

THE ENERGY
REGULATION
AND MARKETS
REVIEW

TENTH EDITION

Editor
David L. Schwartz

THE LAWREVIEWS

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PREFACE

In our tenth year of writing and publishing *The Energy Regulation and Markets Review*, the most pressing global concerns have again revolved around the covid-19 pandemic, which has slowed infrastructure development globally. Accordingly, many of our contributing authors have emphasised concerns associated with the effects of the crisis on energy demand and consumption, and delays in the development of infrastructure. Beyond this crisis, we have seen many other significant geopolitical changes that have added uncertainties to global energy policies. For example, oil prices have hit record lows (hitting negative values in April of 2020), which has slowed exploration and production efforts, and has threatened economic stability for countries that depend upon oil revenues. The United Kingdom is transitioning out of the European Union (a process known as Brexit), creating uncertainties regarding the future of the UK's energy policies and its coordination and cooperation with the European Union, including with respect to commitments to reduce greenhouse gases (GHGs). Following the end of the Trump administration's 'America First' trade policies, the Biden administration is seeking to reassure US allies and historical trading partners and re-commit to the 2015 Paris Agreement. The 2011 Fukushima nuclear incident continues to affect energy policy in many countries. Finally, there are continued efforts to liberalise the energy sector globally.

I CLIMATE CHANGE DEVELOPMENTS

We continue to see significant carbon reduction efforts globally, including increased use of renewable resources, and measures to improve energy efficiency and reduce demand.

In the United States, contrasting with the Trump administration's support for fossil fuels, the Biden administration has committed to being a leader in the fight against climate change. While coal and other aged fossil fuel plants continue to retire at an unprecedented rate (due primarily to the economics of those facilities), the Texas winter storm in February 2021 raised some questions about whether renewable resources alone will be sufficient for long-term reliability. Many states have pushed for the procurement of thousands of megawatts of renewable resources, including from new offshore wind development projects on the east coast and, in May 2021, the US Bureau of Ocean Energy Management granted its first approval for the Vineyard Wind offshore project. The Federal Energy Regulatory Commission has continued to struggle with whether and how to impose regulatory restrictions on the ability of state-subsidised renewable energy projects to clear in the regional capacity markets through a minimum offer price rule to mitigate buyer market power.

Despite Brexit, the United Kingdom's renewable energy targets have already exceeded those of the European Union. France is seeking to double its wind and solar capacity and President Macron has announced a goal to close the remaining coal plants by 2022. Italy had

previously targeted a 28 per cent reliance on renewable energy by 2030 but is now working to reach the 32 per cent target adopted by the European Union. Belgium has continued its significant offshore wind procurement efforts, and is seeking to reduce subsidies in future procurements. While Germany has had difficulty meeting its previous emissions reductions goals, it has now set a target of 2038 for the phase-out of coal power plants, and remains focused on the continued development of renewable generation, energy efficiency and conservation, as well as energy storage technologies. In Portugal, carbon emissions dropped by 7 per cent, perhaps in part due to the covid-19 pandemic. Poland has been struggling to meet the European Union renewable energy targets but has plans to develop offshore wind generation.

Japan has continued its efforts to develop solar and wind resources, including opening new sea areas for offshore wind. But the shutdown of most of its nuclear generation has resulted in a significant reliance upon natural gas, including liquefied natural gas, and reductions in renewable energy prices have caused a slowdown in new solar and wind development. Japan has long utilised a feed-in tariff mechanism to encourage renewable development, and in 2022 will implement a feed-in premium to further encourage renewable investment. China continues to have ambitious renewable energy goals, aiming for an emissions peak by 2030, carbon neutrality by 2060 and a goal of 15 per cent of generation supplied by non-fossil fuel generation. Taiwan is seeking 20GW of solar PV installed capacity by 2025, and is looking to develop 5.5GW of offshore wind capacity.

There remains significant debate in Australia regarding the role of gas and coal in the energy landscape, which has led to a patchwork of national and state policies that points to continued uncertainty regarding Australia's commitment to carbon reduction. Malaysia continues its efforts to encourage greater entry into the renewable energy market and has approved 349 new renewable projects over the last decade.

The United Arab Emirates aims to reduce its carbon footprint by 70 per cent by relying on 50 per cent renewable energy by 2050, and Abu Dhabi is seeking to reduce electricity consumption by 22 per cent by 2030. In Brazil, hydroelectric resources constitute more than half of its installed generation capacity, and efforts continue to increase wind and solar generation as the cost of renewable generation has decreased.

II INFRASTRUCTURE DEVELOPMENT

The covid-19 pandemic has slowed infrastructure development for many countries, particularly those in which a reliable energy supply remains the primary concern, regardless of fuel source. As less than half of Myanmar is connected to the grid, there are continued efforts to electrify remote parts of the country (55 per cent by 2021 and 100 per cent by 2030). Lebanon has been relying upon floating generation barges to increase electricity supply, but now faces the risk of having some of these barges leave Lebanese shores due to the government's failure to make payments to the barge owners.

III NUCLEAR POWER GENERATION

Nine years after the Fukushima disaster, Japan has stopped operations at all but seven of its 36 nuclear power stations, and 11 nuclear power stations are in the process of being reviewed for restart under Japan's stringent new safety standards. Germany continues efforts to phase out all nuclear generation by 2022, and Belgium's nuclear plants have often been offline

for maintenance for technical issues in the past few years. France had previously sought to eliminate nuclear generation by 2025 but has extended that date. South Korea has continued its efforts to phase out nuclear power (replacing nuclear plants with new renewable facilities over time). South Africa's nuclear ambitions appear to be on hold at least until 2030.

However, the phasing out of nuclear energy is not universal. The United Arab Emirates' new 5,600MW Barakh nuclear power station is almost complete and one of its units is already operational. When all units are online, Barakh will supply 25 per cent of the emirates' electrical needs. Poland still intends to explore the development of nuclear power in the future, with a target date for the first unit in 2033. In the United States, even though the early retirement of certain nuclear plants has been driven by cost and power market considerations (rather than safety concerns), some states have passed legislation to subsidise nuclear energy to allow owners to continue to operate through zero emissions credit programmes, including Illinois, New York, New Jersey and Ohio.

