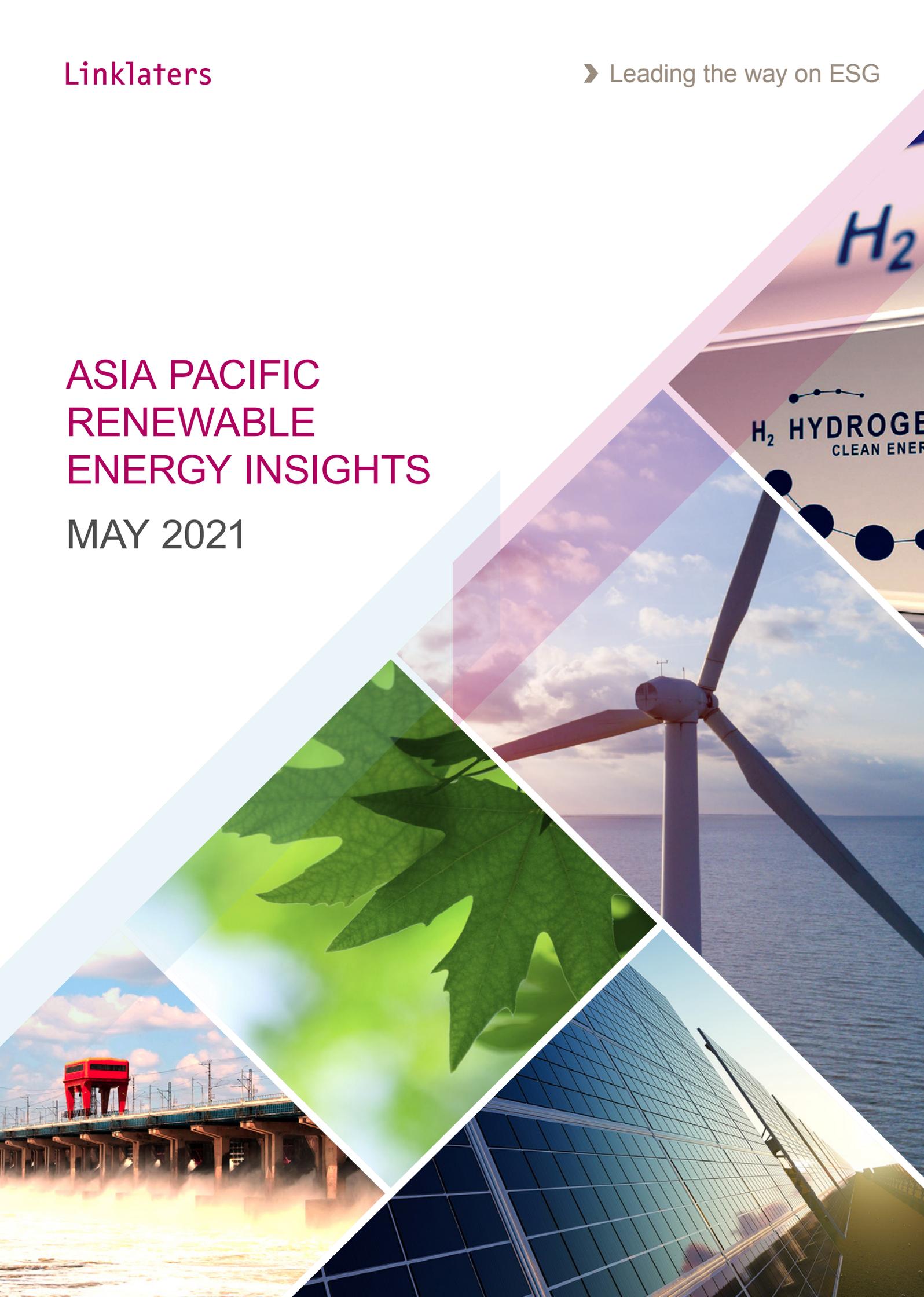


ASIA PACIFIC RENEWABLE ENERGY INSIGHTS

MAY 2021



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Introduction

Despite economic and other headwinds resulting from the COVID-19 pandemic, investment in renewable energy in Asia Pacific has been remarkably resilient in the last 12 months. In fact, the pace of development and investment continues to outstrip other parts of the world supported by rising populations, robust economic growth and the greenfield nature of the renewables market in the region underpinned by some relatively attractive government support initiatives.

Many commentators predict that Asia Pacific will continue to outperform other regions as a market for the investment and development in renewable energy over the coming decade with capacity expected to increase by up to **2 terawatts by 2030**¹ and the levelized cost of energy for renewables falling below fossil fuel alternatives within the same time horizon². This outlook reflects what would be a **fundamental shift in the regional energy mix** and is likely to lead to profound and inalterable changes in the way energy is generated, transmitted and consumed in Asia Pacific – it is a genuinely exciting time to be a part of this narrative.

Against this backdrop, we are pleased to launch the 2021 edition of our **Asia Pacific Renewable Energy Insights** report in conjunction with our alliance and other key relationship firms across the region. As you can read further below, we have the longest-standing and most award-winning green energy practice in Asia Pacific which combines our **global sector expertise and experience** with our **regional 'on the ground' coverage** of all the key jurisdictions which matter in this sector. We are proud to work with leading developers, contractors, financiers, governments and others in this space across all the key markets in the region as covered in our report.

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 look to build on the success of the Taiwan story. We have acted on 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;
- > **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;
- > 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;
- > 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 which being explored in Korea among others) in each case which are likely to accelerate the renewables story and attract further international investment; and
- > A well-documented global focus on **environmental, social and governance (ESG)** issues which has led to a heightened focus on renewables and a likely acceleration of the energy transition in the post-pandemic world.

We hope you find this guide is informative and helpful and we always welcome new discussions about ways we can help support your ambitions in this area.



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¹ Boston Consulting Group, "Riding the Renewables Wave in Asia-Pacific", January 11 2021: <https://www.bcg.com/publications/2021/asia-pacific-renewable-energy-opportunities>

² Wood Mackenzie, "Renewables in most of Asia Pacific to be cheaper than coal power by 2030", 26 November 2020: <https://www.woodmac.com/press-releases/renewables-in-most-of-asia-pacific-to-be-cheaper-than-coal-power-by-2030/>



Our recent renewables awards
and experience



Our recent [Asia renewables awards](#).



