents. As a result, the most recent policy push is for solar panels to be installed on roofs rather than at ground level (per the aforementioned May 2023 amendment of the REDA).

For ground-level solar facilities, the focus is on a “fishery and electricity symbiosis system” – meaning the installation of solar panels on the soil at fish farms so that they act both as a generator and a form of climate control for the fishery. Other ground-level installations tend to be in places where environmental impact may be kept to a minimum – for example, idle land or land that is not suitable for farming activities.

Outlook for developers

From the developer enterprise’s perspective, the challenge is obtaining large pieces of land for development. This requires consent from the landowner, as well as engaging in communications with nearby residents concerning the impact of installing solar panels – hence these issues need to be considered prior to construction. Land that would incur relatively less push-back is generally located in areas that are isolated or lacking in public infrastructure.

Another point of consideration is how the generated solar power may be connected to TPC’s electricity grid. If it is located in a very out-of-the-

way place that TPC feeder lines cannot reach, then the developer enterprise may also need to consider the costs of constructing transformer substations and transmission towers.

Outlook for government

From the government’s perspective, it makes more sense to push for solar power development in areas that are less environmentally controversial. Such places often lack the necessary infrastructure, however. As soon as the need to lay down additional feeder lines or construct transmission towers or transformer substations is confirmed and decided, friction with residents who live near those planned structures will inevitably arise. As such, there are still a lot of points that require improvement, including pre-planning, co-ordination between central and regional government agencies, and assisting the developer enterprise in communicating with affected residents.

Conclusion

The 2050 net zero emissions policy and the Taiwan government’s push for energy independence mean the development of renewable energy-based generation – in particular, the use of wind power and solar power – looks set to continue at a rapid pace in order to reach these policy objectives.

Nevertheless, investment in offshore wind power or solar power in Taiwan currently remains fraught with relatively complicated issues that require significant planning and assessment in advance. This includes the need to co-ordinate with many different government agencies and comply with their corresponding formalities. However, besides offshore wind power and solar power, the Taiwan government is also starting to promote the development of other renew-

able energy sources – for example, geothermal, hydrogen fuel cells and biomass.

Owing to the intermittent and uncertain nature of renewable energy-based generation, Taiwan's electricity system must necessarily trend toward a more distributed/decentralised structure so that renewable energy may be generated closer to where the demand is located. Smart grids, power storage facilities, and the power trading platform are also areas of development that both public and private entities in Taiwan will need to actively focus on in the near future.

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