

Linklaters

Asia Pacific Renewable Energy Insights

August 2022



Introduction



A market source notes the team is easy to ‘cooperate with especially in terms of **communication** and **approachability**’.”

Chambers Asia Pacific 2022, Projects & Infrastructure: Asia-wide Region

Introduction

We publish our fifth edition of our Asia Pacific Renewable Energy Insights covering the key regulatory, policy and market developments in all key markets in the region at a time when global energy markets are facing unprecedented challenges. Geopolitical hostilities, supply constraints at a time of rebounding energy demands post COVID-19 and other factors have led to extraordinary volatility in energy prices and a focus of market participants on inflationary pressures and energy security. All of this at a time where environmental, social and governance (ESG) issues remain front of mind and the transition to a lower carbon world continues to gain momentum.

The above could apply to many (perhaps all) parts of the world but is especially pertinent in Asia Pacific. Here, the pace of development and investment in renewable energy continues to outstrip other parts of the world supported by rising populations, robust economic growth and the greenfield nature of the power market in the region underpinned by relatively attractive government support initiatives and political impetus for building new infrastructure.

Our experience over the past 12 months reflects what we are seeing in terms of major themes in the sector, including:



The continued rise of **offshore wind** in North Asia, including as Japan, Korea, Vietnam and other new markets (notably Australia and the Philippines) look to build on the success of the Taiwan story. We have acted on almost all closed project financings for offshore wind in these markets and continue to be busy working on a range of ongoing projects in these markets;



The development of **innovative financing approaches** to support renewables projects, including portfolio structures, holdco financings, green bonds and other solutions which are tailored to the specific requirements of the sector; and



New investors entering the Asia Pacific, including strategic developers seeking new opportunities away from their existing markets and an upsurge in interests from financial sponsor clients, including specialist energy and infrastructure funds. This has increasingly involved innovative investment platforms involving the transfer of existing assets and arrangements for the joint acquisition and funding of future opportunities;



Continued focus on **new and emerging technologies** such as green hydrogen (including in Japan as an export target for leaders in this space such as Australia) and utility-scale batteries (linked to renewables projects being explored in Korea among others) in each case which are likely to accelerate the renewables story and attract further international investment.

As the longest-standing and most award-winning green energy practice in the region, we are passionate about the work we do and proud to support leading developers, contractors, financiers, governments and others in this space across all the key markets in the region as covered in our report. We hope you find this guide is informative and helpful and we always welcome new discussions about ways we can contribute to your ambitions in this dynamic and exciting sector.

Our Team



Linklaters demonstrates exceptional breadth in the project finance sector, advising on a number of significant projects globally. Clients benefit from **leading teams** in Europe, the Middle East and the Asia-Pacific region, as well as an **in-depth knowledge** of projects in Africa.”

Chambers Global 2022, Projects & Energy: Global: Multi-Jurisdictional

GREATER CHINA REGION



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Linklaters strikes the right **balance between thoroughness and efficiency**, keeping analyses concise whilst hitting all the crucial points.”

Chambers Asia Pacific 2022, Projects & Infrastructure:
Asia-wide Region

¹ Partner (Linklaters LLP, England & Wales) Registered Foreign Lawyer (England & Wales)
² Foreign Legal Consultant (California)

Our Renewables Experience



Our Recent Asia Pacific Renewables Experience

Thailand

- > the **sponsors** on the portfolio financing of the ADB-financed 62.2MW Green Yellow Rooftop Solar Project in Thailand
- > the **lenders** for the project financing of SET Energy Company Limited's development of a portfolio of c.500MW solar power projects within the Eastern Economic Corridor Special Development Zone of Thailand
- > an **international lender** on the financing a Chinese solar operator in setting up a company to bid for solar projects in Thailand and advising on solar power bidding regulations and requirements
- > the **lead arranger and original lender** on the financing to Greenovation Power Limited, a project company wholly owned by Gunkul Engineering Public Company Limited to construct, develop and operate a 67.5MW wind power project in Nakorn Ratchasima Province, Thailand
- > the **fund manager** on the establishment of an infrastructure fund for the transfer of solar power assets of approximately 118MW owned by subsidiaries of a Thai-listed company engaged in solar and alternative energy
- > **Khao Kor Wind Power**, a subsidiary of Ratchaburi, on the project contracts and project financing for the 60MW Khao Kor wind power project in Thailand
- > **The Siam Commercial Bank Public Company Limited** as the lead arranger and lender on a proposed financing to Wind Energy Development Company Limited ("WED") to construct, develop and operate a 60MW wind project, comprising three wind power projects (2MW, 8MW and 50MW), in Nakorn Ratchasima Province as well as a mezzanine financing to the sponsor Gunkul Engineering Public Company Limited to finance its equity contribution into WED for the project
- > **First Korat Wind Company Limited and KR Two Company Limited**, project companies in which Ratchaburi Electricity Generating Holding Public Company Limited and Wind Energy Holding Public Company Limited hold substantial interests, on the THB 6.435bn limited resource financing of a 2 x 103.5MW wind power project in Thailand and on the investment in the project companies as well as on the project contracts, including the turbine supply agreement and permits and licenses and on its mezzanine financing for an equity contribution in the project. These were the first two wind power projects in Thailand and the biggest in South East Asia
- > **Global Power Synergy Public Company Limited** on its acquisition of a 40% interest in a 80MW solar farm owned by Thai Solar Renewable Co. Ltd.
- > **Solar Power Co. Ltd.** on its THB 1.95bn sale of a 40% stake in three of its solar power projects to Ratchaburi Electricity Generating Holding Plc.

Laos

- > the **sponsors** on the Nam Theun II hydroelectric project in Laos
- > the **international and Thai lenders** on the original financing of the Theun Hinboun Power Project in Laos
- > a **group of Thai and international lenders** on its potential financing of US\$400m to Électricité du Laos which include our due diligence of various concession agreements of major hydro power projects in Laos
- > **Suez Energy Asia Co. Ltd.** on the amendment of the US\$101m refinancing for the 150MW Houay Ho power plant in Laos in connection with the corporate restructuring of GDF Suez
- > **Ratchaburi Electricity Generating Holding Public Company Limited** in regards to the acquisition of a 25% interest in Nam Ngum 2 Hydro power project in Laos

Malaysia

- > a **bidder** on the proposed acquisition of a portfolio of renewables assets in Vietnam and Malaysia
- > the **sponsors** on the RM6bn financing of the Bakun Hydroelectric Project

Philippines

- > **Mainstream Renewable Power** on its equity investment deal with Aker Horizons, including due diligence on Mainstream's portfolio in the Philippines
- > **Macquarie Infrastructure Holdings Philippines Pte Ltd.** on the US\$220m joint venture with Ayala Corporation and UPC Philippines Wind Holdco I B.V. to invest in wind farms in the Philippines
- > **Diamond Generating Asia Ltd.** on its investment into the 81MW Caparispisan wind farm in Ilocos Norte
- > **Diamond Generating Asia Ltd.** on its joint venture with Michigan Power (wholly owned subsidiary of Ayala Corporation) to explore solar power opportunities in the Philippines
- > a **major energy company** on its bid to acquire a 50% stake in the CBK 720MW hydro project in Luzon, the Philippines

Greater China Region

- > the **sponsors** on the Hai Long 2 and 3 offshore wind projects financing in Taiwan
- > the **lenders** on the approx. US\$2.5bn "holdco" financing of the 605MW Greater Changhua 1 offshore wind project in Taiwan being developed by Ørsted, CDPQ and Cathay PE
- > the **lenders** on BlackRock Real Assets' US\$328m refinancing of a portfolio of 186MW of solar assets in Taiwan with an 18-year green loan facility
- > **Ontario Teachers' Pension Plan Board** on its investment of up to US\$1bn in a global offshore wind development joint venture with Corio Generation to support the development of 14 fixed bottom and floating wind projects in Taiwan, South Korea, Japan, Ireland and the UK
- > **Global Power Synergy Public Company Limited** on its agreement to acquire a 25% interest in the Taiwanese 595MW CFXD offshore wind farm
- > **NEXI and K-SURE** on the approx. US\$3bn (NT\$90bn) project financing of the 595MW CFXD offshore wind project in Taiwan
- > the **lenders and ECAs** on the US\$2bn (NT\$62.4 bn) project financing of the 376MW Formosa 2 offshore wind project in Taiwan
- > **wpd AG** on the €2.7bn project financing of the 640MW Yunlin offshore wind farm project in Taiwan
- > the **lenders and EKF** on the NT\$18.7bn (approx US\$600m) project financing for the 128MW Formosa 1 offshore wind project in Taiwan
- > **Chugoku Electric Power Co Inc** on the acquisition of 25% of shares in Shih Fong Power Co Ltd, which is developing a 37.1MW hydro power station in Hualien, Taiwan
- > the **developer** on the development, structuring, procurement and financing of an onshore wind farm in Taiwan
- > **wpd AG** on the project financing of the 350MW Guanyin offshore wind farm project in Taiwan
- > **Ørsted** on the acquisition of a 35% interest in the Formosa 1 offshore wind project
- > a **bidder** on the proposed acquisition of a portfolio of solar and WTE assets in Taiwan and PRC
- > **China Light & Power** on the acquisition of two wind farm projects in Liaoning province of the PRC
- > **Arcapita Bank** on the acquisition of the Honiton Energy 49.5MW wind project in PRC and, subsequently, the project company on the project financing of the expansion of the wind project
- > **China Light & Power** on the greenfield development of a hydropower project in Yunnan province

Key

- Wind
- Solar
- Biomass
- Geothermal
- Hydropower
- Waste to Energy

Australia

- > Please refer to the credentials set out on pages 18 – 19

Vietnam

- > the **project companies** on the project financing of three wind farm projects in Vietnam with a combined capacity of 179MW financed by a multilateral development bank
- > **Bangkok Bank Public Company Limited** on the loan facilities to subsidiaries of Super Energy Corporation Public Company Limited for the project financing of Loc Ninh 1-3 solar projects in Vietnam
- > the **lender** on the provision of credit facilities to a project company engaged in the 37.6MW wind power project in Vietnam
- > **BBL** on the financing of these two 30MW solar projects and a potential financing of a two phase 60MW wind farm project each in the south of Vietnam, including due diligence and drafting of the finance documents
- > **Bangkok Bank Public Company Limited** in connection with the provision of credit facilities to a company in Vietnam for 60MW onshore wind farm projects in Vinh Chau, Soc Trang Province, Vietnam
- > **Bangkok Bank Public Company Limited** on the project financing provided to Bach Khoa A Chau Tay Ninh Joint Stock Company and Tri Viet Tay Ninh Joint Stock Company (which are wholly-owned subsidiaries of Gunkul Engineering Public Company Limited) to undertake a separate 30.02MW DC solar power project operating in Tay Ninh province, Vietnam
- > **IFC** on its financing of a waste-to-energy power project in the Thuan Thanh district of Bac Ninh Province, Vietnam
- > **Mainstream Renewable Power** on its equity investment deal with Aker Horizons, including due diligence on Mainstream's portfolio in Vietnam
- > a **bidder** on the proposed acquisition of a portfolio of solar and wind assets in Vietnam
- > a **bidder** on the proposed acquisition of a portfolio of renewables assets in Vietnam and Malaysia
- > a **bidder** on the proposed acquisition of a portfolio of renewables assets across Asia, including Singapore, Taiwan and Vietnam
- > **India-based Adani** on several aspects of its joint venture with a Vietnamese partner to carry out solar/wind projects in Ninh Thuan province, Vietnam on the acquisition of a 30MW onshore wind project in Vietnam

Pakistan

- > **China Development Bank (CDB)** on financing the development of the 700.7MW Azad Pattan Hydro Power Project
- > **CDB and Habib Bank Limited** as lenders, on the project financing of the 1,124MW hydropower station to be developed by Kohala Hydro Company (pvt.) Ltd.
- > **CDB** as lender, on the US\$189m project development and financing of the 99MW UEP wind IPP in Sindh Province, Pakistan
- > **CEXIM and ICBC** as lenders, on the US\$1.5bn project financing of the 870MW Suki Kinari Hydropower Project
- > **Standard Chartered Bank** on the project financing of a wind farm in Sindh Province

India

- > the **lenders** on the US\$700m financing to various subsidiaries of Adani Transmission Ltd structured to fund up to US\$1.1bn of capex for four under-construction transmission projects in Gujarat and Maharashtra
- > a **consortium of lenders** on a senior debt construction financing for a portfolio of 1.69GW Hybrid Solar Wind Projects which are under execution by Adani Green Energy Limited's subsidiaries
- > **ORIX Corporation** on its US\$963m investment into the Greenko Group, one of India's leading renewable energy companies
- > **ORIX Corporation** on the sale of its Indian wind assets to the Greenko Group for US\$342m
- > the **sponsors** on the US\$950m Almatti Hydro Power Project in Karnataka, India
- > **Greenko** on its acquisition of SunEdison's operational solar and wind energy assets in India. We also advised them on the proposed purchase of the entire share capital of Orange Renewable Holdings, a developer and operator of wind and solar energy projects in India, from AT Holdings Pte. Ltd. for c.US\$1bn
- > a **development bank** on the financing of a 250MW solar project being developed by Hero Future Energies
- > **Hero Future Energies** on the investments by Abu Dhabi Clean Energy-Masdar and IFC into its UK Holding Company, which in turn used these funds to invest in renewable businesses in India
- > **Reliance Industries** on its acquisition and further investment in Faradion Limited, a sodium ion battery technology company

Indonesia

- > **PT Surya Utama Nuansa (Sun Energy)**, a leading Indonesian solar project developer, on its project agreements for the development of rooftop solar projects in Indonesia
- > **Inpex Corporation** on the potential acquisition of an equity interest in phase 1 and phase 2 of the Muara Laboh geothermal power project in Indonesia from PT Supreme Energy
- > an **international energy company** on its bid to acquire an interest in a developer of power projects in Indonesia, with an active portfolio of operating and under-development projects (thermal and renewables)
- > **RATCH Group PCL** on the acquisition of additional 40% of share capital of the target company who is the majority shareholder of an IPP who operates the Asahan-1 hydroelectric power plant located in North Sumatra
- > the **arrangers** on a US\$660m secured loan facility for the purpose of, among others, the financing for the Star Energy Group consortium's equity contribution towards acquisition of a portfolio of Indonesian geothermal assets currently owned by Chevron and the refinancing of the senior secured notes issued by Star Energy Wayang Windu
- > the **lender** on the structuring and hybrid – project financing of a greenfield hydro renewables project in Indonesia
- > **Ratchaburi Electricity Generating Holding** in exploring the possibility of investing into three Indonesian run-of-the-river hydropower projects in North Sumatra. One project is in operation and the other two projects are still under construction
- > an **international investor** on its potential joint venture to develop an onshore wind farm in South Sulawesi, Indonesia
- > the **commercial lenders** on the US\$266m bank and bond debt financing of a geothermal power project in Indonesia for Dayabumi Salak Pratama, Ltd.
- > **Enel Green Power** on the development, in joint venture with PT Optima Nusantara Energi ("PT ONE"), of the 55MW Way Ratai geothermal power project
- > a **number of renewable energy companies** on the regulatory regimes and structuring considerations for the development of large scale and/or small scale solar PV projects in Indonesia

South Korea

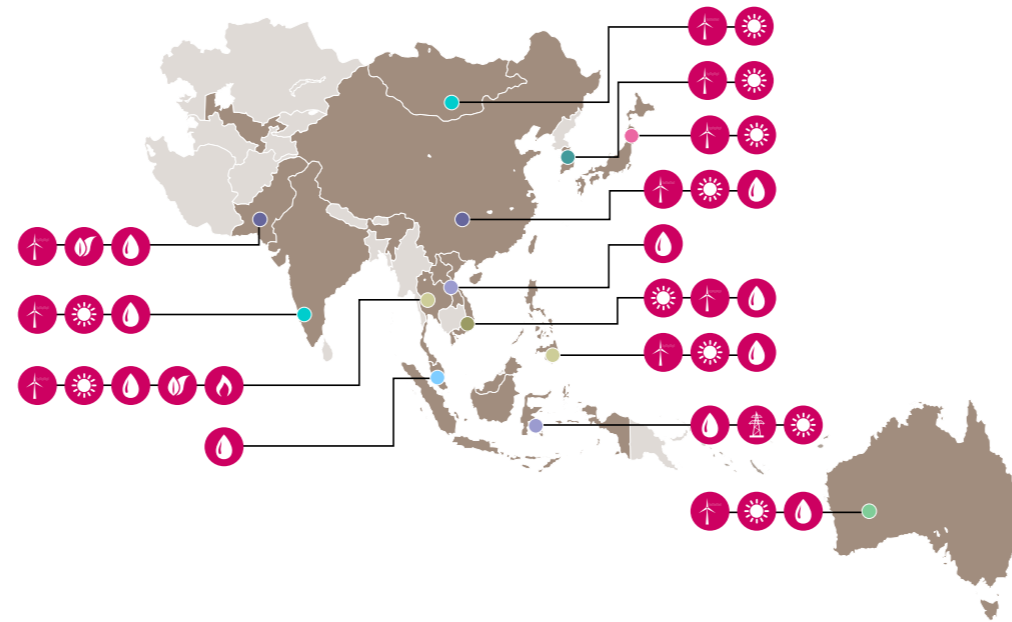
- > the **international sponsor** on the development of 1.6GW offshore wind project in South Korea
- > the **lenders** on the 99MW Jeonnam offshore wind project in South Korea. This is the first utility scale offshore wind project in South Korea
- > **BlackRock** on its investment in South Korean solar development and investment company Brite Energy Partners (BEP)
- > **BlackRock** on its acquisition of a 100% stake in Korea Renewables Energy Development & Operations Holdings (KREDO), formerly IGIS Private Equity
- > a **global investment fund manager** on its potential acquisition of solar power projects and wind farms in South Korea
- > **OTPP** on its investment of up to US\$1bn in a global offshore wind development joint venture with Corio Generation for the development of offshore wind projects in Taiwan, South Korea, Japan, Ireland and the UK

Japan

- > **Marubeni Corporation** on the first commercial scale offshore wind project at Akita Port and Noshiro Port in Akita, Japan
- > **Ørsted** on its formation of a joint venture with TEPCO to bid for offshore wind projects being auctioned off the coast of Choshi city, Japan
- > **Macquarie's Green Investment Group** on the formation of a joint venture with a global energy leader, Iberdrola, on the co-development of a 3.3GW portfolio of six offshore wind projects in Japan
- > an **international financial sponsor** on the partnership with a Japanese offshore wind developer in relation to their potential bids for a series of Japan offshore wind projects
- > the **lenders** supporting a consortium's bid on a Round 1 fixed bottom offshore wind project
- > **OTPP** on its investment of up to US\$1bn in a global offshore wind development joint venture with Corio Generation for the development of offshore wind projects in Taiwan, South Korea, Japan, Ireland and the UK
- > **Ørsted** on a joint venture with Japan Wind Development Co., Ltd in relation to their potential bids for multiple offshore wind projects in Akita and Aomori Japan
- > an **international sponsor** on the project financing of the Sodegaura solar project in Chiba, Japan
- > an **international sponsor** on the project financing of the 10MW Mine solar project in Yamaguchi, Japan
- > a **Japanese infrastructure fund** on its first acquisition of a portfolio of solar projects in Japan and the subsequent refinancing of the projects
- > a **Japanese bidding consortium** on their potential bid to acquire Equis' Asia Pacific renewables portfolio of over 170 assets including solar, wind and hydroelectric power operations in Taiwan, Japan, Australia, India, Indonesia, the Philippines and Thailand
- > a **potential bidder** on KKR's sale of its Japan renewables portfolio
- > **ING Bank** in relation to the ¥12.1bn financing of Nippon Solar Services' construction of a utility-scale solar photovoltaic power plant in the Oita Prefecture in Kyushu
- > **Sonnex** in connection with the ¥16.5bn project financing of a greenfield 41.6MW solar photovoltaic plant located near Sano, Tochigi Prefecture, Japan
- > **ING Bank** on the financing of Nagi PV Godo Kaisha solar photovoltaic power plant in Nagi, Okayama Prefecture
- > an **international lender** on the financing for the construction, operation and maintenance of the Nanazoshi c.12MW solar PV plant in Japan (substantially finalised)

Mongolia

- > **wpd AG** on the acquisition of all shares in the Mongolian project development company Qleantech LLC (Qleantech). Qleantech develops the Oyu Tolgoi onshore wind farm in Mongolia with a proposed capacity of 250MW
- > **2Tenuun Gerel Construction LLC and Sermsang Power Corporation Public Company Limited** on their US\$18.7m 15MW solar power plant project financing with Asian Development Bank in Mongolia



Market Recognition



Asia Renewables Market Recognition



RANKINGS

Band 1 – Projects and Infrastructure - Asia Pacific, China, South Korea, Thailand, Indonesia, India
Chambers Asia Pacific 2022

Band 1 – Energy & Natural Resources: Australia
Chambers Asia Pacific 2022 (Allens)

Tier 1 – Projects & Energy - China, Hong Kong SAR, Indonesia, Japan and South Korea
Legal 500 Asia Pacific 2022



PRACTICE AWARDS

Asia Pacific Legal Adviser of the Year
IJ Global Awards 2021

Asia Pacific Law Firm of the Year
PFI Asia Awards 2019

Firm of the Year: Projects & Energy (International)
China Law & Practice Awards 2020

Project Finance Law Firm of the Year
The Asset Triple A Asia Infrastructure Awards 2020

Project Finance Law Firm of the Year: Taiwan
The Asset Triple A Asia Infrastructure Awards 2020



AWARD-WINNING PROJECTS

Greater Changhua 1 offshore wind project, Taiwan

Project Finance Deal of the Year
IFLR Asia Pacific Awards 2022

Renewable Energy M&A Deal of the Year
The Asset Sustainable Infrastructure Awards 2022

Asia Pacific Deal of the Year
PFI Awards 2021

Adani Gujarat and Maharashtra Transmission line portfolio, India

APAC Power Portfolio Financing Deal of the Year
IJ Global Awards 2021

Indian Deal of the Year
PFI Awards 2021

Most Innovative Deal of the Year
The Asset Triple A Sustainable Infrastructure Awards 2022

Adani Green Energy Rajastjan Solar PV and Onshore Wind Portfolio

APAC Renewables Portfolio Refinancing Deal of the Year
IJ Global Awards 2021

Green Project of the Year
The Asset Triple A Sustainable Infrastructure Awards 2022

Changfang & Xidao offshore wind farm project, Taiwan

Asia Pacific Export Finance & Project Finance Deal of the Year
IJ Global Awards 2020

Asia Pacific Renewables Deal of the Year
PFI Awards 2020

Asia ECA Deal of the Year
TXF Perfect 10 Deals of the Year 2020

Project Finance Deal of the Year
FinanceAsia Achievement Awards 2020

Yunlin offshore wind project, Taiwan

Asia Pacific Renewables Deal of the Year
PFI Asia Awards 2019

Asia Pacific Offshore Wind Deal of the Year
IJ Global Awards 2019

Overall Global ECA-backed Finance Deal of the Year
Yunlin Offshore, TXF 2020

Asia Offshore Wind Deal of the Year
Proximo Deals of Year Awards 2019

Akita offshore wind farm project, Japan

Asia Pacific Deal of the Year
The Asset Triple A Infrastructure Awards 2021

Asia Pacific Offshore Wind Deal of the Year
IJ Global Awards 2020

Asia Pacific Innovation Deal of the Year
PFI Awards 2020

Asia Pacific Offshore Wind Deal of the Year
Proximo Deals of Year Awards 2020

Formosa 2 offshore wind project, Taiwan

Renewables ECA-backed Finance Deal of the Year
TXF Perfect 10 Deals of the Year 2019

Green Project of the Year, Regional
The Asset Triple A Asia Infrastructure Awards 2020

Green Project of the Year: Taiwan
The Asset Triple A Asia Infrastructure Awards 2020

OTHER AWARD-WINNING PROJECTS

Renewable Energy Deal of the Year – GreenYellow Rooftop Solar Project, Thailand
The Asset Triple A Sustainable Infrastructure Awards 2022

Global Renewables Market Recognition



RANKINGS

Band 1: Projects & Energy
Chambers Global 2022

Band 1: Energy & Natural Resources: Power
UK, Chambers Global 2022

Band 1: Energy & Natural Resources:
Renewables & Alternative Energy
UK, Chambers Global 2022

Band 1: Projects
UK, Chambers Global 2022



PRACTICE AWARDS

Global Law Firm of the Year
PFI Awards 2020

Best Legal Advisor – M&A
IJ Investor Awards 2020



LEAGUE TABLES

#1 Asset Finance
Deal Value
Bloomberg Clean Energy League Tables 1H2022

#1 Global Renewables Project Finance
Deal Value
Inframation League Tables 2021

#1 Asia Renewables Project Finance
Deal Value
Inframation League Tables 2021



AWARD WINNING PROJECTS

Project Finance Deal of the Year: Karapinar solar project
IFLR Europe Awards 2022

European Export Finance Deal of the Year:
UKEF – Kalyon Enerji's Karapinar solar project, Turkey
IJ Global Awards 2021

Europe ESG Deal of the Year: Karapinar solar project
PFI Awards 2021

European EV Charging Deal of the Year:
Carrefour EV Charging Stations, France
IJ Global Awards 2021

Europe Offshore Wind Deal of the Year:
Courseulles-sur-Mer offshore wind farm
PFI Awards 2021

Americas Hydrogen Deal of the Year: CEOG project
PFI Awards 2021

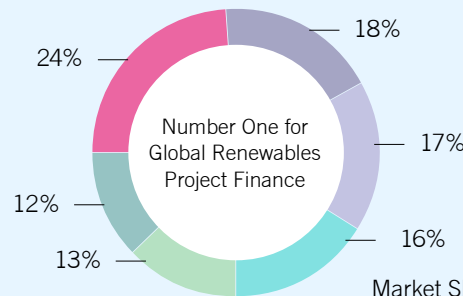
Europe Deal of the Year: Sale of Wheelabrator UK
PFI Awards 2021

Global Green Deal of the Year: Dogger Bank
offshore wind farm
PFI Awards 2020

Europe Green Deal of the Year: Fecamp offshore wind farm
PFI Awards 2020

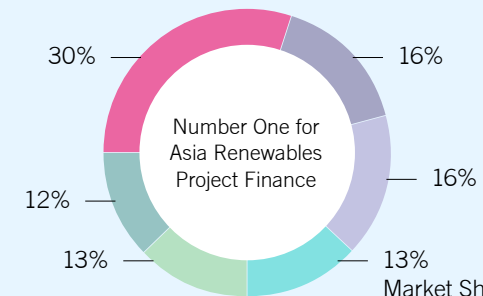
Best Renewables Acquisition (Offshore Wind):
East Anglia ONE
IJ Investor Awards 2020

Best Refinancing (Wind): Beatrice offshore wind farm
IJ Investor Awards 2020



Name	Market Share (%)
Linklaters	24
Law Firm A	18
Law Firm B	17
Law Firm C	16
Law Firm D	13
Law Firm E	12

Source: Percentage of market share by value of the top six firms 2021 (Inframation)



Name	Market Share (%)
Linklaters	30
Law Firm A	16
Law Firm B	16
Law Firm C	13
Law Firm D	13
Law Firm E	12

Source: Percentage of market share by value of the top six firms 2021 (Inframation)

Renewable Energy in Australia.

Allens < Linklaters



WHERE WE'RE AT

The energy market in Australia is undergoing a transformation, as the sector transitions to a lower emissions economy. Traditionally dominated by coal-fired generation, there has been significant investment in renewable energy projects over the last 10 years and increasing interest in hybrid projects combining renewables with new technologies (such as storage) in the past 12-18 months.

Australia was one of the first countries in the world to set a national Renewable Energy Target (“RET”), designed to increase the amount of electricity generated from sustainable and renewable sources and reduce greenhouse gas emissions. The RET, which will expire in 2030, sets a target for the amount of electricity to be supplied by renewable energy generators, and penalises certain entities (usually electricity retailers) for failing to source a certain percentage of their energy needs from renewable sources. The aim of achieving 23.5% renewable energy (equivalent to 33,000 gigawatt hours) by 2020 was met ahead of time, with Australia’s Clean Energy Regulator approving the requisite amount of capacity on 4 September 2019. At this stage, there is no indication that the target will be increased or that the RET will be extended beyond 2030, but the scheme is still open to new participants.

Renewable energy targets, to be implemented in a variety of ways, have also been set on a state and territory basis throughout Australia:

- > South Australia is aiming to meet a target of net 100% renewables by 2030.
- > Tasmania, which sources 100% of its power needs from renewable generation as of late 2021, has recently announced a target of 200% renewables by 2040. This target is part of Tasmania’s “Battery of the Nation” project and means that by 2040 Tasmania’s renewable generation capacity would be twice what is required to meet its current power needs (with surplus generation being available for export and use in the broader Australian National Electricity Market).
- > The Australian Capital Territory had a target of 100% renewables by 2020, which it has met.
- > Queensland and the Northern Territory have both committed to goals of 50% renewables by 2030.
- > Victoria has a target of 40% renewable energy by 2025, and 50% by 2030.
- > New South Wales has a target to reduce emissions by 50% (from 2005 levels) by 2030.
- > Western Australia is yet to introduce renewable energy targets, but the government has indicated an aspirational target to reduce emissions by 2030.



POLICY DEVELOPMENTS

Despite these encouraging commitments, the significant influx of intermittent renewable energy to the electricity grid, coupled with many coal-fired generators approaching the

end of their design lives, has presented some challenges for Australia’s energy system in recent years. In fact, the Australian Energy Market Operator has forecast that many of the existing coal-fired generators will retire earlier than their expected end of life dates; a prediction emphasised by Origin Energy announcing in January 2022 that its Eraring Power Station would close seven years earlier than anticipated.

The power system and accompanying regulatory framework has struggled to keep up with the rapid pace of this change, resulting in some generators experiencing connection delay and increased curtailment risk, as the market operator and electricity networks grapple with issues such as network congestion in certain areas and fluctuations in supply and demand arising from the intermittent nature of renewable energy sources.

There has been industry-wide recognition of these issues, with a large emphasis on:

- > promoting investment in transmission infrastructure, including coordinating investment in new generation and transmission infrastructure;
- > investment in technologies such as grid-scale energy storage to ensure system stability and security; and
- > market design and policy reform.

Initiatives have been put in place at both a national and state level to ensure the regulatory regime for the Australian energy market remains fit for purpose. Some of the key initiatives include:

- > **Safeguard Mechanism:** The Australian Federal Government has recently committed to an emissions reduction policy of 43% by 2030, which is expected to be legislated in mid-late 2022. The policy is expected to be implemented primarily through the safeguard mechanism, which requires Australia's largest greenhouse gas emitters to keep their net emissions below their emissions baseline limit.
- > **Federal Technology Investment Roadmap:** Australia's Technology Investment Roadmap (the "**Federal Roadmap**") sets out a proposed framework for the investment of public funds in the development of new technologies designed to lower emissions. In furtherance of this initiative, the Federal Government has committed to releasing an annual 'Low Emissions Technology Statement' outlining its investment priorities. The first statement was released in September 2020, and identified five priority technologies for investment, including 'clean' hydrogen (created using renewable energy sources) and grid-scale energy storage. The second statement released in November 2021 introduced an additional priority technology, ultra low-cost solar. It is not yet clear whether this initiative will be continued following the recent Federal Government election.
- > **State Initiatives:** Certain states and territories have also put in place individual roadmaps and plans to encourage investment in projects that will facilitate the transition to a lower carbon economy while ensuring continued reliability and security of electricity supply. New South Wales, for example, is working to implement its Electricity Infrastructure Roadmap (the "**NSW Roadmap**") which sets out a long-term plan aimed at promoting investment in large-scale renewable energy generation, storage and transmission infrastructure. The NSW Roadmap aims to deliver a co-ordinated approach to new investment within 'renewable energy zones', the opportunity to secure revenue assurance for new renewable energy, long duration storage and firming projects through

entry into long term energy service agreements, and targeted reforms to the regulatory approvals process and establishment of a cost recovery framework to encourage investment in 'scale-efficient' transmission augmentation projects.

- > **Post-2025 Market Design:** Led by the Energy Security Board ("**ESB**"), the post-2025 market design initiative is intended to overhaul the current design of the National Electricity Market to ensure it is fit for purpose and able to evolve to meet changing consumer and system needs. The ESB is aiming to achieve this by focussing on four key areas:
 - > Resource adequacy through the transition – ensuring the right mix of resources is available to deliver reliable and affordable energy as the power system continues its transition to lower emissions and adopts new technologies. As part of this work the ESB is currently carrying out further design work on a capacity mechanism, with the proposed rule changes expected to be submitted to Energy Ministers in December 2022.
 - > Essential system services and scheduling and ahead mechanisms – ensuring those resources and services are available when needed to manage to complexity of dispatch and deliver secure supply.
 - > Demand side participation – unlocking opportunities for households and businesses to make the energy choices that suit them best.
 - > Access and transmission – providing networks to meet future needs including implementation of renewable energy zones and arrangements to ensure efficient use of the national electricity network. This work includes the proposed development of a congestion management mechanism to promote investment certainty, manage access risk, boost operational efficiency and incentivise technologies that alleviate network congestion.
- > **Renewable Energy Zones:** There is also a lot of activity focussed on the development of 'Renewable Energy Zones' ("**REZs**"), both at a Federal and State level, to co-ordinate investment in renewable energy generation and storage capacity with network expansion projects.

REZs are areas which are abundant in renewable energy sources and which, with the right infrastructure and transmission capacity, offer potential economies of scale in terms of delivering the network augmentations required to connect projects within the REZ, as well as the low-cost supply of electricity to consumers. New South Wales, Victoria and Queensland have all committed to development of REZs within their jurisdictions. The NSW REZs are currently the most advanced, with New South Wales having:

- > formally declared 2 of its 5 proposed REZs (the Central West Orana REZ and New England REZ); and
- > commenced the competitive tender process to appoint a network operator to design, build and operate the transmission network infrastructure for the Central West Orana REZ, which is scheduled to complete in late 2022.





WHAT WE ARE SEEING

With a large volume of investment occurring in the Australian renewables sector in the last few years, we are starting to see a number of trends emerge.

CORPORATE POWER PURCHASE AGREEMENTS AND SUSTAINABILITY TARGETS

More and more corporations in Australia are setting, and actively pursuing, sustainability and carbon reduction commitments. There continues to be strong interest from large corporates to manage electricity pricing and increase green credentials by contracting directly with renewable energy generators for electricity and green products or entering into structured electricity retail products backed by renewable projects. This interest is being driven, not only at board and management level, but also by shareholders who are becoming increasingly active in holding companies to account in terms of managing and disclosing climate change risks, and demonstrating their commitment to sustainability and carbon reduction initiatives. This, coupled with the recent announcement by the Australian competition regulator that misleading marketing of green credentials will be one of its 2022 enforcement priorities, has resulted in an increased focus by corporates on the reporting and marketing of their sustainability achievements, particularly where these targets are linked to sustainability linked loans and financing arrangements.

A variety of complex and bespoke structures are being used in the market to facilitate corporate offtake arrangements. Smaller corporates, keen to get involved in the action, are grouping together to form buyers groups to enter into offtake arrangements. Retailers are offering electricity retail products backed by power purchase agreements with renewable generators, which can be more attractive to certain corporates as these are usually simpler to manage in an administrative sense than contracting directly with a generator. Another popular trend that has emerged is corporates entering into large-scale generation certificates

(“LGC”) which only deals with renewable generators as a way to offset or reduce their emissions. For more information on the ways that companies are looking to deliver on carbon reduction targets, see our insight [here](#).