IV LIBERALISATION OF THE ENERGY SECTOR

We have seen significant energy sector regulatory reforms in many countries. The European Union has sought to continue efforts to centralise the regulation of the EU energy sector. France has taken significant steps towards further liberalisation of its energy sector. Japan has fully liberalised its electricity and gas sectors and is encouraging market entry. Australia has opened access to transmission through regulatory reforms to encourage entry into the generation market and is undertaking significant energy market reforms to send more accurate price signals to market participants. Brazil continues its efforts to implement net metering regulations. China has reduced subsidies for renewable energy, price transmission and distribution rates based upon a cost-plus regulatory methodology, and has implemented a market-priced mechanism for pricing coal-based generation. The United Kingdom has implemented a competitive tender process for the development of offshore transmission. In the United States, while states have continued to subsidise nuclear and renewable generation, the Federal Energy Regulatory Commission has permitted certain regional markets to implement minimum offer price rules to combat buyer-side mitigation in an effort to maintain competitive capacity markets.

I would like to thank all the authors for their thoughtful consideration of the myriad interesting, yet challenging, issues that they have identified in their chapters in this tenth edition of *The Energy Regulation and Markets Review*.

David L Schwartz

Latham & Watkins LLP

Washington, DC

May 2021

MALAYSIA

Richard Khoo Boo Hin and Karyn Khor¹

I OVERVIEW

Power generation in Malaysia has historically been reliant on fossil fuels such as natural gas and coal. Until 2010, the country's reliance on natural gas as an energy source steadily increased, and at the end of that year, natural gas accounted for 71,543ktoe² of the 106,794ktoe of all energy produced nationwide.³ However, Malaysia is now gradually working towards reducing its dependency on fossil fuels and developing its renewable energy market infrastructure. The Energy Commission of Malaysia (the Commission) has, to date, held four tenders for large-scale solar (LSS) projects, in 2016, 2017, 2019 and 2020. As of 2018, the country's energy grid generation mix has comprised 29.4 per cent natural gas, 45.9 per cent coal, 7.8 per cent fuel oil and diesel, and 16.9 per cent renewable resources, of which 15.7 per cent was comprised of hydropower, the remainder being sourced from biodiesel, geothermal, solar energy, biomass and biogas.⁴ In 2018, Malaysia announced that it had set a target of 20 per cent renewable energy in its generation mix by 2025.

The national electricity utility company, Tenaga Nasional Berhad (TNB), remains the largest power generation company in Malaysia but several other independent power producers operate in Malaysia, such as YTL Power, Genting Sanyen, Malakoff and Edra Global. At the time of writing, we understand that the general policy of the government is that foreign equity participation in power generation projects is capped at 49 per cent and that exceptions to this policy will be considered case by case.

II REGULATION

i The regulators

The energy market in Malaysia and its participants are subject to a great deal of legislation governing the supply of electricity generally and the mining of energy resources. The principal laws regulating the energy sector in Peninsular Malaysia and Sabah⁵ are as follows:

- a the Electricity Supply Act 1990 (ESA);
- b the Renewable Energy Act 2011 (REA);

1 Richard Khoo Boo Hin is a partner and Karyn Khor is a senior associate at Skrine.

2 ktoe = kilo tonnes of oil equivalent.

3 PricewaterhouseCoopers, 'The Malaysian Oil & Gas Industry: Challenging times, but fundamentals intact' (May 2016).

4 Wood Mackenzie, 'Malaysia power and renewable markets long-term outlook 2019' (June 2019).

5 On 1 September 1990, legislative powers in respect of energy laws in the state of Sarawak were delegated to the local state authority.

- c* the Environmental Quality Act 1974;
- d* the Gas Supply Act 1993;
- e* the Occupational Safety and Health Act 1994;
- f* the Petroleum and Electricity Control of Supplies Act 1974;
- g* the Petroleum Development Act 1974;
- h* the Petroleum (Safety Measures) Act 1984; and
- i* the Factories and Machinery Act 1967.

The legislation listed above also requires compliance with the regulations, orders, rules and other sub-legislation made thereunder. The most relevant of these are as follows:

- a* Efficient Management of Electrical Energy Regulations 2008;
- b* Electricity Regulations 1994;
- c* Gas Supply Regulations 1997;
- d* Licensee Supply Regulations 1990;
- e* Petroleum Regulations 1974;
- f* Renewable Energy (Feed-In Approval and Feed-in Tariff Rate) Rules 2011;
- g* Renewable Energy (Renewable Energy Power Purchase Agreement) Rules 2011; and
- h* Renewable Energy (Technical and Operational Requirements) Rules 2011.

The sub-legislation deals in much greater detail with the practicalities of complying with the laws and include regulations on, inter alia, safety, licensing, management of supply, transport and transmission, technical and operational requirements and exemptions. The laws may also empower the relevant ministers or regulatory authorities to make further rules, guidelines or directives in respect of their regulatory sphere.

There are multiple regulatory authorities in Malaysia overseeing the various segments of the energy sector. The Commission is the primary regulator of the energy and gas supply in Peninsular Malaysia and Sabah⁶ and is empowered with the following functions, inter alia:

- a* to advise the Minister of Energy and Natural Resources (the Minister) on all matters concerning national policy objectives for energy supply activities;
- b* to advise the Minister on all matters relating to the generation, production, transmission, distribution, supply and use of electricity as provided under the electricity supply laws and the supply of gas through pipelines and the use of gas as provided under the gas supply laws;
- c* to promote and safeguard competition and fair and efficient market conduct or, in the absence of a competitive market, to prevent the misuse of monopoly or market power in respect of the generation, production, transmission, distribution and supply of electricity and the supply of gas through pipelines;
- d* to promote the use of renewable energy and the conservation of non-renewable energy; and

⁶ The regulation of energy and electricity in the state of Sarawak is under the purview of Sarawak's Ministry of Utilities, with Sarawak Energy Berhad being the primary supply authority. Additionally, Sarawak has its own state laws for environmental protection and occupational health and safety.