Practice awards

Asia Pacific Law Firm of the Year
PFI Asia Awards 2019

Firm of the Year: International (Projects & Energy)
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



Band 1 – Project & Infrastructure: Asia-wide
Chambers Asia Pacific 2021

Band 1 – Projects & Infrastructure
(International Firms): China, Korea, Vietnam
Chambers Asia Pacific 2021

Band 1 – Projects & Energy: Thailand, Indonesia,
India
Chambers Asia Pacific 2021

Band 1 – Energy & Natural Resources: Australia
Chambers Asia Pacific 2021 (Allens)



Award winning projects

Changfang and Xidao offshore wind farm, Taiwan

Asia-Pacific Renewables Deal of the Year
PFI Asia Awards 2020

Project Finance Deal of the Year
FinanceAsia Achievement Awards 2020

Syndicated Project Finance Deal of the Year
APLMA 10th Asia Pacific Syndicated Loan Market Awards 2021

Project Finance Deal of the Year
IFLR Asia Pacific Awards 2021

Formosa 2 offshore wind farm, Taiwan

Renewables ECA-backed Finance Deal of the Year
TXF 2019

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

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

Yunlin offshore wind farm, 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
TXF Perfect 10 Deals of the Year 2019

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

Renewable Energy Deal of the Year: Regional
The Asset Triple A Asia Infrastructure Awards 2020

Renewable Energy Deal of the Year: Taiwan (Wind)
The Asset Triple A Asia Infrastructure Awards 2020

Other award-winning projects

Asia-Pacific Innovation Deal of the Year:
Akita offshore wind farm
PFI Asia Awards 2020

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



Our recent Asia renewables experience.

Thailand

- > the sponsors on the portfolio financing of the ADB-financed 62.2MW Green Yellow Rooftop Solar Project in Thailand
- > an international lender on 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.
- > SPCG Public Company Limited on its potential public offering and the equity joint venture in relation to the development of its solar farms
- > Kasikornbank Public Company Limited on the project financing of a 8MW solar park project in Chonburi province, Thailand
- > an international energy developer on two 28MW solar projects
- > Double A (1991) Public Company Limited on a THB 15bn project financing for a pulp mill project with a design capacity of 472,500 tonnes per annum and an SPP 90MW biomass power plant project in Prachinburi Province
- > Deutsche Bank AG, Singapore Branch, in relation to its US\$150m equity financing in Biomass Electricity Co. Ltd. for the purpose of financing the development and construction of a 65MW biomass power plant in Prachinburi province

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
- > Tenuun 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

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

Malaysia

- > the sponsors on the MYR 6bn financing of the Bakun Hydroelectric Project

South Korea

- > a global investment fund manager in connection with their potential investments into multiple renewable (wind and solar) portfolios in Korea
- > a leading offshore wind developer on its market entry into South Korea and potential participation in a series of offshore wind projects and its related joint venture arrangements

Australia

- > Please refer to the credentials set out on page 15

Greater China Region

- > the sponsors and project companies on the project financing of the 1,044MW Hai Long offshore wind farm in Taiwan, comprising Hai Long 2A (300MW), Hai Long 2B (232MW) and Hai Long 3 (512MW)
- > the lenders and ECAs on the 605MW Changhua offshore wind project financing in Taiwan sponsored by Ørsted
- > 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
- > NEXI and K-SURE on the NTD 90b (approx. US\$3b) financing for the 589MW Changfang and Xidao (CFXD) offshore wind project in Taiwan
- > the lenders and ECAs on the NTD 62.4bn (approx US\$2bn) financing for 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 NTD 18.7bn (approx US\$600m) project financing for the 128MW Formosa 1 offshore wind project in Taiwan
- > a Japanese utility company on the acquisition of Shifen Electrical Co., Ltd, which is going to develop a hydro power station 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
- > two ECAs on the bankability analysis of the offshore wind PPA and regulatory regime in Taiwan
- > an international financial sponsor on the proposed acquisition of a stake in the Hailong II and Hailong III offshore wind project in Taiwan
- > a lender on the potential financing of a significant (confidential) solar project in Taiwan
- > China Light & Power on the acquisition of two windfarm 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

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 windfarm in Sindh Province
- > Mitsui & Co. Ltd. and Malakoff Berhad as sponsors on the development of a wind power project in Sindh, Pakistan
- > Asian Development Bank on the development and financing of a proposed dual fuel (biomass and coal) cogeneration power project in Pakistan