State governments are also increasingly seeking to contract directly with generators as a means of supporting the renewables industry and creating jobs. In addition to the long term energy service agreements (mentioned above) that New South Wales is using to promote further investment in renewables, storage and firming technology within New South Wales, Victoria has announced a second renewable energy auction scheme that is intended to help the state meet its target of 40% renewable generation by 2025. Queensland and the Australian Capital Territory also used similar schemes to encourage investment in the renewables sector.

STORAGE AND HYBRID PROJECTS

Another notable development has been the uptick in ‘hybrid’ or ‘co-location’ projects, reflecting a continued shift away from the traditional single asset development and project financing approach which had informed the development of most renewables in Australia over the past 15 years.

Recognising that different renewable energy sources can operate as natural hedges, we have seen sponsors looking to develop renewable energy parks which integrate wind and solar technologies in the same project and on increasingly larger scale. Such projects are now frequently integrating ‘dispatchable’ generation sources (battery and pumped hydro) to ensure that the project can meet times of peak demand or otherwise respond, where sun or wind is not available. In this regard, utility-scale storage (whether batteries or pumped hydro) is considered critical to ensuring that Australia’s aging coal-fired power stations are replaced with the right mix of resources so as to balance an increasing concentration of renewable generation with ensuring ongoing security and reliability of supply.

Investment in big batteries, in particular, is gaining momentum in the market, with new models of revenue offtake arrangements being developed (such as the revenue sharing arrangement agreed between Genex and Tesla for

Genex’s Bouldercombe Battery Project) and following recent targeted regulatory reform and the announcement of funding initiatives such as the \$100m Large Scale Battery Storage Funding Round by the Australian Renewable Energy Agency.

Battery capacity in the market is expected to double to 1.1GW in the second half of 2022, with a further 26GW of capacity in the project pipeline. A number of mammoth projects have been announced, including Energy Australia’s 350MW/1.4GWh Woreen BESS, to be built at the site of the existing Yallourn coal-fired power station in Victoria; Origin Energy’s 700MW/2.4GWh BESS, to be built at the site of the existing Eraring coal generator in NSW; and CEP Energy’s Kurri Kurri BESS in NSW, expected to be the ‘world’s biggest battery’, with a proposed capacity of 1,200MW; and NSW’s Waratah Super Battery, which aims to be the largest standby network battery in the Southern Hemisphere. For further information opportunities in this space, see [here](#).

We are also seeing large mining companies, located in remote ‘off grid’ areas, looking to change their traditional energy supply source to a hybrid model which combines gas/diesel, solar/wind and battery storage.

OFFSHORE RENEWABLES

While relatively new to the Australian market, the offshore renewables sector is gaining traction, with a regulatory framework recently being legislated by the Federal Government¹ and State Governments providing early-stage policy support for the sector.

A number of early stage offshore renewable projects have been announced across Australia and developers have been active in forming consortia, working towards obtaining approvals and lobbying governments to provide support and allow development in certain offshore areas.

Central to the development of the offshore renewables sector has been the Federal Government passing the *Offshore Electricity Infrastructure Act 2021* (Cth) in December 2021 (the “OEI Act”), which came into force 2 June 2022. This legislation provides a licensing framework for offshore electricity generators to acquire the rights to seabed in Commonwealth waters. The OEI Act will be supported by

detailed regulations which are expected to be published in mid-2022, at which point the Federal Minister may declare certain areas of seabed and invite developers to submit proposals for offshore electricity projects within those areas. The licensing framework provides for feasibility licences of 7 years, commercial licences of 40 years, as well as transmission infrastructure licences and 10-year research and demonstration licences. Investors in offshore renewables projects should note the regulatory framework's requirements regarding transparency of ownership, strict change of control requirements and credit support requirements for decommissioning obligations.

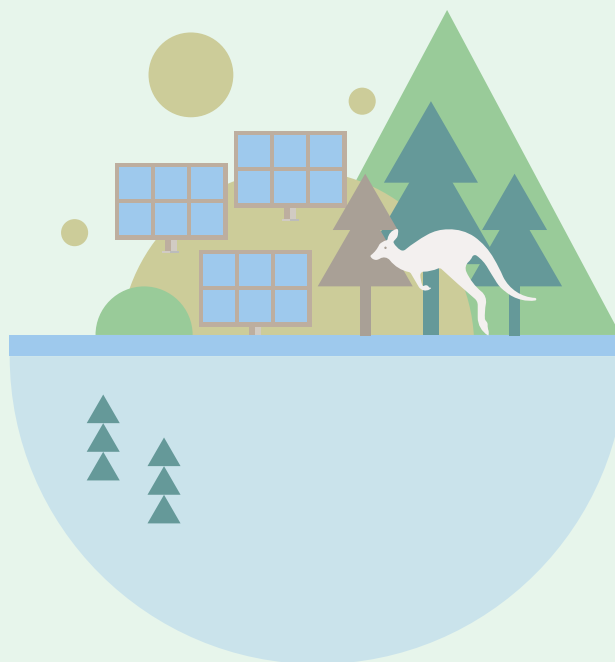
While the OEI Act provides a basis for developers to secure tenure in Commonwealth waters, it does not provide a framework for securing government offtake support (for example, by way of a contract for difference, offshore renewable target scheme or feed in tariff). Although both Federal and State Governments have expressed their support for the sector, only the Victorian government has announced (in its Offshore Wind Policy Directions Paper) a commitment to procure at least 2GW of offshore wind energy following a competitive process by 2032, 4GW by 2035 and 9GW by 2040.

In addition to acquiring rights to Commonwealth seabed under the OEI Act, any offshore renewables project will need to obtain a number of environmental and planning approvals, acquire tenure for the transmission infrastructure across State seabed and land and develop (or procure the development of) the transmission infrastructure required to connect the project to the existing transmission network. There are a number of possible ways of structuring the ownership and operation of the transmission networks that connect offshore renewable projects to the onshore transmission network and a standard market position has not yet been established. For further information, see [here](#).

HYDROGEN

Hydrogen, as an emerging sector, is continuing to garner significant attention in the Australian market – particularly given the potential for 'green hydrogen' (created using renewable energy sources) to offer a low-emissions, clean, storable energy solution for Australia's future domestic energy needs, as well as export opportunities.

The Federal Government has offered policy and financial support to encourage investment in hydrogen technologies, including setting an ambitious economic stretch goal of achieving 'H2 under 2' (ie, hydrogen production under AUD\$2 per kilogram). Grant funding and other financial support has also been offered from the various state and territory governments. For further details on the growing hydrogen industry in Australia, and what we think our clients need to know about it, please see our dedicated hydrogen microsite [here](#).²



FINANCING

Traditionally, and as a function of how financial institutions fund themselves in Australia, most project finance banks have preferred to provide debt maturing at 5 to 7 years post construction. However, with shifting market dynamics created by funding from government entities and a renaissance of European bank interest in our market and Asian debt investors looking for greater yield in certain circumstances, we are seeing the stretching of debt tenor to periods as long as 15 to 18 years for projects where sponsors want to remove refinancing risk.

Non-bank debt providers, including investors who participate in debt capital markets, are showing interest in mature renewable projects with long-term contracted revenue streams easing the funding burden on traditional project finance banks, who can allocate capital to new greenfield renewable projects.

Asset recycling has also continued to generate M&A activity with developers recapitalising to enable deployment of capital to new greenfield projects. The low interest rate environment and the lack of a brownfield pipeline for other infrastructure assets in Australia have improved the level of competition and field of investors bidding for established renewable projects, particularly among the ever-increasing class of investors seeking to allocate capital to environmentally and socially responsible assets.

Traditionally, project financing of a renewable energy project is dependent on the availability of a long-term offtake contract (beyond 10 to 15 years). However, the number of long-term offtake agreements entered into by utility companies traditionally used to support such projects are in short supply relative to the number of new developments. Consequently, financiers have increasingly been comfortable lending on the basis of more novel structures including:

¹ Girt by sea: an Australian offshore renewables framework takes shape ([allens.com.au](#))

² Sector: [Hydrogen](#) - Allens.

- > merchant deals supported by a parent company guarantee or a tolling agreement which underwrites a minimum volume of annual merchant revenues;
- > partially contracted projects with built-in protections should they not be fully contracted by completion, or otherwise lower gearing levels, and often involving a number of separate offtakers, including corporate offtakers; and
- > sponsors bundling projects on a portfolio basis, rather than on a separate non-recourse basis, to aggregate and diversify contracted and merchant revenue streams.

Issues around the power grid, including grid connection and congestion, have made project financiers more wary when financing greenfield renewables projects, in particular wind and solar. However, the expectation is that we will see continued growth in that market. There is an urgent need to replace existing base load generation given Australia's fleet of coal fired power stations is ageing and coming up to decommissioning, with recent public announcements by leading energy retailers to accelerate their closure plans. Favourable market conditions in recent years, including historically low base rates and an abundance of liquidity in the project finance market, have also paved the way for borrowers and project sponsors to achieve more favourable terms in infrastructure and renewables assets.

The Federal Government also provides support for infrastructure and renewable energy projects through various multilateral agencies including, the Clean Energy Finance Corporation, the Northern Australia Infrastructure Facility and the Australian Renewable Energy Agency. These entities have stimulated investment by providing financing solutions, which make challenging projects economically viable for project sponsors through flexible financing solutions such as taking on equity positions, providing grants and concessional loans. Their focus is to drive investment in new technologies and we have recently seen them supporting a number of new asset classes in Australia including pumped hydro projects, battery projects, offshore wind, and hydrogen projects, representing a diversification of energy generation

including base load generation, storage and intermittent energy sources.

Due to an absence of clear federal energy and climate policy, we have also seen the majority of states and territories introduce aggressive renewable energy targets (as mentioned above) and financial support initiatives aimed at further stimulating market investment through the introduction of renewable energy zones and the provision of reverse auctions, funding rounds and concessional loans.

- > retailers with more than 100,000 customers; and
- > an energy market operator, or an asset used by an energy market operator that is essential to ensuring the security and reliability of an energy market.



CHANGES TO AUSTRALIA'S FOREIGN INVESTMENT REGIME EFFECTIVE 1 JANUARY 2021

On 1 January 2021, a number of changes were introduced by the Australian Government to Australia's foreign investment regime.

A mandatory Foreign Investment Review Board ("FIRB") approval requirement is now in place for 'notifiable national security actions', which have a zero-dollar threshold. Transactions which trigger a 'notifiable national security action' are starting a 'national security business', acquiring a direct interest in a 'national security business' or acquiring an interest in 'national security land'.

- > A national security business is generally one which is involved in or connected with a 'critical infrastructure asset', telecommunications, defence or a national intelligence community (of either Australia or a foreign country), or their supply chains. Critical infrastructure is defined by reference to the *Security of Critical Infrastructure Act 2018*, which covers a number of sectors.
- > National security land is generally land which are defence premises or where it is publicly known (or could be known upon the making of reasonable enquiries) that a national intelligence agency has an interest in the land. The acquisition of an interest in national security land requires FIRB approval.

The effect of these changes is that FIRB approval will be required prior to starting a business or acquiring a direct interest in an entity that owns or operates a 'critical electricity asset', currently defined in the Security of Critical Infrastructure Act 2018 as being:

- > a network, system or interconnector for the transmission or distribution of electricity to ultimately service at least 100,000 customers; or
- > an electricity generation station that is critical to ensuring the security and reliability of electricity networks or electricity systems in a State or Territory being one that satisfies all of the following:
 - > either:
 - the entity that owns or operates the electricity generation station is contracted to provide a system restart ancillary service in the State or Territory; or
 - the electricity generation station is an electricity generator, in the State or Territory, that has an installed capacity of at least 30MW; and
 - > it is connected to a wholesale electricity market.

As the assessment is on an asset-by-asset basis, FIRB approval would not be mandatory if the target entity operated a number of renewable energy assets, in circumstances where each individual energy asset did not meet the criteria set out above.

Since 1 January 2021, the Federal Treasurer also has a 'call-in power' to review a broad range of transactions which were not previously notified to FIRB on a voluntary basis. Following such a review, the Treasurer can make orders (such as prohibition or divestment orders) where the Treasurer is satisfied that the transaction would be, or that the result of it is, contrary to national security. The risk of the call-in power being exercised can be removed by voluntarily applying for FIRB approval.

Since 1 January 2021, the Federal Treasurer also has a 'last resort power' to make divestment orders and unilaterally impose a new condition (or vary existing conditions), in each case on national security grounds, after FIRB approval has been granted.

In effect, the introduction of the call-in power has significantly expanded the pre-1 January 2021 voluntary notification regime for significant actions, especially as FIRB has identified renewable energy as posing a potential national security risk. In guidance issued for the energy sector (including renewables), FIRB has indicated that a voluntary filing is recommended in circumstances where a foreign person proposes to invest in an energy retailer (gas or electricity) where the foreign person would subsequently hold interests in energy retailers with more than 100,000 customers.

July 2022

This publication is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction.

Allens is an independent partnership operating in alliance with Linklaters LLP.



RELEVANT EXPERIENCE

Allens' Renewable Energy team brings together extensive experience in dealing with the complex and broad ranging legal issues associated with the development, acquisition and sale of renewable energy assets. We have acted for sponsors, purchasers, vendors and financiers, and advised on all facets: everything from M&A, finance, tax and infrastructure.

Hand in hand with understanding the issues associated with the development and expansion of renewable assets, our team also brings a proven track record in advising on sales and acquisitions of renewable assets.



WESTERN AUSTRALIA

- > Agnew Hybrid Renewable Microgrid
- > Collgar wind farm
- > Emu Downs solar farm
- > Emu Downs wind farm
- > Flat Rocks wind farm
- > Greenough River solar power plant
- > Mumbida wind farm
- > Northam solar farm
- > Walkaway wind farm

SOUTH AUSTRALIA

- > Allendale wind farm
- > Aurora Solar Energy Project (incl. battery storage)
- > Baroota pumped hydro project
- > Canunda wind farm
- > Cathedral Rocks wind farm
- > Clements Gap wind farm
- > Hallett wind farm
- > Highbury pumped hydro
- > Hornsdale Power Reserve
- > Hornsdale wind farm
- > Kanmantoo pumped hydro
- > Lake Bonney wind farm
- > Lincoln Gap wind and battery project
- > Mannum battery project
- > Mt. Millar wind farm
- > Olympic Dam solar
- > Port Augusta renewable energy park (hybrid wind and solar)
- > Riverland solar and battery project
- > Solar River and battery project
- > South Australian energy transformation
- > Starfish Hill wind farm
- > Tungketta Hill wind farm
- > Waterloo wind farm

- > Wattle Point wind farm
- > Willogoleche wind farm
- > Wyalla wind farm

QUEENSLAND

- > Blackwater solar farm
- > Bowen solar farm
- > Bulli Creek solar farm
- > Cape York solar and battery project
- > Chinchilla solar farm
- > Collinsville solar power station
- > Cook Shire solar PV/battery storage/ system management plant
- > Coopers Gap wind farm
- > Darling Downs solar farm
- > Edenvale solar farm
- > Forsyth wind farm
- > Genex Bouldercombe Battery Project
- > Genex Kidston hydro project
- > Hamilton solar farm
- > Kennedy Energy Park solar wind and battery
- > Lakeland solar project (incl. battery storage)
- > MacIntyre wind farm
- > Mount Emerald wind farm
- > Oakey solar farm
- > Queensland Government wind farm asset sales
- > Teebar solar Farm
- > Weipa solar farm
- > Whitsunday solar farm
- > Windy Hill wind farm

NEW SOUTH WALES

- > Avonlie solar farm
- > Bango wind farm
- > Beryl solar farm
- > Boco Rock wind farm

- > Bodangora wind farm
- > Broken Hill solar power plant
- > Crookwell 2 wind farm
- > Coppabella wind farm
- > Crookwell 2 wind farm
- > Cullerin Range wind farm
- > Glen Innes wind farm
- > Goonumbla solar farm
- > Gullen Range wind farm
- > Gunning wind farm
- > Hunter power project at Kurri Kurri
- > Liverpool Range wind farm
- > Manildra solar farm
- > Moree solar farm
- > Nyngan solar power plant
- > Riverina Energy Storage System
- > Sapphire wind farm and associated battery project
- > Shoalhaven hydro electricity scheme and pumped hydro
- > Snowy Hydro 2.0
- > Silverton wind farm
- > Taralga wind farm
- > Trina Solar, rollout of roof-top solar leasing product
- > Ungala wind farm
- > Wellington solar farm
- > White Rock solar farm
- > White Rock wind farm
- > Woodlawn wind farm
- > Wallgrove Battery
- > Rye Park wind farm

VICTORIA

- > Bald Hills wind farm
- > Berrimal wind farm
- > Berrybank wind farm
- > Challicum wind farm
- > Cherry Tree wind farm

- > Congupna solar farm
- > Gannawarra solar farm
- > Hazelwood battery
- > Hepburn wind farm
- > Kerang solar farm
- > Kiamal solar farm
- > Lal Lal wind farm
- > Macarthur wind farm
- > Melbourne Water mini hydro scheme
- > Moorabool wind farm
- > Mortlake wind farm
- > Mount Gellibrand wind farm
- > Morton's Lane wind farm
- > Mt. Mercer wind farm
- > Nirranda wind farm
- > Nowingi solar and battery project
- > Portland wind farm
- > Salt Creek wind farm
- > Stockyard Hill wind farm
- > Solar Systems demonstration project
- > Timboon West wind farm
- > Toora wind farm
- > The Victorian Government's VRET 2017 Reverse Auction
- > Waubra wind farm
- > Wonthaggi wind farm
- > Woolsthorpe wind farm
- > Yawong wind farm
- > Victorian 'Big Battery' process

TASMANIA

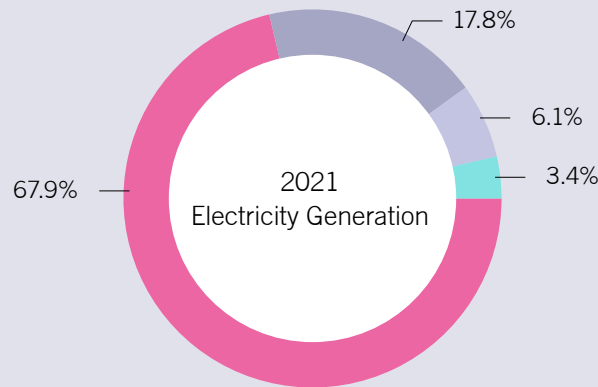
- > Cattle Hill wind farm
- > Granville Harbour wind farm
- > King Island solar power station
- > Musselroe wind farm
- > Woolnorth Studland Bay wind farm

Renewable Energy in Mainland China.



WHICH SECTORS ARE ACTIVE?

The PRC is the world's largest electricity producer and it is reported that its installed generation capacity exceeds 2,380GW by the end of 2021.¹ In 2021, the PRC produced 8,3768 billion kWh of electricity. This was mainly produced using coal (67.40%) and hydroelectric power (16%). In comparison, wind generation represented 7.83% and solar generation 3.90%.² The country's power generation composition by source of energy, as of 2021, was as follows:



	Capacity (%)
● Coal	67.9
● Hydroelectricity	17.8
● Wind	6.1
● Solar	3.4

Source: China Electricity Council (Note: certain forms of renewable energy are not included in the China Electricity Council figures due to them comprising only small proportions of overall power production)



WHAT ARE THE MAIN POLICY TRENDS?

In recent years, the Central Government has been actively promoting the use of renewable energy as part of a wider effort to address pollution concerns and comply with China's international commitments with respect to the reduction of carbon emissions. The announcement in September 2020 of the goal to reach peak carbon emission by 2030 and carbon neutrality by 2060, followed by the promulgation of a set of policies for achieving such goal is one of the more recent milestones showcasing such commitment to the use of renewable energy.

The 14th five-year plan (the "14th FYP") for the five-year period from 2021 to 2025 issued by the National Development and Reform Commission (the "NDRC") and adopted by the Central Government in March 2021³ reinforces the need to expedite the development of non-fossil energy, and to build a modern energy system. This system encompasses increasing wind and solar energy, optimising electricity transmission, energy storage, new energy vehicles, hydrogen, carbon capture, utilisation, and storage ("CCUS") and digitalisation. The 14th FYP draws a blueprint for non-fossil energy development for the country, taking into account the diversified natural conditions in different geographical locations. It designated southwest region as a base for hydro

1 Source: <https://cec.org.cn/detail/index.html?3-306241>

2 Source: <https://www.cec.org.cn/detail/index.html?3-306014>

3 Source: <http://www.npc.gov.cn/npc/kgfb/202103/bf13037b5d2d4a398652ed253cea8eb1.shtml>

power projects, and eastern coastal provinces including Guangdong, Fujian, Zhejiang, Jiangsu and Shandong as regions where the construction of offshore wind projects will be encouraged. The 14th FYP also sets the target share of the use of non-fossil sources in the energy mix to around 20%.

By the end of 2021 (the first year of the 14th FYP period), the installed capacity of renewable energy was approx. 1063GW, amongst which the installed capacity of wind energy was approx. 328GW (with 26.39GW of capacity coming from offshore wind projects⁴, and the installed capacity of solar energy was approx. 306GW.⁵

Following the 14th FYP:

- > The 14th five-year plan for the energy sector was released to the public by the NDRC and the National Energy Administration (the “NEA”) in March 2022 (the “14th FY Energy Plan”).⁶ The 14th FY Energy Plan set out five major tasks for the 14th FYP period, which include, among others, to achieve remarkable low-carbon energy transition and to significantly raise the efficiency of the energy system. It further sets the target of the ratio of non-fossil fuel power generation against the total power generation at about 39% by the end of the 14th FYP period.
- > The 14th five-year plan for renewable energy (the “14th FY Renewable Energy Plan”)⁷ was released to the public on 1 June 2022 by the NDRC, the NEA and seven other governmental authorities. The 14th FY Renewable Energy Plan set out, among others, the goals for the development of renewable energy in the following four aspects for the 14th FYP period:
 - > Total renewable energy consumption: to reach approximately one billion tons of standard coal and to account for at least 50% of the total increase

of the primary energy consumption during the 14th FYP period;

- > Power generation: power generated from renewable energy to reach approximately 3.3 trillion kWh per year and its increase to account for at least 50% of the total increase of the entire energy consumption during the 14th FYP period; wind and solar power generation to double during the 14th FYP period;
- > The ratios of the consumption of renewable power and non-hydro renewable power against total power consumption to reach approximately 33% and 18% respectively by the end of the 14th FYP period; and
- > Use of renewable energy for non-power purposes (eg, heating by solar, geothermal and biomass) to reach more than 60 million tons of standard coal.

NEA also requires provincial governments to file the provincial-level 14th FYP on renewable energy by 28 April 2022 (or if later, within a grace period of ten days after the plan is finalised)⁸. As of the date of this report, certain provincial level NDRC have already announced their respective local 14th FYP on renewable energy. For example, Zhejiang aims that by 2025, the total installed capacity of renewable energy should reach over 50GW⁹, and Shandong sets the goal at over 80GW, and if possible, 90GW.¹⁰



HOW DOES THE SYSTEM WORK?

The power offtakers for renewable energy producers are the grid operators and possibly end-users.

- > **Grid operators:** grid operators are the primary offtakers for renewable energy. Instead of a unified grid system, power transmission and distribution in the PRC are managed

through six regional grids. Five grids are managed by subsidiaries of State Grid Corporation and one (in the South) is managed by China Southern Power Grid.

- > **End-users:** recent reforms have opened the possibility for end-users to enter into power purchase agreements with renewable energy producers directly.

Electricity producers (conventional and renewable) in the PRC include:

- > **The “Big 5”:** the five major power producers in the PRC are state-owned companies commonly referred to as the “Big 5”. They are China Datang Corporation, China Guodian Corporation, China Huadian Group, China Huaneng Group and China Power Investment Corporation.
- > **Other state-owned companies:** State Grid Corporation and China Southern Power Grid have power generation subsidiaries, and so do some other large state-owned companies such as Shenhua. Some regional state-owned companies also engage in power generation.
- > **Private power producers:** a small number of private power producers also operate in the PRC.



⁴ Source: http://www.nea.gov.cn/2021-01/30/c_139708580.htm

⁵ Source: http://www.nea.gov.cn/2022-01/28/c_1310445390.htm

⁶ Source: https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/202203/t20220322_1320016.html?code=&state=123

⁷ Source: http://zfxgk.nea.gov.cn/2021-10/21/c_1310611148.htm

⁸ Source: http://www.nea.gov.cn/2022-04/18/c_1310563767.htm

⁹ Source: http://www.zj.gov.cn/art/2021/6/23/art_1229203592_2305636.html

¹⁰ Source: <http://nyj.shandong.gov.cn/module/download/downloadfile.jsp?classid=0&filename=989a7eec2f6a49f3b5db244a3825eeec.pdf>



REGULATORY BODIES

NATIONAL ENERGY COMMISSION (“NEC”)

- > The NEC is a ministerial-level coordinating commission. It is headed by the prime minister and includes high-ranking members (usually ministers) from different departments and ministries, including both the NDRC and NEA.¹¹
- > The NEC is the highest authority in charge of the power and energy sector in the PRC, including renewable energy. It is responsible for formulating national energy development strategies, analysing material issues which present a threat to energy security and energy development, and coordinating among governmental departments and ministries in respect of major issues concerning domestic development and international cooperation on energy related matters.

NATIONAL DEVELOPMENT AND REFORM COMMISSION (“NDRC”)

- > The NDRC is a ministerial-level agency responsible for a wide range of matters, including national economic planning, regulating foreign investment, and approving projects of national importance.
- > The NDRC’s specific responsibilities with respect to renewable energy include determining tariffs, planning and managing renewable energy generation projects and examining and approving the grid construction plans for renewable energy power plants.

NATIONAL ENERGY ADMINISTRATION (“NEA”)

- > The NEA was established in 2013 as a vice-ministerial level agency under the NDRC.¹² The NEA’s responsibilities include formulating and implementing energy development plans and industrial policies; administering energy sectors including coal, oil, natural gas, power (including nuclear

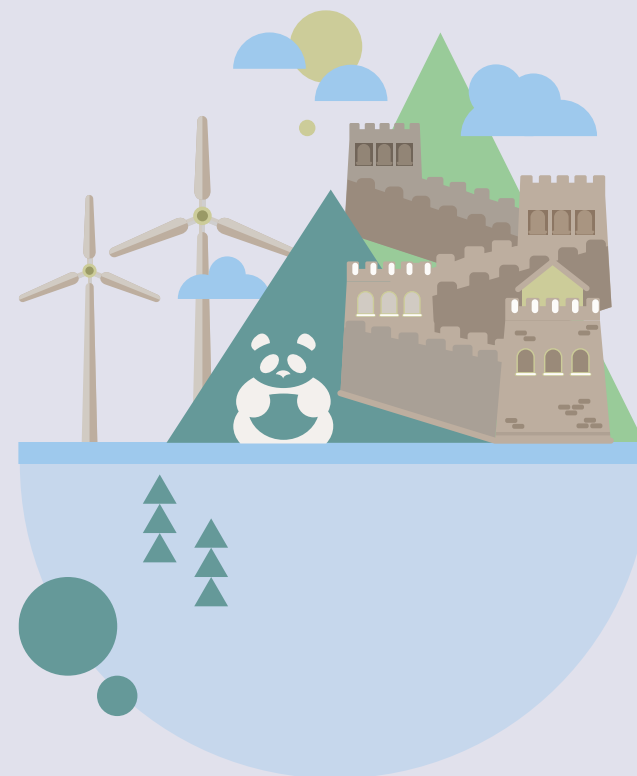
power), new and renewable energy; conducting energy forecasting and taking precautionary measures; and participating in the formulation of policies related to energy such as resources, finance and taxation, environmental protection, and addressing climate change.

- > The NEA has established a Renewable Energy Department¹³ which is responsible for drafting regulations and plans as well as executing initiatives relating to renewable energy. The NEA and its Renewable Energy Department have launched various initiatives, including the Information Management Platform for Renewable Power Projects,¹⁴ which simplified the approval/filing process for renewable power projects and streamlined the process from which they can benefit from incentives.



LOCAL GOVERNMENTS AND ADMINISTRATIVE DEPARTMENTS

- > Pursuant to the Renewable Energy Law, administrative departments of local governments in charge of energy are responsible for developing and utilising renewable energy within their respective jurisdictions and preparing development plans for small-scale renewables projects in rural areas.
- > Local governments and administrative departments are also involved in various aspects of renewable energy projects through their roles in permitting, zoning, construction and safety supervision. In practice, local regulations play an important role in permitting and project development.



11 Source: <http://www.nea.gov.cn/gjnyw/>

12 Source: <http://www.nea.gov.cn/gjnyj/index.htm>

13 Source: <http://www.nea.gov.cn/sjzz/xny/>

14 Source: <http://djfj.renewable.org.cn/default/coframe/auth/login/login.jsp>



ON-GRID TARIFFS

The PRC started to implement power purchase prices akin to feed-in tariffs for an expanding scope of renewable electricity sources in 2009. The NDRC used to determine and publish feed-in tariffs for each energy source based on its evaluation of the cost of electricity generation using that source. However, in recent years, the central government has gradually shifted towards ultimately reaching grid parity for renewables. We set out below a summary of the on-grid tariffs as applicable to different energy sources (as of March 2022).



Source	On-grid Tariff	Latest Applicable Notice
Solar	<ul style="list-style-type: none"> > Starting from 1 August 2021, the grid parity prices for most new projects¹⁵ are the same as local benchmark prices for coal-fired power. > Previous projects follow feed-in tariffs as set out in the then-applicable notices issued by the NDRC. 	Notice of the NDRC on the On-grid Tariff Mechanism for New Energy (2021) (《国家发展改革委关于2021年新能源上网电价政策有关事项的通知》)
Wind – Onshore Wind Power	<ul style="list-style-type: none"> > Starting from 1 August 2021, the grid parity prices for new onshore wind projects are the same as local benchmark prices for coal-fired power. > Previous projects follow feed-in tariffs as set out in the then-applicable notices issued by the NDRC. 	Notice of the NDRC on the On-grid Tariff Mechanism for New Energy (2021) (《国家发展改革委关于2021年新能源上网电价政策有关事项的通知》)
Wind – Offshore Wind Power	<ul style="list-style-type: none"> > Starting from 1 August 2021, the feed-in tariffs for offshore wind power projects are set out by the provincial NDRC. > Previous projects follow feed-in tariffs as set out in the then-applicable notices issued by the NDRC. 	Notice of the NDRC on the On-grid Tariff Mechanism for New Energy (2021) (《国家发展改革委关于2021年新能源上网电价政策有关事项的通知》)
Hydropower	<ul style="list-style-type: none"> > In most cases, as set out in notices issued by the provincial NDRC from time to time¹⁶ 	Notice of the NDRC on Improvement of the Feed-in Tariff Mechanism for Hydropower (2014) (《国家发展改革委关于完善水电上网电价形成机制的通知(2014)》)
Biomass	<ul style="list-style-type: none"> > Starting from 1 January 2021, the on-grid tariffs are determined through competitive bidding processes. > Previous projects follow feed-in tariffs as set out in the then-applicable notices issued by the NDRC. 	Implementing Proposals for Improving the Construction and Operation of Biomass Power Generation Projects (2020) (《完善生物质发电项目建设运行的实施方案》(2020))

¹⁵ This applies to concentrated photovoltaic power stations and industrial and commercial distributed photovoltaic power generation projects only.

¹⁶ The feed-in tariffs differ among provinces and will be determined by the NDRC based on the average power purchase price of the grid companies in the respective province and the construction/operation cost of the power plant. For inter-provincial and inter-district power plants, the feed-in tariff will be the average power purchase price paid by grid companies in the province receiving electricity minus the cost of transmitting power in that province, which should be negotiated by the parties and approved by the local NDRC or NEA.



GOVERNMENT INCENTIVES

In 2005, a Renewable Energy Development Fund was established pursuant to the Renewable Energy Law to provide various incentives to renewable power producers, including:

- > funding the research and development of renewable energy, as well as the relevant exploration and development of information systems;
- > funding renewable power projects relating to biomass production in countryside and pasturing areas, and independent power generation power plants in remote areas and islands;
- > promoting the local manufacture of renewable power equipment;
- > providing allowances to renewable power purchasers calculated by reference to the price difference versus regular power consumption; and
- > providing direct subsidies to renewable power producers (being the difference between the relevant renewable project's tariff and the guideline feed-in tariff for coal fire power plants in the same province).

Funding for the Renewable Energy Development Fund mainly comes from two sources: (i) special funding arranged by the Central Government in the national annual financial budget, and (ii) additional power charges imposed on regular power users.



TOPICAL ISSUES

CARBON NEUTRALITY PLAN

In September 2020, President Xi Jinping announced at the United Nations General Assembly that mainland China would strive to hit peak carbon emissions by 2030 and achieve carbon neutrality by 2060. For a country generating the most carbon emissions in the world, these targets are perceived to be ambitious and should, in particular, boost investment in “green” industries such as renewable energy, waste treatment and/or related technologies.

Following President Xi’s announcement, the Chinese government has formulated a “1+N” policy framework – “1” stands for an overarching plan to achieve both peak emissions and carbon neutrality while the “N” stands for different action plans to help achieve peak emissions in various sectors. A guidance document¹⁷ (the “**Carbon Neutrality Guidance**”) and an action plan¹⁸ (the “**Peak Emission Action Plan**”) were issued by the mainland Chinese government in October 2021, prior to the start of COP 26. The Carbon Neutrality Guidance, which lays out specific targets and measures for both reaching peak emission by 2030 and carbon neutrality by 2060, is the “1” in the equation and is a quasi-constitutional set of guidelines. The Peak Emission Action Plan is an essential part of the “N” as it sets out the main objectives for the following two “Five-Year” periods to achieve peak carbon emissions by 2030. As a constituent of the “N”s for the energy sector, an Action Plan for Carbon Dioxide Peaking in the Energy Sector is also anticipated to be issued in 2022.¹⁹

The Carbon Neutrality Guideline and the Peak Emission Action Plan sets out high-level plans for the development of renewable energy for the purpose of achieving peak carbon

emission and carbon neutrality. Further to the target of reaching 20% non-fossil sources in the energy mix by 2025 laid out in the 14th FYP, the Carbon Neutrality Guideline and the Peak Emission Action Plan further specified the goals to be 25% and 80% respectively by 2030 and 2060. Specifically, by 2030, the total installed capacity of wind power and solar power should reach over 1200GW.