- e* to promote research into, and the development and the use of, new techniques relating to:
- the generation, production, transmission, distribution, supply and use of electricity; and
 - the supply of gas through pipelines and the use of gas supplied through pipelines.⁷

The Commission reports to the Malaysian Ministry of Energy and Natural Resources (the Ministry of Energy) and is responsible for the oversight of all elements of the industry from tariffs and licensing to consumer safety. The Commission works in close cooperation with the Sustainable Energy Development Authority of Malaysia (SEDA), which is a statutory body formed under the Sustainable Energy Development Authority Act 2011 to administer and manage the implementation of the feed-in tariff mechanism under the Renewable Energy Act 2011 (see Section V). In April 2018, the Commission implemented a single buyer regime by establishing an entity known as the Single Buyer, which would be responsible for managing the procurement of electricity and related services in Peninsular Malaysia, which includes scheduling, procurement and settlement, and registration under the Commission's Single Buyer rules.

With regard to hydrocarbon-sourced energy, a company seeking to participate in the extraction of oil and gas in Malaysia will generally do so by entering into production-sharing contracts, joint operating agreements or farm-out agreements with Petroliaam Nasional Bhd (PETRONAS),⁸ and a PETRONAS licence is required to operate a business to process or refine petroleum, or to market or distribute petroleum or petrochemical products.⁹ More recently, Sarawak, a state in east Malaysia, has developed a regulatory role in gas distribution within the state via Petroleum Sarawak Bhd (PETROS).

ii Regulated activities

The generation and supply of electricity

The construction, operation, management and use of electrical installations, plants and equipment designed for the supply or use of electricity requires a licence from the Commission.¹⁰ There are two main types of licences issued under the ESA ("ESA licences"):

- a* licences for private installations, meaning any installation operated by a licensee or owner solely for the supply of energy to and use on the licensee's or owner's own property or premises, or, in the case of a consumer, taking electricity from a public installation or supply authority for use only on the licensee's or owner's property or premises; and
- b* licences for public installations, meaning any installation operated by a licensee for the sale and supply of electricity to any person other than the licensee.

The ESA provides that, except where expressly approved by the Minister, the maximum period for which such a licence may be granted is 21 years,¹¹ and the licensee shall be required to pay an annual fee for the licence. The Commission may attach such terms and conditions

7 Energy Commission Act 2001, Section 14.

8 Petroleum Development Act 1974, Section 2.

9 *id.*, at Section 6.

10 Electricity Supply Act 1990, Section 9.

11 *id.*, at Section 9(4).

to the licence as it sees fit, but generally speaking the licences are non-transferable, and will state, inter alia, the area of supply, the declared and permitted voltage, and the maximum charges that consumers may pay for the electricity. The licensee must also comply with the provisions of the Commission's guidelines and directives (for example, the Guidelines for Single Buyer Market (Peninsular Malaysia)) and those of the Grid Code Operator.

A person seeking an ESA licence applies via the Commission's online application system. Although neither the ESA nor the rules and regulations issued thereunder expressly impose any ownership or equity limitations on the applicant, typically, limitations are set out in the terms and conditions of licences and other regulatory approvals, or may be contained in the provisions of the power purchase agreements (PPAs) signed between the independent power producers (IPPs) and TNB.¹² As at the time of writing, current policies dictate that foreign equity in any local power project is capped at 49 per cent, and exceptions are only granted on a case-by-case basis.

A company that has obtained a feed-in tariff approval from SEDA (see Section V.i) for any of the following types of public renewable energy installations may apply to the Commission for a provisional licence:

- a* biogas installations;
- b* biomass installations;
- c* solar photovoltaic installations; and
- d* small hydropower installations.

Provisional licences are intended to facilitate the development of a renewable energy project as they enable the operator to apply for financial incentives and programmes before the construction and operation of the facilities prior to getting a 'permanent' licence. The Commission has stated that any company that requires a bank loan for the project and wishes to obtain a provisional licence is required to have a paid-up capital of at least 2 per cent of the total cost of the project, or 200,000 ringgit, whichever is the greater.¹³

Generation and supply of gas via pipelines (for private utilities and supply to consumers)

The Gas Supply Act 1993 (GSA) regulates delivery of gas to consumers via pipelines, downstream from the connection flange of the loading arm at the regasification terminal, or the last flange of the gas processing plant or onshore gas terminal.¹⁴ Prior to 2016, there were only two types of licences for the supply of piped gas in Peninsular Malaysia:

- a* private gas licence – allowing its holder to supply and use piped gas on its own premises (e.g., restaurants); and
- b* gas utility licence – allowing licence holders to supply gas via pipelines to third parties for their use.

Historically, power producers and industrial consumers of gas were only able to source gas from PETRONAS. However, as part of the Tenth Malaysia Plan¹⁵ and the country's New Energy

12 However, the Energy Commission's Guidelines on Large Scale Solar Photovoltaic Plant For Connection to Electricity Networks do prescribe a 49 per cent foreign equity limit for large-scale solar plant projects.

13 Commission Guidelines on Application for a Provisional Licence.

14 Section 1(3), Gas Supply Act 1993.

15 2011–2015.

Policy, the government has opened up the gas supply market to manage the growing demand for energy and gas in Malaysia and encourage economic growth. In 2016, the GSA was amended to provide more opportunities to liberalise the downstream gas markets. Following these amendments, the Third Party Access System (the TPA System) has been implemented since 2017 in all states in Malaysia except Sarawak, whereby new suppliers can bring liquefied natural gas into Malaysia via the regasification terminals for later distribution to Malaysian buyers. The TPA System was implemented with the aim of permitting third parties to have access to and manage gas distribution networks thereby promoting competition in Malaysian gas markets. In late 2019, TNB Fuel Services Sdn Bhd took delivery of the very first gas shipment under the TPA System from Shell Malaysia Trading Sdn Bhd at a price that is below the regulated gas price, marking the start of the next phase of TPA implementation in Malaysia.

To participate in the TPA System, interested parties must obtain the relevant licence, or licences, from the following list, depending on the activity to be carried out:

- a* distribution licence;
- b* import into regasification terminal licence;
- c* private gas licence;
- d* regasification licence;
- e* retail licence;
- f* shipping licence; or
- g* transportation licence.