Japan

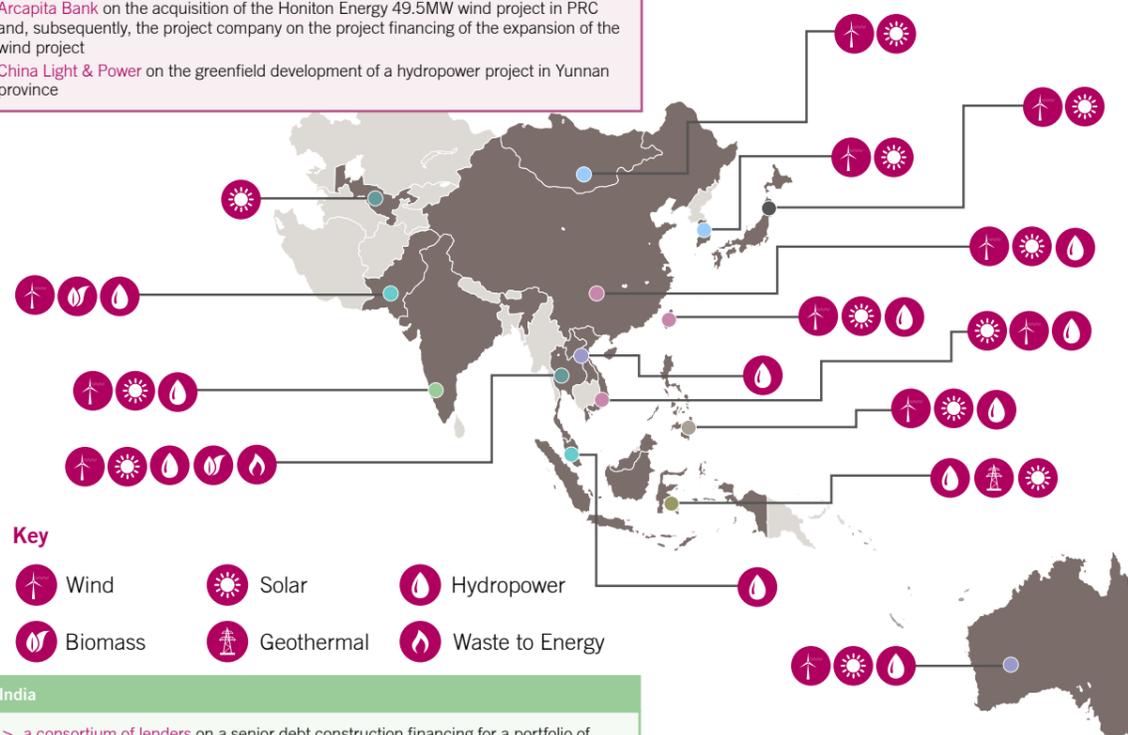
- > Marubeni Corporation on the first commercial scale offshore wind project at Akita Port and Noshiro Port in Akita, Japan
- > Ørsted on its formation of a joint venture with TEPCO to bid for offshore wind projects being auctioned off the coast of Choshi city, Japan
- > Macquarie's Green Investment 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 developer on the partnership with a Japanese offshore wind developer in relation to a portfolio of 9 offshore wind projects in Japan
- > the lenders supporting the bid on one of the Round 1 fixed bottom offshore wind projects
- > an international renewables developer on their joint venture with a Japanese wind developer in relation to their bid for an offshore wind farm in 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
- > Sonnedix 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)
- > the sponsors of a corporate reorganisation involving 12 solar projects (comprising 91MW in aggregate) in Japan
- > an international sponsor on its potential project finance facilities for the development and construction of a solar PV project in Japan
- > an independent international solar power producer on the development and project financing of a c.30MW solar PV plant
- > a Japanese megabank on risk allocation mitigation strategies for wind, solar and biomass project financings in Japan
- > the Japanese lender on the financing and hybrid securitisation of a portfolio of PV assets

Laos PDR

- > 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
- > Glow Energy Public Company Limited on the potential investment in a hydropower plant in Laos
- > 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
- > a major Russian power company on the potential acquisition of a stake in the Nam Kong 1 hydro project in Laos

Vietnam

- > Loc Ninh 1-3 Solar Projects, Vietnam: advising Bangkok Bank Public Company Limited on the financing of two 200MW and one 150MW solar projects in 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
- > 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
- > a bidder on the proposed acquisition of a portfolio of solar and wind assets in 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
- > BIM Group on its joint venture with the energy arm of Philippines' Ayala Corporation to develop around 330MW of solar power projects in Vietnam
- > ORIX and UOB on the US\$50m joint investment in Bitexco Power, which owns and operates a portfolio of hydropower projects across Vietnam, including conducting full due diligence on all the projects



Key

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

India

- > 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 ECAs and commercial bank lenders on a potential 750MW solar project financing in India
- > 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

Uzbekistan

- > a Korean bidding consortium on its bid for three different solar projects in Sherabad, Samarkand and Jizzakh regions in Uzbekistan

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)
- > 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
- > an international investor on its potential joint venture to develop an onshore windfarm 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

Our recent **global renewables awards**.



Practice awards

Global Law Firm of the Year

PFI Awards 2020

Best Legal Advisor: M&A

IJ Investor Awards 2020



Award winning projects

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

Renewables Deal of the Year: Global East Anglia ONE

Infrastructure Investor Awards 2019

Europe Offshore Wind Deals of the Year NnG and Saint-Nazaire (Joint)

PFI Awards 2019

African Renewables Deal of the Year Kahone and Toube Solar

IJ Global Awards 2019



Band 1: Projects & Energy

Global Chambers Global 2021

Band 1: Energy & Natural Resources: Power

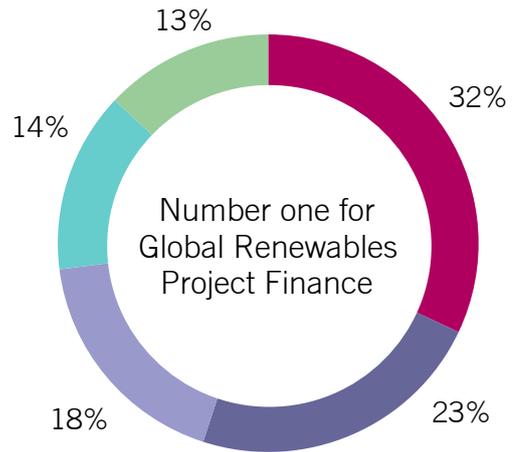
UK, Chambers Global 2021

Band 1: Energy & Natural Resources: Renewables & Alternative Energy

UK, Chambers Global 2021

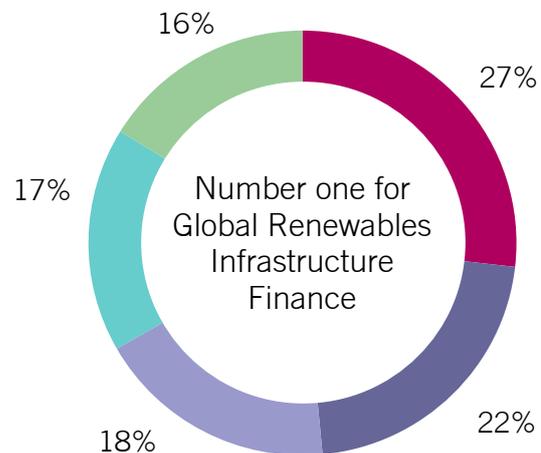
Band 1: Projects

UK, Chambers Global 2021



	%
Linklaters	32
Law Firm A	23
Law Firm B	18
Law Firm C	14
Law Firm D	13

Source: Percentage of market share by value of the top five firms for FY 2020 (IJGlobal Infrastructure and Project Finance Report)



	%
Linklaters	27
Law Firm A	22
Law Firm B	18
Law Firm C	17
Law Firm D	16

Source: Percentage of market share by value of the top five firms for FY 2020 (IJGlobal Infrastructure and Project Finance Report)

Our recent global renewables experience.