To implement the principles and for reaching the long-term goals set out in these two documents in the energy sector, on 30 January 2022, the NDRC and NEA jointly issued the Opinions on Improving the Institutional Mechanism and Policy Measures for Green Energy and Low-Carbon Transformation (the “**Green Energy Opinions**”).²⁰ The Green Energy Opinions aim to improve the institutional mechanism for green energy development, and form an energy production and consumption pattern where non-fossil fuels will not only satisfy the increased energy demand, but also replace existing fossil-fuel at scale, with comprehensively enhanced ability to guarantee energy security by 2030. To achieve the goal, the Green Energy Opinions call for, amongst others, improved policies for green energy consumption, energy development and utilisation mechanism, technological innovation, financial support, international cooperation, etc.²¹

Most state-owned power companies announced their own action plans in support of China’s carbon neutrality plan. State Power Investment Corporation, being the first state-owned energy giant which announced a timetable for reaching the peak of carbon emission, announced its plan to achieve more than 60% of clean energy in its installed capacity by 2025, and increase it to 75% by 2035. State Grid Corporation announced on 27 January 2021 an annual budget of more than US\$70bn to improve its grid assets to facilitate the shift towards more low-carbon and clean energy sources.²² China Southern Power Grid issued on 14 September 2021 the Opinion on Promotion of Transition to

17 Source: http://www.gov.cn/zhengce/2021-10/24/content_5644613.htm

18 Source: http://www.gov.cn/zhengce/content/2021-10/26/content_5644984.htm

19 Source: https://www.eco.gov.cn/news_info/51751.html

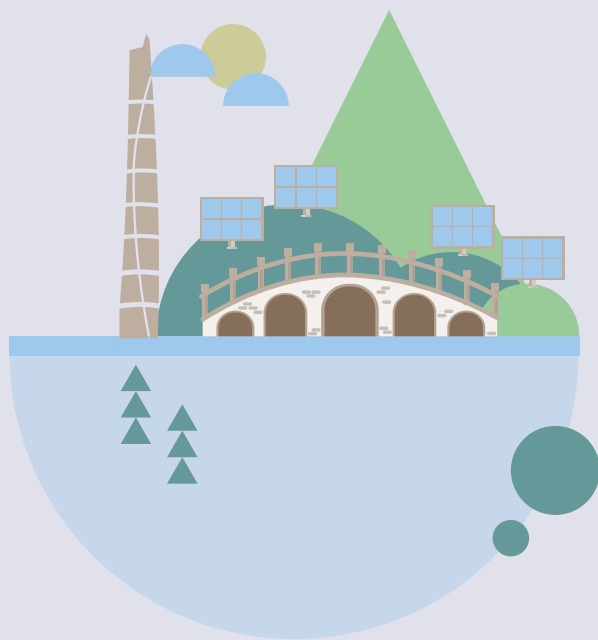
20 Source: https://www.ndrc.gov.cn/xxgk/zcfb/tz/202202/t20220210_1314511.html?code=&state=123

21 Source: <https://www.globaltimes.cn/page/202202/1251931.shtml>

22 Source: <http://www.chinapower.com.cn/xw/zyxw/20210129/48983.html>

Green and Low-Carbon Development, in which it announced its plan to achieve 60% of non-fossil energy in its approx. 100GW newly installed capacity in the 5 provinces in Southern China by 2025, and 70% in its more than 250GW newly installed capacity by 2030.²³

These policies and developments signal support for foreign investment in these industries, including the development of innovative investment structures. We anticipate further regulatory and industry movements in 2022 and are starting to see concrete actions in response to these targets.



COMPETITIVE BIDDING, GRID PARITY AND DECREASING PRODUCTION COSTS

The feed-in tariffs for solar, wind and biomass power used to be set at fixed rates with subsidies from the Renewable Energy Development Fund. The evolving pricing mechanism of competitive bidding since 2019 and then the grid parity policy since 2021 reflect the trend towards grid parity and the expectation that government subsidies and other protections (for new projects) will gradually decrease or be terminated. For example, from 1 July 2019, tariffs for all wind projects (onshore and offshore) and concentrated solar projects are determined through a competitive bidding process, subject to caps set by the applicable guideline feed-in tariffs published by the NDRC. The NDRC also encourages competitive bidding for hydropower plants and some provinces have drafted implementation measures in this regard. From 1 January 2021, tariffs for new biomass projects are determined through competitive bidding processes. Then on 7 June 2021, the NDRC announced the parity price schemes for new concentrated solar, industrial and commercial distributed solar and onshore wind projects effective as of 1 August 2021, under which the tariffs would be the same as the local benchmark price for coal-fired power in most cases.²⁴

As a result, efficient project construction is playing an increasingly important role. For example, from 2007 to 2017 the cumulative cost of photovoltaic power generation dropped by approx. 90%²⁵, and an official of the Ministry of Finance indicated in 2021 that the cost of photovoltaic power generation dropped by approx. 75% over the past 10 years²⁶. For wind energy, the official from the Ministry of Finance indicated an approx. 30% decrease for onshore wind energy over the past 10 years²⁷, and Wood Mackenzie has estimated that the levelised cost of electricity (“**LCOE**”) for onshore wind will decrease from 646 RMB/MWh in 2019 to

409 RMB/MWh in 2028,²⁸ while the LCOE for offshore wind will decrease from 472 RMB/MWh in 2020 to 258 RMB/MWh in 2029.²⁹

GREEN FINANCE

Green finance refers to financial services provided for investment and financing, project operations, risk management for projects in the fields of environmental protection, energy conservation, clean energy, green transportation, and green buildings. Since 2016, the PRC government has been gradually developing standards and policies in this area. On 15 July 2020, the National Green Development Fund was set up, with a registered capital of RMB 88.5bn. Related financial services and instruments such as green loans, green insurance and green PPPs are also emerging in the market. According to the People’s Bank of China (“**PBOC**”), the balance of China green loans nationwide as of the end of 2021 was RMB 15.9tn (an increase of 33% year-on-year), amongst which the balance of green loans for infrastructure upgrades, for clean energy industries, and for energy conservation and environmental protection industries were RMB 7.4tn, RMB 4.21tn, and RMB1.94tn respectively (an increase of 28.3%, 31.7%, and 46.7% respectively, from the beginning of the year).³⁰

On 24 February 2021, the NDRC published a guiding notice to strengthen financial support for renewable energy players, including enabling promising enterprises with pressure on cash flow to negotiate with commercial banks for loan term extension, loan renewal or adjustment of repayment schedule. The notice also allows renewable energy players with confirmed but delayed national subsidy payments to apply for loans from banks for an amount up to the amount of such delayed subsidy payments. The subsidies received afterwards will be used to service these loans. This should help to ease the cashflow pressure faced by many wind

24 Source: <https://cec.org.cn/detail/index.html?3-300945>

25 Source: http://www.gov.cn/zhengce/zhengceku/2021-06/11/content_5617297.htm

26 Source: http://www.nea.gov.cn/2018-04/13/c_137108373.htm

27 Source: <http://www.chinapower.com.cn/xw/zyxw/20210906/100936.html>

28 Source: <http://www.chinapower.com.cn/xw/zyxw/20210906/100936.html>

29 Source: See “China offshore wind power market outlook 2019” by Wood Mackenzie

30 Source: See “China Wind Power Outlook 2020” by Wood Mackenzie

and solar projects. In addition, the relevant authorities will study the feasibility of issuing “green certificates”³¹ to these players so that they can use the revenue from trading such certificates to compensate interest costs of the loans, the balance of which can be reserved as income by the renewable energy players.³²

In April 2021, the PBOC, NDRC and China Securities Regulatory Commission jointly issued the List of Projects Supported by Green Bonds (2021 version), a list for defining and selecting green projects and sectors that qualify for supports by green bonds³³, under which 26 types of projects in 3 clean energy sectors have been included, eg manufacture of wind generators, solar generators, biomass production facilities, etc.³⁴

To further incentivise the financial institutions, in November 2021, PBOC rolled out a carbon emission reduction facility to support those national financial institutions which will provide qualified green financings to entities in key sectors such as the clean energy sector (which include, amongst others, wind power generation, solar and biomass utilisation, etc.). After these financial institutions provide green loans at benchmark lending rate (generally the same as the loan prime rates (LPR), currently approx. 3.7% p.a. for a one-year term, and 4.6% p.a. for a term longer than five years), PBOC will provide a back-to-back loan amounting to 60% of the principals for one year (which could be extended twice) at the rate of 1.75% p.a.³⁵

GOVERNMENT SUBSIDIES FOR CLEAN ENERGY PROJECTS

As the costs of wind and solar projects decrease, the central government has been gradually phasing out national

subsidies for renewable projects. Central government subsidies are no longer available for new onshore wind projects from 1 January 2021, or for new centralised photovoltaic power stations and industrial and commercial distributed photovoltaic power generation projects from 1 August 2021. Subsidies for biomass projects connected to the grid after 11 September 2020 are shared by both the central and local governments, as opposed to entirely being provided by the central governments.³⁶

CURTAILMENT AND MINIMUM OFFTAKE

One of the key issues affecting the development of renewables in the PRC has been the practice of curtailment by grid operators.

The PRC has been actively developing its regional grids and ultrahigh-voltage (or UHV) cross-province distribution lines, and has introduced various policy tools to address the issue. There has been significant and steady reduction of curtailment over the years.

In May 2016, the NDRC issued a document known as “**Document 625**” and introduced a new approach to tackle curtailment. Document 625 does not propose to end curtailment completely, but provides for:

- > a new mechanism for allocating numbers of hours (to be determined by the NDRC and NEA) with guaranteed offtake of renewable energy by grid companies;
- > compensation for renewable power producers when curtailment is applied (with conventional power producers bearing the costs if the curtailment is due to them generating electricity beyond allocated capacity); and

- > the possibility for renewable power producers to enter into power purchase agreements (with priority dispatch) with end-users for hours not guaranteed by grid companies.

According to Document 625, the NEA and the competent local authorities will decide and publish the number of hours of guaranteed offtake by grid companies for each province.

On 2 April 2018, the NEA issued to local governments the Notice on Easing the Burden on Renewables Sector Enterprises,³⁷ prescribing a strict implementation by the grid companies of guaranteed hours of offtake of renewable power, and a commitment that the NEA will suspend construction of new renewable projects in regions that fail to meet the guaranteed offtake requirements. In addition, the NEA was tasked with monitoring investments into domestic wind power projects and taking precautionary measures to tackle over-investment and the resulting curtailment issues. The extent of investment restrictions placed on various regions depends on whether such regions are categorised as “Code Red”, “Code Orange” or “Code Green” based on their usage of renewable power and other natural resources. As a significant improvement from 2018, when certain provinces were given “Code Red” status (which meant that the relevant local governments had to suspend approval of new wind power projects and construction of the wind projects that had been previously approved were suspended or delayed), no regions were categorised as “Code Red” in 2020.³⁸

In addition, on 10 May 2019, the NEA and NDRC promulgated a notice on Establishing and Improving the Mechanism for Guaranteeing Renewable Power Consumption, pursuant to which, provincial governments are now under strict obligations to ensure that every year grid

31 Source: <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/4464086/index.html>

32 A “green certificate” is an electronic certificate with a unique code identification issued to qualified renewable energy power generation enterprises, certifying the amount and quality of non-hydro renewable energy, and, for purchasers, evidencing the consumption of green energy. One certificate corresponds to 1MWh power for settlement. After the power generation enterprises have sold the green certificates, the corresponding power should not be entitled for subsidies, and the purchasers of such certificates. After the quota system for renewables consumption was introduced, the green certificates are also used as substitutes for actual consumption (see below “Curtailment and minimum offtake” for more introduction).

33 Source: https://www.ndrc.gov.cn/xxgk/zcfb/tz/202103/t20210312_1269410.html

34 Source: http://www.gov.cn/xinwen/2021-04/22/content_5601285.htm

35 Source: http://www.gov.cn/zhengce/zhengceku/2021-04/22/content_5601284.htm

36 Source: <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/4384182/index.html>

37 Source: <https://www.ndrc.gov.cn/xxgk/zcfb/tz/202108/P020210819321066843725.pdf>

38 Source: http://zfxgk.nea.gov.cn/auto87/201804/t20180426_3156.htm

companies and other power purchasers offtake a minimum amount of renewable energy (which cannot be limited to hydropower only).³⁹

Starting from 2021, NDRC and NEA will publish the renewable energy minimum offtake for each province both for that year and for the subsequent year. The former will be binding, and the latter will be the expected targets. According to the Notice on the Renewable Energy Offtake for 2021 jointly published by the NDRC and NEA, provided that the obligatory offtake by 2025 will be met, provinces that fail to meet the offtake for the year due to objective reasons can roll over the quota to the next year; inter-provincial collaborations for power consumption are also encouraged for power consumption.⁴⁰

To satisfy the minimum offtake requirements, the PRC government is also ramping up support for companies to trade green certificates – the amount of electricity represented by the green certificates could be deemed as the amount of offtake. Given these previously voluntarily traded certificates are now traded under a quota system⁴¹, we anticipate this will eventually become a supplementary method for corporations to comply with the mandated minimum renewable energy consumption requirements.

With the above policies, according to public reports, 3.6% of wind energy was curtailed in the first half of 2021 (which signals a significant improvement from 14.1% in 2016). Meanwhile, the curtailment rate varies significantly between different regions. In the first half of 2021, the curtailment rates for wind projects in Xinjiang, Hunan and Gansu provinces were 8%, 2% and 4%⁴² respectively, dropping to 4.2%, 3.2% and 3% respectively on a year-on-year basis.

OUTBOUND INVESTMENT

China has long been committed to greener outbound investment, and outbound investment in renewable energy projects is expected to gain increasing support in this regard. The Ministry of Commerce (the “**MOC**”) and the Ministry of Ecology and Environment (“**MEE**”, formerly the Ministry of Environmental Protection) have issued several guidelines for the sustainable development of outbound investment and cooperation. Back in 2013, the MOC and the Ministry of Environmental Protection released the Guidelines for Environmental Protection in Outbound Investment and Cooperation, stating the importance of compliance with local laws and regulations with respect to environmental protection. In 2021, the MOC and the MEE jointly released the Green Development Guidelines for Outbound Investment and Cooperation, which further call for the compliance with international green rules and standards, and notably, have listed the promotion of the outbound investment in solar, wind, nuclear and biomass sectors as one of the key tasks. Further, in 2022, MOC and MEE published the Guideline for Ecological and Environmental Protection for Outbound Investment and Construction Projects, requiring enterprises to prioritise clean and green renewables projects when implementing energy projects.

On 21 September 2021, at the United Nations General Assembly, President Xi Jinping announced that China would stop investing in greenfield coal-fired power stations abroad.⁴³ Depending on how the policy is implemented and the timeframe for implementation, this decision could significantly impact the financing of coal-fired power plants in the developing world.⁴⁴ On 24 September 2021, the Bank of

China published a statement on its website announcing that starting in the fourth quarter of 2021, the Bank of China will no longer finance new coal mining and new coal-fired power projects abroad, except for contracted projects.⁴⁵



39 Source: http://www.gov.cn/zhengce/zhengceku/2020-04/08/content_5500246.htm

40 Source: http://www.gov.cn/xinwen/2019-05/16/content_5392082.htm

41 Source: https://www.ndrc.gov.cn/xxgk/zcfb/tz/202105/t20210525_1280789.html?code=&state=123

42 Source: http://www.gov.cn/zhengce/zhengceku/2020-02/03/content_5474144.htm

43 Source: <http://www.scio.gov.cn/32344/32345/44688/47166/47171/Document/1714502/1714502.htm>

44 Source: http://news.china.com.cn/2021-10/08/content_77794567.htm

45 Source: https://www.boc.cn/aboutboc/bi1/202109/t20210924_20085963.html

FOREIGN INVESTMENT AND SERVICES OPPORTUNITIES

The PRC regulates foreign investment through various instruments. One of the most important of these is the Catalogue of Encouraged Industries for Foreign Investment (the “**Catalogue**”), which defines which industries are encouraged with respect to foreign investment. Another tool would be the Special Administrative Measures (Negative List) for Foreign Investment Access (commonly known as the “**Negative List**”), which specifies the sectors in which foreign investment is prohibited or restricted.

Several activities relating to renewable energy (including construction of renewable power plants) are listed in the Catalogue, and do not require a minimum level of domestic participation. The only energy-related sector on the Negative List is the development and operation of nuclear power plants, which must be controlled by domestic investors. Indeed, the Central Government increasingly seems to be seeking to attract foreign investment in the renewables and green energy sector. For example, the latest revision to the Catalogue added waste incineration power plants and construction and operation of clean energy micro-grids to the “encouraged” category (in addition to the activities included in such category in 2020), and there continues to be no requirement for domestic equity control of grid construction and operation businesses.

In November 2021, China’s first foreign-backed offshore wind project (a joint venture between China Energy Investment Corporation and Électricité de France (“**EDF**”)), the 500MW Jiangsu Dongtai wind farm, started operation.⁴⁶

This consistent trend, coupled with the achievement of previous renewable energy targets and the recently announced Carbon Neutrality Plan, are a positive indicator of improved opportunities for foreign investment, particularly for Sino-foreign joint ventures, and we anticipate further regulatory and industry developments in this regard in the next few years.

July 2022

This publication is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction.



46 Source: <https://news.bjx.com.cn/html/20211122/1189301.shtml>

Renewable Energy in India.



OVERVIEW

The renewable energy sector in India is an increasingly important part of the overall energy mix in India and has seen significant growth and investment in the last few years. At the COP26 Summit in Glasgow, the Indian Prime Minister announced that India will install non-fossil energy capacity of 500GW and meet 50% of its energy requirements from renewable energy by 2030.

As of January 2022, India's installed renewable energy capacity stood at 152.36GW, representing 38.56% of the overall installed power capacity. The increased support by the

Indian government and improved economics has encouraged project sponsors to participate in the Indian renewable sector. Renewable energy looks set to play an important role as India looks to meet its energy demands on its own, with the aim to reach 15,820 TWh by 2040.

In this section, we briefly discuss five hot topics that would be of interest to investors thinking of investing in renewable energy in India.



OFFSHORE WIND

According to the World Bank, India has 112GW of bottom-fixed and 83GW of floating offshore wind potential, and the areas of the coasts of the states of Tamil Nadu and Gujarat are believed to hold the best opportunities.

The Indian government has been very keen to exploit this potential and had set itself a target of 5GW by 2022 and 30GW by 2030 but the progress over the years has been very slow. The Indian government publicly notified the National Offshore Wind Energy Policy as early as October 2015 and the relevant Ministry of New and Renewable Energy (“**MNRE**”) had issued draft offshore wind energy lease rules for the development of projects within the country's Exclusive Economic Zone (“**EEZ**”) at the beginning of 2019.

Over the last few years, interest in building wind farms offshore in India has been slowly increasing and many international and domestic players have been readying themselves for the opportunity.

It is expected that the MNRE will open the first offshore wind tender before September 2022 to lease blocks off the State of Tamil Nadu, having potential for 4GW of capacity. This is expected to be the first of eight rounds planned over the next few years with the plans mostly including the areas offshore of Tamil Nadu and Gujarat which hold the most potential.

The MNRE has also announced that evacuation and transmission of power from offshore pooling substation (“**PSS**”) to onshore transmission will be provided free of cost for all offshore wind capacities that will be bid out until 2030. This should assist with addressing a key hurdle in developing India's offshore wind capacity.

The bidding will be conducted on a two-envelope model under which developers will first be pre-qualified based on their technical and commercial capabilities and the bidders who qualify will then proceed to the second stage, which will be based on a quoted lease fee per square kilometre of seabed area, with the bidder offering the highest lease fee winning the lease rights.



GREEN HYDROGEN

The Indian government announced a Green Hydrogen/ Green Ammonia Policy in February 2022 in continuation of the National Hydrogen Mission that launched in August 2021. The aims of the Mission are to (a) make India a green hydrogen hub; (b) boost domestic production of green hydrogen to 5m t/year by 2030; (c) help meet

environmental and climate related targets committed to by the Indian government.

The Indian government has announced many initiatives and incentives for manufacturers and generation companies to boost large-scale domestic production of green hydrogen including:

- > a 25-year free inter-state transmission of renewable power for the production of green hydrogen for projects commissions before June 2025;
- > manufacturers of Green Hydrogen/Ammonia may purchase renewable power from the power exchanges or establish renewable energy capacity themselves or through any other developer, anywhere;
- > Connectivity to the grid on a priority basis; and
- > Green Hydrogen/Ammonia manufacturers can bank their unconsumed renewable power for up to 30 days with a distribution company and take it back when required.

It is also expected that refineries, fertiliser plants etc., will be mandated to use green hydrogen and green ammonia in a phased manner including through being offered production linked incentives.

A number of Indian and international companies in the renewables and green hydrogen technology space are coming together to exploit this opportunity.



GIGAFACTORIES

The Indian government has made available financial incentives of US\$2.4bn for giga factories. This is being distributed through production linked incentive schemes for giga factories with at least 5GWh of annual production per site.

The initial four winning bidders were Rajesh Exports (5GWh); Hyundai Global Motors (10GWh); Ola Electric (20GWh) and Reliance New Energy Solar (5GWh) aggregating to 50GWh annual manufacturing capacity of advanced batteries for EVs and ESS. The incentives will be disbursed over five years, and the factories must be operational within two years.

While the initial recipients of the incentives are mostly automotive companies, Reliance New Energy is a major energy player and has recently bought Faradion, a UK company which works on sodium-ion battery tech and Lithium Werks, which makes lithium iron phosphate (“LFP”) batteries. A further five companies, Mahindra & Mahindra, Exide Industries, Larsen & Toubro, Amara Raja Batteries and India Power Corporation were also waitlisted for capacity plans ranging from 5GWh to 15GWh and Reliance is also waitlisted for a further 15GWh of capacity.



CAPTIVE GENERATING PLANTS

The Indian government has announced that captive generating plants will be exempted from payment of certain regulatory charges such as cross-subsidies and additional surcharges. This monetary benefit, combined with many privately owned industries and conglomerates wishing to source their energy requirements primarily from renewable sources in order to meet higher “green” standards (to access green financing or meet green supply chain requirements of their customers) is likely to lead to establishment of a larger number of captive renewable energy plants.

A captive generating plant is a power plant set up by any person to generate electricity primarily for their own use that meets, among others, certain criteria such as: (i) captive users must own not less than 26% of the share capital; (ii) captive users must consume not less than 51% of the aggregate electricity generated in a financial year; and (iii) such consumption must be in proportion to their ownership in the captive power plant.



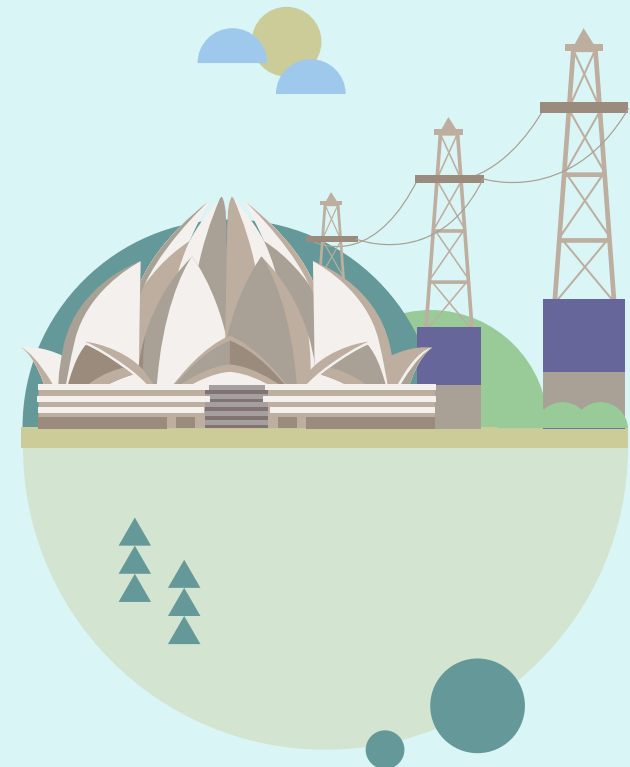
RENEWABLE GENERATION OBLIGATION

The Indian government through policy measures is proposing to encourage non-renewable power generators to diversify into renewable energy through imposing obligations to produce a certain percentage of their generation from

renewable sources. The government is yet to notify the relevant percentage limits or the time periods within which this obligation is required to be complied with.

July 2022

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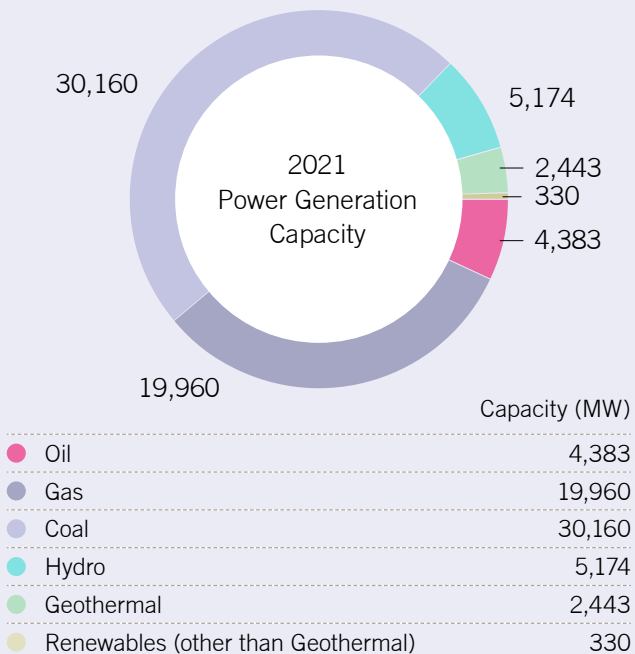


Renewable Energy in Indonesia.



WHICH SECTORS ARE ACTIVE?

As of December 2020, installed capacity in Indonesia is approximately 62.5GW. The majority of production uses coal and gas, while the installed capacity for renewable energy is 10.5GW. The country's power generation capacity composition, as of December 2020, is as follows:



Coal remains as the main resource for power plants. This is despite the various forms of renewable energy resources available in Indonesia, ranging from hydro to geothermal power.

The Minister of Energy and Mineral Resources has issued the Plan for the Provision of Electricity (“**RUPTL**”) 2021-2030 for PT Perusahaan Listrik Negara (“**PLN**”) under Decree No. 188K/HK.02/MEM.L/2021. It is a 10-year electricity development plan for PLN. The new RUPTL has the following key points:

- > capacity targets slightly increased due to revised economic growth targets;
- > new target for the next 10 years: 40.6GW by 2030 where 51.6% would be generated from renewable energy;
- > targeted energy mix in 2025:
 - > Renewables remains the same (23%)
 - > Coal will stay around the same (55 %)
 - > Gas remains the same (22%)
 - > Oil remains the same (0.4%)
- > the electrification ratio in June 2021 was at 99.37%.

The overall potential for renewable energy in Indonesia is as follows:

	Potential Capacity ¹	Installed Capacity (MW) ²	Exploited (%)
Geothermal	29,554MWe	2,442.68	8.27
Hydro	79,091MW	5,174.04	6,54
Solar	207,898MW (4.8kWh/m ² /day)	79.02	0.04



PLN's plan for the development of renewable energy under the RUPTL 2021-2030 (in MW/MWe) can be summarised as follows:

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Geothermal (PLTP)	136	108	190	141	870	290	123	450	240	808
Hydro (PLTA)	400	53	132	87	2,478	327	456	1,611	1,778	1,950
Mini-hydro (PLTMH)	144	154	277	289	189	43	-	2	13	6
Solar (PLTS)	60	287	1,308	624	1,631	127	148	165	172	157
Wind (PLTB)	-	2	33	337	155	70	-	-	-	5
Biomass	12	43	88	191	221	20	-	15	-	-
Wave and Tidal (PLT Kelautan)	-	-	7	-	-	-	-	-	-	-



HOW DOES THE SYSTEM WORK?

PLN Perusahaan Listrik Negara, the state-owned operator, owns the vast majority of the power generation capacity, production and transmission networks for electricity. In addition to PLN's own generation, the Government has, for a number of decades, licensed independent power producers ("IPPs") to generate electricity for use in Indonesia. The licences allow the IPPs to generate a stated amount of electricity for use in Indonesia. This electricity must be sold under a power purchase agreement ("PPA") between the IPP and the relevant buyer of electricity which, in practice, is usually PLN. The price at which electricity may be supplied to PLN must be approved by the Minister. Consumer tariff rates do not cover the cost of generation. As PLN performs a "Public Sector Obligation", the Government provides substantial subsidies for the difference between generating costs and consumer tariffs. As at December 2020, total installed power generation capacity in Indonesia was 62,449.20MW with the following breakdown of ownership:

- > PLN (state-owned operator) – 43,688.48MW (67.79%)
- > IPPs – 17,319.60MW (27.73%)
- > Captive Power – 1.441,12MW (2.3%)



OVERVIEW OF RECENT DEVELOPMENTS IN RENEWABLES

Under the National Energy Policy (2014), 23% of all electricity must be procured from renewable sources of energy by 2025. The 2021-2030 RUPTL stated a 23% renewables target by 2025. PLN has set out strategies to achieve this target including to increase the number of renewable power plants of 10.6GW and conversion of diesel power plant to renewable power plant.

In 2017, a Presidential Regulation implementing the 2014 National Energy Policy was issued, providing the general long term policy at the national level regarding energy management. This regulation sets out the policy and strategy on national energy management until 2050 (to be revised every five years).

In 2017, the government issued a regulation sets out the cap of renewables tariffs by reference to PLN generation costs (see below); this was designed to avoid a subsidy to PLN from renewables development. A new draft presidential regulation on tariff for renewable energy is still being prepared (see below).



TARIFF AND PROCUREMENT REGIME FOR RENEWABLE ENERGY

Minister of Energy and Mineral Resources No. 50 of 2017 as amended by Regulation No. 4 of 2020 ("Regulation 50/2017")

Regulation 50/2017, which took effect on 8 August 2017, is the regime applicable to solar PV, hydro, wind, biomass, biogas, waste to energy, geothermal, wave and tidal, and biofuel. Tariffs are indexed to PLN's generation costs, both locally within the relevant region and nationally. Pursuant to Regulation 50/2017: (i) if the local generation cost is higher than the national average, the tariff is capped at 85% or 100% of the local generation cost; and (ii) if the local generation cost is the same as or lower than the national average, the tariff will be determined by agreement of the parties.

The method of procurement applicable for the different renewable energy projects (ie solar PV, wind, hydro, biomass, biogas, wave and tidal and biofuel) under Regulation 50/2017 is the direct selection method. However, for municipal solid waste and geothermal, the procurement is to be made in accordance with applicable laws and regulations.

Typically, a direct selection process in the power sector involves a competitive tender process involving a minimum of two bidders. Currently, PLN has selected companies that passed the technical and administrative requirements to be put in the selected bidder list for the purpose of direct selection process.

1 Based on Decree of the Minister of Energy and Mineral Resources No.143 K/20/MEM/2019 on the National Electricity Plan 2019-2038.

2 Based on PLN RUPTL 2021-2030.

Regulation 50/2017 also sets out the scheme of direct appointment (in addition to the direct selection) where PLN could directly purchase electricity from a renewable energy IPP without a tender or direct selection process in the event of:

- > a shortage of electricity in the local system;
- > excess power from the IPPs including purchase of electricity from the holder of business area (ie IPP which could sell electricity to the end user within its relevant area, such as an industrial estate);
- > increase of power plant capacity in the same location; or
- > if there is only one provider of renewable energy.

The process will be subject to PLN's RUPTL and the timing for completion of the direct selection and direct appointment process (from qualification until signing of the PPA) has been fixed to a maximum of 180 days and 90 days respectively, with maximum PPA of 30 years. No remedies are provided in the event of any delay in signing the PPA. The latest amendment to MEMR 4/2020 also revises the scheme for renewable energy from "BOOT" (build, own, operate and transfer) back to the "BOO" (build, own, operate) scheme. Any existing PPA signed prior to this latest amendment can be amended to adopt the BOO scheme.

We set out below a summary of the regulations on setting PLN's generation costs ("**BPP**") for the purposes of this calculation. Exceptions apply to waste to energy and geothermal, in particular in the Sumatra, Java and Bali regions. This new tariff regime does not apply to PPAs already signed, as these will be grandfathered using existing tariffs. The focus is on using renewables in regions where it can lower (or at least not increase) PLN's generation costs.

PLN'S GENERATION COST

The Minister of Energy and Mineral Resources ("**MEMR**") has issued a regulation on the mechanism for setting PLN's BPP for particular procurement, both locally and nationally. The BPP will be set annually by MEMR on the basis of a proposal from PLN which references the BPP from the previous year (ie, the BPP for 2022 will be applied for procurement from April 2022 to March 2023). This regulation does not set out

a formula or components for calculating the BPP – it merely stipulates numbers – and there is no BPP for particular energy sources. This means renewables energy needs to compete with other cheaper electricity sources, such as coal, because pricing will be linked to the BPP which includes all energy sources, rather than having a specific feed-in tariff for renewable energy.

MEMR has separately set the actual BPP of PLN for 2021 on 8 September 2021, which is valid from 8 September 2021 until 31 March 2022, that was used as the reference in procurement documents during that period. The national BPP is set at USc7.05/kWh, and there are separate local BPP for different regions in Indonesia. If MEMR has not issued a new stipulation on the national BPP for the period after 31 March 2022, which means that the national BPP of the preceding period shall apply until the new national BPP has been stipulated by the MEMR. If there is any region that does not have a BPP, then the BPP will refer to the highest BPP stipulated in the Minister's decision.



GOVERNMENT INCENTIVES AND TAX BREAKS

Under Presidential Regulation No. 4 of 2016 on the Development of Electrical Infrastructure as amended by Presidential Regulation No. 14 of 2017, power projects may obtain incentives from the central and/or regional government in the form of, among other things: (i) fiscal incentives, (ii) facilities for licensing and non-licensing and (iii) subsidies.

In addition, based on MOF Regulation No.130/PMK.08/2016 on the Granting of Government Guarantees for the Acceleration of the Development of Electrical Infrastructure, there are two types of fiscal guarantees provided by the Government to support acceleration of power infrastructure development. The first type is the loan guarantee for loans to PLN for development of its own power infrastructure. The second type is the business viability guarantee for IPPs to secure certain payment obligations of PLN. In order to obtain the guarantees as mentioned above, the power projects will have to be included on a list drawn up by PLN. This list is

officially approved by the Ministry of Energy and Mineral Resources, and forwarded to the Directorate General of Risk and Financing Management.

The Government has provided: (i) income tax incentives in the form of reductions in taxable income, extended tax loss carry-forward period, accelerated depreciation and amortisation rates, and dividend withholding tax concessions; and (ii) various concessions on import duties and taxes. However, the ability of the Government to achieve its new renewables target may depend on the willingness of the Government to provide further incentives (fiscal incentives or subsidies) to renewables developers.





TOPICAL ISSUES

FOREIGN OWNERSHIP

Following the new investment regulatory framework introduced by Law No. 11 of 2020 on Job Creation (known as the “**Omnibus Law**”), the President of the Republic of Indonesia issued Presidential Regulation No. 10 of 2021 on Investment Lines of Businesses as amended by Presidential Regulation No.49 of 2021 (“**New Positive List**”). The New Positive List was enacted on 2 February 2021 and took effect on 4 March 2021. In line with the objectives of the Omnibus Law to promote investment and create job opportunities through economic growth, the New Positive List marks a significant opening up of many business sectors in Indonesia, including by lifting the maximum foreign ownership restrictions in the power sector which were previously regulated under Presidential Regulation No. 44 of 2016 (known as the “**Negative List**”). The Positive List liberalises the power sector by eliminating the foreign ownership restrictions except for electricity generation capacity of <1MW which would be allocated to micro, small and medium enterprises.

In addition to the very significant foreign ownership liberalisation introduced through the New Positive List, unlike the Negative List (and the older lists), the New Positive List also identifies a list of certain business activities that are entitled to receive fiscal and non-fiscal incentives (tax holidays, tax allowances, investment allowances, customs and excise allowances), including the following:

- > geothermal (exploration and drilling);
- > micro power generation; and
- > mini power generation with investment value of below IDR 100bn.