Except for private gas licences and any other circumstances as may be determined by the Commission, an entity may only hold one licence at any particular time.¹⁶ The tariff for utilisation of gas facilities will be determined by the Commission, but TPA System licensees will be able to negotiate gas prices with buyers on a willing-buyer willing-seller basis, albeit the government retains the right to regulate the price of gas to retail customers as necessary to protect consumer interest.

To obtain a licence under the GSA, the applicant must:

- a* be a Malaysian-incorporated company or, if incorporated outside Malaysia, must be approved by the Commission;
- b* meet the minimum paid-up capital stipulated by the Commission (this ranges from 1 million to 5 million ringgit and depends on the type of licence being applied for);
- c* not already hold any other GSA licences, and the applicant's directors must not hold any directorships of other GSA licence holders or applicants;
- d* have sufficient financial capability;
- e* have sufficient relevant technical capability; and
- f* comply with such other requirements as prescribed by the Commission from time to time.¹⁷

16 Energy Commission Guidelines on Licence Application (Ver. 1 July 2020).

17 Energy Commission Guidelines on Licence Application Pursuant to Section 11A of Act 501.

Presently, licences shall not be granted to any person who is not incorporated in Malaysia, or who does not have a place of business in Malaysia (except for a licence for importing gas into a regasification terminal).¹⁸ Licences granted under the GSA are not transferable or assignable without the written consent of the Commission or the Minister.¹⁹

An application to the Commission for a licence for the distribution, retail or use of gas must include details regarding the area of supply; the site location plan and piping layout; the technical specifications of the piping system; and any other information that the Commission may request to enable it to organise and supervise the national gas distribution network.²⁰

Change of control or ownership

In Malaysia, licences are non-transferrable, and hence any acquirer of an energy business must procure its own energy licences (or, if the acquisition is by way of sale of shares in the licensee, the consent of the Commission and other stakeholders will likely be required). Further, while the licences discussed above relate to the construction of power plants and power installations, and to the supply, sale, distribution and transmission of energy, other ancillary licences and certifications may be relevant to a prospective market entrant, for example, approvals from the Department of Environment of Malaysia or the Malaysian Department of Occupational Safety and Health. As a condition of the ESA licences or PPAs, a licence holder would generally also be required to employ certain technically skilled and qualified persons, and although the government has been gradually liberalising professional services in Malaysia – including engineering and construction services – the relevant laws continue to prescribe minimum qualification requirements that are favourable to Malaysians or require local participation (e.g., a minimum period of residency in Malaysia, or a minimum percentage of Malaysian or Bumiputera²¹ equity in an applicant company). Certain other laws, such as the Factories and Machinery Act 1967 and the Petroleum (Safety Measures) Act 1984, also contain provisions addressing licences, approvals, certifications and registrations relating to safety, transportation and other matters that are ancillary, but nonetheless essential, to any party interested in entering the Malaysian energy market.

III TRANSMISSION/TRANSPORTATION AND DISTRIBUTION SERVICES

i Vertical integration and unbundling

The electricity transmission network in Peninsular Malaysia, known as the National Grid, is owned and operated by the national energy company, TNB. IPPs sell the electricity generated to the Single Buyer unit of TNB at a pre-determined tariff as set out in their respective PPAs. Likewise, the electricity grid that supplies power in Sabah is operated by Sabah Electricity Sdn Bhd (SESB), a company owned partly by TNB and partly by the Sabah state government, whereas the grid in Sarawak is owned by state-owned Sarawak Energy Berhad. These companies collectively have a monopoly on the ownership and operation of Malaysia's power grids and are responsible for their construction, operation and maintenance. Since the

18 Gas Supply Act 1993, Section 11B(2)(b).

19 *id.*, at Section 11B(4).

20 *id.*, at Section 11A.

21 The term 'Bumiputera' or 'Bumiputra' is used to describe Malays and the indigenous peoples of Malaysia.

privatisation of power production in the early 1990s, the upstream market for the generation of electricity remains highly competitive with a mixture of local and foreign power producers and a competitive bidding system for power plant projects.

Regarding gas, several licences have already been issued by the Commission under the GSA since the implementation of the TPA System. A full list of licensees is available at the Commission's official website. Gas Malaysia Bhd operates and maintains the Peninsular Gas Utilisation pipeline system pursuant to its distribution licence, and its subsidiaries, Gas Malaysia Distribution Sdn Bhd and Gas Malaysia Energy and Services Sdn Bhd, have successfully obtained gas distribution and shipping licences, respectively, from the Commission. Sabah Energy Corporation Sdn Bhd (SEC) operates and maintains the gas distribution pipelines in Sabah.

ii Transmission/transportation and distribution access

Save in very limited circumstances, an ESA licence holder has a duty to supply electricity to the premises to which its licence relates upon receiving a notice of request from the owner or occupier of those premises.²² The GSA imposes a similar duty on the holder of a gas retail licence to supply gas to (1) a consumer's premises and (2) any regasification, transportation or distribution licensee, upon receiving a notice of request from such person.²³

iii Rates

The Commission is empowered to determine the tariffs for both electricity and gas under the ESA and the GSA, and to issue guidelines for tariffs and charges, including the methodology, principles or categories of tariffs and charges, and the duration for the imposition and review of tariffs and charges.

Electricity prices are regulated by the Malaysian government, via the Commission. Similarly, the tariffs for gas supply are vetted and approved by the Commission.

iv Security and technology restrictions

In the case of a lockout, strike or other emergency, or if the constitutional monarch of Malaysia (the Yang di-Pertuan Agong) decides that public interest so requires, he may authorise the Commission to suspend an ESA licence or take temporary possession of any power installation or gas pipeline, and operate it in a manner that the Commission sees fit. Alternatively, he may order that the licence and use of the installation or pipeline be withdrawn either partially or completely.