United Kingdom

- > **the Borrower** on the development and c.£5.5bn ECA-backed financing of the 2.4GW Dogger Bank Offshore Wind Farm in the UK, and the subsequent £413m disposal of a combined 20% stake in the first two phases of the project to Eni S.p.A.
- > **SSE Renewables** on the £3bn Seagreen offshore wind farm development, financing and equity sale
- > **Northvolt**, advising the private equity arm of a large investment bank on a US\$1bn and US\$600m equity investments into Northvolt AB
- > **Hynet**, advising the developers of a UK Blue Hydrogen project on the development of the regulatory business model and discussions with UK Government
- > **EDF Energy Renewables Limited** on the £2.3bn project financing of the 450MW Neart na Gaoithe offshore wind farm, located in Scottish territorial waters in the outer Firth of Forth
- > **Green Investment Group** on the sale of 50% of its interest in East Anglia One offshore wind farm in the UK
- > **senior and mezzanine lenders** on the financing of the state-of-the-art Protos energy-from-waste facility in the UK
- > **a consortium of banks** on the financing of the Newhurst energy-from-waste facility in Leicestershire, UK
- > **iCON Infrastructure LLP** on the acquisition of 49% of Fomento de Construcciones y Contratas' UK energy from waste assets and ongoing joint venture
- > **a joint venture and the sponsors** in relation to the £2.5bn refinancing of the 588MW Beatrice Offshore Windfarm Limited project located 13km off the Caithness coast in Scotland
- > **the lenders** on the €800m refinancing of this portfolio of Portuguese wind farms held by Finerge Renewable Group Europe Hold Co S.A.R.L., a Luxembourg subsidiary of First State
- > **Octopus Renewables** on its acquisition from RES of nine wind farms across France, the UK and Ireland in two deals totalling over €100m
- > **Spring Infrastructure 1 Investment Limited Partnership as Fund, Spring Infrastructure Capital as fund manager and Spring Offshore Wind Holdings Limited as purchaser** on the £113m acquisition of Sumitomo's indirect minority interest in the 573MW Race Bank wind farm, located 27 km off the coast of Norfolk, UK
- > **Greencoat UK Wind HoldCo Limited and Greencoat Buckingham Assets Limited** on the £635m acquisition of a 49.9% stake in the Stronelairg and Dunmaglass onshore wind farms from SSE
- > **Moray Offshore Windfarm (East) Limited** on the £2.6bn financing of the 950MW Moray East offshore windfarm in the Outer Moray Firth in Scotland
- > **a group of commercial banks** on the provision of debt at a HoldCo-level to Macquarie's Rampion InvestCo Limited, in relation to its 25% stake in the UK's 400MW Rampion Offshore Wind Farm
- > **Innogy Renewables UK Limited** on the £2bn financing and development of the 860MW Triton Knoll offshore wind farm, and the subsequent sale of 41% stake of the wind farm to a Japanese consortium
- > **Dudgeon Offshore Wind Limited (as borrower)** on the £1.3bn financing of the 402MW Dudgeon offshore windfarm located off the coast of North Norfolk
- > **the consortium of MIRA and Macquarie Capital** on their acquisition and financing of a 50% stake in the Race Bank Offshore Wind Project from Ørsted
- > **the sponsors** on the construction and financing of the 664MW Beatrice offshore windfarm
- > **the lenders** on the multi-source financing ("ECA", "EIB" and commercial lenders) of the Galloper offshore windfarm
- > **the lenders** on the financing of the Lincs offshore windfarm
- > **Axia Power Holdings B.V. and the UK Green Investment Bank plc** on the £500m purchase and financing of a 50% interest in the Westernmost Rough offshore windfarm in the UK North Sea from DONG Energy Wind Power A/S
- > **Marubeni Corporation** on the disposal of 50% of its stake in the 172MW Gunfleet Sands offshore windfarm in the UK to Development Bank of Japan Inc.
- > **Royal Bank of Scotland PLC and Investec Bank PLC** as mandated lead arrangers and underwriters on the c.£400m financing to Octopus Investments for a portfolio of 74 UK ground mounted solar projects
- > **the lenders** in connection with the financing of the 299MW Tees Biomass Power
- > **the sponsors** on the financing of the Cramlington CHP biomass project
- > **Morgan Stanley** on its joint venture investment in Meygen's tidal projects in the Pentland Firth
- > **the purchaser** on the acquisition and financing of a substantial portfolio of UK renewables assets, including over 50 landfill gas sites in the UK
- > **Octopus Investments** on the successful completion of a £174m refinancing of the largest independent portfolio of biomass and landfill gas projects in the UK
- > **Cory Group** on the £520m sale of the Landfill and Gas business to facilitate the refinancing of the Group's remaining business relating to its Riverside energy from waste plant

Portugal

- > **CK Infrastructure Holdings Limited ("CKI")** and its group company Power Assets Holdings Limited ("PAH") on the sale of Iberwind, the third largest wind power operator, to Ventient Energy, advised by JP Morgan Asset Management
- > **the lenders** in financing the acquisition from EDP of a 1,689GW brownfield portfolio of large hydro assets in the north of the country
- > **the lenders** on the project financing of a solar portfolio which holds a grid connection awarded by DGE further to the Portugal Solar 1,400MW Tender
- > **Hanwha** on the divestment of its 16MW operational solar photovoltaic plants in Portugal to Finerge Estrela, S.A., an FSI group company
- > **a group of 12 lenders** (including 7 commercial banks and 5 institutional investors) on the c.€800m refinancing of a portfolio of Portuguese wind farms held by Finerge, as well as on the subsequent c.€140m financing of the acquisitions by the latter in Portugal
- > **Glennmont Partners** on the sale of its Lucia portfolio, comprising four solar photovoltaic plants with a total installed capacity of c.30MW
- > **Mirova** on its acquisition of 90% of the issued share capital and shareholder credits of a Portuguese SPV dedicated to development, construction, operation and maintenance of a 25MW solar photovoltaic project without a guaranteed FIT. This was one of the first private solar PPAs to be signed in Portugal and one of the largest of its kind in Iberia
- > **Marguerite Adviser** on the acquisition and financing of two greenfield projects for the construction and operation of biomass power plants in Portugal, with a total installed capacity of 30MW
- > **the arrangers** on the €210m facilities agreement for the refinancing of Ancora Wind, a portfolio of 172MW of wind assets portfolio in Portugal
- > **Neoen** on the refinancing of a 24.2MW solar photovoltaic power portfolio in Portugal, through two bond issues fully underwritten by three European banks
- > **China Three Gorges (Europe) S.A.** on public takeovers launched over EDP - Energias de Portugal, S.A. and EDP Renováveis, S.A.
- > **Engie** (formerly GDF Suez) on the acquisition of a stake in Windplus, a company developing an offshore floating technology prototype in Portugal
- > **Iberwind** as sponsor on structuring and implementing the partial refinancing of its €1bn project finance portfolio