NEW TARIFF REGIME

Whilst the Government’s desire to adopt a pricing structure for renewables that assists in reducing the existing average cost of generation (and in turn reducing the subsidy dependency of PLN) is laudable, it remains debatable as

to whether benchmarking renewables against the cost of generation from other energy sources at a particular point in time is a legitimate comparison. In particular, this methodology, in comparing the cost of procuring renewables generation against (for example) the cost of procuring coal-fired power generation at a point in time, arguably does not take proper account of either fluctuations in fossil fuel prices (which are passed through to PLN and included in the cost of generation) over time or indirect environmental costs of continued reliance on fossil fuels in the fuel mix.

The Government is preparing a new presidential regulation on the tariff for renewable energy which is expected to be issued by the first half of this year. The new tariff will not reference PLN’s BPP as is applied under the current regulation. This formulation of referencing PLN’s BPP has meant that renewables projects end up competing with coal-fired power plants and as a result are often not commercially viable. Pursuant to the draft presidential regulation, the tariff schemes available for renewable energy consists of:

- > feed-in tariff;
- > ceiling tariff; and
- > negotiated price.

The draft presidential regulation sets out the feed-in and ceiling tariff which will be reviewed every 3 years. However, this new tariff scheme shall not be applied to existing PPAs.

The new feed-in tariff will apply to hydro, solar, wind, biomass and biogas with capacity up to 5MW or expansion of the said renewables up to 5MW.

The ceiling price would be applied to geothermal or its expansion (any capacity), solar, wind, biomass, biogas, hydro with capacity more than 5MW, or their expansion with capacity more than 5MW and excess power from geothermal, hydro, biomass or biogas with any capacity.

Negotiated price would be applied to hydro (peaker), biofuel, waste to energy, wave power with any capacity.

Under the draft presidential regulation, the feed-in and ceiling tariffs for projects will vary depending on the location, capacity and stage of the project. The first stage (covering the first 10 years) will have a higher tariff to underpin the investor’s return of investment and debt repayment, and

thereafter the tariff will decrease. The tariff will apply a “location factor”, being a multiplier stipulated for different islands within Indonesia.

The Government is preparing a new bill on renewable energy which is intended as an umbrella regulation for the general utilisation and management of renewable energy in all sectors (and not just for the power sector). The new bill provides the principle that renewable energy pricing should be based on a fair economic value adopting a reasonable rate of return for the investor, however, no further detail on pricing is prescribed in the draft bill at the time of writing. There is no clear indication as to when this bill would be discussed by the Government or when it is expected to be issued.

Risk allocation under the Power Purchase Agreement Regulation of the Minister of Energy and Mineral Resources No.10 of 2017 on Basic Provisions of Power Purchase Agreement (“**Regulation 10/2017**”) which prescribes certain PPA risk allocation concepts that PLN must follow for certain power projects was amended by the Minister of Energy and Mineral Resources Regulation No. 49/2017 (“**Regulation 49/2017**”) and Minister of Energy and Mineral Resources Regulation No. 10/2018 (“**Regulation 10/2018**”). Regulation 10/2017 caused much consternation in the industry, as it appears to codify certain risk allocation principles – particularly with regard to political risk and PLN grid risk – that roll back safeguards that have for years underpinned the bankability of Indonesian PPAs. As a result, Regulation 49/2017 and Regulation 10/2018 were introduced to improve upon the position surrounding risk allocation principles with regards to political risks and government related *force majeure* for the IPPs. However, there are still some concerns affecting the IPPs under Regulation 10/2017 which remains unchanged in Regulation 49/2017 and Regulation 10/2018, including the absence of deemed dispatch payments to IPPs where a *force majeure* event affects PLN’s electricity grids.

Regulation 10/2017 (as amended by Regulation 49/2017 and Regulation 10/2018) only applies to new PPAs to be entered into by PLN and importantly for the renewables sector does not apply to “intermittent” power generation projects (eg solar and wind projects), mini-hydro projects below 10MW, biomass power projects and municipal waste to energy projects. However, Regulation 10/2017 (as

amended by Regulation 49/2017 and Regulation 10/2018) will still apply to, for example, large-scale hydro projects and geothermal projects.

Even though Regulation 10/2017 (as amended by Regulation 49/2017 and Regulation 10/2018) does not apply to many PPAs in the renewables sector (on the basis that these will be separately regulated), it remains to be seen how the PPA form will be rolled out by PLN across these renewables sectors. To date, PPAs in the smaller-scale renewables space (such as mini-hydro and solar PPAs) have been short-form PPAs that do not in any event reflect an internationally bankable risk allocation on issues such as political risk and PLN grid risk.

CURRENCY ISSUES

Indonesian Currency Law provides that Rupiah must be used to settle financial obligations within the territory of Indonesia. Bank Indonesia regulations also provides that business entities must state the price for goods and/or services only in IDR and prohibited from stating dual quotation (ie, both IDR and foreign currency).

BPP figures are denominated in USD and IDR which leaves open the possibility to denominate the tariff in the PPA in USD under Regulation 50/2017 although payable in Rupiah. For recent large-scale power projects, PLN has accommodated sponsor and lender concerns on currency risk inherent in this arrangement by entering into a tripartite converting agreement with a local bank under which PLN will guarantee the USD amount on conversion back from Rupiah. However, we expect that PLN may be reluctant to offer this concession for the smaller-scale renewables developments, and accordingly residual currency risks will need to be assessed and managed carefully by the sponsors.

LAND ACQUISITION AND SPATIAL LAYOUT PLANS

Power and infrastructure projects in Indonesia continue to be plagued by land acquisition problems, particularly in the populated areas of Java Island.

In 2012, Indonesia enacted Law No. 2 of 2012 on Land Procurement for Public Interest (as amended by the Omnibus Law) as a new regulatory framework governing land procurement in the public interest. Power plants and

electricity transmission distribution fall within the scope of this law. The successful application of these regulations in the context of the Central Java IPP project has given renewed hope that these new laws can actually deliver large-scale infrastructure projects that would once have been incapable of development.

However, another key problem in this area is the misalignment between the national and regional spatial layout plans. The Government through the Omnibus Law has recently introduced amendments to the spatial planning regulatory framework to accelerate the formulation of regional spatial plans, and to integrate the regional spatial layout into an electronic form administered by the Central Government to avoid misalignment between the national and regional spatial layout and for national spatial layout plan to be the basis in the determination strategic areas.

Nevertheless, only time will tell if these changes will in practice accelerate the process of land acquisition that have been held up due to misalignment between the national and regional spatial layout plans.

July 2022

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Renewable Energy in Japan.



OVERVIEW

The Japanese government has committed to the net-zero carbon emissions by 2050, and subsequently published the policy package called “Green Growth Strategy for 2050 Carbon Neutral” referring to the renewables energies as one of the core drivers in 2020. Among others, the offshore wind power is one of the key sectors, and the Ministry of Economy, Trade and Industry of Japan (the “METI”) announced the introduction target for offshore wind power generation of 1GW per year for ten years, totalling to 10GW towards 2030, and 30-45GW by 2040. This has been received positively as an ambitious but achievable target.

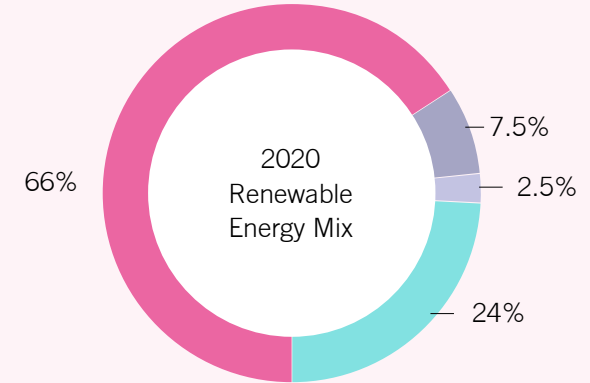
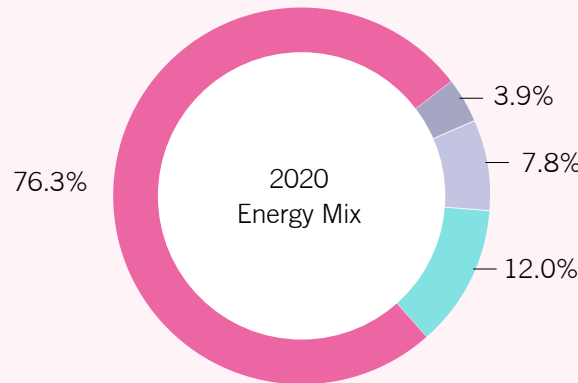
We set out below a brief summary of the regulatory regime for the renewable sector in Japan and some topical issues relating to the renewables sector.

WHICH SECTORS ARE ACTIVE?

CURRENT ENERGY MIX

Japan’s main source of energy is thermal power with coal and LNG representing the most prominent source of electricity generated in its current energy mix. Renewable energy (excluding hydro power) has increased from 2.2% in FY2010 to 12.0% in FY2020.

The chart below breaks down the renewable energy category on the left chart according to sources.

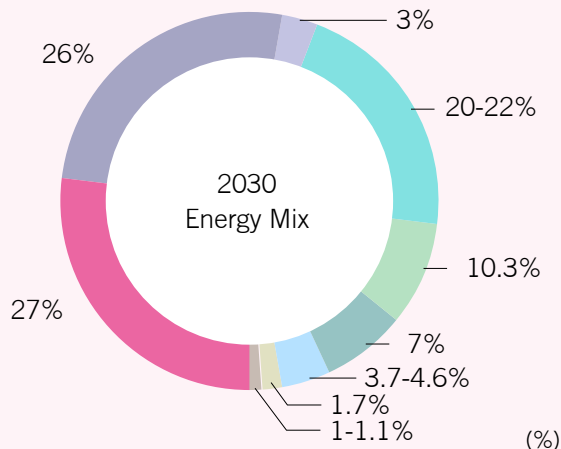


	(%)
● Thermal	76.3
● Nuclear	3.9
● Hydro	7.8
● Renewables	12.0

Source: Comprehensive Energy Statistics, Agency for Natural Resources and Energy

	(%)
● PV	66.0
● Wind	7.5
● Geothermal	2.5
● Biomass	24.0

Source: Comprehensive Energy Statistics, Agency for Natural Resources and Energy



● LNG	27
● Coal	26
● Oil	3
● Nuclear	20-22
● Hydro	8.8-9.2
● PV	7
● Biomass	3.7-4.6
● Wind	1.7
● Geothermal	1-1.1

Source: Agency for Natural Resources and Energy



KEY PARTIES/LEGISLATION

REGULATORY BODIES

METI and the Japanese Agency for Natural Resources and Energy (a governmental agency under the supervision METI) (“ANRE”) are the key governmental bodies regulating power in Japan. METI is responsible for regulating and prescribing the feed-in tariff or feed-in premium regime in Japan, certifying renewable energy generators and prescribing the applicable tariff (in certain cases). In the context of offshore

wind power, the Ministry of Land, Infrastructure, Transport and Tourism (the “MLIT”) is also a key regulatory body overseeing ports and maritime matters.

POWER OFFTAKE

Utilities: The Japanese electricity market has been substantially deregulated and is open to a variety of domestic operators in terms of power generation and retailing. In contrast, general transmission and distribution services had been exclusively undertaken by following traditional 10 utility companies in their capacity as general transmissions and distributions operator:

- > Chugoku Electric Power Company (“CEPCO”);
- > Chubu Electric Power (“Chuden”);
- > Hokuriku Electric Power Company (“Hokuden”);
- > Hokkaido Electric Power Company (“HEPCO”);
- > Kyushu Electric Power (“Kyuden”);
- > Kansai Electric Power Company (“KEPCO”);
- > Okinawa Electric Power Company (“Okiden”);
- > Tokyo Electric Power Company (“TEPCO”);
- > Tohoku Electric Power (“Tohokuden”); and
- > Shikoku Electric Power Company (“Yonden”).

However, in accordance with the new regulations introduced on April 1, 2020, the general transmission and distribution functions of these utility companies have been spun off to separate legal entities which still sit within the same corporate groups while the exclusivity scheme remains in place. Despite the deregulations in terms of power generation and retailing, the transmission and distribution arm of the traditional 10 utility companies are still the main providers of the offtake arrangements.

In addition to the traditional utilities, the independent power producers (including, among others, Electric Power Development Co., Ltd. (known as “J-Power”)) is also a distinguished participant in the electricity market.

Grid lines: Unlike most nations, Japan doesn’t have a single national grid but has separate eastern and western grids for electricity transmission.

LAWS AND REGULATIONS

The Act on Special Measures Concerning Procurement of Electricity from Renewable Energy Sources by Electricity Utilities (“Renewable Energy Act”) and related regulations (including the enforcement ordinances thereof) has been the key legislation for the renewable energy businesses in Japan as it regulates the feed-in tariff regime in Japan. However, the amendment to the Renewable Energy Act under the Act of Partial Revision of the Electricity Business Act and Other Acts for Establishing Resilient and Sustainable Electricity Supply Systems (enacted in June 2020) (the “Partial Revision Act”) will be effective from April 1, 2022 with certain exceptions. Please see “Post-FIT Framework” and “Topical issues” for further details of the Partial Revision Act.





HOW DOES THE SYSTEM WORK?

CERTIFICATION BY METI OF A RENEWABLE ENERGY GENERATOR

A renewable energy generator is only eligible for the benefits prescribed under the feed-in tariff scheme (or feed-in premium scheme) if it obtains a certification from METI in respect of the renewable energy facility (the “**METI Certification**”). The METI Certification is obtained after satisfying certain requirements such as:

- > an ability to generate power on a stable and efficient basis;
- > proper repair and maintenance including the ability to repair the facility within three months;
- > agreed location;
- > output measurement;
- > conversion efficiency; and
- > construction and operating costs recorded and provided to METI.

Since 1 April 2019, the application for the METI Certification must be accompanied by documentary evidence of the consent to the interconnection provided by a utility.

The METI Certification may be revoked if any of the requirements are no longer satisfied. However, unless revoked, it remains valid for the entirety of the procurement period.

If there are any material changes in respect of a renewable energy facility (including, for example, a change in the proposed capacity of the renewable energy facility) that has received a METI Certification, METI must certify the change based on the new specifications of the renewable energy facility.

FEED-IN TARIFF REGIME

Under the feed-in tariff regime, the transmission and distribution entities of the traditional utilities’ corporate groups are required to enter into a power purchase agreement and an interconnection agreement with a renewable generator certified by METI. The relevant transmission and distribution company must:

- > take all power produced by the renewable installation (a volume guarantee subject to certain exceptions);
- > pay a specified tariff for all power actually received; and
- > offer a connection point to the generator (that the generator must pay for).

The idea is to de-risk renewables from market pricing risks based on a standardised power purchase and interconnection agreement with little/no scope for additional risk transfer and no capacity payment (ie the utility does not take resource risk). In our experience, there is very little scope to negotiate the terms of this *pro forma* power purchase and interconnection agreement.

Utilities are compensated for purchasing renewable electricity by a surcharge imposed on end-user consumers, who thereby bear the additional cost of the renewable energy.

Once determined, the tariff applies for the duration of the procurement period. The set tariff is not automatically adjusted by reference to any variable elements such as inflation, retail energy price etc.

The tariff was fixed by reference to the date when the METI certification is granted. The tariff payable by the utility under the regime up to 2021 is specified by METI and we set out on the right the current tariff table.

Type of Renewable Energy	Feed-In Tariff (JPY/kWh)		
	FY2019	FY2020	FY2021
Solar			
<10kW	24/26	21	19
10-50kW	14	13	12
50-250kW	14	12	11
250-500kW	14	Reverse Auction	Reverse Auction
500-2,000kW	Reverse Auction		
>2,000kW	Reverse Auction		

Type of Renewable Energy	Feed-In Tariff (JPY/kWh)		
	FY2019	FY2020	FY2021
Wind			
Onshore (>250kW)	19	18	Reverse Auction
Offshore*	36	Reverse Auction	32
Offshore**	36	36	36

* Fixed Bottom ** Floating

REVERSE AUCTION FOR SOLAR POWER

The maximum capacity, awarded capacity, ceiling price and minimum price of the respective past reverse auctions are set out below:

No.	Max Capacity*	Awarded Capacity*	Ceiling Price**	Min Price**
1	500	141.36	21.00	17.00
2	250	0	15.5	N/A
3	196.96	196.96	15.50	14.25
4	300	266.19	14.00	10.50
5	416.1918	39.81	13.00	10.99
6	750	368.87	12.00	10.00
7	750	69.40	11.50	10.48
8	208	208.4776	11	10
9	224.3357	224.3357	10.75	10.28
10	242.6158	242.6158	10.5	10.23
11	278.5946	268.7099	10.25	8.99

* MW ** JPY/kWh

MARINE RENEWABLES ENERGY ACT IMPLEMENTED SINCE APRIL 2019 (REVERSE AUCTION FOR OFFSHORE WIND POWER)

A new act to allow long-term use of open sea zones for offshore wind (Act of Promoting Utilization of Sea Areas in Development of Power Generation Facilities Using Maritime Renewable Energy Resources (“**Marine Renewables Energy Act**”)) has been officially enacted and implemented since April 2019. It allows wind farm operators to use offshore sea zones for a period of 30 years (previously, the right of possession in general common sea areas could only be retained for 3-5 years).

In 2021, the bid awards for four offshore wind projects under the Marine Renewables Energy Act (so called “Round 1”) have been announced. On 11 June 2021, METI and MLIT announced the bid award for the floating offshore wind project in the promotion area off the coast of Goto City, Nagasaki. In addition, they announced the bid awards for three fixed-bottom offshore wind projects: the sea areas off the coast of (i) Choshi City, Chiba, (ii) Noshiro City, Mitane Cho and Oga City, Akita and (iii) Yurihonjo (North and South) on 24 December 2021.

On 13 September 2021, METI and MLIT announced the designation of the sea area off the coast of Happo Town and Noshiro City, Akita (the “**Happo Promotion Area**”) and launched the public auction on 10 December 2021. However, the auction process was subsequently suspended on 18 March 2022 to revisit the auction guidelines with a view to incentivising the earlier commencement of operation of offshore windfarms. METI and MLIT have held several joint committee meetings in May and June 2022 and proposed some changes to the public auction guidelines. The key features of the proposed changes include (a) the introduction of a new evaluation criteria for earlier commencement of operation, (b) the adjustment of the project feasibility evaluation to 120 points scale and (c) the introduction of a winning capacity limit.

POST-FIT FRAMEWORK

The Partial Revision Act established a Feed-in-Premium (“**FIP**”) regime where renewable power generators receive a certain level of premium based on the market price from 1 April 2022 in addition to the existing FiT regime. This aims to encourage power generators to take market-conscious activities while securing the predictability for return to their investments.

The FIP will be the difference between the fixed base price and the floating reference price. The floating reference price will be determined based on the annual average market price of the preceding year with certain adjustments with reference to the market electricity price of the immediately preceding month, revenues relating to the non-fossil value and balancing costs. The floating reference price will be adjusted on a monthly basis.

The Partial Revision Act envisages that the FiT regime is to be ultimately replaced with the FIP scheme. The transition timetable differs for each type of renewables. For example, FIP has been mandatorily applied for solar power projects with 1MW or more capacity from 2022, but for offshore wind power projects FiT and FIP are both available until 2023 and FIP will be mandatorily applicable from 2024.

TOPICAL ISSUES

CURTAILMENT

In order to avoid excess supply of electricity to the grid lines, transmissions and distribution operators are permitted to direct certain renewable energy generators to restrict the output of electricity. The enforcement regulations of the Renewable Energy Act and the guidelines for operation of power transmissions and distributions, etc., by the Organization for Cross-regional Coordination of Transmission Operators, JAPAN regulates the order of curtailment. The thermal power (petroleum, natural gas and coal) will be curtailed first, followed by the biomass and then solar and wind power. The nuclear, hydro and geo-thermal power will be curtailed at the end of the sequence due to the technical difficulties for controlling the output electricity.

MEASURES FOR PROMPT COMMENCEMENT OF OPERATION

To ensure prompt commencement of project operation after the METI Certification is obtained, in particular in relation to the solar projects which have secured the METI Certification but have been intentionally delaying the commencement of operation, a new measure where the METI Certification expires if the operation of the relevant projects fails to commence within a certain period after the certification has been introduced from 1 April 2022.

However, to address the concern for unexpected delays of the commercial operation date that is not attributable to developers, this expiration regime does not apply if the application for grid connection construction has been received by the relevant general transmissions and distributions operator and the construction plan notification has been received without any deficiencies on or prior to the date one year after the scheduled commercial operation date.



DECOMMISSIONING RESERVES

The Partial Revision Act introduces the requirement for maintaining an external reserve fund for the expenditures for decommissioning of the relevant power generation facilities as a measure for addressing concerns over inappropriate decommissioning of solar power facilities. The reserve requirement has been effective from 1 July 2022.

INTRODUCTION OF POWER PRODUCER'S BASIC CHARGE

The discussion for introduction of the power producer's basic charges to achieve a fairer allocation of the burdens in relation to the maintenance, operation and upgrading costs for the power transmission and distribution systems was initiated several years ago. However, as the application of the additional charges to the existing projects will affect the existing cash flows of the projects (which may have been agreed with the relevant financiers at the time of origination), the base charges have been facing strong oppositions. The introduction of the basic charges and its details have not been decided to date, and the latest indication is to make a conclusion by the end of 2022 with a view to introducing the basic charges from 2024.



POWER PURCHASE AGREEMENT AND INTERCONNECTION AGREEMENT – KEY TERMS

The general transmissions and distributions operators have their own template power purchase agreement (or power purchase and interconnection agreement, as applicable) (“PPA”) for offtaking the renewable powers under the Renewable Energy Act. However, the core terms are not materially different as they are based on the former METI proforma PPA. In practice, there is very little scope for the terms of this *pro forma* agreement to be negotiated.

The contract term of the PPA is usually same as the procurement period of the FIT price, being 20 years.

Usually, a general transmissions and distributions operator is obliged to purchase all electricity output but there are some important exceptions that include:

- > electricity supply to the utility exceeding demand – please see Curtailment above.
- > *force majeure* affecting the plant;
- > the transmissions and distributions operator reasonably considering that power from the operator will affect the stability or quality of its power supply; and
- > a generator failing to pay the utility for electricity supply.

Under the Renewable Energy Act and the Electricity Business Act, a power purchaser and/or the transmissions and distributions operator may refuse to enter into a PPA unless certain mandatory terms and conditions are incorporated. These mandatory provisions include:

- > no compensation being payable for loss suffered unless this is caused by the transmissions and distributions operator (eg, no *force majeure*, political *force majeure*, change in law protection);
- > curtailment provisions;
- > rights for the utility to terminate on revocation of the METI Certification and for certain development delays; and
- > Japanese language, law and courts.

The PPA usually provides for termination rights for either party on insolvency, unremedied breaches of the agreement or applicable law, and where the other party to the agreement becomes an anti-social force or performs anti-social acts.

July 2022

This publication is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction.



Renewable Energy in Malaysia.



OVERVIEW

There has been a reassessment of renewable energy policies in Malaysia, with the release by the Federal Government of the Malaysia Renewable Energy Roadmap (“MyRER”) in December 2021. A business as usual scenario under MyRER shows that Malaysia would not be able to meet its renewable energy targets if existing programmes were not extended or no new programmes introduced. MyRER concludes that new approaches would need to be taken so that Malaysia can achieve its commitments of having 31% renewable energy in national power installed capacity in 2025 and 40% in 2035¹.

As at December 2020, the renewable energy installed capacity in Malaysia was 8.45GW, representing 23% of the country’s power installed capacity.² This is much lower than the global average of 37% and the Southeast Asia average of 30%.³ To catch up and achieve its goals, Malaysia would need to develop a total of 1,178MW of new renewable energy capacities from 2021 to 2025⁴ with an additional 2,414MW to be developed from 2026 to 2035.

The government intends to achieve this by maintaining existing programmes and renewing focus on strategic pillars as outlined in MyRER. Further, the government has also continued to support the development of green technology by allocating funds amounting to MYR 2bn for the Green Technology Financing Scheme 3.0.⁵ Other fiscal measures include a green investment tax allowance and green income tax exemption initiatives.



WHICH SECTORS ARE ACTIVE?

As of December 2020, renewable energy accounted for 23% of Malaysia’s installed capacity. This amounts to 8,450MW renewable energy installed capacity.⁶

	Installed Capacity (MW)	Share in RE Installed Capacity (%)
Large hydro	5,692	67.36
Solar PV	1,534	18.15
Biomass (Palm Oil Waste)	594	7.03
Small hydro	507	6
Biogas	123	1.46

These renewable energy resource sectors have significant potential to grow further, with an estimated 269GW expected to come from solar photovoltaic, 13.6GW from large hydro, 3.6GW from bioenergy such as biomass and biogas, 2.5GW from mini-hydro (up to 100MW) and 229MW from geothermal resources.⁷

1 Source: Statement by Hon. Minister of Environment and Water Malaysia for COP-26 at <https://unfccc.int/documents/310827>

2 Source: “Malaysia Renewable Energy Roadmap (2022-2035)”, p.43, SEDA at https://www.seda.gov.my/reportal/wp-content/uploads/2022/01/MyRER_webVer2.pdf

3 Ibid, p.XII

4 Source: “Report on Peninsular Malaysia Generation Development Plan 2020 (2021 – 2039)”, Jawatankuasa Perancangan dan Pelaksanaan Pembekalan Elektrik dan Tarif (JPPPET) at [https://www.st.gov.my/en/contents/files/download/169/Report_on_Peninsular_Malaysia_Generation_Development_Plan_2020_\(2021-2039\)-FINAL.pdf](https://www.st.gov.my/en/contents/files/download/169/Report_on_Peninsular_Malaysia_Generation_Development_Plan_2020_(2021-2039)-FINAL.pdf)

5 GTFS is a special financing scheme introduced by the government to support the development of green technology in Malaysia.

6 Source: “Malaysia Renewable Energy Roadmap (2022-2035)”, p.43

HYDRO

To date, Malaysia has utilised its hydro potential mainly through the construction of large hydropower facilities, with about 5.69GW installed and this is expected to increase to 5.9GW in 2025.⁸ Plans to develop large hydro capacity are already in place, with the government approving an additional 1,777MW to be operational between 2026 to 2035.⁹

Small hydropower development is in line with the Small Renewable Energy Power Programme which was introduced between 2001 and 2005 under the 8th Malaysia Plan and the feed-in tariff scheme (“**FiT Scheme**”). As of the end of 2020, the installed capacity of small hydropower under the FiT Scheme was approximately 70MW,¹⁰ with plants in progress up to 2025 representing approximately 424.78MW,¹¹ the largest share of all renewables under the FiT Scheme.

SOLAR

Solar PV potential in Malaysia is estimated at 269GW, largely being ground-mounted configurations, rooftop PV systems and floating configurations covering 17 hydroelectric plants and 62 reservoir dams.¹² As solar has consistently outperformed other green technologies in Malaysia, the government expects that most new renewable intakes will come from solar farms. To realise this expectation, the government has pushed several rounds of public auctions for large scale solar projects (as noted below). Solar PV has

also been contributing consistently to the total renewable energy capacity installed under the FiT Scheme and the installed capacity of solar PV under the FiT Scheme has increased from 31.58MW (29.5%) in 2012 to 322.55MW (56.2%) in 2020.¹³

The development and implementation of solar PV in Malaysia is potentially less complicated than other renewable technologies, due to the constant availability of solar energy, the fact that solar technology is seasoned in the market and that Malaysia is the world’s second largest manufacturer of PV modules and third largest manufacturer of PV cells.¹⁴ There are however, some challenges that have been identified – these include difficulty in securing land, obtaining affordable financing for solar PV rooftops, limits to capacity and the lack of third party access regulations.¹⁵

BIOENERGY – BIOMASS/BIOGAS/ MUNICIPAL SOLID WASTE

A total of 3.6GW bioenergy potential has been identified in Malaysia, including 2.3GW for biomass, 736MW for biogas and 516MW for municipal solid waste.¹⁶

As a major agricultural commodity producer in the South East Asian region, Malaysia is well positioned to promote the use of biomass as a renewable energy source. Biomass resources are abundant, especially in the palm oil plantation industry, with Malaysia having approximately 450 palm oil

mills.¹⁷ The palm oil milling industry has the potential to fuel power generation facilities from solid biomass, palm shell and fruit fibres. Palm oil processing also produces palm oil mill effluent suitable for biogas production (gasification). In addition to palm oil waste, there has been growing interest to utilise other agricultural residues such as rice husks and straw as well as wood residue from sawmills for biomass power generation.¹⁸

It is estimated that an average of 9.5 million tons of solid waste is generated every year in Malaysia.¹⁹ As landfill sites reach full capacity, efforts are being undertaken to develop waste-to-energy facilities to tackle waste management issues. The government aims to develop 6 waste-to-energy plants in Malaysia by 2025.²⁰ Assuming all 9.5 million tons of waste can be used directly for power generation through combustion, this would correspond to approximately 516MW of biomass waste-to-energy resource.²¹ Alternatively, if the same amount of waste is converted through landfill gas, this would result in 175MW of biogas resource.²²

7 *Ibid*, p.34

8 *Ibid*, p.42

9 *Ibid*, p.46

10 Source: “*SEDA Annual Report 2020*”, p.40, SEDA at https://www.seda.gov.my/wp-content/uploads/2022/01/SEDA-KWSM-Annual-Report-2020_2.pdf

11 Source: *RE Quota published by Sustainable Energy Development Authority*, at <https://www3.seda.gov.my/?omaneg=000101000000010101010001000010001000101110000>

12 Source: “*Malaysia Renewable Energy Roadmap (2022-2035)*”, p.38

13 Source: “*SEDA Annual Report 2020*”, p.40

14 According to Malaysia’s Science, Technology and Innovation Minister, Datuk Seri Wilfred Madius Tangau at the Astana Expo 2017 who was quoted in “*Malaysia a world leader in manufacturing of solar power technology, says minister*”, reported by The Star, 26 June 2017, at <https://www.thestar.com.my/news/nation/2017/06/26/malaysia-a-world-leader-in-manufacturing-of-solar-power-technology-says-minister>

15 Source: “*Malaysia Renewable Energy Roadmap (2022-2035)*”, p.48-49

16 *Ibid*, p.34

17 Source: “*Malaysia Renewable Energy Roadmap (2022-2035)*”, p.40

18 *Ibid*.

19 *Ibid*.

20 Source: <https://themalaysianreserve.com/2020/06/22/kpkt-six-wte-plants-planned-towards-2025/>

21 Source: “*Malaysia Renewable Energy Roadmap (2022-2035)*”, p.40

22 *Ibid*.



HOW DOES THE SYSTEM WORK?

OFFTAKERS/GENERATORS

Tenaga Nasional Berhad (“TNB”), Syarikat SESCO Berhad (“SESCO”), and Sabah Electricity Sdn Bhd (“SESB”)

are the principal electricity companies in Malaysia (and the most common offtakers). They cover the regions of Peninsular Malaysia, Sarawak and Sabah, respectively. TNB is a company listed on Bursa Malaysia, the Malaysian stock exchange and controlled by the federal government. SESCO is 100% owned by Sarawak Energy Berhad which is wholly owned by the state government of Sarawak through the State Financial Secretary whilst SESB is owned by both TNB (83%) and the state government of Sabah (17%). In Peninsular Malaysia, Sarawak and Sabah, TNB, SESCO and SESB respectively dominate the electricity supply value chain, namely the electricity generation²³, transmission, distribution and retail sectors. The electricity generation sector in Peninsular Malaysia and Sabah were partially liberalised when licences to build, operate and own power plants were issued to independent power producers in the early 1990s after a nationwide power blackout as a measure to overcome power outages and introduce competition in the power generation sector. Further reform was carried out with competitive bids administered by the Energy Commission for new plant ups. The government has now stated an intent to carry out structural reform of the market to, among others, add competition across the electricity supply value chain.

POLICY MAKERS

Energy Division of the Economic Planning Unit, Prime Minister’s Department (“Energy Division”) aims, in general, to plan and develop the energy sector in Malaysia.²⁴

Key functions of the Energy Division include formulating policies for the energy sector, including strategies relating

to the sustainable development of the energy sector, increasing utilisation of renewable energy and providing allocation for the implementation of energy-related projects and programmes. The government is in the final stage of formulating Malaysia’s National Energy Policy, outlining the planning and development agenda for the country’s energy sector as it transitions towards a low-carbon future.

Ministry of Energy and Natural Resources (“MENR”)

is the ministry that has jurisdiction over the electricity sector in Malaysia. MENR aims to manage the electricity supply industry strategically by optimising renewable energy and energy efficiency to ensure reliable, affordable and sustainable electricity supply services and lead an integrated natural resources governance based on efficient and optimal use of resources in line with national policies, laws and international commitments. Its key functions include improving national energy efficiency, increasing the percentage of electricity generation from renewable sources to 31% by year 2025 and improving the efficiency and transparency of the energy market to ensure the best tariffs for energy consumers.

REGULATORS

The Energy Commission (“EC”) is a statutory body established under the Energy Commission Act 2001 and is responsible for regulating the energy sector in Peninsular Malaysia and Sabah.

The Sustainable Energy Development Authority Malaysia (“SEDA”) is a statutory body formed to administer and manage the implementation of the feed-in tariff mechanism which is mandated under the Renewable Energy Act 2011 (“Renewable Energy Act”). Its key functions include promoting sustainable energy, managing existing sustainable energy programmes, assessing new sustainable energy solutions (in partnership with domestic and international stakeholders) on an ongoing basis, and advocating sustainability to the public.



GOVERNMENT INCENTIVES AND TAX BREAKS

FEED-IN TARIFF SCHEME (“FIT SCHEME”)

The FiT Scheme was introduced in 2011 by the Renewable Energy Act and was designed to increase electricity generation from renewable sources. The FiT Scheme obliges entities licensed to distribute electricity (“**Distribution Licensees**”) to buy from companies/individuals²⁵ holding a feed-in approval certificate issued by SEDA, at a set feed-in tariff rate (fixed annually). The Distribution Licensees pay for renewable energy supplied to the electric grid for a specific duration (up to 21 years).

In order to fund this program, a surcharge is levied on consumers’ electricity consumption (except for domestic consumers who consume no more than 300kWh per month). The collected fund is then used to pay for renewable energy generated through the FiT Scheme mechanism. This surcharge was increased from 1% to 1.6% in 2014, which led to an increase of an additional MYR 325m to the fund from the initial MYR 300m.²⁶

The FiT Scheme applies to solar PV, biogas, biomass, geothermal and small hydro. The encouraging uptake of solar PV projects under the FiT Scheme has currently used up the funding allocation for this renewable resource and solar PV projects are now being tendered out by the Energy Commission under the large scale solar scheme or offered by SEDA through the NEM scheme.