As to information security, both the ESA and the GSA have similar information security provisions, requiring a ESA or a GSA licensee to be responsible for the preservation of confidentiality and integrity of its information, information systems and supporting network infrastructure pertaining to its duties and other matters as provided under the relevant Act. A licensee must take all necessary measures to protect the relevant information from unauthorised access, intrusion or removal or any risk thereof, and in the event that they become aware of any incident that may interfere with or affect the performance of their activities under the licence, they are obliged to inform the Commission immediately.²⁴

22 Electricity Supply Act 1990, Sections 24 and 25.

23 Gas Supply Act 1993, Section 14, subject also to Section 15.

24 Electricity Supply Act 1990, Section 52A and Gas Supply Act 1993, Section 37G.

IV ENERGY MARKETS

i Development of energy markets

Prior to the 1990s, TNB had a monopoly over the electricity supply industry in Malaysia, at the generation, transmission and distribution levels. In 1993, the first electricity purchase agreement was signed in Malaysia, with Malaysia's first IPP, and since then the Malaysian energy market has been gradually liberalised – the Commission has awarded power plant projects to companies via a mix of direct awards and, more frequently of late, a competitive bidding system. The Malaysian government has absolute discretion in the granting of these projects. The Commission's position has been that direct awards of power plant projects are the exception and not the rule;²⁵ to date, there have been three recorded instances in which a power plant project was awarded by direct negotiation with the company involved, as opposed to a bidding process.

The current Malaysian energy sector framework is based on a single-buyer model whereby IPPs and the power generation arm of TNB are responsible for generating electricity, which is sold to the Single Buyer unit of TNB (in Peninsular Malaysia), Sarawak Energy (in Sarawak) and the SESB (in Sabah). The single-buyer units are thereafter responsible for distribution and retailing electricity in their respective jurisdictions. Malaysia also has a number of captive power plants; however, captive power remains a marginal contributor to Malaysia's total energy generation capacity. The past two years have begun to show the fruits of the Malaysian government's efforts to push the country towards renewable energy – the commissioning of a number of LSS projects meant that the National Grid saw an increase in renewable energy capacity from 179MW in 2018 to 725MW as at 2019, out of a total installed capacity of 26,132MW²⁶.

The Commission also introduced a New Enhanced Dispatch Arrangement (NEDA) system in 2015, which allows IPPs to supply power to the National Grid without necessarily entering into a PPA. (Although existing IPPs may also participate, they must at all times comply with the terms of their respective PPAs as well and, in the event of conflict, the PPA terms will prevail.) NEDA seeks to reduce energy prices via a system whereby energy generators bid daily on variable operating rates, according to the rules set by the Commission. NEDA was fully launched in June 2017, and in May 2019 the guidelines were updated to include 'solar power producer' as a new category of NEDA participant. Notwithstanding the implementation of NEDA, as at the time of writing the energy tariff continues to be regulated by the government via an incentive-based regulation framework.²⁷

Prior to 2015, no PPAs had ever been granted to a foreign company (i.e., a company owned and controlled by non-Malaysians). Government policies required an IPP operator to have no more than 49 per cent of its equity in the hands of non-Malaysian entities. At the end of 2015, the government made an exception for the acquisition of 1Malaysia Development Bhd's power assets by China General Nuclear for 9.83 billion ringgit, making it the largest

25 Cecilia Kok, 'EC: Competitive Pricing Still the Rule', *The Star Online* (9 September 2016). See also Wan Ilaika Mohd Zakaria, 'Energy Commission Prefers Competitive Bids', *The Sun Daily* (21 November 2017), at www.thesundaily.my/news/2017/11/21/energy-commission-prefers-competitive-bids.

26 Energy Commission Annual Report 2019.

27 Tenaga Nasional Berhad, press release, 'Implementation of Imbalance Cost Pass-Through Mechanism for January-June 2021' (23 December 2020), at <https://www.tnb.com.my/announcements/implementation-of-icpt-mechanism-for-jan-june-2021>.

acquisition by value in the history of Malaysia's energy industry and the first – and so far, the only – instance in which the Malaysian government has made an exception to the foreign equity rule and allowed a non-Malaysian entity to acquire 100 per cent of the equity in an IPP.²⁸

The Malaysian government continues to promote large-scale renewable projects. On 12 March 2021, the Commission shortlisted 30 companies in Malaysia's fourth LSS bidding cycle, with commissioning expected to commence in late 2022 or early 2023.²⁹

ii Energy market rules and regulations

The laws and authorities regulating the generation of energy also govern the supply and sale of that energy. An electricity generation licence authorises its holder to sell energy as well. Energy continues to be sold to consumers at fixed, government-approved tariff rates. Notwithstanding Malaysia's policy of privatisation, which has been in place in 1988, competition in the energy market lies mainly at the level of bidding for power projects and power generation, and has little direct effect on the price paid by end consumers for their electricity (although the generation capacity in the country at a particular point in time may affect the government's decisions on approved tariff rates and consumer incentives).

iii Contracts for sale of energy

In Peninsular Malaysia, historically, electricity generated by the IPPs is sold to the Single Buyer unit of TNB (as offtaker) pursuant to the terms of their respective PPAs. TNB then sells on the electricity to the end consumers. IPPs do not enter into contracts with individual consumers, save in highly exceptional circumstances (for instance, if the power is generated by a captive plant, to provide power to users who do not have access to the national power grid).

Historically, all gas used in the generation of electricity is sold by PETRONAS to IPPs pursuant to the terms of the Gas Sales Agreements between PETRONAS and the IPPs, and in accordance with the Commission's Guidelines for Implementation of Gas Framework Agreement. The Single Buyer determines the quantity of gas that the IPPs require to generate their allocated capacity, and arranges for the delivery and offtake of the same as between PETRONAS and the IPPs. The commercial terms of the individual gas sales agreements are negotiated between PETRONAS and the IPPs, but these agreements are fairly standard and generally there is little room to negotiate on non-commercial points. The liberalisation of the market for the supply of gas (see Section II.ii) has recently opened up the possibility for third parties to sell on the gas to consumers through PETRONAS' piping system. However, the capacity for negotiation of the terms of supply is restricted by the fact that consumers do not have a choice of supplier; they obtain their gas supply from whichever retail licensee owns the

28 Elffie Chew, 'Malaysia's 1MDB Sells Power Unit in Step to Wind Down Operations', Bloomberg (23 November 2015), at <https://www.bloomberg.com/news/articles/2015-11-23/1mdb-sells-power-unit-to-china-general-nuclear-for-2-3-billion>.