Sweden

- > **Types of Banks** on the financing of a c.€133m greenfield onshore wind farm project in Sweden developed by General Electric ("GE") and backed by a Google corporate PPA

The Americas

- > **Pacific Hydro Chile S.A., SPIC Green Energy Limited and State Power Investment Corporation Limited** in a facility loan of up to US\$294.2m, with an accordion option to increase the total commitment to up to US\$350m, for the refinancing of six renewable energy projects located in Chile
- > **Lenzing AG and Duratex** on the development and US\$1.15bn IFC and IDB financing of a dissolving wood pulp plant in Brazil
- > **Ørsted** as project sponsor and joint venture partner on its 50/50 joint venture with Eversource Energy to develop, construct and operate a utility scale offshore wind project off the coast of Massachusetts
- > **Eksport Kredit Fonden of Denmark and commercial lenders** on the development and proposed US\$2bn financing of the Cape Wind offshore wind farm in Massachusetts
- > **White Summit Capital and Riverstone Capital** on the acquisition of a portfolio of solar power plants in Mexico
- > **C2 Energy Capital, LLC** as sponsor of more than two-dozen distributed generation portfolio solar projects in the U.S.
- > **EDF Energies Nouvelles S.A. and Iberolítica Renovables**, as sponsors of the Cabo Leones 1 project financing, on a 115.5MW AC wind turbine project and associated electrical substation and interconnection line in Chile

Poland

- > **Mirova** on various acquisitions in Poland, including acquisition of a 132MW portfolio of three onshore wind projects and a 160MW portfolio of two onshore wind farm projects
- > **Pomerania Wind Farm** on legal aspects of development process of one of the largest onshore wind farms in Poland
- > **EBRD and BNP Paribas** on the financing of portfolio consisting of three solar farms and five onshore wind farms (incl. two operating projects and three greenfield projects)
- > **ENGIE** on the joint venture with EDP Renewables for the creation of a co-controlled 50/50 joint-venture in the fixed and floating offshore wind sector in Poland
- > **NORDEX** on a broad scope of matters in Poland relating to on-shore wind farm investments
- > **Innogy** on contemplated Polish offshore wind farm project acquisition

Luxembourg

- > **A French multinational insurance firm** on their investment in a Luxembourg fund focusing on energy-related assets and activities with infrastructure characteristics that will provide, or assist in providing, the basic physical and organisational structures applied for the good functioning of a society or an enterprise (eg offshore and onshore wind, solar power generation, waste-to-energy and biomass assets)
- > **Commerz Real Fund Management Sarl** on its €10bn structuring and establishment of "Klimavest", their first open-ended impact fund for retail investors. Structured as a Luxembourg Part II FCP qualifying as a European Long Term Investment Fund ("ELTIF"), Klimavest focuses primarily on the renewable energy sector, seeking assets that make a positive contribution to ecologically sustainable goals
- > **Grand Duchy of Luxembourg** on an international banking group on the issue of €1.5bn 0.0% Sustainability Bonds due 2032. This is the first sovereign sustainability issue in Europe

Germany

- > **Glennmont Partners** on the acquisition of 25% stake in offshore wind farm "Gode Wind 1"
- > **the bidders** on the planned acquisition of a share in the offshore wind farms "Borkum West II phase 2", "Deutsche Bucht", "Nordergründe", and "Borssele 3/4", "Merkur" and "Wikinger"
- > **RWE Innogy** on the sale of an 85% equity stake in the offshore windfarm "Nordsee One" to Northland Power and the subsequent financing
- > **Marguerite, Siemens Financial Services and Danish pension funds Industriens Pensions and PKA** on the acquisition and the financing of the offshore wind farm "Butendiek" in the German North Sea
- > **Windkraft Thüringen** on the acquisition of the onshore wind farms "Kutzleben" and "Hornsömmern" from BOREAS and "Mihla" from Juwi
- > **Allianz Global Investors (I)** on the acquisition of a 142MW wind farm portfolio consisting of 11 wind farms from PNE Wind AG and (ii) on the acquisition of the solar parks Preschen and Jocksdorf (55MW), the last large ground-mounted solar farm in Germany
- > **Enel Green Power** on the joint development of 20 photovoltaic projects (210.7MW) in Germany
- > **Q-Cells** on the development, financing and sale of some of the largest ground-mounted solar installations in Europe. These included Brandenburg-Briest (91MW), Zerbst (45MW), Finsterwalde (39MW), Amsdorf (28MW), Bitterfeld (7MW) and Frauental (5MW)
- > **Enel Green Power** on the acquisition, development and sale of the Weilheim geothermal project in Bavaria, Germany – this is the largest geothermal project in Germany (up to 26MW)

Spain

- > **KOMIPO Europe B.V.** on its acquisition of 100% in Kiwoom ISG 1 Holding Spain, S.L.U., which holds 75% of shares in the owner of two solar PV portfolios in Spain
- > **I Squared Capital** on the sale of T-Solar (we also advised on the previous acquisition)
- > **ORIX Corporation** on the acquisition of an 80% stake in Elawan Energy
- > **AIMCo** on the 1.4bn acquisition of Eolia Renewables from Oaktree
- > **Amundi Private Equity** on the acquisition of a 45% interest in an existing solar assets portfolio located in Italy and Spain with a total output of c.250MW from Sonnedix
- > **Siemens** on the €1.1bn acquisition of a stake in Gamesa from Iberdrola. This follows the merger of its wind power business with Gamesa Corporación Tecnológica (*this deal was awarded Deal of Year in Spain in 2017 by Expansión*)
- > **Vortex (EFG Hermes)** on the creation of a joint venture with EDP Renováveis in relation to an operational 664MW portfolio of European wind assets, and on the subsequent sale of its stake to JP Morgan
- > **Macquarie and Wren House Infrastructure** on the €2.5bn acquisition of all the assets of E.ON in Spain and Portugal, which included wind and solar assets in both countries
- > **GIP and ACS (Cobra)** on the takeover bid over Saeta by Brookfield
- > **Blackrock and Cerberus** on the sale of the three operating wind companies owned by Renovalia Reserve to Ardian
- > **Centerbridge** on the creation and subsequent €600m sale of Vela Energy to Sonnedix
- > **Ardian** on the set up of a platform for its renewable energy infrastructure projects in Spain and Latam
- > **First Reserve** on the establishment of the Renovalia Reserve joint venture with Renovalia for the acquisition and development of wind farms in Spain and other jurisdictions