Most recently, the government announced an anticipated opening of new FiT quota of up to 187MW for non-solar resources - 30MW each for biogas and biomass sources and 127MW for small hydropower sources. The bidding application for this quota will be opened in August 2022.²⁷

23 In Sarawak, power generation is dominated by SESCO’s sister company, SEB Power Sdn. Bhd.

24 Source: Economic Planning Unit, Prime Minister’s Department, at <https://www.epu.gov.my/en/department-profile/organisation/divisions-and-unit/energy>

25 Note that this program only applies to renewables projects that generate up to 30MW in size.

26 Source: “RM325 mil boost for renewable energy fund”, reported by The Star, 10 February 2014, at <https://www.thestar.com.my/business/business-news/2014/02/10/rm325mil-boost-for-re-fund-increase-comes-about-after-surcharge-raised-to-16>

27 Source: “New feed-in tariff quota bidding to open in August, says Takiyuddin”, reported by The Edge Markets, 14 June 2022, at <https://www.theedgemarkets.com/article/new-feedin-tariff-quota-bidding-open-august-says-takiyuddin>

GREEN TECHNOLOGY FINANCING SCHEME (“GTFS”)

The GTFS aims to improve the supply and utilisation of green technology by providing financial assistance to producers of green technology. Under the 2021 budget, MYR 2bn has been allocated to the GTFS 3.0 until 2022 as part of the government’s agenda to support sustainable and responsible investment (“SRI”) as well as drive green and sustainable standards in Malaysia.²⁸

The GTFS 3.0 now includes support to the issuance of SRI sukuk and green bonds in addition to term loan financing. While the government will no longer provide an interest subsidy of 2% per annum for the first 7 years, the guarantee coverage has increased from 60% to 80% or RM400m, whichever is lower (with the remainder of the total debt financing amount risk to be borne by participating financial institutions). The guarantee is now applicable for the entire project financing cost instead of being limited to the green technology cost. The GTFS 3.0 applies to financing amounts from MYR 10m up to MYR 500m per group of company. Financing amounts lower than MYR 10m will be reviewed on a case to case basis. The cap on financing tenure has also been removed.²⁹

GTFS 3.0 is open to all Malaysian companies with green or SRI project financing that contribute towards Malaysia’s sustainable development agenda. Participating financial institutions include all commercial financial institutions, Islamic financial institutions and development financial institutions in Malaysia.

TAX INCENTIVES

Malaysian-incorporated companies that undertake green technology projects or provide green technology services may apply to the Malaysian Investment Development Authority for the grant of green technology tax incentives. Such tax incentives could include, depending on the type of green technology:

Green Investment Tax Allowance (“GITA”): The Malaysian government provides incentives in the form of an investment tax allowance for the undertaking of green technology projects and purchase of green technology assets. The GITA allows 100% of qualifying capital expenditure incurred for 3 years from the date of first qualifying capital expenditure incurred to be offset against 70% of statutory income.³⁰ GITA applies to:

Green Technology Projects: These are projects that relate to renewable energy, energy efficiency, green buildings, green data centres and waste management. Note that projects which have been approved with feed-in tariffs for solar by SEDA are not eligible for the GITA.³¹

Purchase of Green Technology Assets: These are green technology products, equipment or systems used to conserve the natural environment and resources and must be government approved.

Green Income Tax Exemption (“GITE”): There is an income tax exemption of 70% on statutory income for 3 years starting from assessment year of the first invoice issued for qualifying green technology services relating to renewable energy, energy efficiency, electric vehicles, green buildings, green data centres, green certification and verification and green townships. There is also an income tax exemption of 70% on statutory income for solar leasing activity for a period of up to 10 years of assessment (depending on installed capacity) starting from the date of first invoice issued.³²

GITA and GITE are available up until 31 December 2023.



FOREIGN OWNERSHIP

Under Malaysia’s foreign exchange administration policies, non-residents are free to invest in any form of assets in Malaysia. Non-residents may also remit out of Malaysia

divestment proceeds, profits, dividends or any income arising from these investments free from withholding tax.

However, foreign companies that wish to apply to sell renewable energy to a Distribution Licensee will have to partner with a Malaysian company to be eligible for the FiT Scheme, as foreign ownership is limited to 49%. Additionally, no change in the shareholdings of such companies is permitted for at least two years from its commercial operation date without the prior approval of the Minister of MENR.

Renewable energy projects can be carried out on either government-owned land or on private land. Legal ownership of private land is proven by registered title. A non-citizen or foreign company may acquire land in Malaysia, subject to prior approval of the Federal Government of Malaysia and, depending on the requirements of the state, prior approval of the relevant state authority.



²⁸ Source: “Green Technology Financing Scheme 3.0”, Danajamin at <https://www.danajamin.com/business/green-technology-financing-scheme/>

²⁹ Ibid.

³⁰ Source: “Guideline on Application for Incentive and/or Expatriate Posts for Green Technology”, p.1, MIDA at https://www.mida.gov.my/wp-content/uploads/2021/04/GD_GreenTechnology-31032021.pdf

³¹ Ibid, p.10

³² Ibid, p.2



HOT TOPICS

THE LARGE SCALE SOLAR (“LSS”) PROGRAMME

Since 2016, the EC has held large-scale solar auctions in Malaysia. The LSS tender is a competitive open bidding process in which the EC invites persons with the relevant industry experience, suitable technical and financial capabilities and related resources to develop, operate and maintain large scale PV power plants in Malaysia. Foreign participation is allowed but is capped at a 49% shareholding interest in the bidding consortium.

The government’s target capacity for the LSS programme was 1000MW by 2020, with additional capacity capped annually at 200MW for Peninsular Malaysia and 50MW for Sabah/ Labuan. The fourth and latest bidding round named LSS@ MEnTARI was called by the government in 2020 offering a total capacity of 1,000MW.³³ This fourth tender is specifically curated to rejuvenate the economy of Malaysia due to the negative impact of the COVID-19 pandemic and therefore is only open to private companies registered in Malaysia with 100% local Malaysian shareholding and public companies listed on the local bourse with at least 75% local Malaysian shareholding. The EC announced the shortlisted bidders for the LSS@MEnTARI on 12 March 2021, awarding a total capacity of 823.06MW (a shortfall of 176.94MW from the 1000MW open for bid) with commercial operations targeted to be achieved by 2022/2023.³⁴ A total capacity of 323.06MW was awarded to 20 parties under Package P1 (plant capacities ranging from 10MW to under 30MW) with a tariff range of 18.5 sen per kWh to 24.81 sen per kWh and the remaining 500MW was awarded to another 10 parties under Package P2 (plant capacities ranging from 30MW to 50MW) with a tariff range of 17.68 sen per kWh to 19.7

sen per kWh. Given the low tariffs, it is to be seen if the shortlisted projects will be able to obtain project financing in view of the project costs for solar plants, particularly the increase in the price of solar panels after the submission of the bids due to a disruption in the global supply chain arising from the COVID-19 pandemic.

NET ENERGY METERING (“NEM”) SCHEME VIA SOLAR LEASING ARRANGEMENT/SOLAR POWER PURCHASE ARRANGEMENT

The NEM scheme was introduced in November 2016 and SEDA has been designated as the implementing agency under the regulation of the EC. The scheme allows electricity consumers to install rooftop solar PV systems and generate electricity for their own consumption and sell any excess electricity to TNB or SESB.

Since 1 January 2019, the NEM scheme offers a one-for-one offset between the tariff for selling and buying electricity for NEM participants. The offset arrangement is where instead of cash, the ‘prosumer’ (ie producer-and-consumer) will be given credits equivalent to the amount of solar PV energy that was exported back to the grid. The credits are valid for 24 months and will be used to offset any charges that may be incurred by the ‘prosumer’ in procuring electricity.

The NEM scheme saw a commendable uptake in the year 2019 where there were 314 approved solar self-consumption projects totalling MYR 413.35m and the 500MW quota under the NEM 2.0 was fully subscribed by 31 December 2020.³⁵

NEM 3.0 with a total initial quota allocation of up to 500MW was launched by the government in December 2020 for Peninsular Malaysia. 3 types of programmes are being offered under NEM 3.0:³⁶

NEM Rakyat	NEM GoMEn	Net Offset Virtual Aggregation (NOVA)
Up to 100MW is allocated for domestic consumers of TNB from 1 February 2021 – 31 December 2023	Up to 100MW is allocated to governmental agencies from 1 February 2021 – 31 December 2023	Up to *600MW is allocated to commercial, industrial, mining and agricultural sectors from 1 April 2021 – 31 December 2023

* The initial quota was 300MW with an additional 300MW being released on 15 November 2021.

NEM 3.0 continues to offer a one-for-one offset for NEM Rakyat and NEM GoMEn whereas for NOVA, TNB will pay NEM participants the monthly average system marginal price, being the market price, for excess energy exported to the grid.³⁷

Under NOVA, the NEM participants can opt for virtual aggregation where the value of exported electricity can be credited to the account of up to 3 premises designated by the NEM participants (“**Designated Premises**”) to be used to offset the bill payment for the next billing period. Designated Premises must be premises used or operated by the NEM participants’ wholly owned subsidiaries and do not include the premises where the rooftop solar PV system is installed.³⁸

Participants under NEM 3.0 are only allowed to export excess electricity to TNB for a period of ten years. After ten years, the electricity generated by the rooftop solar PV system is strictly for self-consumption in the premises where the rooftop solar PV system is installed.

33 Source: “Notice of RFP for 4th LSS tender”, Energy Commission, at <https://www.st.gov.my/contents/NOTIS%20MAKLUMAN%20PELAKSANAAN%20PROGRAM%20BIDAAN%20KOMPETITIF%20BAGI%20PEMBANGUNAN%20LO...pdf>

34 Source: “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 Bidder”, Energy Commission, at <https://www.st.gov.my/contents/2021/LSS/Announcement%20of%20the%20Selected%20Shortlisted%20Bidders%20for%20LSS%40MEnTARI.pdf>

35 Source: Malaysian Investment Development Authority, at <https://www.mida.gov.my/industries/services/green-technology/>

36 Source: “NET Energy Metering (NEM) 3.0”, SEDA, at <http://www.seda.gov.my/reportal/nem/>

37 Ibid.

38 Ibid.



THE TWELFTH MALAYSIA PLAN (2021-2025) ("12MP")

The government of Malaysia publishes a blueprint for the allocation of the national budget for five-year periods at a time. The 12MP, a development roadmap for 2021 to 2025, was tabled by the Prime Minister in Parliament on

27 September 2021 and was subsequently passed. Theme 3 of the 12MP is focused on advancing sustainability which focuses on advancing green growth as well as enhancing energy sustainability and transforming the water sector.³⁹

To help Malaysia to move towards a low-carbon nation status, efforts to pursue low-carbon energy through renewable energy will be scaled-up and the development and utilisation of renewable energy sources will be intensified to meet the 31% renewable energy capacity mix target by 2025. The renewable energy industry will be encouraged to venture into floating solar and waste-to-energy projects. Apart from large hydro and solar, focus will also be on increasing the contribution from other renewable sources, such as biomass and biogas. The use of existing and new technologies, namely cogeneration, solar thermal and fuel cell will be further promoted to expand options available to the industry. In addition, renewable energy certificates will be promoted to enable the procurement and trading of renewable energy.⁴⁰

MALAYSIA RENEWABLE ENERGY ROADMAP 2022-2035 ("MYRER")

The MyRER⁴¹ issued by SEDA and launched by the Minister of MENR on 30 December 2021 will be implemented by MENR from 2022 to 2035 to support further decarbonisation of the electricity sector in Malaysia.

The MyRER formulates a strategic framework that aims to achieve Malaysia's committed target of 31% renewable energy share in the national installed capacity mix by 2025 and attaining decarbonisation of the electricity sector by 2035.⁴²

The MyRER strategic framework builds upon 4 technology-specific pillars (ie solar, bioenergy, hydro, and new technology and solutions) and is supported by 4 cross-technology enabling initiatives (ie leverage future-proofing electricity market for renewable energy opportunities, improve access to financing, shape human capital and infrastructure, and increase system flexibility).⁴³

The solar energy pillar is built upon existing NEM and LSS programmes and opens the possibility of introducing new business models which include corporate power purchase agreements via third party access framework, peer-to-peer energy trading and enhancing the platform for renewable energy certificate trading.⁴⁴

The bioenergy pillar aims to increase bioenergy capacity by supporting the roll out of biomass, biogas and waste-to-energy capacity under the existing FiT Scheme via new business models (ie auctions and tendering programmes), as well as exploring potential opportunities in bio-CNG and biomass co-firing in coal-fired plant, including conducting feasibility studies.⁴⁵

The hydro pillar aims to support the accelerated deployment and operation of hydro generation capacity including optimising small hydro under the FiT Scheme, conducting auctions for additional small hydro capacity beyond the FiT Scheme, conducting a hydro-geological study to identify additional sites beyond current resource potential and exploring large hydro potential.⁴⁶

The new technology and solutions pillar supports roll-out of new renewable energy resources post 2025, as well as exploring energy storage solutions to maintain system stability under high variable renewable energy penetration.⁴⁷

39 Source: "Twelfth Malaysia Plan (2021-2025)", p.T3-2 – T3-3, at <https://rmke12.epu.gov.my/en>

40 *Ibid*, p.8-14

41 Source: "Malaysia Renewable Energy Roadmap (2022-2035)", SEDA at https://www.seda.gov.my/reportal/wp-content/uploads/2022/01/MyRER_webVer2.pdf

42 *Ibid*, p.XI

43 *Ibid*.

44 *Ibid*, p.XV and Chapter 6.1

45 *Ibid*, p.XVI and Chapter 6.2

46 *Ibid*, p.XVI and Chapter 6.3

47 *Ibid*. p.XVI and Chapter 6.4

THE SRI SUKUK AND BOND

In 2017, the World Bank, the Central Bank of Malaysia (“**Bank Negara**”) and the Securities Commission Malaysia collaborated to develop the green Islamic finance market in Malaysia. Apart from traditional sukuk⁴⁸ and local bank loans, the Green SRI Sukuk is a possible financing method.

It has the potential to channel the US\$2tn⁴⁹ Islamic finance market towards the funding of green and sustainable investment projects. Recent Green SRI Sukuk issuances include: (i) the first ever Green SRI Sukuk, issued in July 2017 by Tadau Energy, raising MYR 250m to finance a solar power plant in Sabah, Malaysia; (ii) Quantum Solar raising MYR 1bn in October 2017; and (iii) two further Green SRI Sukuk issuances in Malaysia as of April 2018.⁵⁰

Major benefits of financing by Green SRI Sukuks stem from the SRI Sukuk Framework, whereby institutions raising funds are entitled to claim 90% of the costs of engaging experts to review the project, subject to a maximum of MYR 300,000 per issuance. To further encourage the issuance of SRI sukuks and bonds that meet green, social and sustainability standards in Malaysia, the grant for SRI has been extended by the recent budget 2021 to include all other SRI sukuks and bonds which meets the ASEAN Green, Social and Sustainability Bond Standards approved by the Securities Commission Malaysia until 2025.⁵¹ The scheme is open to domestic and foreign issuers and for any currency, provided the facility is issued in Malaysia. Additionally, the issuers enjoy income tax exemptions on the grant for a period of 5 years from year of assessment 2021 to 2025.⁵²

UNCERTAIN LAND ZONING REQUIREMENTS

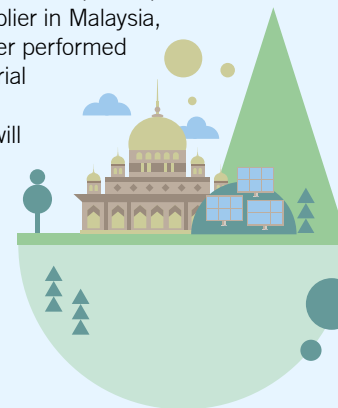
One key challenge faced by solar power plant developers is the uncertainty of state government requirements in respect of the category of land use for the development of solar projects. Given the need for large open areas, most of the land identified for solar projects is agricultural land. Some states allow for solar projects to be undertaken on agricultural land, while other states require the land to be re-zoned for industrial use. Guidelines issued by the EC suggested that land to be used for large scale solar power plants may be optimised for other economic activities such as agriculture. Thus, the EC seemed to suggest that the development of solar projects should be permitted on agricultural land. As it is important for power plant developers to be aware of the applicable requirements in respect of the category of land use for solar projects, an official clarification on this point is anticipated although it is challenging to standardise the land categorisation requirements given that land matters are under the jurisdiction of the state governments and not the federal government.

CROSS BORDER ELECTRICITY POWER SALES – ELECTRICITY IMPORT BY SINGAPORE

The Energy Market Authority (“**EMA**”) of Singapore has announced in October 2020 that it will embark on a 2 year trial for electricity imports from Peninsular Malaysia to Singapore through the existing electricity interconnector between Singapore and Malaysia to meet Singapore’s climate change commitments.⁵³ A Request for Proposal (“**RFP**”) has

been issued by the EMA on 5 March 2021 to appoint one competent entity as an electricity importer (“**Importer**”) to undertake the 2 year trial to import and sell up to 100MW of electricity imports which made up approximately 1.5% of Singapore’s peak electricity demand, via the existing interconnector between Singapore and Peninsular Malaysia.⁵⁴ This 2 year trial aims to test the technical and regulatory frameworks for the import of electricity into Singapore. To qualify, participants of the RFP need to demonstrate supply reliability (where electricity supply from coal-fired generation will not be acceptable), credibility and track record, ability to secure demand from Singapore consumers and management of the carbon output of generation supply.

To encourage the import of zero-carbon electricity to Singapore beyond the 2-year trial, it is noted that the EMA may, at its sole discretion, convert the import licence into a long term import licence beyond the 2 year trial, based on the duration of the electricity import/supply agreement entered into between the Importer and a power plant developer/electricity supplier in Malaysia, provided that the Importer performed satisfactorily during the trial and agrees to such new requirements that EMA will introduce in consultation with the stakeholders.



48 A sukuk is an interest-free bond that generates returns to investors without infringing the principles of Islamic law (Shariah).

49 Source: “*Helping Malaysia Develop the Green Sukuk Market*”, The World Bank, page 1 at <http://documents.worldbank.org/curated/en/586751546962364924/Helping-Malaysia-Develop-the-Green-Sukuk-Market-Facilitating-Sustainable-Financing-Case-Study.pdf>

50 Source: “*Islamic Green Finance Development, Ecosystem and Prospects*”, Securities Commission Malaysia, March 2019, at <https://www.sc.com.my/api/documentms/download.ashx?id=a86707ce-07e0-4c75-9e45-7ad7bca6f540>

51 Source: “*Touchpoints on Budget 2021*”, Ministry of Finance, at <http://belanjawan2021.treasury.gov.my/pdf/touchpoints/budget-2021-touchpoints-bm.pdf>

52 Source: Ministry of Finance’s Budget 2021 parliamentary speech at page 87, at <http://belanjawan2021.treasury.gov.my/pdf/bajet/ucapan/ub21.pdf> and “*Sustainable and Responsible Investment*” by Capital Markets Malaysia at <https://www.capitalmarketsmalaysia.com/public-sri-sukuk/>

53 Source: “*EMA to Trial Electricity Imports*”, EMA, 26 October 2020, at https://www.ema.gov.sg/media_release.aspx?news_sid=20201025mSZFbaqw5Sj7

54 Source: “*Request for Proposal for Electricity Imports Trial*”, EMA, at <https://www.ema.gov.sg/rfp-electricity-importer-2021>; “*Request for Proposal to Appoint Electricity Importer to Import 100mw via the Existing Singapore-Peninsular Malaysia Interconnector for a 2-Year Trial*” EMA, at <https://www.ema.gov.sg/cmsmedia/Electricity/Imports/EMA-RFP-Electricity-Imports-20210305.pdf>

On 25 October 2021, the Energy Market Authority of Singapore appointed YTL PowerSeraya Pte. Ltd. as the Importer for the 2-year trial. However, it is to be noted that the Energy Commission has on the same date revised its Guide on Cross-Border Electricity Sales (“**CBES Guidelines**”) which was issued on 31 December 2020 to prohibit the export of renewable energy from Peninsular Malaysia to Singapore via the existing interconnector. The revised CBES Guidelines provide that electricity sold from Malaysia to Singapore must be generated from non-renewable energy resources and can only be transferred at up to 100MW through the existing interconnection between Peninsular Malaysia and Singapore.⁵⁵

It is further noted that, for purposes of such 2-year pilot project, the MENR (through the Energy Commission) agreed that the wheeling charges for the sale of electricity to Singapore would be US\$2.28 cents/kWh.

GREEN ELECTRICITY TARIFF (“GET”) PROGRAMME

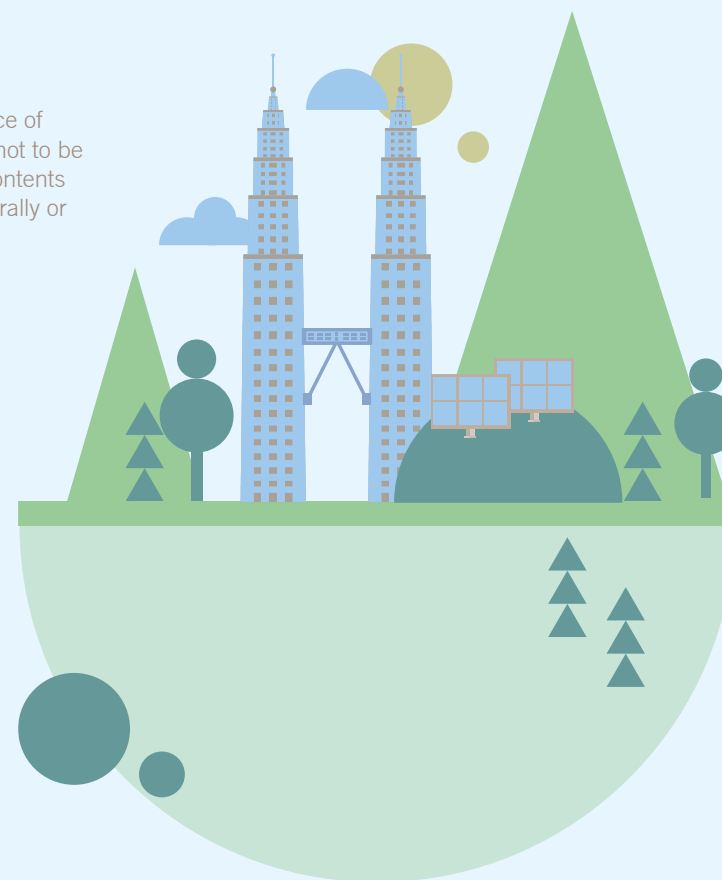
The GET Programme was launched by the government on 23 November 2021 to allow TNB’s consumers to purchase electricity generated from renewable resources from TNB without the need to install its own rooftop solar PV system. Currently, electricity under the GET Programme comes from solar power plants under the LSS programme and TNB’s hydropower plants and is called “**Green Electricity**” under the GET Programme.⁵⁶

Under the GET Programme, TNB consumers are eligible to subscribe Green Electricity in blocks of 100kWh (for residential consumers) and in blocks of 1,000kWh (for non-residential consumers), up to their average monthly consumption. The consumer will pay a premium of 3.2sen/kWh for the Green Electricity subscribed and consumed, which is in addition to the prevailing tariff applicable for electricity consumption. Green Electricity subscribed is exempted from Imbalance Cost Pass-Through (ICPT) surcharges or rebates until 31 December 2022, and the premium payable is also not subject to the 1.6% surcharge for the Renewable Energy Fund.⁵⁷

The consumer will also receive a Malaysian Renewable Energy Certificate (“**mREC**”) for the Green Electricity it subscribes and consumes. Each mREC is denominated by a renewable energy certificate (“**REC**”) that is issued by an internationally recognised REC registry, such as the International Renewable Energy Certificate (“**I-REC**”) Registry or Tradable Instrument for Global Renewables (“**TIGR**”) Registry, and redeemed by TNBX Sdn. Bhd. (“**TNBX**”) for the benefit of the consumer.⁵⁸ mREC is a trademark product of TNBX, a wholly-owned subsidiary of TNB.

July 2022

This publication has been prepared with the assistance of ZICO Law, is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction.



⁵⁶ Source: “Guide for Cross-Border Electricity Sales”, Energy Commission at https://www.st.gov.my/en/contents/files/download/94/Guide_for_Cross-Border_Electricity_Sales.pdf

⁵⁷ Source: “Guide on Green Electricity Tariff”, Energy Commission, at https://www.st.gov.my/en/contents/files/download/152/Guide_on_Green_Electricity_Tariff.pdf

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

Renewable Energy in South Korea.



OVERVIEW

Renewable energy is becoming increasingly more important to the energy mix in the Republic of Korea (“**South Korea**”). Growing concerns about air quality issues and its commitment to the international community to reduce carbon emissions have sparked a strong interest in developing renewable and other lower-carbon solutions for electricity generation in the country. Hence, the South Korean government (the “**Government**”) especially under the former President Moon Jae-in, has introduced a series of policies that focuses on reducing energy generated from coal and nuclear sources and transitioning to new renewable and other clean energy.

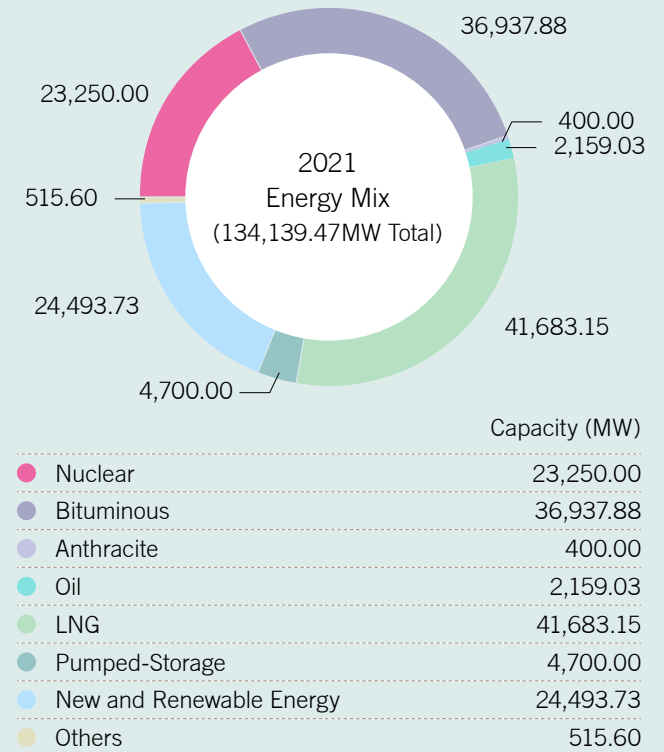
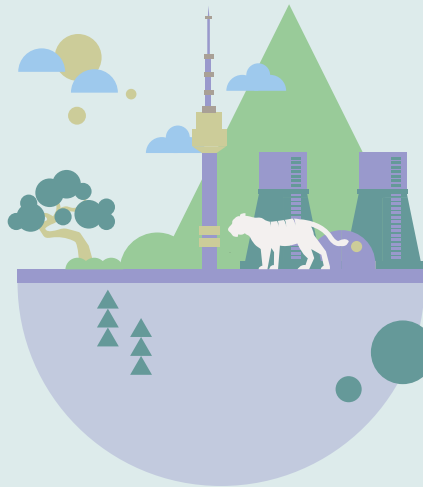
However, with only 8 years left to reach the 2030 carbon reduction target, the newly elected President Yoon Suk-yeol has slightly reversed the course of the Government’s strategy. President Yoon proclaimed his aim to foster a reasonable energy mix for 2030 which is to be 20 – 30% renewable energy, 30% fossil fuel and 35 – 40% nuclear energy.¹ He further emphasised his plans to utilise nuclear power plants as a means of carbon neutrality and to stabilise the supply of clean and renewable energy. Consequentially, it appears that South Korea’s renewable energy market will expand in parallel with next-generation nuclear power plants and nuclear hydrogen technologies.



WHICH SECTORS ARE ACTIVE?

South Korea’s energy market is currently dominated by coal and liquified natural gas (“**LNG**”). Renewable energy (see ‘New and Renewables’ in the pie chart below) represented only 18.26% of the total power generation capacity in 2021.²

In 2021, South Korea’s power generation capacity by fuel was as follows.³



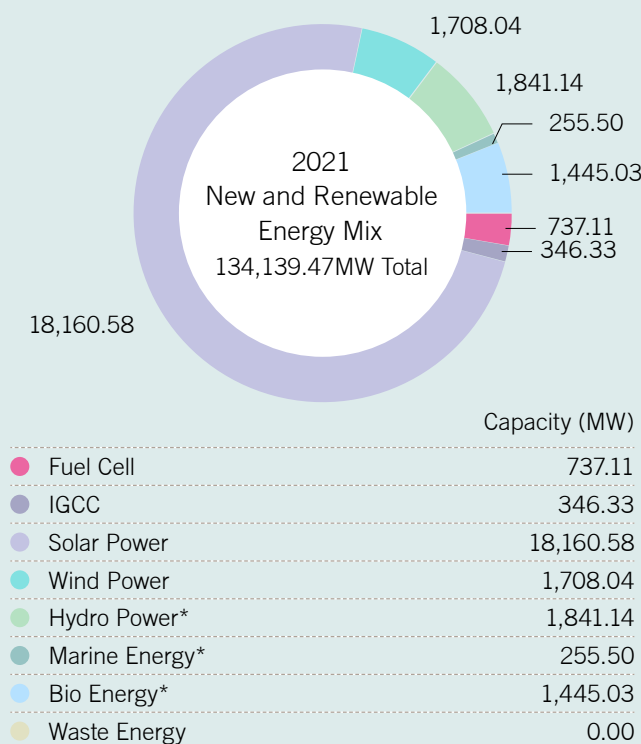
Source: “Generation Capacity by Fuel.” Electric Power Statistics Information System, 2021.

¹ “Yoon Seok-yeol Government, Carbon Neutralization through ‘Energy Mix’ which Includes Nuclear Power Plants.” ZDNet, May 2022. <https://zdnet.co.kr/view/?no=20220429160114>

² “Generation Capacity by Fuel.” Electric Power Statistics Information System, 2021. <http://epsis.kpx.or.kr/epsisnew/selectEkpoBftChart.do?menuId=020100&locale=eng>

³ Ibid.

In addition, below is a breakdown of the generation capacity per each renewable energy source in 2021.⁴



Source: "Generation Capacity by Fuel." Electric Power Statistics Information System, 2021.

A DRIVE FOR RENEWABLE ENERGY

In 2016, South Korea ratified the Paris Agreement adopted at the climate conference held in Paris in December 2015 ("COP21"). The Paris Agreement replaced the Kyoto Protocol as of 2021, whereby South Korea had initially committed to

reducing its projected greenhouse gas emission level by 37% from the business-as-usual level ("BAU", 850.6MtCO₂eq) by 2030. In 2021, in line with its net-zero target, the Government revised the foregoing target to reduce emissions to 437MtCO₂eq by 2030.⁵

In December 2017, the Ministry of Trade, Industry and Energy ("MOTIE") announced the "Renewable Energy 3020 Plan" which outlines the Government's goal of increasing the share of renewable energy from 7.0% in 2016 to 20% by the year 2030. In June 2019, the Government reaffirmed its commitment to renewable energy in the "Third Energy Master Plan", which sets out a longer-term target of increasing the share of energy generated from renewable sources to 30-35% by the year 2040 and ceasing the build of new coal-fired or nuclear power plants.

In December 2020, MOTIE released the "Ninth Basic Plan for Long-term Electricity Supply and Demand (2020-2034)" which supplements and set out in further detail the Government's plans to deploy clean energy and attain the goals stated in the Renewable Energy 3020 Plan and the Third Energy Master Plan. It updated the long-term target of energy generated from renewable sources to 40% by the year 2034 and set out a plan to close all coal-based power plants whose 30-year operational life cycles expire by 2034. In the same month, MOTIE also released the "Fifth New and Renewable Energy Basic Plan", which outlines the Government's plan to build new renewable power generation facilities with a total installed capacity of 65.1GW. The implementation of these energy plans creates investment opportunities for both Korean and international sponsors, investors and financiers. In particular, South Korea, together with Japan and Taiwan, is currently seen as a possible growth market for the global offshore wind sector and is attracting interest from both domestic and international developers and their financiers in relation to the development of a pipeline of utility-scale offshore wind projects.

RENEWABLE ENERGY DEVELOPMENT

In February 2021, South Korea revealed plans to build an 8.2GW offshore wind power project, worth KRW 48trn (approx. US\$43bn), in Sinan, South Jeolla Province, about 400 kilometers south of Seoul. The local utility and engineering companies plan to provide KRW 47.6trn of the required funding and the Government, the remaining KRW 0.9trn. This project is a major component of the Green New Deal 1.0.⁶

Furthermore, MOTIE announced in March 2021 that five major Korean conglomerates will invest KRW 43.4trn (approx. US\$38bn) in hydrogen technology by 2030. Under the plan, SK Group, Hyundai Motor, POSCO, Hanwha and Hyosung will develop a wide range of hydrogen infrastructure, such as the production and storage of hydrogen. For instance, Hyundai Motor is looking to scale up production of fuel cell vehicles and build more charging stations, while SK Group is planning to build grey and blue hydrogen plants by 2023 and 2025.⁷

KOREAN NEW DEAL 2.0

In July 2021, the Government announced the "Korean New Deal 2.0" that upgraded the Korean New Deal 1.0, including the Green New Deal 1.0 thereof (published in 2020). One of the overarching aims of the Korean New Deal 2.0 is to promote low carbon and eco-friendly manufacturing and transform the economy into a green and digital economy. The Government announced that the National Treasury will invest KRW 61.0trn (approx. US\$51.7bn) for the Green New Deal of the Korean New Deal 2.0 (the "Green New Deal 2.0") which represents an increased investment of KRW 42.7trn compared to the Korean New Deal 1.0. Through the Green New Deal 2.0, the Government plans to expand the scope based on carbon neutrality strategies.

A summary of the Green New Deal 2.0's main initiatives is set out below.⁸

⁴ Ibid.

⁵ "Reforming Korea's Electricity Market for Net Zero." International Energy Agency, December 2021. <https://iea.blob.core.windows.net/assets/ab5343c6-5220-4154-a88e-750de58b9c8c/ReformingKoreasElectricityMarketforNetZero.pdf>

⁶ Shin, Hyonhee. "South Korea Unveils \$43 Billion Plan for World's Largest Offshore Wind Farm." Reuters, February 2021. <https://www.reuters.com/article/us-southkorea-energy-wind-farm-idUSKBN2A512D>

⁷ Lee, Heesu. "Are You a Robot?" Bloomberg, March 2021. <https://www.bloomberg.com/news/articles/2021-03-18/hydrogen-rivalry-intensifies-with-south-korea-challenging-europe>

⁸ "Government Announces Korean New Deal 2.0." Ministry of Economy and Finance, July 2021. <https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=5173#:-:text=The%20Korean%20New%20Deal%2C%20through,a%20green%20and%20digital%20economy>

Main Initiative	Specific Target
Building a foundation for carbon neutrality implementation	<ul style="list-style-type: none"> > Improve greenhouse gas measurement/assessment systems and improve efficacy of the emissions trading system > Prepare a foundation for an industrial circular economy by building digital-based resource circulation industrial complexes > Encourage people to voluntarily participate
Green transition of infrastructure	<ul style="list-style-type: none"> > Expand the application of green smart schools and gradually raise energy building grades > Support green remodelling of private buildings > Complete outdated waterworks maintenance projects in advance > Reinforce smart response to climate risks including developing satellite payloads for water resource and disasters
Low-carbon and decentralised energy	<ul style="list-style-type: none"> > Develop safety evaluation standards/technologies for energy storage systems > Promote renewable energy use and support a fair transition > Enhance support for renewable energy supply
Innovation in the green industry	<ul style="list-style-type: none"> > Support business establishment, industrial complexes, and industrial units > Enhance connection with innovative procurement

NET ZERO TARGET

South Korea's pursuit to develop renewable energy became stronger in September 2021, when the South Korean National Assembly passed the Framework Act on Carbon Neutrality and Green Growth (the "**Carbon Neutrality Act**"). Thereafter, South Korea became the 14th country in the world to implement the 2050 net-zero target into law.⁹

The Government has finalised two scenarios through which South Korea's net-zero target will be achieved. These two scenarios are to serve as guidance for policy implementations and one need not be selected over the other. An overview of the two scenarios is set out below.¹⁰

- > **Scenario A:** A total cessation of thermal power generation with renewable energy representing 70.8% of the total power generation capacity.
- > **Scenario B:** A partial maintenance of thermal power generation only via LNG (5.0%) with renewable energy representing 60.9% of the total power generation capacity.