29 Energy Commission, press release, 'Request for Proposal (RFP) for the Development of Large Scale Solar Photovoltaic (LSSPV) Plants in Peninsular Malaysia for Commercial Operation in 2022/2023 (LSS@ MEnTARI) Selection of Shortlisted Bidders' (12 March 2021).

pipng system providing the gas to the consumer's premises. The government also maintains that it has the power to determine gas prices and will do so when it deems it necessary to protect the consumer's interests.³⁰

iv Market developments

Net Energy Metering

Under the Net Energy Metering (NEM) scheme, energy produced from the solar photovoltaic (PV) system will be consumed first, and any excess is to be exported and sold to the appropriate distribution licensee (such as TNB for Peninsular Malaysia or the SESB for Sabah and Labuan). The NEM programme was introduced with the intention of replacing the feed-in tariff (FiT) mechanism for solar PV installations, which was closed at the end of 2017.

The scheme is executed by the Ministry of Energy, regulated by the Commission, with SEDA as the implementing agency. To participate in NEM, applicants must register as customers of distribution licensees in Peninsular Malaysia, Sabah and Labuan. Foreign entities also are eligible to apply as long as they are customers of the distribution licensees. The resources for producing electricity shall be from solar PV only; however, other renewable energy resources, such as biogas, biomass or micro hydro, may be allowed on a case-by-case basis, at the sole discretion of the Commission.³¹

The scheme is applicable to all domestic, residential, commercial (including government buildings) and industrial sectors, subject to the capacity limits set out in the Commission's Guidelines for Solar Photovoltaic Installation on the NEM Scheme.

Applications for NEM shall be processed on a first-come first-served basis up to the allocated quota, which is provided by SEDA on its website.³² The application may be made by the applicant's appointed registered PV service provider or registered electrical contractor, and it should be submitted either manually to SEDA or via SEDA's online application portal.

If NEM approval is granted, the NEM consumer will need to apply to the Commission for a public generation licence. Once successful, an NEM contract can be signed between the NEM consumer and the distribution licensee. Energy produced by the NEM consumer's system will first be used for the NEM consumer's own energy needs and the excess sold back, or offset on a one-to-one basis by the energy consumed from the national grid.

V RENEWABLE ENERGY AND CONSERVATION

i Development of renewable energy

Since the implementation of the Tenth Malaysia Plan, the government – via the Commission, the Ministry of Energy and SEDA – has implemented a range of programmes and projects to educate the Malaysian public and encourage electricity efficiency and energy conservation.

30 Energy Commission, 'Frequently Asked Questions for Third Party Access System (TPA)', at https://www.st.gov.my/images/article/faq/2017/FAQs_TPA_20170116_V3_-_English.pdf.

31 Guidelines for Solar Photovoltaic Installation on Net Energy Metering Scheme under the Electricity Supply Act (Amendment) 2015 (Act A1501). See also Brian Publicover, 'Malaysia releases net metering guidelines' *pv magazine* (8 May 2017), at <https://www.pv-magazine.com/2017/05/08/malaysia-releases-net-metering-guidelines/>.

32 See Sustainable Energy Development Authority [SEDA] website, at <https://services.seda.gov.my/nem/auth/login>.

Energy laws and regulations reflect this; for example, the Efficient Management of Electrical Energy Regulations 2008 authorises the Commission to require operators and owners of installations that consume 3 million kWh or more during a six-month period to engage a registered energy manager to analyse the total consumption of electrical energy, advise on the development and implementation of measures to ensure efficient management of energy and monitor the effectiveness of the implemented measures.³³ The introduction of the feed-in tariff mechanism under the Renewable Energy Act 2011 (REA) and the implementation of the Solid Waste and Public Cleansing Management Act 2007 were similarly enacted with the aim of expanding and developing the country's green energy industry while creating jobs and improving the quality of life of Malaysians generally.

There are a number of fiscal incentives in place that are specifically targeted at potential entrants to the renewable energy market in Malaysia. For example, a budget of 5 billion ringgit had been approved under the Green Technology Financing Scheme (GTFS) to help fund new energy efficiency projects in Malaysia for the period 2018–2022.³⁴ On 6 March 2019, the Ministry of Finance approved an upgraded scheme, GTFS 2.0, for companies that are majority Malaysian-owned, allocating 2 billion ringgit for the period between January 2019 and the end of 2020. Successful applicants are entitled to an interest/profit rate subsidy of 2 per cent per year on loans and financing for the first seven years of the financing term, and a government-issued financial guarantee of 60 per cent of the green component cost.³⁵ Since its inception in 2010, by May 2020 the GTFS had successfully approved a total of 349 projects with a total financing amount of about 4.5 billion ringgit and the incentive scheme is expected to continue, with GTFS 3.0 to be announced later this year.³⁶

Following the spirit of the Eleventh Malaysia Plan³⁷, SEDA has introduced the Energy Efficiency Projects Malaysia, which is a conditional energy audit grant for commercial buildings consuming more than 3 million kWh for six consecutive months.³⁸

The Malaysian Investment Development Authority (MIDA) offers tax incentives for green technology projects and services. Subject to any other conditions imposed by MIDA, a Malaysian company that undertakes a green technology project, or a company that purchases green technology assets as listed in MIDA's MyHijau Directory or provides green technology services may be eligible for investment tax allowance and income tax exemptions. As part of the national budget for 2020, these incentives have been extended until 2023.³⁹

33 Efficient Management of Electrical Energy Regulations 2008, Regulation 6(1).

34 Mohd Khalemi, 'Green Tech Financing Scheme to Continue With RM5bil Funding | Green Technology Financing Scheme (GTFS)' (2 March 2017).

35 See the official website for GTFS 2.0, at <https://www.gtfs.my/page/features-gtfs-20>.

36 As reported by Green Bank Network, at <https://greenbanknetwork.org/malaysia-green-technology-and-climate-change-centre/> which, at the time of writing, was last updated on 2 June 2020.

37 2016–2020.