Italy

- > **Italy solar and hydrogen**: advising sponsor in connection with a feasibility study for the addition of a hydrogen production facilities to existing solar PV plants in Italy
- > **Cassa Depositi e Prestiti** on its investment in the Amundi Planet SICAV-SIF's "Emerging Green One" sub-fund, one of the largest funds dedicated to green bonds and exclusively targeting developing countries
- > **the joint bookrunners** on the issue by ENEL of the first ever Italian perpetual corporate hybrid bond intended for institutional investors, for a total amount of €600m
- > **National Grid** on two Green Loans, covered, respectively, by export credit agencies, SACE (with SIMEST CIRR support) and Euler Hermes to finance the Denmark-UK Viking electricity interconnector
- > **EBRD and BNPP** on eight separate but interlinked project financings to the Qair (previously Quadran Renewable Energy) group in Poland to (i) refinance the acquisition of two merchant wind farms in operation and (ii) finance six other subsidiaries in connection with the construction of three wind farms and several solar PV projects benefitting from the Polish CfD incentive scheme
- > **the sponsor** in connection with the due diligence and potential investment in an offshore wind project in Italy
- > **the sponsors** on the development, non-recourse financing of IPV4, 283MW of windfarm projects in Southern Italy and Sardinia and subsequent financial leasing to 14 English LLPs
- > **the funders** on Project Zellos, the €1bn+ project financing of EDF EN's PV solar portfolio in Italy and France
- > **the mandated lead arrangers** on the €1.2bn financing, construction and operation of three separate Falck waste-to-energy plants and associated waste handling, collection and disposal facilities in Sicily
- > **Octopus Investment Limited** on the financing from MPS Capital Services for five of its Italian subsidy-free solar plants located in the Montalto di Castro region of Italy (first merchant plant project financing in Italy), on the negotiations for their corporate PPA and their subsequent sale
- > **the co-arrangers and dealers** in the establishment of the €600m Euro Medium Term Note Programme and the drawdowns of two series of Green Bonds of Alperia, company which manages 34 hydroelectric power stations in Italy

Turkey

- > **The Export-Import Bank of Korea ("KEXIM") and K-sure** on the 1GW solar power project financing sponsored by Hanwha in Turkey
- > **Gestamp Renewables** on the ECA covered project financing of a wind power plant located in Yahyalı-/Kayseri, Turkey
- > **Verbund** on the sale of its Turkish business to E.ON SE and the simultaneous acquisition of a number of hydro power plants

Belgium

- > **E.ON** on the retransfer of the stake held by Innogy Renewables in C-Power to RWE in the context of the wider asset swap transaction between RWE and E.ON
- > **European Investment Bank (project SeaMade)** on the financing of the SeaMade offshore wind farm developed by, among others, ENGIE Electrabel
- > **the electricity production company and its sponsors, ENGIE Electrabel and Conquest Reye Invest** on the project financing of five on-shore wind farms, Wind4Flanders 5, totalling a capacity of 42.8MW and comprising 15 wind turbines located in Flanders, Belgium
- > **Wind4Wallonia 2 SA as borrower** on the project financing on five on-shore wind farms located in Wallonia, Belgium comprising of 12 wind turbines located developed as greenfield projects by ENGIE Electrabel, together with certain public authorities in Wallonia
- > **Belgian Eco Energy** on their development of several biomass and combined heat & power plant in Belgium

Netherlands

- > **Siemens Project Ventures GmbH** on the acquisition of a 20% participation in the 600MW offshore Gemini park in the Netherlands
- > **ENGIE S.A.** on in the business combination between its subsidiary EV Charged B.V. and TPG Pace Beneficial Finance Corp.
- > **Various investors** on several (potential) investments in wind farms off the coast of the Netherlands such as Borssele I/II, Borssele III/IV, Hollandse Kust Zuid I/II and Hollandse Kust III/IV
- > **Anglo Platinum Marketing Limited and Shell Ventures B.V.** in their investment in HyET Holding B.V., a company that develops and markets hydrogen compression technology
- > **Various investors** on several acquisitions of solar field portfolio's in, amongst others, the Netherlands, the United Kingdom, France and Germany

France

- > **a bidder** on the sale of Nordex Group's wind projects development business in Europe with a pipeline of 3GW Offshore wind farm project
- > **Crédit Agricole CIB, BNPP, Société Générale and the European Investment Bank** on all aspects of the limited recourse financing of the 497MW Fécamp offshore wind farm
- > **the underwriters (BNPP, MUFG and SG)** on the limited recourse financing of the Saint-Nazaire offshore wind farm, the first to reach FID and financial close in France. This landmark 480MW project is being co-developed by EDF and Enbridge
- > **Hydrogen electrolysis from solar**: advising the lenders to a French infrastructure fund in the context of a private initiative project to develop a solar plant in French Guyana linked to a hydrogen storage facility
- > **Battery storage unit**: advising Neoen S.A.S on the innovative capacity offtake arrangements for Project Azur, the largest battery-based power storage unit directly connected to the grid in mainland France (6MW/6MWh). This is the first unit of its kind in mainland France
- > **the commercial lenders** on the project financing of the Courseulles-sur-mer offshore wind farm, which is being co-developed by EDF, Enbridge and wpd
- > **Novawood (the project company), Novacarb and Engie Energy Services (the sponsors)** on the financing of the construction, operation and maintenance of a 14.6MW biomass cogeneration plant in Laneuveville-devant-Nancy
- > **Engie** on the conclusion of an agreement with EDPR to create a 50/50 joint-venture for offshore wind
- > **Octopus Renewables Infrastructure Trust plc (ORIT plc)** on the acquisition, from one of the renewable funds Samsung Securities has invested in and a minority investor, of a 100% interest in a portfolio of solar PV assets located across France for a cash consideration of €58.9m
- > **the Mandated Lead Arrangers (ABN AMRO N.V., BNP Paribas and Société Générale)** on the financing of a c.€133m greenfield onshore wind farm project in Sweden developed by General Electric (GE) and backed by a Google corporate PPA
- > **Amundi Energies Vertes** on its contemplated strategic partnership with Sonnedix, with an asset base that exceeds 900MW
- > **BlackRock Global Renewable Power Fund (GRP III Fund)** on its investment in Windvision's, an independent renewable energy developer, looking to develop its European activities
- > **Acofi Gestion** in relation to the sale of two photovoltaic and wind portfolios, totaling 126MW in capacity, to Swiss energy companies EOS Holding and Romande Energie France
- > **Idex group** on the conclusion of an exclusive agreement with **Altawest group** and **Banque des Territoires** for the acquisition of **Sylviana**, a biomass power generation plant located in Brignoles (France)