It is worth noting that both scenarios aim to significantly reduce thermal power generation and increase the production of renewable energy. Moreover, the Government will implement policies to increase the use of renewable energy and improve the public reception thereof and secure the stability of the renewable energy supply system by boosting investments and opening up the energy market.

In addition, under the incoming Government of President-elect Yoon, there is a high likelihood that policies to achieve net-zero by 2050 will be directed toward the harmonisation of renewable energy and nuclear power.



HOW DOES THE SYSTEM WORK?

REGULATORY BODIES

- > **KEPCO:** Korea Electric Power Corporation ("**KEPCO**"), which is a majority state-owned public company, controls almost all aspects of electricity generation, transmission, distribution and retail sales in South Korea. In 2001, KEPCO's generation assets were divided into six separate subsidiary power generation companies (the "**GenCos**"). Although this initial restructuring included plans to subsequently divest KEPCO of these subsidiaries, the reform stalled in 2004, and KEPCO still owns each of these subsidiaries. Apart from KEPCO, a small number of independent power producers (the "**IPPs**") participate in the South Korean electricity market. KEPCO and the GenCos produce about 74.2% of all power generation and the IPPs produce the remaining 25.8% as of December 2021.¹¹
- > **KPX:** The Korea Electric Power Exchange ("**KPX**"), also established in 2001 as part of the electricity sector reform, coordinates the wholesale electric power market and determines prices sold between generators and the KEPCO grid. Generation companies compete to sell power into an hourly auction pool operated by the KPX, with KEPCO acting as a single buyer. The auction pool is a "cost-based pool", meaning that the generation companies are required to bid at their variable cost of operations. That said, end-use electricity prices in South Korea are regulated by the Government and not necessarily tied to the actual cost of generation and distribution.

9 "Carbon Neutrality Act Passed by National Assembly heralding Economic and Social Transition Towards 2050 Carbon Neutrality." Ministry of Environment, September 2021. <http://eng.me.go.kr/eng/web/board/read.do?menuId=461&boardMasterId=522&boardId=1473610>

10 "2050 Carbon Neutral Scenario - Summary." 2050 Carbon Neutrality and Green Growth Commission, October 2021. https://www.2050cnc.go.kr/flexer/view/BOARD_ATTACH?storageNo=205

11 "Operational Performance of Power System in December 2021." Korea Power Exchange, February 2022. <http://epsis.kpx.or.kr/epsisnew/selectEkifBoardList.do?menuId=080100&boardId=010000>

- > **MOTIE:** Under the Electricity Business Act (the “**EB Act**”)¹², MOTIE is vested with the responsibility of establishing and implementing overarching policies relating to the energy sector including the electricity market. MOTIE’s primary responsibilities include (among others): (i) preparation of policies for the supply and demand of electricity; (ii) issuing licences for electricity generation businesses; (iii) approval of charges for the use of KEPCO’s transmission and distribution assets; (iv) oversight of KEPCO and KPX; (v) oversight of compliance by electricity generation businesses; and (vi) approving applications for the construction of new electricity generation projects and conducting pre-use inspections.
- > **Korea Energy Agency:** The Korea Energy Agency was established in 1980 to implement “energy use rationalisation” projects for the purposes of reducing greenhouse gas emissions and promoting a healthy economic development of South Korea. The Korea Energy Agency is responsible for systematic optimisation of energy consumption patterns, identification of energy-saving methods in energy-intensive businesses and providing energy audit services.
- > **New and Renewable Energy Center:** The New and Renewable Energy Center focuses on the development of new and renewable energy. The Korea Energy Agency and the New and Renewable Energy Center work closely together in the implementation of the renewable portfolio standard (the “**RPS**”) regime. The New and Renewable Energy Center’s roles include certifying generation facilities and assigning the relevant weight value to each facility for the purpose of REC issuance. The Korea Energy Agency issues the renewable energy certificates (the “**RECs**”) to each generation facility in accordance with the certification and weight value assignment by the New and Renewable Energy Center.

LEGISLATIVE FRAMEWORK

The primary legislative instruments for the renewable energy sector in South Korea are the EB Act and the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy (the “**Renewable Energy Act**”).¹³ In addition, a range of other laws and regulations (together with subordinate presidential and ministerial decrees) will be relevant to the development of renewable projects in South Korea including (among others) those relating to the environment, construction, planning, land and sea-bed rights, fisheries rights and health and safety.

The generation, transmission and distribution of electricity in South Korea is a regulated business with the principal legislation governing such regulation being the EB Act. The EB Act provides for, among other things: (i) the granting of licences to engage in specified electricity businesses (including, in particular, generation, transmission, distribution and retail sales); (ii) protection of electricity customers; (iii) prohibition of certain unfair activities; (iv) a wholesale electricity market and constitution and responsibilities of the electricity regulatory body; and (v) safety management relating to electrical equipment.

The Renewable Energy Act prescribes key matters in relation to new and renewable energy businesses including the rules and procedures with respect to the RPS scheme discussed on page 53.

GRID ALLOCATION AND CONNECTION

KEPCO presently holds a monopoly over the transmission, distribution and retail sale of electricity in South Korea. Developers of renewable energy projects are required to enter into a grid connection agreement with KEPCO, the terms of which are regulated by KEPCO’s Rules on the Use of Transmission and Distribution Facilities. However, it may be

deemed that the introduction of the Direct PPA has, in effect, partially ended such monopoly of KEPCO.

KEPCO is required to agree to connect to its grid all electricity generation projects which have obtained the necessary permits and approvals, including the electricity business licence. In order for a developer to obtain its electricity business licence, KEPCO must give its confirmation to MOTIE that there is sufficient grid capacity to connect the new project.

PERMITTING REGIME

The permitting process for the development of a renewables project in South Korea involves liaising with different authorities, including, MOTIE, KPX, KEPCO, local government, Korea Electrical Safety Corporation, the New and Renewable Energy Center, the Ministry of Environment, the Public Waters Management Agency and the Ministry of Oceans and Fisheries.

An offshore wind project, for example, would require at least:

- > permits to use public water for the installation of Lidar and the offshore wind farm;
- > the issuance of an electricity business licence;
- > the issuance of an environmental impact approval;
- > the issuance of a development activity permit;
- > approval/reporting of a construction plan for electric installations;
- > pre-use inspection;
- > execution of electricity supply and demand contract;
- > registration as a member of the KPX;
- > business commencement reporting; and
- > facility certification.

¹² “Government Announces Korean New Deal 2.0.” Ministry of Economy and Finance, July 2021. <https://english.moef.go.kr/pc/selectTbPressCenterDtl.do?boardCd=N0001&seq=5173#:-:text=The%20Korean%20New%20Deal%2C%20through,a%20green%20and%20digital%20economy>

¹³ Also known as the Electric Utility Act.



DECOMMISSIONING OF OFFSHORE WIND PROJECTS

Detailed regulations on decommissioning are yet to be drafted and enacted in South Korea. However, the Public Waters and Reclamation Act sets out the occupant's obligation to remove the structures, rocks/soil and any other materials installed or placed in public waters and to restore the site back to its original state upon the expiry of the occupancy permit. Accordingly, the relevant project company is required to decommission its offshore wind project upon the expiry of the occupancy permit (unless extended).

It remains to be seen whether more detailed decommissioning regulations will be enacted (including any requirement to provide a decommissioning bond).



GOVERNMENT INCENTIVE PROGRAMMES

RPS SCHEME

The key support mechanism for new renewable energy projects in South Korea is the RPS scheme which replaced an existing feed-in-tariff mechanism in 2012.

The RPS scheme requires generators (both state and non-state-owned) that have power generating facilities with an installed capacity of over 500MW to produce a minimum proportion of their power using new and renewable energy sources (the “**Required Generators**”). The obligatory renewable service supply ratio is reviewed on an annual basis and for 2022, it is 12.5% (a 2.5% increase from the 2022 obligatory ratio set back in 2020).¹⁴ There are currently 24 generators that are designated as Required Generators.¹⁵ Non-complying power companies must pay a financial penalty up to an amount which is 50% above the average market price of RECs for that year.

Required Generators may satisfy the requirements under the RPS scheme by either investing in eligible power generation themselves or purchasing RECs. The number of RECs allocated for electricity from renewable sources varies depending on the technology used, the location and the size of the installation.¹⁶

EMISSIONS TRADING SCHEME (“ETS”)

With effect from 1 January 2015, a cap-and-trade ETS for greenhouse gas emissions has been implemented in South Korea pursuant to the Act on the Allocation and Trading of Greenhouse Gas Permits. The ETS is to cover about 684 of the country's largest greenhouse gas emitters or about 70% of national greenhouse gas emissions from 2021 to 2025.

It provides a range of incentives (including where impacted entities invest in new and renewable energy projects) as well as penalties for failure to meet the relevant requirements.¹⁷

CORPORATE (TRIPARTITE) PPA

In January 2021, MOTIE introduced a tripartite PPA outside the KPX in the context of RE100 initiative and proposed an amendment to the EB Act. The South Korean Assembly subsequently passed the amendment thereof to provide that a power purchase agreement can be entered into among KEPCO, the renewable energy generator and the end consumer (such purchase agreement, the “**Corporate (Tripartite) PPA**”). The Corporate (Tripartite) PPA sets out the supply charges and other terms and conditions of supply (with respect to renewable energy only). With the official promulgation of the Corporate (Tripartite) PPA in June 2021, renewable energy generators can directly supply their produced energy to end consumers without having to go through the KPX.

The Corporate (Tripartite) PPA may complement the growth of the South Korean renewable energy market, especially with President Yoon's plan to liberalise the power purchase market. However, it should be noted that RECs are not issued for energy sold and purchased through the Corporate (Tripartite) PPA, an ineligibility that may be of concern to both the suppliers and purchasers. As of June 2022, there has been only 1 execution of Corporate (Tripartite) PPA. Therefore, the impacts of the Corporate (Tripartite) PPA on the South Korean renewable energy market need to be further monitored.

In particular, as currently drafted, this new Corporate (Tripartite) PPA regime is not favourable to offshore wind projects for the following reasons.

¹⁴ Enforcement Decree of the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy enacted 2022, Attached Table 4. <https://www.law.go.kr/%EB%B2%95%EB%A0%B9/%EC%8B%A0%EC%97%90%EB%84%88%EC%A7%80%EA%B0%9C%EB%B0%9C%E3%86%8D%EC%9D%B4%EC%9A%A9%E3%86%8D%EB%B3%B4%EA%B8%89%EC%B4%89%EC%A7%84%EB%B2%95%EC%8B%9C%ED%96%89%EB%A0%B9>

¹⁵ “2022 RPS Mandatory Supply Obligation.” Ministry of Trade, Industry and Energy, January 2022. https://www.motie.go.kr/motie/in/ay/policynotify/announce/bbs/bbsView.do?bbs_seq_n=67305&bbs_cd_n=6

¹⁶ “Easy-to-Understand Power and REC Trade Guide.” Korea Power Exchange, July 2016. https://new.kpx.or.kr/board.es?mid=a1050200000&bid=0045&list_no=51565&act=view

¹⁷ “Support for Greenhouse Gas Reduction Policy.” Korea Environment Corporation, 2021. <https://www.keco.or.kr/kr/business/climate/contentsid/1520/index.do>

- > The Corporate (Tripartite) PPA only deals with electricity and not RECs.
- > Importantly, the price for “electricity” under a Corporate (Tripartite) PPA is “System Marginal Price¹⁸ + 1REC” (with no RECs issued for the electricity sold under the Corporate (Tripartite) PPA). This means that an offshore wind project previously with a REC multiplier higher than 1 loses the benefits of its REC multiplier.

Accordingly, at least currently, it appears that the power sale via KPX and REC sale under the REC sale and purchase agreement seems a better structure for offshore wind projects. However, this is a moving piece.

DIRECT PPA

To further facilitate the renewable energy market, in October 2021, the Government announced a scheme of bilateral PPA that can be directly entered into between renewable energy generators and end consumers without involving KEPCO or KPX (such purchase agreement, the “**Direct PPA**”). As with the case of Corporate (Tripartite) PPA, only 1 Direct PPA has been executed and the implications of the Direct PPA are still unknown for the below reasons.

- > The Direct PPA is not yet recognised as a method of implementation for the RE100 initiative, although it is expected to become one in 2022.¹⁹
- > RECs are not issued for electricity sold under the Direct PPA.
- > MOTIE has not yet published detailed guidelines on the Direct PPA.



RESTRICTIONS ON INVESTMENT

Foreign direct investment is not generally restricted or limited in South Korea. If a foreigner’s investment involving more than KRW 100m (approx. US\$82,200) in a South Korean company exceeds 10% of the voting stock or results in participation in its management, then the investment is categorised as a direct investment under the Foreign Investment Promotion Act (the “**FIPA**”).²⁰ All other minority stake investments are subject to the Financial Investment Services and Capital Markets Act, and the Foreign Exchange Transactions Act (the “**FETA**”).²¹ However, regulatory requirements pursuant to the FIPA and the FETA are primarily procedural such as obtaining a foreign investment registration number from the Financial Supervisory Service and establishing certain accounts with a foreign exchange bank. Certain restrictions apply to the acquisition of ownership in certain public entities such as KEPCO.

In particular, the pace of development for offshore wind has been relatively slower than expected as a result of a number of factors. The permitting process is complex which itself has slowed down the process, and adding to this there have been civil complaints hindering the permitting process. Furthermore, the offshore wind projects have been developed privately and have faced insufficiency in the regulatory regime to promote local communities’ support, resulting in a gap between the developers and the local communities as to the appropriate level of compensation.

July 2022

This publication is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction. Like other international law firms, Linklaters is not qualified to advise on Korean law. For the purposes of this note we have relied on our general understanding of the market including based on advice received from leading Korean local counsel in recent transactions in the renewable energy sector.



¹⁸ System Marginal Price for electricity generated from renewable projects is largely representing variable costs of generation under a merit order system. There is no price adjustment by KPX (unlike the conventional power).

¹⁹ “Consultation with Businesses to Promote Participation in the RE100.” Ministry of Trade, Industry and Energy, October 2021. http://www.motie.go.kr/motie/ne/press/press2/bbs/bbsView.do?bbs_seq_n=164680&bbs_cd_n=81¤tPage=1&search_key_n=&cate_n=1&dept_v=&search_val_v=

²⁰ Also known as the Foreign Investment Promotion Law.

²¹ Also known as the Foreign Exchange Transaction Law.

Renewable Energy in the Philippines.



OVERVIEW

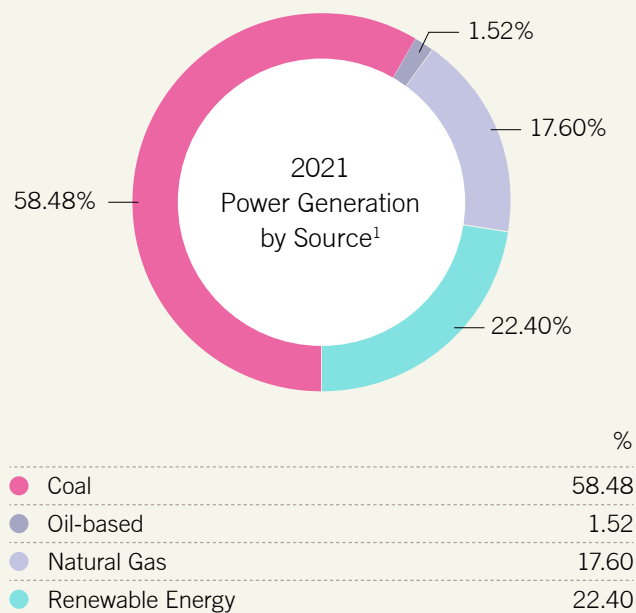
The Philippines, like many countries in the region, is tackling the challenge of increasing power demands due to a growing population, economic growth fuelled in part by a recent infrastructure boom and depleting local sources of conventional fuels. It relies on imports for a significant portion of its primary energy supply and is vulnerable to rising import costs and global price volatility as a result. Due to its geographical location, the country also faces frequent tropical storms and natural disasters, a risk heightened by climate change and adversely affecting its energy infrastructure. Coupled with some of the highest electricity costs in Southeast Asia, the above challenges create an urgent need to increase the share of renewable energy in the country's energy mix.



WHICH SECTORS ARE ACTIVE?

COAL DRIVEN GENERATION

The Philippines' main source of energy is thermal power, with coal representing the largest proportion of the country's energy mix.



Source: 2021 Power Statistics as at 31 December 2021, Summary (DOE publication)

Despite being the cheaper, more reliable option to meet the country's increasing power demands, primarily due to macroeconomic and demographic factors, the government recently placed a moratorium on new coal power plants with the goal of increasing the share of renewable energy in the energy mix.² Furthermore, the Philippine Energy Plan for 2018-2040 envisages an increase in renewable energy generation by 2040 to 26.3% under a reference scenario and 37.2% under a clean energy scenario.³

It is noted that on 28 February 2022, Executive Order No. 164-2022⁴ was issued, instituting a nuclear energy program which aims to develop a nuclear power infrastructure. The Executive Order further directs the Nuclear Energy Program Inter-Agency Committee to study, assess, and make recommendations of the use and viability of the (moth-balled) Bataan Nuclear Power Plant and the establishment of other nuclear power installations.

And on 20 April 2022, the World Bank and the DOE, with funding from the Energy Sector Management Assistance Program ("ESMAP"), launched the first-ever Philippines Offshore Wind Roadmap, which presents the results of a technical, socio-economic, environmental and financing study initiated in June 2021 on potential offshore wind

1 Source: "2021 Power Statistics as at 31 December 2021, Summary", released 20 June 2022, published by the DOE at <https://www.doe.gov.ph/energy-statistics/philippine-power-statistics?withshield=1>

2 Source: "Advisory on the Moratorium of Endorsements for Greenfield Coal-Fired Power Projects In Line with Improving the Sustainability of the Philippines' Electric Power Industry" issued by the Department of Energy, 22 December 2020, at <https://www.doe.gov.ph/announcements/advisory-moratorium-endorsements-greenfield-coal-fired-power-projects-line-improving>. The Asian Development Bank also announced at COP26 in November 2021 the launch of a new partnership to establish an Energy Transition Mechanism ("ETM"), and a feasibility study in relation to structuring the ETM to provide financial incentives to help accelerate the retirement of coal-fired power plants in Southeast Asia, including in the Philippines: <https://www.adb.org/news/adb-indonesia-philippines-launch-partnership-set-energy-transition-mechanism>

3 Source: "Philippine Energy Plan 2018-2040", published by the Department of Energy at <https://www.doe.gov.ph/sites/default/files/pdf/pep/PEP%202018-2040%20Complete.pdf>

4 Source: <https://www.officialgazette.gov.ph/downloads/2022/02feb/20220228-EO-164-RRD.pdf>

development in the Philippines, and recommends concrete next steps for developing a robust offshore wind industry, including strategies to successfully integrate offshore wind in the government's renewable energy portfolio and recommendations on policies for fostering a conducive business environment for offshore wind investors.⁵

TOWARDS AN INCREASE IN RENEWABLE ENERGY'S SHARE

Launched in 2011, the National Renewable Energy Program (“NREP”) sets out a range of measures and tools to promote the development of renewable energy, and it contains a roadmap that provides for a 102GW capacity target to be reached by 2040, coming from existing, committed and new-build capacities across various sources. This figure includes approximately 52.8GW of new-build capacities from renewable energy, which is split across the various sectors as follows:⁶

- > **Wind:** 16.65GW
- > **Hydro:** 6.15GW
- > **Solar:** 27.16GW
- > **Geothermal:** 2.5GW
- > **Biomass:** 364MW



HOW DOES THE SYSTEM WORK?

LEGISLATIVE FRAMEWORK

Republic Act 9136, also known as the **Electric Power Industry Reform Act (“EPIRA”)** which was enacted in 2001, regulates the overall power industry, and initiated the deregulation of the industry and eventual privatisation of relevant state-owned enterprises.

To support the development of renewables, the government passed Republic Act 9513, also known as the **Renewable Energy Act**, which was enacted in 2008. This Act provides for a range of incentives (as discussed below) such as

income tax holidays, reduced income tax rates, feed-in tariff system, and priority connection and dispatch for renewable energy producers.

REGULATORY BODIES

THE DEPARTMENT OF ENERGY (“DOE”)

Mandated under EPIRA, the DOE is responsible for coordinating and supervising government plans with respect to energy exploration, development, utilisation and distribution. Designated as the lead agency for implementing the requirements of the Renewable Energy Act, its responsibilities under this legislation include the establishment of a renewable electricity market and a net metering programme (for users who install renewable energy generation systems) and the certification of electricity producers eligible to incentives.

The DOE has set up a Renewable Energy Management Bureau which provides support to the NREB (as defined below) and formulates sectorial policies.

THE ENERGY REGULATORY COMMISSION (“ERC”)

Mandated under EPIRA, the ERC is an independent, quasi-judicial regulatory body and is the regulator of the electricity sector. Its main responsibility pursuant to the Renewable Energy Act is the formulation of a feed-in tariff system and the adoption of the tariffs.

The ERC also reviews the terms of power supply agreements, which are generally required to be approved by the ERC.

THE NATIONAL RENEWABLE ENERGY BOARD (“NREB”)

The NREB was established pursuant to the Renewable Energy Act. It is composed of representatives from different agencies and industry associations.

Its key responsibilities are to recommend the capacity for the renewable portfolio standards or RPS (as defined below) and actions to facilitate the implementation of the NREP, as well as to monitor its implementation and that of the Renewable Energy Trust Fund. This fund was established pursuant

to the Renewable Energy Act to promote the development of renewables by financing research and conducting studies and training.

POWER OFFTAKERS

The **National Grid Corporation of the Philippines (“NGCP”)**, **distribution utilities and local electric cooperatives** are the offtakers of renewable electricity sold under the feed-in tariff scheme.

The feed-in tariffs are paid to renewable energy producers by the NGCP, the privately owned concessionaire of the National Transmission Corporation.

- > These entities can also offtake renewable electricity from producers pursuant to power supply agreements containing negotiated tariffs and conditions.
- > **Commercial bulk consumers** are end users (such as industrial or commercial users) with demand above a fixed threshold (1MW). They can enter into power supply agreements directly with energy producers.



⁵ The Offshore Wind Roadmap for the Philippines is currently available at <https://documents1.worldbank.org/curated/en/099225004192234223/pdf/P1750040b777da0c30935a0e2aa346f4e26.pdf>

⁶ Source: “National Renewable Energy Program, Executive Summary”, published by the DOE at https://www.doe.gov.ph/sites/default/files/pdf/announcements/nrep_2020-2040.pdf

ENERGY VIRTUAL ONE-STOP SHOP (“EVOSS”)

Republic Act 11234, *An Act Establishing the Energy Virtual One-Stop Shop for the Purpose of Streamlining and Permitting Process of Power Generation, Transmission, and Distribution Projects* otherwise known as the EVOSS Act, and which was signed into law on 8 March 2019 and took effect on 29 March 2019, established the EVOSS, or energy virtual one-stop shop.⁷

Covering all new power generation, transmission, and distribution projects (including renewable energy), the EVOSS is an information technology infrastructure system meant to provide an online paperless system for all permits and licenses required from various government agencies in setting up aforesaid new energy projects.



The law also provided time frames for government agencies to act on applications before it, specifically:

Mother Agency	Total Number of Calendar Days
Department of Energy (DOE)	60
Department of Agrarian Reform (DAR)	75
Department of Agriculture (DA)	60
Department of Environment and Natural Resources (DENR)	120
Energy Regulatory Commission (ERC):	
> all applications	60
> quasi-judicial cases	270
System Operator and Transmission Network (SO/TNP)	150
National Water Resources Board (NWRB)	60
Market Operator (MO)	15
Department of Transportation (DoTr)	30
Philippine National Police (PNP)	15
Department of Public Works and Highways (DPWH)	30
Philippine Nuclear Research Institute (PNRI)	15
Other Agencies	15

The EVOSS system interface may be accessed through: <https://www.evoss.ph/>

POWER PRODUCERS

Following the liberalisation of the electricity sector in 2001, **independent power producers** have become the main producers of energy in the Philippines and produced 90.5% of the country’s electricity in 2019.⁸ Most of these are privately-owned domestic groups that own multiple generation assets, although foreign groups also participate in the development of, and equity investment in, power generation assets through partnerships and joint ventures.

The **Power Sector Assets Liabilities Management Corporation (“PSALM”)** was established in 2001, as part of the liberalisation of the electricity sector, to privatise the generation assets owned by the National Power Corporation and the transmission business of the National Transmission Corporation, in order to liquidate the National Power Corporation’s financial obligations.



GOVERNMENT INCENTIVE PROGRAMMES

FEED-IN TARIFFS

Feed-in tariffs are issued to support the development of a specific installation target for a particular technology. This usually coincides with the government tendering sites for development through renewable energy contracts.

The feed-in tariffs are set by the ERC in consultation with the NREB and are reviewed by the NREB.

It should be noted that the feed-in tariffs are subject to “degression”, ie automatic reduction after a period of time (determined by the ERC) has passed after a tariff has been adopted.⁹ This is meant to incentivise renewable energy producers to speed-up the development of projects. Feed-in tariffs are also adjusted annually to account for exchange rate (Philippine peso and US dollar) and consumer price index variations.¹⁰ The completion of an installation target may also trigger the review of the relevant feed-in tariff.

⁷ Source: <https://www.officialgazette.gov.ph/2019/03/08/republic-act-no-11234>

⁸ Source: “2019 Power Statistics as at 31 December 2019, Gross Power Generation by Ownership”, released 8 May 2020, published by the DOE at https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/2019_power_statistic_06_generation_per_ownership_per_grid.pdf

Feed-in tariffs are granted to renewable power producers for a period determined by the ERC, which is currently not less than 12 years. As of 31 March 2020, the feed-in-tariff allocations for solar and wind have already been taken up and only hydro and biomass have a balance capacity set out in the table below. This means that there are no more feed-in-tariffs to be availed of for solar and wind projects other than projects that were already certified as being eligible for such tariffs.

We set out below a summary of the feed-in tariffs applicable as of 31 March 2020:¹¹

Type of Renewable Energy	Feed-In Tariff (PhP/KwH)	Balance Capacity (MW)
Hydro	5.8705	105.39
Biomass	6.5969	29.435
Wind	7.40	0
Solar	8.69	0

GENERAL INCENTIVES

In addition, the Renewable Energy Act offers incentives to renewable power producers (without distinguishing between technologies), including:

- > an income tax holiday available for 7 years from the start of commercial operations
- > exemption from custom duties for specific equipment items
- > cap on realty tax
- > carry over of operating losses sustained during the 3 first years of operations for up to 7 years

- > reduced corporate tax rate of 10% after the income tax holiday
- > accelerated depreciation
- > sale of power at 0% VAT



RESTRICTIONS ON FOREIGN INVESTMENT

There is currently a 40% limit in relation to foreign investment in renewable energy generation. This limit is set out under the Philippine Constitution and the Foreign Investment Act 1991 (“**FIA**”). There is a pending bill in the House of Representatives to amend certain provisions of the Philippine Constitution by adding the phrase “unless otherwise provided by law” to leave to Congress to decide the extent of regulation of foreign ownership limits.¹²



OTHER TOPICAL ISSUES

Various policy and regulatory mechanisms under the Renewable Energy Act were implemented in 2021.

Many of these relate to the Renewable Portfolio Standards (“**RPS**”), which is a market-based mechanism requiring load-serving entities to source an agreed portion of their energy supply from eligible renewable energy facilities (issued in 2017 under the RPS On-Grid Rules, after a two-year transition period, and under the RPS Off-Grid Rules issued in 2018). The relevant rules provide that the baseline renewable energy requirement shall be determined by the Composite Team (composed of members from the DOE Renewable Energy Management Bureau, the DOE Electric

Power Industry Management Bureau, the NREB and the RE Registrar) provided that the actual renewable energy generation after the baseline year of 2018 shall not be lower than 1%.¹³

RENEWABLE ENERGY MARKET

Commercial operations for the Renewable Energy Market, through which mandated participants would be able to purchase and trade Renewable Energy Certificates (“**RECs**”) based on actual renewable energy generation from eligible renewable energy generation capacities was expected to commence in June 2021. Trading of RECs will form part of mandated participants’ compliance with the RPS policy.

GREEN ENERGY AUCTIONS

The Guidelines issued by the DOE in July 2020 for the Green Energy Auction Program (“**GEAP**”) set out the framework and mechanics and the parameters for the Green Energy Auction Committee to allocate and award percentage volume, as well as the components of the Green Energy Implementation Agreement and the pricing principles for the Green Energy Tariff.¹⁴

On 18 January 2022, the DOE issued a Notice of Auction inviting qualified suppliers to participate in the first round of the Green Energy Auction to be held in June 2022, and subsequently released a revised timeline that anticipated the ERC releasing the finalised tariff ceiling (Green Energy Auction Reserve) by 30 May 2022 and pre-qualified bidders being announced by 31 May 2022.¹⁵

⁹ Source: ERC Resolution 16 of 2010, section 2.11.

¹⁰ Source: ERC Resolution 16 of 2010, section 2.10.

¹¹ Source: “FIT Monitoring Board Summary as of 31 March 2020”, published by the DOE at https://www.doe.gov.ph/sites/default/files/pdf/renewable_energy/fit-monitoring-board-summary-2020-03-31.pdf

¹² Source: Republic of the Philippines, House of Representatives, Committee Report no. 735 at https://www.congress.gov.ph/legisdocs/first_18/CR00735.pdf

¹³ Source: RPS On-Grid Rules (Circular No. DC2017-12-0015), section 8; RPS Off-Grid Rules (Circular No. DC2018-08-0024).

¹⁴ Source: Department Circular No. DC2020-07-0017, published by the DOE at <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2020-07-0017.pdf>

¹⁵ Source: <https://mb.com.ph/2022/01/30/doe-opens-auction-process-for-2000-mw-re-capacity>

The auction covers 2,000MW of renewable energy capacity in Luzon, Visayas, and Mindanao with the following installation targets:

RE Resource	Target Capacity (MW)		
	Luzon	Visayas	Mindanao
Hydro	80	-	50
Biomass	60	120	50
Solar	900	260	100
Wind	360	20	-
Total	1,400	400	200

On 27 June 2022, the DOE released the following results of the first auction round of the GEAP:

Technology	Capacity (MW)		
	Luzon	Visayas	Mindanao
Hydro	80	-	19.15
Biomass	-	-	3.4
Solar	1,070.38	300	120
Wind	360.8	13.2	-
Sub-total	1,511.18	313.2	142.55
Total	1,966.93		

The GEAP successfully generated 1,966.93MW of renewable energy capacities that have been committed to deliver energy from 2023 to 2025 at a competitive price that is lower than or equal to the Green Energy Auction Reserve prices set by the ERC.¹⁶

Green Energy Option Program

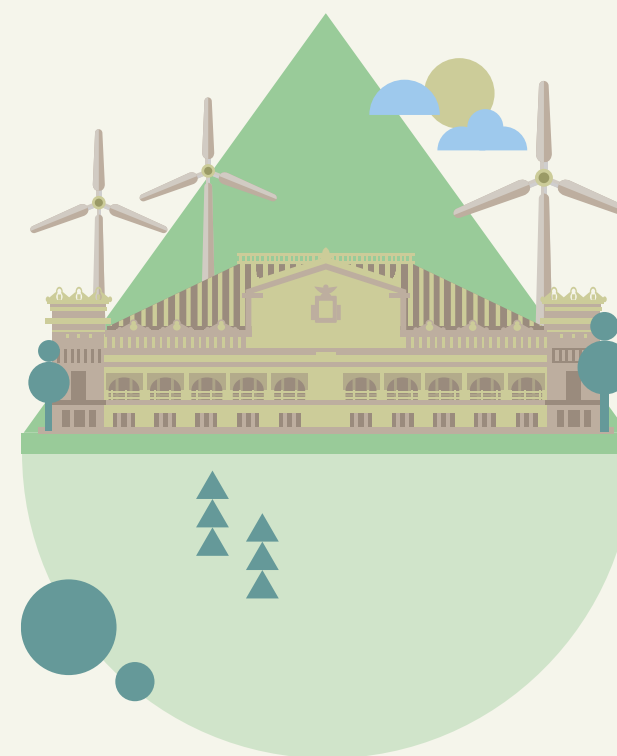
In April 2020, the DOE also issued guidelines for the Green Energy Option Program (“GEOP”).¹⁷ The GEOP provides end-users the option to choose renewable energy resources as their energy source, with the DOE setting a ceiling price, thus supporting generators to secure favourable power supply agreements. The guidelines state the required qualifications for renewable energy suppliers to participate in the GEOP, the obligations of renewable energy suppliers under the GEOP and the grounds entitling the DOE to suspend, revoke or cancel any GEOP Operating Permit and relevant penalties.

Competitive Renewable Energy Zones

In October 2020, the DOE identified 25 Competitive Renewable Energy Zones (“CREZ”) across the country with the potential to deliver over 808GW of additional capacity, including an estimated gross capacity of 152GW of new wind and solar PV, 365MW of geothermal, 375MW of biomass, and over 650GW of hydropower capacity. These zones are geographic areas with high concentrations of cost-effective renewable energy and strong developer interest. While there is no requirement to site new renewable energy projects in a CREZ, access to transmission is an advantage and so these zones are designed to assist developers in identifying suitable sites.¹⁸

July 2022

This publication has been prepared with the assistance of Romulo Mabanta Buenaventura Sayoc & de los Angeles, is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction.



16 Source: <https://www.doe.gov.ph/press-releases/doe-releases-results-geap-first-auction-round>

17 Source: Department Circular No. DC2020-04-0009, published by the DOE at <https://www.doe.gov.ph/sites/default/files/pdf/issuances/dc2020-04-0009.pdf>

18 Source: “Ready for Renewables - Grid Planning and Competitive Renewable Energy Zones (CREZ) in the Philippines”, published by the DOE and the United States National Renewable Energy Laboratory (NREL) with funding support from the United States Agency for International Development (USAID), September 2020 at <https://www.nrel.gov/docs/fy20osti/76235.pdf>

Renewable Energy in Taiwan.



OVERVIEW

Taiwan has become a focus of developers, investors and financiers as it seeks to pursue an ambitious agenda of rebalancing its energy mix away from largely imported fossil fuels and towards home grown wind, solar, hydro and other renewable energy sources. The key driver of this is the government's decision to phase out nuclear power as well as to reduce Taiwan's reliance on imported coal. The government has enacted a series of regulatory reforms over recent years which have facilitated the development of the solar and wind industries, including the introduction of feed-in tariffs, a model form of power purchase agreement ("PPA"), priority of dispatch and other incentives.