38 More information available on SEDA's website, at <https://www.seda.gov.my/energy-demand-management-edm/energy-audit-conditional-grant-commercial-building/>.

39 'Green Technology Incentives: Towards Achieving Sustainable Development In Malaysia', as accessed at <https://www.mida.gov.my/green-technology-incentives-towards-achieving-sustainable-development-in-malaysia/>. Renewables development has not slowed in the wake of the covid-19 pandemic, with MIDA having received 900 applications for these tax and investment incentives in 2020.

Feed-in tariff approvals and renewable energy power purchase agreements

A small producer of renewable energy may apply to SEDA for its approval to participate in the feed-in tariff system established under the REA, which will allow locally produced electricity to be sold to power utilities at a fixed premium for a specific period. In particular, the REA states that the feed-in tariffs will provide for:

- a* connection to supply-line connection points for the distribution of renewable energy generated by renewable energy installations that are owned by feed-in approval holders;
- b* the priority of purchase and distribution by the distribution licensee (meaning the holder of an ESA licence) for renewable energy generated and sold by feed-in approval holders; and
- c* the feed-in tariff to be paid by distribution licensees to feed-in approval holders for the renewable energy.

To be eligible, an applicant must propose to generate renewable energy from a renewable energy installation with an installed capacity of not more than 30MW, or such higher installed capacity as may be approved by the Minister. In addition, Rule 3 of the Renewable Energy (Feed-In Approval and Feed-In Tariff Rate) Rules 2011 provides that if the producer is a corporate body, it is subject to the following requirements and provisos:

- a* the company must be incorporated in Malaysia;
- b* the foreign equity participation in the company must not exceed 49 per cent during the application and for the entire period of approval;⁴⁰ and
- c* if the company is already holds an ESA licence, or if it is an associate of an existing ESA licence holder, then that company is prohibited from making any application for a feed-in approval relating to a renewable energy installation proposed to be connected to the electricity distribution network of the ESA licence holder.⁴¹

The application may be made by the company or its authorised representative, and it should be submitted either manually to SEDA, or via SEDA's online application portal. The application should include supporting information regarding the renewable energy installation, including:

- a* a description of the installation, including the type of renewable energy resource to be used;
- b* the proposed location of the installation;
- c* the proposed installed capacity of the installation;
- d* the proposed feed-in tariff commencement date; and
- e* the name of the ESA licence holder whose electricity distribution network is proposed to be connected to the renewable energy installation, including the location, details and specifications of the proposed connection.

Other prerequisites for SEDA approval vary depending on the renewable energy source (solar, biomass, hydroelectricity, etc.) and the output of the renewable energy installation. SEDA has a number of guidelines and documents on its website detailing the application processes, tests

40 Rule 10 of the Renewable Energy (Feed-in Approval and Feed-in Tariff Rate) Rules 2011 requires the applicant company to submit 'its corporate information, including the ultimate beneficial shareholders of the company'.

41 Rule 3 of the Renewable Energy (Feed-in Approval and Feed-in Tariff Rate) Rules 2011.

and checks to be carried out and technical requirements for each particular type of renewable energy installation. For instance, corporate applicants must have a minimum paid-up capital of 20,000 ringgit or equivalent if they intend to develop renewable energy installations with a rated kWp or net export capacity of up to 72kWp or 72kW. If the installation's net export capacity exceeds 72kWp, then the minimum paid-up capital is increased to 50,000 ringgit or its equivalent.⁴² Additionally, SEDA may require the applicant to conduct tests and checks, including a connection confirmation check or a power system study conducted in accordance with the Renewable Energy (Technical and Operational Requirements) Rules 2011.

A feed-in approval granted under the REA may be assigned or transferred but only with the consent of SEDA, which has absolute discretion as to whether to approve or refuse to allow the assignment or transfer of the feed-in tariff approval.⁴³ SEDA will not approve an assignment or transfer unless it is satisfied that the proposed assignment or transfer (1) was not reasonably foreseeable at the time of application for the initial feed-in tariff approval, (2) is just and reasonable, and (3) is not inconsistent with the objectives of the REA and the current energy policies of the Malaysian government, taking into account the need for sustainability and diversity in renewable resources, and the need for fair competition and transparency in the implementation of the feed-in tariff system⁴⁴.

If the feed-in tariff approval is granted, then the ESA licence holder whose distribution network is to be connected to the renewable energy power plant or installation to which the approval relates, is required to enter into a renewable energy power purchase agreement (REPPA) with the feed-in approval holder in the form prescribed under the Renewable Energy (Renewable Energy Power Purchase Agreement) Rules 2011. The minimum terms of the REPPA will vary according to the type of renewable resource used and the capacity of the renewable energy installation. Similar to PPAs, REPPAs may contain restrictions on foreign participation, foreign control, or transfer or assignment that are more stringent than those prescribed under the renewable energy laws, although these will generally be reflective of the existing government policies on foreign investment in the Malaysian energy sector.

It should be noted that feed-in tariff approvals are subject to quotas that are announced by SEDA on its official website, in six-month windows over a period of three years. Successful applications will be placed in a queue and will be subject to a ballot process until the quota has been exhausted.⁴⁵

Large-scale solar photovoltaic plants

As part of the nation's plan to reduce the reliance on fossil fuels and promote renewable resources, the Commission conducted several competitive bidding processes to select developers for the development of LSS PV plants to be located in west Malaysia and Sabah. The plant will be connected to the distribution or transmission grid depending on its proposed capacity, and sell its energy to the Single Buyer or to SESB (as the case may be) under a power purchase agreement, and the LSS capacity to be tendered will be between 1MWac and 100MWac.

42 Guidelines and Determinations of the Sustainable Energy Development Authority of Malaysia dated 5 February 2016.

43 Rule 19 of the Renewable Energy (Feed-in Approval and Feed-in Tariff Rate) Rules 2011.

44 Rule 19(2) of the Renewable Energy (Feed-in Approval and Feed-in Tariff Rate) Rules 2011, read together with Section 3(3) of REA.