Linklaters

8



Sought-after financing expertise delivered by a highly experienced bench of lawyers across the region. A client commented on the breadth and depth of the team: "They have deep experience and can bring that to the fore. It is a well-balanced team so is able to secure large-value transactions."

Chambers Asia Pacific 2021:
Project & Infrastructure: Asia-wide





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 is on track to be able to source 100% of its power needs from renewable generation by 2022, has recently announced a target of 200% renewables by 2040. This new 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 and Western Australia are yet to introduce renewable energy targets, but both governments have indicated aspirational targets to reach net zero 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. 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:

- > **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 Technology Emissions 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.
- > **Grid Reliability Fund:** As part of the Federal Roadmap, the Federal Government has also committed to establishing an AUD\$1bn dollar 'Grid Reliability Fund'. These funds will be applied by the Clean Energy Finance Corporation towards investment in generation, energy storage, grid stabilising technologies, and transmission and distribution projects necessary to upgrade the electricity grid to accommodate higher concentrations of renewable generation.



- > **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, released its Electricity Infrastructure Roadmap in November 2020 (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.
 - 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.
- > **Renewable Energy Zones:** There is also a large push towards 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 a lot of potential in terms of supporting grid security and reliability, 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.
 - 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.
 - 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.

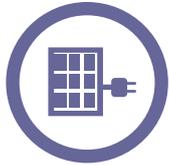


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What we are seeing

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 OFFTAKERS 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 stakeholders 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.

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. We have also seen offtake arrangements involving a third party insurer, who takes the risk on the spot price and the volume of electricity generated by the generator in exchange for a premium.

Corporate off-takers are also continuing to push the boundaries of risk sharing that generators and investors have traditionally accepted when a retailer is the off-taker. For example, it is not uncommon for a corporate off-taker to request credit support from the generator, to guarantee delay and shortfall damages provisions, and early termination rights (usually in exchange for payment of a break fee) – provisions not usually sought by traditional retailer off-takers. In addition, the scope of force majeure provisions is usually the subject of protracted negotiation, as generators and off-takers seek to strike the right balance in terms of risk allocation for matters such as connection delay and curtailment risk.

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 recently 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.

In November 2020, Neoen and Tesla were awarded a contract by the Victorian government to construct the biggest battery in Australia. The role of the 300MW battery will be to participate in Victoria's System Integrated Protection Scheme so as to provide essential security services to the electricity grid in Victoria.

In October 2020, network service provider TransGrid announced the first utility-scale battery in New South Wales (a 50MW battery that will be used to demonstrate "synthetic inertia" as a network service). Further storage projects are also planned in New South Wales, with Origin Energy recently issuing expressions of interest for the installation of a 700MW battery at the site of its ageing Eraring coal-fired power station and CEP Energy announcing plans for a 1,200MW battery near Newcastle.

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.



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). This includes an AUD\$70m Renewable Hydrogen Deployment Funding Round being released by the Australian Renewable Energy Agency ("ARENA"), which will look to fund projects that will accelerate hydrogen electrolyser technology in Australia.

The Clean Energy Finance Corporation has also launched an AUD\$300m Advancing Hydrogen Fund, which will prioritise projects that focus on hydrogen production, the establishment of hydrogen hubs and that have been included in ARENA's Renewable Hydrogen Deployment Funding Round.



INVESTORS

Continued interest from, and investment by, foreign corporations in the Australian market has driven a booming M&A market and new project developments in the renewables space.

A recent example is Spanish energy company, Iberdrola, acquiring 97.6% of all shares in Australian wind developer, Infigen Energy in September 2020. This takeover, coupled with Iberdrola's acquisition of a 317MW hybrid wind and solar farm in Port Augusta, has resulted in Iberdrola operating more than 800MW of solar, wind and storage projects in Australia with an additional 1GW of capacity in the project pipeline.

We are also seeing increased interest from institutional investors looking to participate in the energy sector. For example, in October 2020, Australian company, John Laing sold its interest in 209MW of a total 514MW capacity in wind assets to First Sentier Investors.

In 2019, British fund manager, Octopus Investments, also partnered with renewable energy and storage company Edify Energy to develop the Darlington Point Solar Farm. This was Octopus Investments' first Australian, and largest global, renewable energy investment.



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 five to seven 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:

- > merchant deals supported by a parent company guarantee from the ultimate sponsor entity or export credit agencies;
- > partially contracted projects have closed with protections in place 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 some continued growth in that market given the need for Australia to transition from coal for baseload generation, and favourable market conditions in recent years, including historically low base rates and an abundance of liquidity in the project finance market, have 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 the Clean Energy Finance Corporation and ARENA. 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 so have moved away from wind and solar.



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.

In welcome news for all foreign investors, the zero dollar monetary threshold for all foreign investments has now been lifted (effective 1 January 2021).

There is now a new mandatory Foreign Investment Review Board ("**FIRB**") approval requirement 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 (currently critical assets in electricity, gas, water and ports), however it has been proposed to amend the legislation to expand critical infrastructure to include critical assets in 11 additional sectors, including energy.
- > National security land is generally land which is 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', 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 asset that is 'critical' (based on prescribed capacity thresholds) to ensuring the security and reliability of electricity networks or electricity systems in a state or territory. The relevant capacity thresholds are New South Wales (1,400MW), Victoria (1,200MW), Queensland (1,300MW), Western Australia (600MW), South Australia (600MW), Tasmania (700MW) and the Northern Territory (300MW).

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.

The Federal Treasurer also has a new '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.