Taiwan's geographical characteristics and relatively friendly investment environment also makes it a particularly attractive target for inbound investment from foreign investors. In particular, Taiwan has been at the forefront of the internationalisation of offshore wind in the Asia Pacific. The government awarded 5.5GW of grid capacity to new offshore wind projects to come on line between 2020 and 2025, and is expected to award a further 15GW of capacity to come on line between 2026 and 2035. To date, six privately owned offshore wind projects have been successfully project financed by a combination of domestic and internationally sourced debt – the 128MW Formosa 1

project in 2018, Taiwan's first utility-scale offshore wind farm, the 640MW Yunlin offshore wind farm, the 376MW Formosa 2 offshore wind farm in 2019, the 595MW Changfang and Xidao projects in 2020, the 298MW Zhong Neng offshore wind farm in 2021 and the 605MW Greater Changhua 1 offshore wind farm in 2021 – and further Round 2 projects are expected to come to market/reach financial close this year, demonstrating the appetite of the local and international bank market and international export credit agencies to provide long term project finance for offshore wind projects in Taiwan. To date, Linklaters has been appointed to significant financing and M&A roles on virtually all of the Taiwan offshore wind projects in the market, as well as the refinancing of a 186MW solar asset portfolio owned by BlackRock.

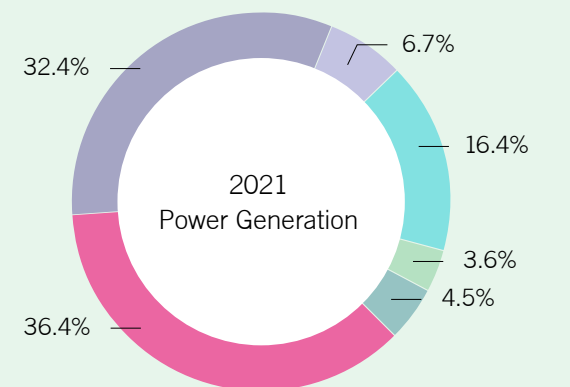
As the offshore wind market evolves, we expect increasing attention will be focused on accessing new sources of liquidity for the financing of further projects (including refinancing opportunities for projects reaching operation), increasing use of corporate PPAs in the context of a lower tariff / auction environment, and management of localisation and other new regulatory requirements as well as supply chain issues.



WHICH SECTORS ARE ACTIVE?

Taiwan's gross energy production was 280,139.9GWh in 2020. Taiwan's main source of energy is thermal power

with coal, nuclear and gas (including LNG) representing the most important sources of fuel in the island's energy mix. The composition of installed generation capacity as of 2020 is as follows:



	Capacity (%) ²
Coal	36.4
LNG	32.4
Nuclear	6.7
Renewables	16.4
Fuel oil	3.6
Pumped-storage hydro	4.5

Source: Energy Development and Efficiency, the Ministry of Energy

1 Source: Energy Supply and Demand Situation of Taiwan in 2020 published by the BOE at https://www.moeaboe.gov.tw/ecw/english/content/ContentDesc.aspx?menu_id=1551
 2 Source: Structure of Installed Capacity and Structure of Electricity Generation (by Fuel) (2020) https://www.moeaboe.gov.tw/ecw/english/content/SubMenu.aspx?menu_id=1996

In 2016, the government announced that, by 2025, it would phase out nuclear power generation. To plug this energy gap, the government announced ambitious targets to increase the amount of electricity generated from renewable sources to 20% of the island's energy supply by 2025, and 60-70% by 2050.³

The November 2018 referendum results indicated broad support for the move away from coal generation (although there was resistance to the planned phase out of nuclear generation), and the Ministry of Economic Affairs (“MOEA”) has since announced its commitment to the government's renewables policy and further targets for offshore wind beyond 2025 (see right column).

President Tsai Ing-Wen has since reiterated the government's goal to reach the 20% target by 2025.⁴



SWITCHING TO RENEWABLE ENERGY

Renewable energy consisted of 2.1% of the total energy supply in Taiwan in 2020. The government aims to achieve the increase in renewable generation, including through achieving 20GW of solar capacity by 2025 and 40-80GW of solar capacity by 2050, and 20.5GW of offshore wind capacity by 2025 and 40-55GW by 2050. Its operational capacity at the end of 2021 was 8.1GW, a little behind its 8.75GW target set for the end of the year.

To support the development of renewable energy the government in 2009 passed the Renewable Energy Development Act (“REDA”) which provides for a feed-in tariff system (see further details below) and offers a range of incentives to renewable power producers.

The Electricity Business Act (the “EB Act”) was also subject to substantial reform in 2017, including provision for the future liberalisation of the electricity market but also addressing the development of renewable energy by providing

for preferential measures for renewable power producers, such as priority grid connection and dispatch. Further regulatory changes have sought to facilitate the expansion of the offshore wind sector in Taiwan, such as incentives and subsidies, land, zoning and construction arrangements.

Alongside the legislative and regulatory measures, the government has also announced measures to streamline approval processes and significant investment in infrastructure designed to facilitate the development of renewable energy – such as the expansion of Taichung Port as a base for the development of the offshore wind sector.



HOW DOES THE SYSTEM WORK?

ROLE OF TAIPOWER

Taiwan has traditionally been a vertically integrated power market, with Taiwan Power Company (“Taipower”) playing key role.

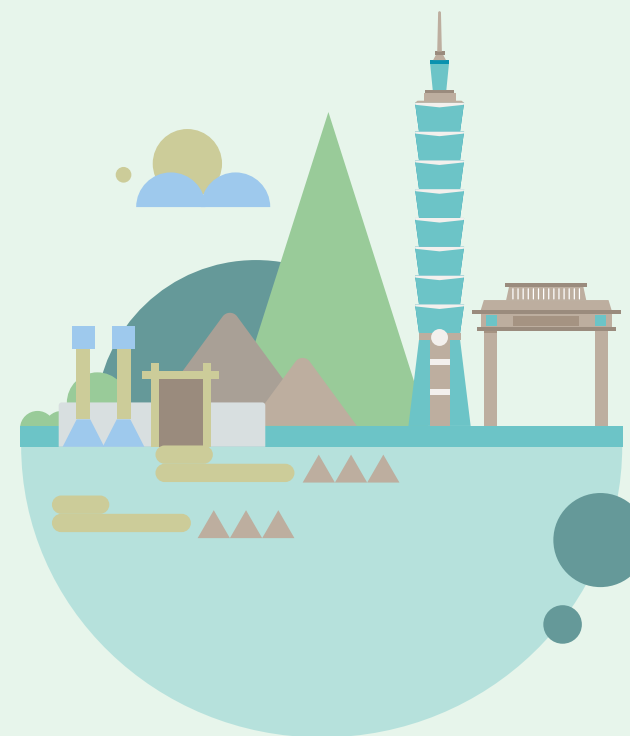
Taipower is a state-owned company under the control of the MOEA. Taipower is the main energy producer in Taiwan and currently has a legal monopoly on the transmission and distribution of electricity.

Private power producers can sell power generated by renewable projects directly to Taipower pursuant to the feed-in tariff regime (see below) by entering into a PPA with Taipower in the model form.

However the recent amendments to the EB Act have provided for:

- > the liberalisation of Taipower's monopoly over the purchase of all electricity generation in Taiwan, which has paved the way for direct sales of electricity by renewable power producers to end-users under corporate PPAs – use of which is expected to significantly increase in the in the context of a lower tariff/auction environment;

- > the future unbundling of Taipower's electricity generation business and its transmission/distribution business; and
- > the establishment of a ‘transmission wheeling’ service by Taipower to access the grid.



3 Source: “Towards the Goal of a Nuclear-Free Homeland by 2025 – Promotion of New Energy Policy” press release by the Executive Yuan, 17 September 2016; “Taiwan sets goal of boosting renewables in energy mix tenfold by 2050” (Focus Taiwan CNA English News) <https://focustaiwan.tw/business/202203300019>

4 Source: “Renewable Energy Week 2020” showcases the achievements in renewable energy and R&D innovations (MOEA news) https://www.moea.gov.tw/MNS/english/news/News.aspx?kind=6&menu_id=176&news_id=92413



REGULATORY BODIES

Key regulatory bodies include:

- > **MOEA** whose responsibilities include setting the policies for electricity businesses and the power prices/charges, setting technical regulations and overseeing the administration of electricity facilities.⁵ The MOEA delegates certain of its responsibilities to various subordinate administrative agencies. Much of its energy-related functions are delegated to the Bureau of Energy (“**BOE**”)⁶, including formulation of energy policies and granting of key permits to projects. Other agencies which play a role in the administration of renewables projects include the Industrial Development Bureau (“**IDB**”) which oversees compliance with localisation requirements and the Investment Commission (“**IC**”) which manages foreign investment approvals and share transfers.
- > **Local authorities** whose responsibilities include the inspection of users’ electrical equipment, overseeing the administration of the electricity construction industry and managing disputes between electricity enterprises and the public on the use of land.
- > **Electricity Regulatory Agency** which is a new regulatory agency to be designated by the MOEA pursuant to the EB Act, which will be responsible for (among other things) supervising and administrating electricity enterprises and the electricity market, approving applications for the set-up of electricity enterprises, predicting and planning power supply and demand, supervising and administrating power dispatch and settling disputes between electricity enterprises or between electricity enterprises and users. Before the Electricity Regulatory Agency is established, its functions will be exercised by the MOEA.
- > The **Fair Trade Commission** is an independent agency which oversees competition and fair trade matters, including anticompetitive behaviour in the power sector.

PERMITTING REGIME

The permitting process for the development of renewables projects in Taiwan can be relatively complex and involve various authorities including the Environmental Protection Administration, MOEA, BOE, Taipower, local authorities and other government agencies.

For example, an offshore wind project will require:

- > an EIA Approval;
 - > an Establishment Permit;
 - > a Recordation Approval;
 - > entry into a PPA (see pages 61 and 65);
 - > a Work Permit; and
 - > an Electricity Business Licence,
- as well as a number of other consents and approvals.



GOVERNMENT INCENTIVES AND TAX BREAKS

Energy is purchased by Taipower according to feed-in tariffs determined by the government (see page 62). In addition, the recent amendments to the EB Act provides other incentives to renewable IPPs, including:

- > subsidy programmes (such as equipment subsidies and demonstration subsidies) and the establishment of a specific fund to finance such subsidies. The fund is financed by power producers in proportion to their non-renewable electricity generation capacity;
- > exemption from import duties for renewable power equipment during construction or operation (provided there is no manufacturer for such equipment in Taiwan); and
- > various rights and arrangements for renewable IPPs in relation to zoning and construction regulations.

FEED-IN TARIFFS

Feed-in tariffs (“**FiTs**”) for wind, solar, hydropower, biomass, geothermal, waste and marine energy are set in New Taiwanese Dollars (“**NTD**”) on an annual basis by the MOEA pursuant to the EB Act and the REDA. The REDA provides that the purchase price for renewable energy must not be lower than the average cost for domestic fossil fuel power production.

Once fixed, the FiTs for each category of renewable energy are published by the MOEA through a tariff notice. PPAs for renewable energy are entered into with Taipower (as grid operator) for 20 years based on the relevant FiT contained in the applicable tariff notice at such time. Depending on the type of energy, different pricing options may be available under the relevant tariff notice. A summary of the FiTs for renewable energy applicable for the calendar year 2022 is set out below.⁷

⁵ Source: Article 3 of the EB Act

⁶ Source: Act on the Organization of the Bureau of Energy (經濟部能源局組織條例 - 中華民國93年01月20日)

⁷ Source: https://www.moeaboe.gov.tw/ECW/English/news/News.aspx?kind=6&menu_id=958&news_id=25032

Type of Renewable Energy	FiT (NTD/kWh)
Onshore wind	<ul style="list-style-type: none"> > 7.4110 for capacity of 1kW-30kW > 2.0883 for capacity above 30kW with low voltage ride through (LVRT) and 2.1223 for capacity above 30kW without LVRT
Offshore wind	<ul style="list-style-type: none"> > 4.5024 for 20 years (or 5.1356 for the first period of 10 years and 3.4001 for the second period of 10 years)
Solar photovoltaic	<ul style="list-style-type: none"> > 4.0031 to 5.8952 for First Phase FiT (depending on technology, capacity and location) > 3.8680 to 5.7848 for Second Phase FiT (depending on technology, capacity and location)
Hydropower	<ul style="list-style-type: none"> > 2.8599 to 4.1539 (depending on capacity)
Geothermal Energy	<ul style="list-style-type: none"> > 5.7736 for 20 years for capacity of 1kW to 2000kW (or 7.0731 for the first period of 10 years and 3.6012 for the second period of 10 years) > 5.1956 for 20 years for capacity of 2000kW and above (or 6.1710 for the first period of 10 years and 3.5685 for the second period of 10 years)
Biomass Energy	<ul style="list-style-type: none"> > 2.8066 to 5.1842 (depending on technology)
General and industrial waste	<ul style="list-style-type: none"> > 3.9482
Marine	<ul style="list-style-type: none"> > 7.3200



RESTRICTIONS ON INVESTMENT

There are generally no restrictions on foreign investment in the renewables sector in Taiwan (except for investment with national security concerns or investment from mainland China). Taiwan operates a “negative list” control on investments by foreign nationals whereby investments are allowed unless they are restricted or prohibited. Electricity generation is not subject to specific restrictions, although foreign investors are required to undergo an application process and obtain a foreign investment permit from the Investment Commission of the MOEA. The grant of a foreign investment permit also entitles foreign investors to certain fundamental investor protections including in relation to adverse government action.



HOT TOPICS – OFFSHORE WIND

ROUNDS 1 AND 2 CAPACITY ALLOCATIONS

In early 2018, the MOEA released the “Directions for Allocating Installed Capacity of Offshore Wind Potential Zones” (the “**Allocation Directions**”) which provided for a selection and bidding process for the allocation of 5.5GW of grid capacity to offshore wind projects which obtained approval of an Environmental Impact Assessment by the end of 2017.⁸

The Allocation Directions provided for:

- > a selection procedure for the award of fixed FiTs for:
 - > a total capacity of 0.5GW for grid connection in 2020 (Tier 1 or ‘fast track’ projects); and
 - > a total capacity of 3GW for grid connection between 2021 and 2024 (Tier 2 projects); and
- > a selection and bidding procedure for the award of a competitively determined tariff, for a total capacity of up to 2GW (Tier 3 projects).

The application process included certain requirements regarding (among other things) technical and financial capacity, permitting, confirmation regarding the prospects of achieving specified grid connection milestones, information on compliance with local content requirements and, in the case of the Tier 3 bidding process, the developer’s proposed tariff.

The MOEA awarded a total of 3,836MW of grid capacity through the selection process (Tier 1 and Tier 2 above) in April 2018, and subsequently awarded 1,664MW of grid capacity through the bidding process (Tier 3 above) in June 2018.

The tariff applicable to the Tier 1 and Tier 2 projects will be the FiT applicable to offshore wind at the time the relevant project enters into the PPA with Taipower, whereas the tariffs applicable to the Tier 3 projects were determined by competitive auction and are significantly lower than the current fixed FiT for offshore wind. There are also differences in the terms of the Grid Contract applicable to each of Tiers 1, 2 and 3 (see below).

ROUND 3 CAPACITY ALLOCATION

The MOEA released the “Directions of Grid Capacity Allocation for Offshore Wind Energy Zonal Development” in August 2021 and officially released a total of 15GW of capacity from 2026 to 2035.⁹ The first stage will be implemented in three rounds from 2025 to 2031, where a total of 9GW will be released:

- > **Phase 1:** 3GW for connection in 2026-2027 to be awarded in 2022
- > **Phase 2:** 3GW for connection in 2028-2029 to be awarded in 2023
- > **Phase 3:** 3GW for connection in 2030-2031 to be awarded in 2024

Timelines and detailed rules for the remaining 6GW for connection in 2032 to 2035 is to be confirmed.

⁸ This does not cover the Formosa 1 project, which is designated as one of three pilot projects, and was awarded capacity prior to the implementation of the Allocation Directions.

⁹ Source: https://www.moea.gov.tw/MNS/english/news/News.aspx?kind=6&menu_id=176&news_id=97414

Unlike previous rounds, sites for the upcoming allocation round are selected by developers, rather than picking from options designated by Government. There is also a project/sponsor cap of 500MW (an additional 100MW may also be possible).

The allocation will be made on an auction basis, with the following stages:

- > **Pre-qualification Stage:** requirement for preliminary EIA approval to be obtained and a certain amount of the total investment injected as equity
- > **Qualification Stage:** where bidders are assessed on (i) technical (60%) and (ii) financial (40%) capabilities, including localisation requirements. This requires satisfying the minimum local content requirements for key development items and bonus items
- > **Pricing Stage:** where bids are selected based on price, noting there is a cap on auction price at the weighted average of the achieved auction price in the previous allocation rounds. Tie-breakers will be decided on the basis of bonus points awarded for local content

GRID CONTRACT

All Round 2 projects awarded capacity pursuant to the Allocation Directions are required to comply with the requirements set out in a grid contract (“**Grid Contract**”) to be entered into between the generator and the MOEA. The form of Grid Contract are different for each of Tiers 1, 2 and 3 and address (among other things):

- > achievement of key project milestones by specified dates;
- > environmental compliance and funding obligations;
- > local content requirements;
- > ongoing reporting obligations;
- > liability regime (including liquidated damages, other rights to claim damages and MOEA termination rights);
- > requirement to provide performance bonds (which can be drawn by MOEA to meet liquidated damage payments due from the generator for failure to comply with project milestones and other obligations);

- > restrictions on changes in shareholding,
- > lock-in of original ‘promoters’; and
- > other secondary and ancillary obligations.

Projects will also be bound by the terms of the original selection proposals submitted to MOEA.

The form of Grid Contract for Round 3 projects has not been released by MOEA.

TAIPOWER PPA FOR OFFSHORE WIND

The model form of PPA that is used by Taipower for offshore wind projects regulates:

- > the purchase of electricity by Taipower; and
- > the connection of offshore wind projects to Taipower’s electricity grid.

It is a short document which does not seek to provide a comprehensive allocation of risks as between the generator and Taipower/government (as would be the case under a typical long form emerging markets PPA). Instead, it is more analogous to a prescribed statutory PPA used in the context of a feed-in-tariff model in developed and/or liberalised markets, and should be read in conjunction with the applicable regulatory regime in Taiwan.

The model PPA for offshore wind is in a very similar form to the model form of PPA used in numerous existing onshore wind and solar projects in Taiwan. In a positive development for investors and financiers, following extensive efforts from stakeholders, Taipower has agreed to update the model PPA for offshore wind to extend/introduce the cure period for certain termination events, and grant a number of other core lender protections (including effective step-in rights, and regarding availability of security over the PPA to financiers).

LOCALISATION AND LOCAL PARTICIPATION

The offshore wind projects under development and in construction have involved construction and procurement from international and domestic contractors.

The government aims to further develop the domestic supply chain in Taiwan through a number of measures including:

- > requirement for certain projects to agree a localisation plan with the IDB – breaches by the generator will trigger penalties under the Grid Contract;
- > localisation commitments included in bid documents becoming binding on a project;
- > regulations requiring the prioritisation of Taiwan vessels for offshore wind projects; and
- > see also comments above on the relevance of localisation to the Round 3 capacity allocation process. The ability of the local supply chain to meet the relevant requirements continues to be a focus for investors and lenders.

Projects are also required to make contributions (based on electricity generated) to a ‘Development Assistance Fund’ which is used to promote local community development and welfare, and there are also regulatory requirements relating to consultation and compensation to fishery association and affected communities.





HOT TOPICS – SOLAR POWER

The government intends to achieve 20GW of solar PV installed capacity by 2025, and hopes to extend that capacity to 40-80GW by 2050, through the development of both rooftop and ground-mounted systems, which are expected to respectively account for 3GW and 17GW.¹⁰ There have also been examples of floating solar technology uses.

With the completion of the Solar PV Two-year Promotion Plan, Taiwan installed 6.62GW of solar power capacity as of June 2021,¹¹ setting a foundation for further growth of the solar industry.

The government has announced that it will focus on the following strategies (among others) to reach the 20GW target:¹²

- > increasing the installation of rooftop panels at industrial parks;
- > adding solar power generation into the operations of farms, ranches and aquaculture facilities;
- > promoting ground-based systems;
- > enhancing the distribution and transmission infrastructure for solar energy hotspots; and
- > diversifying sources of investment.

The favourable conditions (including continuing availability of attractive solar FITs) have attracted significant foreign investment in the solar space. The consolidation of smaller scale projects into platforms has become a feature of the market, facilitating the development of innovative financing structures.



HOT TOPICS – EMERGENCE OF CORPORATE PPAS

Recent changes to the regulatory regime in Taiwan have opened the market to enable generators to sell electricity directly to end-users (rather than wholesale to Taipower). Power can be delivered to the offtaker via direct lines or “wheeled” through Taipower’s national grid infrastructure. Taipower is obligated to provide wheeling services to renewable energy generators.

From the generator perspective, the benefits of a Corporate PPA include:

- > negotiable price which can improve project economics compared with pricing under the Taipower PPA - this is particularly relevant for offshore wind in the context of the falling tariff / competitive auction environment;
- > availability of a wholesale “Backup PPA” with Taipower if the Corporate PPA is terminated or expires early - projects have the ability to switch back and forth between Backup PPAs and replacement Corporate PPAs; and
- > ability to sell to Taipower any power that is not delivered under the Corporate PPA under a “Surplus PPA”.

Factors driving the demand for Corporate PPAs in Taiwan include:

- > the requirement for large-scale electricity users to procure renewable energy sources in order to comply with the Renewable Portfolio Standard in Taiwan; and
- > voluntary commitments made by a number of Taiwan companies to meet the RE100 target, which is in turn driven by the key role that Taiwan manufacturing plays in the global supply chain.

A number of high profile Corporate PPAs have been announced, particularly in the offshore wind sector, and the expectation is that Round 3 bidders will utilise Corporate PPAs in order to optimise project economics.

The market is expected to continue evolving, including:

- > development of bankable terms and structures, including in the context of any ‘zero bids’ in Round 3;
- > deepening of the offtaker market, including potential aggregation of smaller buyers;
- > potential development of a separate market for T-RECS (currently bundled with power sold under Corporate PPAs); and
- > the continuing development of the regulatory background.

July 2022

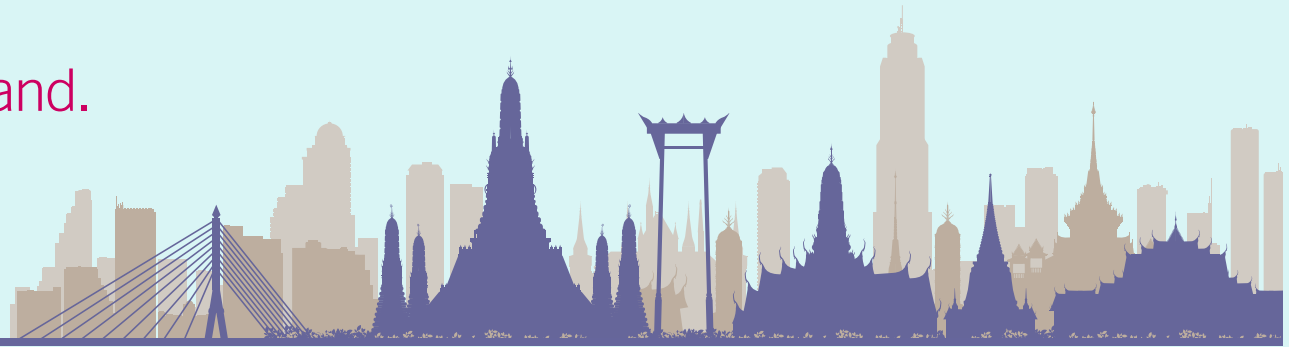
This publication is intended merely to highlight issues and not to be comprehensive, nor to provide legal advice, and its contents should not be relied upon as legal advice, either generally or in relation to any specific transaction. Linklaters is not qualified to advise on Taiwanese law. For the purposes of this note we have relied on our general understanding of the market including based on advice received from leading Taiwanese local counsel in recent transactions in the renewable energy sector.

¹⁰ Source: “Solar PV Two-Year Promotion Project”, major policies report by Executive Yuan <https://www.ey.gov.tw/Goals/E8BA2FC96898A19>

¹¹ Source: “Green Energy”, 3 November 2021, <https://english.ey.gov.tw/flii/5345E83677FD9ADE>

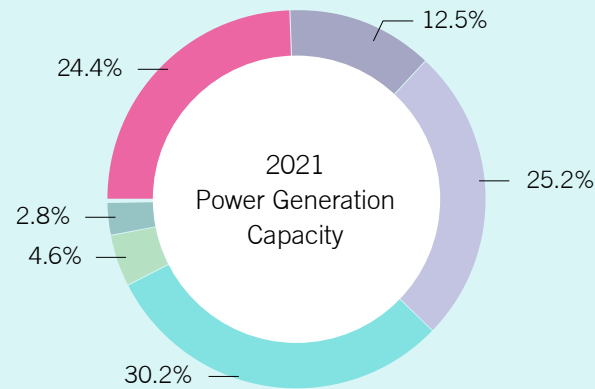
¹² Source: “Promotion of Solar Energy”, major policies report by Executive Yuan, 29 October 2019, <https://english.ey.gov.tw/News/9E5540D592A5FECDD/777fcee7-90db-4b72-9927-573eef9ea9e> (Chinese version: <https://www.ey.gov.tw/Page/5A8A0CB5B41DA11E/4413b416-5f1e-419b-9a39-5a02c8a3ba8c>)

Renewable Energy in Thailand.



WHICH SECTORS ARE ACTIVE?

As of October 2021, Thailand's existing generation capacity was 57,914.93MW, with a total generating capacity of renewable projects of 12,369.32MW (21.35% of Thailand's total power generating capacity). The country's renewable power generation capacity composition, as of October 2021, was as follows:



	%
● Solar	24.4
● Wind	12.5
● Hydro	25.2
● Biomass	30.2
● Biogas	4.6
● Waste	2.8

Source: Energy Development and Efficiency, the Ministry of Energy



RENEWABLE ENERGY GENERATION PLAN

In April 2019, the Ministry of Energy approved an updated Power Development Plan (“PDP”) which covers the period from 2018 to 2037 (“PDP 2018”). According to the PDP 2018, the total power generating capacity of the country at the end of 2037 will be 77,211MW. The amount of generating capacity to be added to achieve this target as at the end of 2037 is 56,431MW (taking into account the existing generating capacity as at December 2017 of 46,090MW less the expected retiring generators as at 2037 of 25,310MW).

In October 2020, the PDP 2018 was revised (“PDP 2018 Rev.1”) to improve energy efficiency and enhance energy security in Thailand. The targeted new generating capacity at the end of 2037 remains 56,431MW, of which renewable energy projects are planned to account for 18,833MW or 33.37%.¹

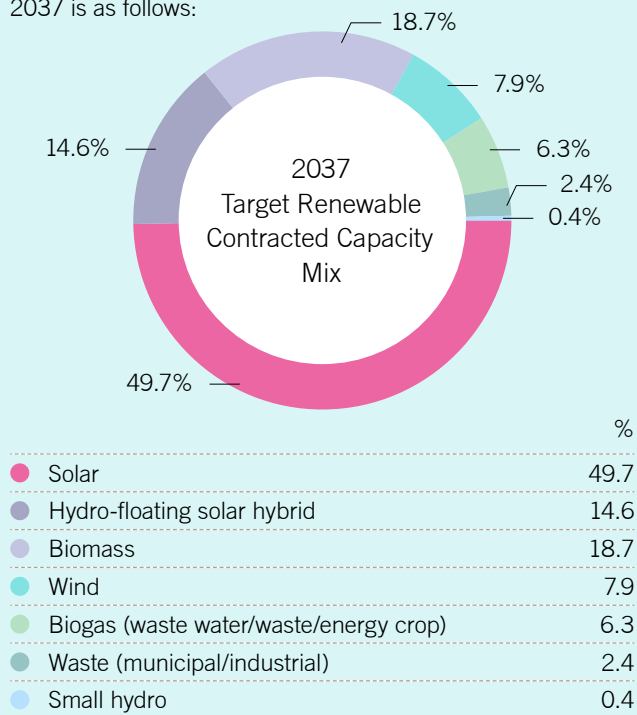
In October 2021, the Committee on Energy Policy Administration (“CEPA”) approved the plan to amend the PDP 2018 Rev.1 in order to increase the renewable energy production target at the end of 2030. The highlights to the amendment to the PDP 2018 Rev.1 are that targeted generating capacity from wind power is to be increased from 270MW to 1,500MW and the targeted hydro power purchased from foreign countries (ie, Laos) is to be increased from 1,400MW to 2,766MW.

¹ Source: http://www.eppo.go.th/images/Infomation_service/public_relations/PDP2018/PDP2018Rev1.pdf (Page 25)

The amendment to the PDP 2018 Rev.1 will be open for the hearing process and is expected to be completed in July 2022.²

The development of new renewable energy projects will also be contemplated in the Alternative Energy Development Plan 2018-2037 (“**AEDP 2018**”), which is aligned with the policy of PDP 2018 Rev.1. The AEDP 2018 aims to increase power generating capacity from biogas and biomass and to include the Community-Based Power Plants for Local Economy Project. This Project involves the development of power plant and participation of the local community in the operation of the plant. The total contracted capacity of renewables projects in Thailand by 2037 is expected to be 18,696MW.³

Thailand’s target renewable contracted capacity mix by 2037 is as follows:



Source: Energy Development and Efficiency, the Ministry of Energy



HOW DOES THE SYSTEM WORK?

POWER OFFTAKERS

The power generated from projects in Thailand will be sold under power purchase agreements (“**PPAs**”) between project companies to one of the following offtakers (with a few exceptions whereby some of the power can be sold directly to industrial users):

- > Electricity Generating Authority of Thailand (“**EGAT**”) – a state enterprise responsible for the generation, procurement, and transmission of electricity to other electricity authorities for further distribution to end users.
- > Provincial Electricity Authority (“**PEA**”) – a state enterprise responsible for the distribution and sale of electricity to end users in provincial and suburban areas; most of the electricity that PEA distributes to end users is purchased from EGAT and the rest is purchased directly from the power producers under the Very Small Power Producer Program.
- > Metropolitan Electricity Authority (“**MEA**”) – a state enterprise responsible for the distribution and sale of electricity to end users in Bangkok and its surrounding areas; as with PEA, they obtain most of the power by purchasing it from EGAT and the rest is purchased directly from the power producers under the Very Small Power Producer Program.

PRIVATE POWER PRODUCERS

Apart from EGAT, there are three types of private power producers in the Thai power market:

- > Independent Power Producer (“**IPP**”) – A large scale power producer with a generating capacity of more than 90MW. IPPs will sell all electricity to EGAT under a long-term PPA, and in order to participate as an IPP, EGAT will – from time to time (to date there have been three rounds of IPP bidding in the country, in 1994, 2007 and

2012) – invite the private sector to submit a bid to sell electricity to EGAT in accordance with the needs set out in the PDP approved by the National Energy Policy Council and the Cabinet.

- > Small Power Producer (“**SPP**”) – A small scale power producer with a maximum capacity not exceeding 90MW which sells electricity to EGAT under a long-term PPA, ie, 20-25 years (other than an SPP generating power from a renewable energy source where the PPA will be for a period of five years and renewal can be made upon request by one party).
- > Very Small Power Producer (“**VSPP**”) – A very small-scale producer with a maximum generating capacity not exceeding 10MW, which sells electricity to either PEA or MEA, depending on the location of the project.



² Source: <http://www.eppo.go.th/index.php/th/component/k2/item/17553-cepa-prayut33>

³ Source: <https://policy.asiapacificenergy.org/sites/default/files/Alternative%20Energy%20Development%20Plan%202018-2037%20%28AEDP%202018%29%28TH%29.pdf> (Page 19)



REGULATORY BODIES

The National Energy Policy Council (“NEPC”) has:

- > authority to set a policy and a strategy for energy management and development, including an energy price;
- > and development, including an energy price;
- > authority to assign other relevant authorities/entities to put such policy into practice and to follow up on the progress made by such authorities/entities;
- > the leader of the National Council for Peace and Order (the Prime Minister) as its chairman; and
- > the Office of Energy Policy and Plan which acts as the NEPC’s secretary office.

The Ministry of Energy:

- > has authority over the procurement, development and management of energy;
- > has state sectors, such as Office of the Minister, Office of the Permanent Secretary, Department of Mineral Fuels, Department of Energy Business, Department of Alternative Energy Development and Efficiency, Energy Policy and Planning Office; and
- > supervises certain state enterprises, such as EGAT and PTT Public Company Limited.

The Energy Regulatory Commission (“ERC”):

- > was established by the Energy Industry Act B.E. 2550 (2007) as an independent regulatory agency;
- > has authority to regulate the energy industry in accordance with government policy (eg policy from the NEPC);
- > has authority to prescribe the size/type of energy business in which an energy business licence is required or exempted;
- > has authority to prescribe steps and procedures for the purchase from/selection of the seller (eg the bidding process); and

- > has authority to issue permits/licences required for energy business, including those pursuant to regulations under the responsibility of other governmental agencies (with such governmental agencies’ recommendation) such as factory licences and building construction permits.



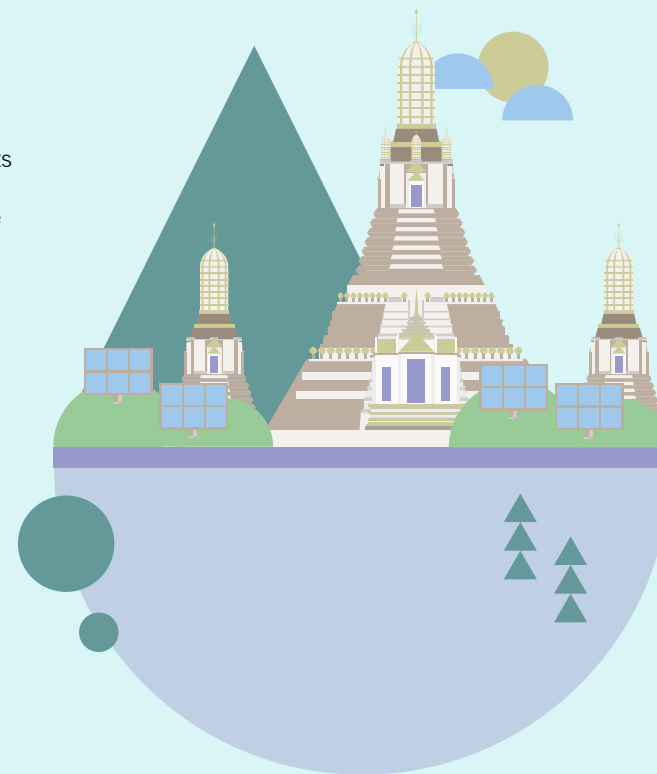
GOVERNMENT INCENTIVES

TARIFFS – ADDER/FIT

The Adder scheme was first introduced in 2007 and was subsequently revised in 2009 and 2010 to encourage the development of renewable energy projects, whether SPP or VSPP projects. Both were entitled to receive an Adder, which was an additional amount paid on top of the price of electricity over a specified period.

Despite its popularity, the Adder scheme was cancelled in January 2016 and has been replaced by a Feed-in-Tariff or FiT scheme. Adder is still applicable to those operators who signed PPAs prior to the announcement of the discontinuance of the Adder programme, but new applicants cannot further apply for the Adder as EGAT/MEA/PEA have already issued announcements to discontinue the purchase of electricity under the Adder system.

The tariff under the FiT scheme is varied based on type of fuels and project promoted pursuant to the government’s policy.