45 Accessible at <http://www.seda.gov.my/reportal/fit/>.

Only Malaysian companies that pass the prescribed minimum Malaysian equity interest thresholds may participate in the LSS programme. These thresholds are:

- a* the equity of the participant company is held by at least 51 per cent Malaysians; or
- b* the equity of the participant company consists of a consortium of legal entities that includes a minimum of one Malaysian company, and in which the Malaysian equity interest in the consortium is at least 51 per cent.

Upon successful negotiation, the bidders must fulfil all conditions precedents under the PPA. All LSS plants shall be licensed under Section 9 of the Electricity Supply Act 1990. Under the terms of the latest request for tender in respect of the LSS programme, all contractors engaged for the development of the project must be registered as a 'local contractor' with the Construction Industry Development Board of Malaysia, which significantly reduces the ability of foreign contractors to participate in these projects.

ii Technological developments

The Malaysian government is currently driving the Green Technology Master Plan (2017–2030), mapping out the country's green technology strategies and targets over the next decade in each industry sector. The plan emphasises a need to develop cleaner energy sources and more efficient technologies to increase recycling rates, promote awareness of green technology and encourage research and development funding opportunities for companies seeking to contribute to the country's move towards a more renewables-reliant future.

As a part of the Master Plan, the government has also taken the approach to lead by example in respect of renewable energy. There is strong encouragement that government procurement activities should comply with Government Green Procurement (GGP) Guidelines, which require that the acquisition of products and services abides by certain environmentally friendly criteria, thereby allowing the government to leverage its purchasing power to encourage industries and private enterprises to do likewise. The degree to which each ministry enforces the GGP Guidelines varies, and progress is overseen and facilitated by a steering committee and a working committee.

In October 2018, the Ministry of Energy, in conjunction with TNB, launched the GSPARX programme, which permits consumers to install solar panels on their property (with the capital cost funded fully by GSPARX). At the time of launch, it was announced that GSPARX has a target of offering 1,500MW of self-generation for solar PV investment by 2025. The scheme is intended to encourage consumers to rely more on renewable energy, and push the country towards achieving its goal of 20 per cent of the country's generation capacity being fulfilled by renewable energy by 2025.

VI THE YEAR IN REVIEW

With effect from 12 February 2020, the supply, sale and distribution of gas in Sarawak has been placed under the full supervision and control of the Sarawak state government, via state-owned entity Petroleum Sarawak Berhad (Petros).

In March 2020, a high court held that the state of Sarawak had the power to impose its state sales tax (5 per cent) on PETRONAS for the export of petroleum products from the state.⁴⁶

In July 2020, Gas Malaysia Bhd published (as it is required to under the TPA system) its distribution access arrangement documents for its gas distribution pipelines, after the regasification and transportation access arrangements were published by Petronas Gas Berhad about half a year previously.⁴⁷

In November 2020, the Malaysian government announced as part of the national budget for 2021 that it intends to issue its first ever sustainability bond for environmental and social initiatives within 2021.

PETRONAS' second Floating Liquefied Natural Gas facility, PFLNG Dua, successfully extracted its first gas in February 2021, and was expected to deliver its first LNG cargo to PETRONAS' customers within a month.⁴⁸

In March 2021, PETRONAS launched a virtual bidding round offering late life hydrocarbon assets in Malaysian waters. These assets will be developed pursuant to variations of the current standard PSC, modified to provide more attractive returns for multinational funds and operators seeking to maximise their investment returns in Malaysia's local hydrocarbon resources.

On the tail of the success of the NEM 2.0 programme, the Malaysian government has launched the NEM 3.0 programme in late 2020, which will be in effect from 2021 to 2023, in order to further encourage installation of solar power panels across residential areas as well as commercial and industrial sectors throughout Malaysia. The NEM 3.0 programme has an aggregate quota allocation of 500MW and is split into three separate initiatives:

- a NEM Rakeyat, targeting citizens;
- b NEM GoMEn, allocated to government ministries and entities;
- c and the NOVA (Net Offset Virtual Aggregation) Programme, allocated to commercial and industrial applicants.⁴⁹

There is growing interest in the potential of hydrogen as a fuel source in Malaysia. In February 2021, PETRONAS signed a memorandum of understanding with JERA Co, Inc in regards to potential future collaborations on a range of low-carbon energy initiatives, including green hydrogen.⁵⁰ Earlier in November 2020, it was reported that Japanese oil company ENEOS had signed its own memorandum of understanding with Sarawak Economic Development Company with an aim of creating a hydrogen supply chain with zero CO₂ emissions. A feasibility study on this is intended to commence in 2021.⁵¹

46 Press release available at <https://www.petronas.com/media/press-release/petronas-launches-malaysia-bid-round-2021>.

47 Available at the official websites of Gas Malaysia Bhd and Petronas Gas Bhd respectively.

48 Press release available at <https://www.petronas.com/media/press-release/petronas-floating-lng-dua-marks-its-commissioning-production-first-lng>.

49 Press release available at <https://www.st.gov.my/en/contents/files/press/2020-12-29/1609224125.pdf>.

50 Press release available at <https://www.petronas.com/media/press-release/petronas-and-jera-elevate-partnership-realise-decarbonised-world>.

51 Amanda Jasi, 'MoU for CO₂-free hydrogen production in Malaysia', *The Chemical Engineer* (10 November 2020).

VII CONCLUSIONS AND OUTLOOK

There is a strong push in Malaysia towards the development of renewable energy, which is reflected in recent policy developments by the Ministry of Energy and in the introduction of strong, key market players at various levels of the renewables fields, including state-owned enterprise PETRONAS, whose energy portfolio prior to this has been solely in petroleum and gas markets. Policy and infrastructure changes in renewables regulations in recent years have been aimed at facilitating a swift and smooth growth curve in Malaysia's renewables markets. It remains to be seen to what extent these efforts will be hindered by low oil prices and the state of the economy as a result of the coronavirus pandemic.

These strong statements and policy developments come at a time when Malaysia's political environment remains in flux, and the liberalisation of the power sector will develop alongside continuing discussions between state and federal governments – particularly the state of Sarawak – in respect of regulatory authority over upstream and downstream oil and gas industries. It is likely that we can expect key regulatory changes during the next decade to reflect the changing power landscape in Malaysia.

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