Adder rates for each type of renewable energy are set out in the table below:

Energy	Adder (THB/kW-hour)	Special Adder for 4 districts in Songkra Province (THB/kW-hour)	Total Adder for 4 districts in Songkra Province (THB/kW-hour)	Supporting Period After COD (years)
1. Biomass				
(a) ≤ 1MW	0.50	1.00	1.50	7
(b) 1MW	0.30	1.00	1.50	7
2. Biogas				
(a) ≤ 1MW	0.50	1.00	1.50	7
(b) 1MW	0.30	1.00	1.50	7
3. Waste				
(a) Preservation or covering in a hole	2.50	1.00	3.50	7
(b) Thermal Process	3.50	1.00	4.50	7
4. Wind				
(a) ≤ 50kW	4.50	1.50	6.00	10
(b) 50kW	3.50	1.50	5.00	10
5. Water				
(a) between 50kW and 200kW	0.80	1.00	1.80	7
(b) < 50kW	1.50	1.00	2.50	7
6. Solar	6.50	1.50	8.00	10

FiT rates for each type of renewable energy are set out in the table below:

Capacity (MW)	FiT (THB/unit)			FiT Premium (THB/unit)		
	FiT (fix)	FiT (floating as per core inflation)*	FiT	Supporting Period (years)	Biomass (first 8 years)	Projects in 4 southern provinces of Thailand**
1. Waste (mix system)						
(a) ≤ 1MW	3.13	3.28	6.41	20	0.70	0.50
(b) between 1 and 3MW	2.61	3.28	5.89	20	0.70	0.50
(c) 3MW	2.39	2.75	5.14	20	0.70	0.50

Capacity (MW)	FiT (THB/unit)			FiT Premium (THB/unit)		
	FiT (fix)	FiT (floating as per core inflation)*	FiT	Supporting Period (years)	Biomass (first 8 years)	Projects in 4 southern provinces of Thailand**
2. Waste (preservation or covering in a hole)	5.60	N/A	5.60	10	N/A	0.50
3. Biomass						
(a) ≤ 1MW	3.13	2.26	5.39	20	0.50	0.50
(b) between 1 and 3MW	2.61	2.26	4.87	20	0.40	0.50
(c) 3MW	2.39	1.89	4.28	20	0.30	0.50
4. Biogas (waste/wasted water)	3.76	N/A	3.76	20	0.50	0.50
5. Biogas (energy crop)	2.79	2.60	5.39	20	0.50	0.50
6. Water ≤ 200kW	4.90	N/A	4.90	20	N/A	0.50
7. Wind	6.06	N/A	6.06	20	N/A	0.50
8. Solar						
(a) household rooftop ≤ 10kW	1.68	N/A	1.68	10	N/A	N/A
(b) solar farm on land	4.12	N/A	4.12	25	N/A	0.50
9. Industrial waste						
(a) VSPP power plants developed from industrial waste incinerator existing before 1 February 2015	2.39	2.75	5.14	20	0.70	0.50
(b) VSPP new power plant	3.39	2.75	6.14	20	0.70	0.50
(c) VSPP new power plant with plasma technology	3.39	2.75	6.14	20	1.70	0.50
10. Renewable SPP (10-50MWs) Hybrid Firm***	1.81	1.89	3.70	20	N/A	N/A

* These are floating rates for year 2021 announced by the ERC pursuant to the Notification of the Energy Regulatory Commission regarding Formula for Feed-in Tariff. These rates continue to be applicable for year 2022.

Calculation in respect of Variable Component (FiTv) for Renewable Energy Generation for Year 2021 dated 19 January 2021

** Yala province, Pattanee province, Narativas province and certain districts in Songkla province

*** The source of energy can be one type of renewables or more

On 30 June 2022, the ERC conducted a public hearing for the procurement of electricity from renewable sources (FiT) for 2022-2030 and the ERC expects to enact an official regulation regarding procurement of electricity with full details of bidder's general and technical qualifications within this year. The key details of the public hearing are as follows:

Contracted capacity

Type of Fuel	Type of contract	2024	2025	2026	2027	2028	2029	2030	Total (MW)
Biogas	Non-firm	-	-	75	75	75	70	40	335
Wind	Non-firm	-	250	250	250	250	250	250	1,500
Solar farm									
Solar farm on land	Partial-firm	190	290	258	440	490	310	390	2,368
Solar farm on land with battery energy storage system	Non-firm	100	100	100	100	200	200	200	1,000
Targeted contracted capacity		290	640	683	865	1,015	830	880	5,203

FiT rate

Type of Fuel	FiT (THB/Unit)			Supporting Period
	FiT(f)	FiT(v)	FiT	
Biogas (waste/wastewater) for all contract capacity	2.0724	-	2.0724	20 years
Wind for all contract capacity	3.1014	-	3.1014	25 years
Solar farm				
Solar farm on land for all contract capacity	2.1679	-	2.1679	25 years
Solar farm on land with battery energy storage system for contract capacity 10-90MW	2.8331	-	2.8331	25 years



BOARD OF INVESTMENT'S INCENTIVES

Thailand Board of Investment (“BOI”) is the government agency that supports and promotes investment from the private sector. Its aims are to enhance Thailand’s economic growth and facilitate foreign investors with a range of tax incentives (eg corporate income tax exemption up to eight years and import duty exemption on raw materials and machinery) and non-tax incentives (eg in relation to bringing in expatriates and foreigners owning land in Thailand). Renewable energy production projects are one of the promoted activities and other promoted activities also include electric vehicle activities such as manufacturing of electric vehicles (and parts) and electric charging stations (see details as follows below):

- > production of electricity and/or steam from garbage or refuse derived fuel (type 7.1.1.1);
- > production of electricity and/or steam from renewable energy, such as solar energy, wind energy, biomass or biogas (type 7.1.1.2);
- > manufacture of Battery Electric, Vehicle (BEV), Plug-In Hybrid, Electric Vehicle (PHEV), Hybrid Electric Vehicle (HEV), and BEV Platform (type 4.24);
- > manufacture of Electric Battery Motorcycles (type 4.25);
- > manufacture of Battery Electric Tricycle and Battery Electric Tricycle Platform (type 4.26);
- > manufacture of Battery Electric Bus and Truck and Battery Electric Bus and Truck Platform (type 4.27); and
- > manufacture of Electric Bicycles (E-BIKE) (type 4.28).



RESTRICTION ON FOREIGN INVESTMENT

Generally, there is no restriction on the number of shares or percentage of shares to be held by a foreign entity, as the power generation business is not a restricted business activity under the Foreign Business Act B.E. 2542 (1999) (“**FBA**”). However, under the Land Code of Thailand (“**Land Code**”), a company in which more than 49% of the total shares are held by foreigners or where foreign shareholders make up more than half of the total number of shareholders, shall be considered a foreigner and shall not be permitted to own land. However, given that the renewable energy projects are types of businesses which are eligible for Board of Investment promotions, certain privileges are granted, and one of the key privileges (other than tax holidays and custom duty exemptions) is the ability of the project company to have ownership over the land in which the project will be located, despite the restriction under the Land Code as set out in the details above.



CHANGE OF SHAREHOLDING RESTRICTION UNDER PPAS

Generally, the company which is a party to a PPA will be subject to a restriction on change or restructure of the shareholding, whereby no change in the shareholding structure of the company will be permitted during the first 3 years after the COD, if such change would result in:

- > the number of the original shareholders being less than half; or
- > the percentage of the shares held by the original shareholders being less than 51%.



TOPICAL ISSUES

SOLAR ROOFTOPS

Pursuant to the PDP 2018 Rev. 1 and the AEDP 2018, approximately 10,000MW in solar projects is supported. It is

expected that the focus will be for the VSPP and household sectors to sell or exchange surplus power to the grid via solar rooftops which should benefit solar roof product manufacturers and installation service providers. However, the government’s plan to start from a minimal capacity of 100MW per annum in the first 10 years suggests slow growth in the implementation of these projects at the beginning. The ERC has already begun and completed the first 100MW public solar rooftop scheme with online applications opening from 24 May 2019 (on a first-come-first-served basis) with a cap of 10kWp generating capacity per household for a 10-year contract at a tariff rate of THB 1.68/unit. In December 2020, the NEPC has approved to increase the tariff rate for purchasing surplus power from household sectors from THB 1.68/unit to THB 2.20/unit and adjust the solar rooftop installation regulations to attract and facilitate investors. The new tariff rate is effective from 1 January 2021 for a period of 10 years and applies to both existing household power producers participating in this scheme since 2018 and also new household sector applicants. The NEPC targeted to additionally purchase surplus power from household sectors for 50MW.

In addition, the NEPC has also approved to expand the scope of solar rooftop project to cover schools, hospitals and water pumping station for agricultural. The target purchase of surplus power from these additional sectors will be 50MW with a feed-in tariff rate of THB 1/unit.

EGAT HYDRO FLOATING SOLAR HYBRID

EGAT plays a key role in pushing forward the hydro-floating solar hybrid projects featuring hybrid electricity generation by floating solar panels and hydropower plants equipped with battery energy storage systems (“**BESS**”) at its dams. The new 20-year Power Development Plan (PDP) targets 5,325MW total capacity for such projects, replacing the 2,725MW goal in the original PDP. The new PDP will be in line with the implementation of Thailand’s Smart Grid Master Plan for the medium term from year 2022 to 2031 in respect of Thailand’s energy production planning, management of variable renewable energy (“**VRE**”) and increase of renewable energy production. EGAT is planning 8 floating solar projects with a 1,500MW total capacity and 58 billion baht investment

in the next 20 years in its efforts to achieve carbon neutrality, increasing greener production and reducing fossil-based energy production.

COMMUNITY-BASED POWER PLANT

On 23 September 2021, the ERC announced the list of 43 developers for the development 149.50MW community power plants (phase 1), divided into 16 biomass plants, with a total capacity of 75.00MW (average electricity offer price of 2.7972 baht per unit) and 27 biogas plants, with a total capacity of 74.50 megawatts (average sale price of 3.5717 baht per unit), according to the electricity purchase target framework set by the National Energy Policy Council (“**NEPC**”). All applicants selected to participate in the projects must agree the terms of an electricity purchase agreement with the Provincial Electricity Authority within 7 days of selection and sign the electricity purchase agreement within 120 days of selection. The date of distribution of electricity to the commercial system for such projects must be within 36 months from the day of signing the electricity purchase agreement or January 21, 2025 whichever is earlier. The Ministry of Energy is also expected to launch phase 2 of community power plants for with target capacity of 400MW. The relevant terms of reference is expected to be finalised by Q4/2022. Bidding for the capacity will be held late in 2022 or early 2023 depending on the terms of reference and any further announcements by Energy Regulatory Commission.

THAILAND’S INTEGRATED ENERGY BLUEPRINT

The Ministry of Energy has kicked off the process of drawing up Thailand’s Integrated Energy Blueprint (“**TIEB**”). As resolved by the Cabinet in October 2020, the TIEB will integrate five energy plans issued in 2018 being (i) power development plan, (ii) alternative energy development plan, (iii) energy efficiency plan, (iv) gas plan and (v) oil plan. The plan is divided into a five-year short-term plan (2022–2027), a five-to-ten-year mid-term plan and a twenty-year long-term plan. At the time of writing, it is expected that the TIEB will lead to Net-Zero Carbon Emissions.

On 4 August 2021, the Ministry of Energy obtained approval from the National Energy Policy Council (NEPC) to undertake the preparation of National Energy Plan 2022 which is the

new name of TIEB. The preparation and implementation of National Energy Plan 2022 is to be under the responsibilities of relevant government agencies and the National Energy Plan 2022 will be regarded as the master plan of national energy policy in Thailand. The National Energy Plan 2022 is being prepared and is expected to be enacted in 2023.

UN CLIMATE CHANGE CONFERENCE 2021

Prime Minister Prayut Chan-o-cha attended the World Leaders Summit, which is part of the 26th session of the Conference of the Parties (“COP 26”) to the United Nations Framework Convention on Climate Change in Glasgow, United Kingdom on 1-12 November 2021.

The Prime Minister announced Thailand’s commitments to reduce annual greenhouse gas emissions by 20-25% by 2030 as per the country’s updated nationally determined contributions (“NDCs”) and also unveiled its long-term low greenhouse gas emission development strategies (LT-LEDS), which is the roadmap for Thailand to achieve net-zero carbon emissions by 2065.

Energy Policy and Planning Office (“EPPPO”) is in the process of preparing the National Energy Plan 2022 comprising of 5 sub-energy revised plans (ie, PDP, AEDP, Gas Plan, Oil Plan and Energy Efficiency Plan) to achieve net-zero carbon emissions by 2065. The National Energy Plan 2022 is expected to be completed within 2022.

Ministry of Natural Resources and Environment and relevant government organisations are planning to hold the Thailand Climate Action Conference in July 2022 to implement the plan to achieve net-zero carbon emissions by 2065 as committed by the Prime Minister.

ELECTRIC VEHICLES (“EV”)

Other than the BOI’s investment promotion (as described above), electric vehicles, electric charging stations, and electric platforms have become potential industries which are the focus of targeted investment promotion in Eastern Economic Corridor (“EEC”) consisting of 3 provinces on the eastern part of Thailand: Chachoengsao province, Chonburi province and Rayong province. The EEC is contemplated to be electric vehicles manufacture hub of Thailand – the

area is expected to account for 30% of the total automotive production by 2030.

On 15 February 2022, Thailand’s cabinet approved a package of incentives including tax cuts and subsidies to promote electric vehicle (EV) consumption and production for the year 2022-2023. The subsidies range from 70,000 baht to 150,000 baht depending on the type and model of vehicle, and lower excise tax and import duties on completely knocked down and completely built-up units have been implemented.

On 22 February 2022, the Cabinet also approved new rates of excise tax for 27 types of vehicles – raising excise tax rates for conventional combustion cars and lowering excise tax rates for electric vehicles (EVs). The new rates for six types of EV will become effective as soon as they are published in the Royal Gazette while the remaining rates for 21 types of EV will take effect between 2026 and 2035.

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Renewable Energy in Vietnam.



OVERVIEW

The demand for electricity in Vietnam is rising rapidly to power the growing economy. Forecasts predict an annual growth rate for electricity of “near-double” digits in the years to come. To keep pace with demand, the Government has envisioned substantial expansion to the national power generation capacity and introduced policies to cultivate the development of renewable energy.

Following an eventful 2020, 2021 and the first half of 2022 have continued to witness significant developments for renewables. This is despite an uncertain regulatory environment following the expiry of feed-in-tariffs (“FiTs”) for solar power as of January 2021 and for wind power as of November 2021. We expect 2022 to be characterised by ambitious new plans to develop renewable energy projects, particularly offshore wind projects, and new legal frameworks to select investors and determine tariffs for those projects.

In particular, on the regulatory front, the Government is busy finalising its 8th National Power Development Masterplan (“PDP8”) covering the period 2020-2030 with a vision to 2045. In parallel, it has issued multiple drafts of key enabling regulations including: a draft Decision of the Prime Minister setting out key policies for development of renewable energy projects in Vietnam; a draft Circular of the Ministry of

Industry and Trade (“MOIT”) providing guidance on the price framework and the standard form PPA; a draft Circular of the MOIT dealing with tariff formulation for “transitional” wind and solar projects not meeting the previous FiT deadlines and, last but not least, a draft Decision of the Prime Minister to establish a so-called “direct PPA” mechanism for consumers to directly procure renewable energy.

In this section, we provide an overview of the Vietnamese renewable energy market and discuss recent developments, as well as the opportunities and challenges they bring about for investors.



RENEWABLE ENERGY

While the energy mix in Vietnam in the foreseeable future will still be dominated by traditional sources (including coal, gas and large hydro projects), renewable energy has steadily entered the limelight and is expected to account for a significant proportion in the power supply of the country in the years to come. The Government expects that renewables (excluding hydro) will account for 28.9%-33.4% of the total capacity of all primary sources by 2030 and 44.5%-54.3% by 2045.¹

In order to meet these targets, the Government rolled out a series of regulations aimed at clarifying the legal framework

and incentives for the development of renewable energy projects. These policy developments, spearheaded by generous FiTs and combined with an overall decline in global manufacturing costs for the technology necessary to leverage renewable energy sources, generated a wave of investment in recent years. Now, with expiry of the FiT catalysts for wind and solar power, the Government is working to create a competitive and stable domestic renewable energy market whilst also seeking to achieve Vietnam’s ambitious “net-zero” target by 2050 announced at the 26th United Nations climate change conference in 2021 (COP 26).²

In terms of approved capacity, it is reported that by 2021 a total of approximately 15.4GW of solar capacity and 11.9GW of wind capacity had been approved for inclusion in relevant power master plans. Out of the total approved capacity, approximately 9GW of ground mounted solar capacity, 7.8GW of rooftop solar capacity and 4GW of wind capacity have already achieved commercial operation, respectively.

FREIGN OWNERSHIP AND INVESTMENT FORM

There is no generally applicable limitation on foreign ownership in the renewable energy sector. At present, foreign investors can own up to 100% of equity in power projects in Vietnam.

Unlike other types of renewable energy, offshore wind is categorised at law as a business sector that is ‘conditional’ to foreign investors. However, to date, Vietnamese laws and

¹ Draft Decision of the Prime Minister approving the PDP8 (circulated in April 2022).

² The MOIT’s report to the Prime Minister dated 27 January 2022 on the current status of solar and wind power projects and proposal on pricing mechanism for solar and wind projects missing feed-in-tariff deadlines.

Vietnam's international treaties do not provide for any specific market access conditions for the offshore wind power sector. Therefore, for now at least, the implications of the conditional status are that:

- > Vietnam may approve or reject applications from a foreign investor to invest in the offshore wind power sector at its discretion; and
- > de-facto pre-approval is required for a foreign investor to acquire any stake in a Vietnamese entity engaged in the offshore wind power sector.

Although some high-profile, foreign-invested, thermal power projects have been implemented in cooperation with the Government under the Build-Operate-Transfer (“**BOT**”) umbrella (a form of public private partnership), it does not appear that the Government will offer this kind of treatment for renewable energy projects as a general proposition (except, perhaps, for very prominent or large scale ones).

Therefore, it is expected that most renewable energy projects will continue to be carried out as independent power projects – the main implication being that there will be little room for investors to negotiate special terms or incentives or to obtain Government guarantees.

FINANCING

Power projects typically require significant capital investment and, as a result, are often financed with a significant portion of debt capital. It has become clear that domestic Vietnamese banks alone are unable to provide sufficient funds to finance projects to meet the Government targets. However, international financiers continue to face some challenges in participating in the financing of renewable energy projects. Firstly, foreign lenders cannot as a matter of law take security over land and other real property (even though land and other real property may be the most valuable project asset). Moreover, a number of issues persist that undermine projects viability and bankability, including:

- > concerns surrounding the financial capacity of Electricity Vietnam (“**EVN**”), the national utility and the lack of a Government guarantee of EVN's obligations (see further “Electricity Vietnam” on right and “Government Guarantees and Incentives” on page 77);

- > the form of the statutorily mandated power purchase agreements, which contain some core, non-negotiable terms that allocate significant risk to investors and the form of power purchase agreements to be used in the post-FiT regime (see “Power Purchase Agreement” on page 76); and
- > uncertainties surrounding new policies for solar and wind projects following expiry of the FiT regimes for those sectors (see “Feed-in Tariff” on right and “Hot Topics” on page 78).

SALE OF ELECTRICITY

Currently, EVN and its subsidiaries act as the only wholesale purchasers of electricity from generators. The Government had set out its vision for a competitive power market to be fully implemented at the wholesale level by 2021 and at the retail level by 2023. This schedule has been delayed however with just over 40% of total generated electricity currently being purchased through the competitive wholesale market. The Government's latest plans aim for a competitive retail market by 2025. The current regulations provide that EVN will be the sole buyer responsible for purchasing all power generated from renewable sources.

However, the MOIT has announced a pilot program for “direct” power purchase agreements between renewable energy generators and customers, such as factories and industrial parks (see “Hot Topics” on page 78).

ELECTRICITY VIETNAM

Market observers have expressed concerns about EVN's credit worthiness, as EVN is the entity responsible for implementing massive levels of investment in electricity infrastructure, but currently struggles to make a profit from the low and highly regulated electricity retail tariffs. While this does not pose immediate problems, it could lead to long term systemic risk.

To provide greater comfort for investors, the World Bank has assisted EVN to improve its financial standing and obtain its own credit rating. As a result, EVN and its power transmission arm, National Power Transmission Corporation, have been given a “BB” rating with a positive or stable outlook by Fitch

for the last three years. This is consistent with Vietnam's sovereign rating of “BB”.

FEED-IN TARIFF

For renewable energy projects reaching commercial operation before the relevant deadline, EVN is required to purchase the power generated at the FiT set out in the table below.

The FiTs for solar and wind projects have now expired as shown in the table below. The Government is currently working on a post-FiT auction regime for selection of investors and in parallel on regulations to determine appropriate solar and wind tariff ranges, including those applicable for ‘transitional’ wind and solar projects that sought but failed to meet the FiT deadlines (see the proposed transitional mechanisms in “Hot Topics” on page 78).



Category	Conditions to Apply	FiT
Solar FiT1	COD before 30 June 2019 (in other provinces)	9.35 US cents/kWh
	Commercial operation date (“COD”) on or before 1 January 2021 (in Ninh Thuan province only and up to a total 2GW capacity pool)	
Solar FiT2	COD from 1 July 2019 to 31 December 2020 and investment policy decision issued before 23 November 2019 (except for Solar projects in Ninh Thuan province eligible for FiT1)	Ground mounted: 7.09 US cents/kWh
	COD from 1 July 2019 to 31 December 2020 and investment policy decision issued before 23 November 2019 (except for Solar projects in Ninh Thuan province eligible for FiT1)	Floating: 7.69 US cents/kWh
	COD and settling meter reading from 1 July 2019 to 31 December 2020 and selling power to EVN	Rooftop: 8.38 US cents/kWh
Wind FiT	COD before 1 November 2021	Offshore: 9.8 US cents/kWh Onshore: 8.5 US cents/kWh
Biomass FiT	None	Combined heat and power: 7.03 US cents/kWh Non-combined heat and power: 8.47 US cents/kWh
Solid Domestic Waste FiT	None	Waste incineration: 10.05 US cents/kWh Combustion of landfill gas: 7.28 US cents/kWh

The FiT is denominated in Vietnam dong and it is also the currency for payment. The existing FiT is linked to the Vietnamese dong-US dollar exchange rate announced by the State Bank of Vietnam (which goes some way towards protecting investors from currency depreciation). Once obtained, the FiT is applicable for 20 years and there is no mechanism to adjust it due to inflation or increase of production costs.

POWER PURCHASE AGREEMENT

Renewable energy generators and EVN must negotiate and conclude their power purchase agreements (“PPAs”) on the basis of the standard agreement forms provided by law. The MOIT has issued standard agreement forms for small hydro, wind, biomass, solid waste and solar power projects. While the parties can agree on additional provisions to the standard form PPA to clarify their rights and obligations, they cannot vary the “**basic contents**” of the wind standard form PPA and the additional provisions cannot be inconsistent or contradictory to the contents of the solar one. Experience and market information also suggests that EVN does not entertain negotiation outside this scope.

The standard forms contain terms that allocate significant costs and risks to investors, and therefore potentially impact bankability. Some key points of concern are:

- > the seller (generator) must bear the cost and risk of connecting the plant to the transmission grid – this is seen as problematic, especially where the project is located in a more remote area or the connection line will need to run through land owned by a variety of owners;
- > the agreements do not contain a “deemed commissioning” clause to protect the seller when the plant is able to generate power but the purchaser (EVN) fails to accept the power (see “Curtailment Risk” on page 78);
- > the agreements do not contain a “stabilisation” clause to expressly protect the seller against changes in law; and
- > the governing law is automatically Vietnamese law, and the default position for dispute resolution is via the forum of the MOIT.

That said, domestic and international lenders have, through different innovative financing structures that aim to mitigate these bankability risks, accepted to lend to projects with the PPAs executed based on the model form.

The Government is currently working on two draft Circulars to promulgate a price mechanism and new standard form PPA for future wind and solar projects. In particular, the draft Circular applicable to “transitional” wind and power projects which was circulated in January 2022 introduced a new PPA form which apart from provisions related to power generating tariff, contains no material deviation from existing PPA templates for solar and wind. However, the PPA form was removed from the latest version (in June 2022) of this draft Circular, when the scope of the draft Circular was narrowed down for greater considerations

(see the proposed transitional mechanism in “Hot Topics” on page 78).



GOVERNMENT GUARANTEES AND INCENTIVES

GOVERNMENT GUARANTEES

Apart from the general assurances provided under the Law on Investment (such as no nationalisation, assurance of profit repatriation, protection of existing incentives in case of change of law, etc.), the Government does not provide specific guarantees for renewable energy projects.

For example, the Government does not guarantee the contractual performance of EVN as the power purchaser under the PPAs or guarantee foreign currency availability to convert Vietnamese dong revenues into, for example, US dollars.

In theory it may still be possible to obtain guarantees for large-scale and important projects (such as an offshore wind project done on a Public-Private Partnership basis) under the applicable law. However, certain changes in the new Law on Public-Private Partnerships and the new Law on Investment 2020, which came into force on 1 January 2021, seem to further limit the availability of guarantees.

INVESTMENT INCENTIVES

Renewable energy is classified as an especially encouraged sector and, therefore, some incentives are available for investors as listed below.

Category	Incentives
Import Duty	Exemption for: <ul style="list-style-type: none"> > goods imported to form fixed assets; and > project materials, components, and semi-finished products that cannot be domestically manufactured.
Corporate Income Tax	Exemption for the first four years: ^(a) <ul style="list-style-type: none"> > 50% reduction for the following nine years; > preferred tax rate of 10% for the first 15 years; and^(b) > accelerated depreciation and increased expenses as deductibles for calculation of taxable income.^(c)
Land Lease Fees	Exemption ranging from 14 years to the entire project life depending on the project location.

- Counting from the first year of generating taxable income or from the fourth project year, whichever comes first; new projects only.
- Counting from the first year of generating income; new projects only. Normal, non-preferred, tax rate is 20%.
- Newly provided under the new Law on Investment 2020 with effect from 1 January 2021. This awaits further detailed guidance for implementation.



OFFSHORE WIND

The World Bank estimates that the area within 200 km of Vietnam’s shoreline has the technical potential to support 599GW of offshore wind power (261GW fixed and 388GW floating). Despite the great potential, Vietnam has no true offshore wind project in operation yet, only some relatively small nearshore projects. The Government is working on offshore wind targets for PDP8, and in April 2022, the MOIT suggested a target of 7GW (or higher depending on eco – technical conditions including the tariff and connection infrastructure) by 2045. However, with the FiT for wind projects now expired and a new tariff and investor selection regime yet to be settled, the near-term targets are ambitious, particularly so when novel offshore project-specific issues need considering such as a lack of legal framework for mortgaging sea use rights. There is some hope that a bespoke FiT mechanism for first-mover offshore wind projects might be considered to spur development (eg, for the first 3-5GW) but no certainty as of yet.





ROOFTOP SOLAR

The number of rooftop solar projects in operation has grown substantially in recent times and according to public reports there were over 100,000 projects in operation by the end of 2021. These were driven by FiTs initially, with all power sold to EVN pursuant to a standard template PPA, but more recently also by private offtake arrangements. By law, a “rooftop solar system” comprises of solar panels installed on the rooftop of a formal construction work with maximum capacity of 1MW and connected directly or indirectly to EVN’s transmission system at a maximum of 35kV. The FiT for rooftop solar project selling power to EVN or one of its delegated entities expired in January 2021 and it is currently unclear whether EVN will support further rooftop solar purchases, at least in the near term. A recent draft Decision of the Prime Minister on development of renewable energy projects indicated that at least 90% of installed capacity of new rooftop solar projects will need to be self-consumed and only the remainder may be fed to and purchased by EVN (any excess amount taken without payment).

Meanwhile, for projects involving non-EVN offtakers, the tariff and PPA terms may be agreed between the seller and purchaser in accordance with applicable Vietnamese laws. Private arrangements of this nature are becoming increasingly popular as industrial and commercial building owners look to shore up long-term deals with rooftop solar developers. There are indications however that the Government may be seeking to limit the ease with which such projects are implemented. The recent draft Decision of the Prime Minister provides that only rooftop solar projects with capacity under 50kW will be exempt from the need to be included in a power master plan (ie, half the existing 1MW cap).

CURTAILMENT RISK AND PRIVATE INVESTMENT IN TRANSMISSION

The surge of 4GW of solar capacity connected to the national grid in 2019, followed by a further approximately 13GW by

the end of 2021, created enormous pressure on the power transmission system and threatened grid disruption.

As a result, a number of solar and wind projects were reportedly requested to curtail output without compensation from EVN (pursuant to the terms of the standard form PPA). Pending a more comprehensive resolution, curtailment risk remains a factor that needs to be considered carefully by investors and this has been indeed an issue for various renewable energy projects recently especially during periods of reduced demand for power caused by COVID-related measures.

Resolution 55³ discusses development of a mechanism to attract non-State capital for investment in construction of the national power transmission system. In 2020 the first ever privately built 500kV transmission line project in Vietnam was completed by Trung Nam Construction Investment JSC, in part for the purposes of transmitting power from its 450MW solar plant.

Subsequently, in March 2022, the Electricity Law was amended to, for the first time ever, expressly allow private sector participation in transmission grids. The amended law does not provide much clarity as to which transmission investment projects the private sector will be permitted to participate in but rather seems to leave this matter to be determined primarily by the content of relevant power master plan(s). It has been made clear however that non-State economic sectors are permitted to operate transmission grids that they have invested in and constructed. Under the draft PDP8, private investors have the right and obligation to invest, operate and manage their transmission assets, however, actual operations must be carried out by a specialised subsidiary of EVN via a service contract.



HOT TOPICS

COP26 2050 NET-ZERO EMISSIONS TARGET ANNOUNCEMENT AND NATIONAL POWER DEVELOPMENT MASTER PLAN 8

At COP 26 in Glasgow in November 2021, Vietnam’s Prime Minister announced the country’s ambitious target to achieve net-zero emissions by 2050. This announcement is viewed as a historical turning point in the country’s climate change policy and presents exciting and unprecedented challenges to Vietnam, one of East Asia’s most dynamic emerging economies. As a result, Vietnam plans to emphasise the role of renewables in this coming period to replace fossil fuel energy as much as possible, with priority given to solar and wind power. In addition, there are also discussions on the development of a Law on Renewable Energy and development of a number of renewable hubs in certain regions with renewable development incentives in order to promote development in these hubs.

Since then, the Government has been making moves to realise this ambitious target including continuing to update the draft PDP8 to replace the current national power development plan. The new plan will be developed to achieve the following three major objectives:

- > to ensure power security for the country’s socio-economic development;
- > to promote the use of renewable energy with less solar and more wind, particularly offshore wind; and
- > to exclude impractical coal-fired power projects with a view to phase out development of coal-fired power plants entirely after 2030.

Given the recent draft regulations of the Government especially the draft Decision of the Prime Minister for development of renewable energy projects, the MOIT has stated that all investors for projects under the new regime will be selected on a tender basis. As at the date of publication, the MOIT has issued several drafts of the PDP8 for consultation and is in the process of finalising it for submission to the Government.

³ Resolution 55-NQ/TW dated 11 February 2020 of the Political Bureau (“**Resolution 55**”) and Resolution 140/NQ-CP dated 2 October 2020 (“**Resolution 140**”) of the Government.



PROPOSED FUTURE AUCTION SCHEME FOR WIND AND SOLAR PROJECTS

With the FiTs for solar and wind projects having expired, the MOIT is working on post-FiT policies including a draft Prime Minister Decision establishing an auction regime and a draft MOIT Circular regarding tariff framework and template PPAs.

Under the proposed auction scheme, selection of investors for solar projects (floating, ground mounted, rooftop) and onshore wind projects will be conducted by open bidding except in special cases (eg, where only one party participates in the bidding). Investors will propose projects and ceiling power prices in the bidding process. The proposed projects must have appropriate grid connection plans, equipment and technologies meeting IEC standards, photovoltaic panel efficiency of at least 19% (for solar projects), land use with definite term and wind data measurement in accordance with law. The proposed ceiling power price must fall under the price framework to be issued by the MOIT. The winning bidder will be the party meeting technical requirements and proposing the lowest ceiling price. The tariff will then be negotiated between the winning bidder and EVN based on a price framework issued by the MOIT and the proposed ceiling price of the investor.

DRAFT CIRCULAR FOR TRANSITIONAL WIND AND SOLAR PROJECTS

The MOIT is preparing a Circular on the method for tariff formulation applicable to so-called “transitional” solar and wind power projects (including floating and ground mounted solar power plants and onshore and offshore wind power plants) (“**Draft Circular**”). Transitional projects are defined as those that are under development but failed to meet conditions to be eligible for existing FiTs.

Historically, the MOIT plans to cover under the scope of the draft Circular, as contemplated under previous drafts available in early 2022, a number of contents relating to development of “transitional” solar and wind power projects including method for formulation of the tariff range, content on project-specific power tariffs and model PPA applicable to “transitional” solar and wind power projects. However, after several rounds of consideration, the MOIT decided to narrow down the scope of the Circular and it now, under the draft circulated in June 2022, only focuses on the tariff range applicable to “transitional” solar and wind power projects (“**Tariff Range**”) and no longer includes other contents. While there remains a considerable amount of uncertainty and lack of clarity over the interpretation and intent of the content of the draft Circular, certain key issues on tariff determination provided under the Draft Circular are as follows:

- > The MOIT will approve a Tariff Range (“**Tariff Range**”) for each type of solar and wind power plants which will apply to transitional projects, based on the Electricity Regulatory Authority of Vietnam (“**ERAV**”)’s appraisal and EVN’s calculation using (i) technical data collected from solar and wind power plants having PPA signed that achieved COD prior to 31 October 2021, (ii) certain standard parameters (including term, operational parameters – such as total hours of operation, ratio of the O&M cost to total investment capital, ratio of equity capital to loan capital, ratio of loans in VND to loans in foreign currencies and average loan repayment term of the plant) and (iii) relevant formulations under the draft Circular.
- > The Tariff Range will be used as basis for investors of the transitional projects to negotiate the project-specific power generating tariff or determine the power generating tariff as part of an auction mechanism.

- > The Tariff Range will be denominated in Vietnamese Dong.

DIRECT PPA

In May 2022, the MOIT put forward the latest draft Decision of the Prime Minister for a pilot program permitting direct PPAs between private renewable power generators and corporate customers. Under this program, renewable power generators and consumer off-takers would be able to participate directly in Vietnam’s wholesale electricity market and enter into contracts for difference with each other at agreed long-term prices. The MOIT also plans to circulate a draft Circular providing detailed guidance for this draft Decision.

OTHER TYPES OF RENEWABLE ENERGY

Under Resolutions 55 and 140, the Politburo and the Government encourages the development of energy storage system (“**ESS**”) in areas having potential for solar power but limited in transmission capacity. EVN’s report to the MOIT in January 2021 pointed out that at the moment it is not economically efficient for EVN to invest in battery energy storage systems and while it should be beneficial to investors having renewable power plants, EVN is of the view that the investors should invest in ESS themselves. EVN proposed to carry out a ESS pilot program (50–100MW) for technical and policy-making purposes. Subsequently in late 2021, a foreign investor was reported to install a pilot battery ESS to complement its existing 50MW solar farm.

Waste-to-energy and biomass have long been encouraged in Vietnam and are still eligible to enjoy FiTs, though only a few projects have come into operation. New technologies such as hydrogen, pumped hydro and wave power are also under consideration by Vietnam.

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