The Treasurer also has a 'last resort power' to make divestment orders and unilaterally impose a new condition (or vary existing conditions) after FIRB approval has been granted.

In effect, the introduction of the call-in power will significantly expand the pre-existing 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:

- > a business or entity that owns or operates an electricity generation station (including storage) with a generation capacity of at least 50MW (and which is not covered by the mandatory notification requirements);
- > an energy retailer (gas or electricity) where the foreign person would subsequently hold interests in energy 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.

The 50MW threshold for a voluntary filing is rather low and we expect to see an increase in voluntary filings as most renewable energy assets in the pipeline are expected to exceed this threshold.

March 2021

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.





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
- > Baroota pumped hydro project
- > Canunda wind farm
- > Cathedral Rocks wind farm
- > Clements Gap wind farm
- > Hallett wind farm
- > 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
- > 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

TASMANIA

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

QUEENSLAND

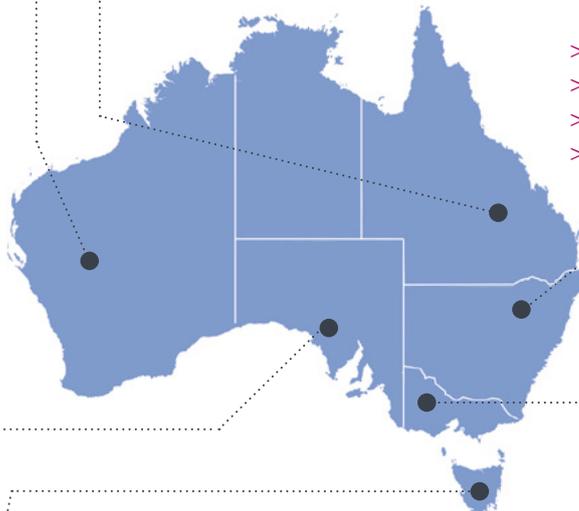
- > Blackwater solar farm
- > Bowen solar farm
- > Bulli Creek solar farm
- > Cape York solar and battery project
- > Chinchilla solar farm
- > Collinsville solar power station
- > Cook Shire solar PV/ battery storage/system management plant
- > Coopers Gap wind farm
- > Darling Downs solar farm
- > Forsyth wind farm
- > 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

- > Beryl solar farm
- > Boco Rock wind farm
- > Bodangora wind farm
- > Broken Hill solar power plant
- > Crookwell 2 wind farm
- > Cullerin Range wind farm
- > Darlington Point Energy Storage System
- > Glen Innes wind farm
- > Goonumbra solar farm
- > Gullen Range wind farm
- > Gunning wind farm
- > Manildra solar farm
- > Moree solar farm
- > Nyngan solar power plant
- > Sapphire wind farm
- > 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
- > Wellington solar farm
- > White Rock solar farm
- > White Rock wind farm
- > Woodlawn wind farm
- > TransGrid Western Sydney Battery

VICTORIA

- > Bald Hills wind farm
- > Berrimal wind farm
- > Challicum wind farm
- > Cherry Tree wind farm
- > Congupna solar farm
- > Gannawarra solar farm
- > Hepburn wind farm
- > Kerang solar farm
- > Kiamal solar farm
- > Lal wind farm
- > Macarthur wind farm
- > 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

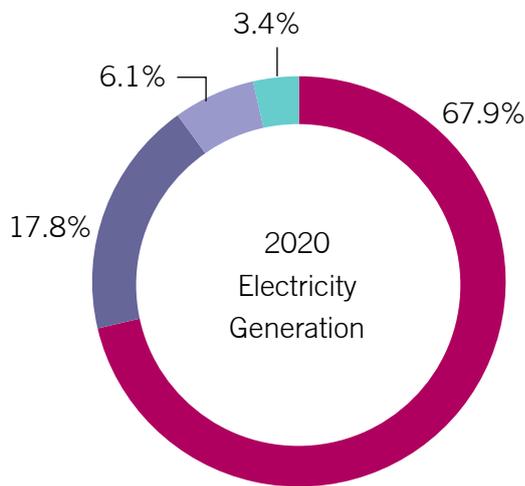


Renewable Energy in Mainland China.



Which sectors are active?

The PRC is the world's largest electricity producer and it is reported that its installed generation capacity exceeds 2,000GW by the end of 2019.¹ In 2020, the PRC produced 7,623.6 billion kWh of electricity. This was mainly produced using coal (67.87%) and hydroelectric power (17.78%). In comparison, wind generation represented 6.11% and solar generation 3.42%.² The country's power generation composition by source of energy, as of 2020, 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)

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 reduction of carbon emissions, and is currently on track with its stated targets.³

The National Energy Administration (the "NEA") issued an energy sector five-year development plan (2016 to 2020) in December 2016 (the "13th Energy FYP"),⁴ on the back of the five-year plan (the 13th five-year plan) issued by the National Development and Reform Commission (the "NDRC") in March 2016.⁵

The 13th Energy FYP contains ambitious targets on research and deployment of energy infrastructure and objectives for "strong development" of renewable energy. By the end of 2020, the installed capacity of wind energy was approx. 281GW (with 900MW of capacity coming from offshore wind projects)⁶, and the installed capacity of solar energy was approx. 253GW.⁷

The 14th five-year plan (the "14th FYP") for 2021 to 2025 adopted by the Central Government in March 2021⁸ 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, utilization, and storage (CCUS) and digitalization. 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 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 sets the target share of the use of non-fossil sources in the energy mix to around 20%.

It is anticipated that shortly following the adoption of the 14th FYP, the corresponding energy sector five-year development plan will be finalized and announced by the NEA, though the timeline remains unclear.

In the meantime, so far more than 15 provincial governments announced goals and timetables for the peak of carbon emission and plans for developing new energy which will leverage on unique local natural, social, economic and technological advantages.

1 Source: [http://2019-2020年度全国电力供需形势分析预测报告--人民网能源频道--人民网\(people.com.cn\)](http://2019-2020年度全国电力供需形势分析预测报告--人民网能源频道--人民网(people.com.cn))

2 Source: 2020年全国电力工业统计快报数据一览表 <https://www.cec.org.cn/detail/index.html?3-292820>

3 For example, non-petrochemical energy accounted for no less than 15% of overall energy usage earlier than the 2020 target set out in the "Three-Year Plan to Win the Battle for Blue Skies (打赢蓝天保卫战三年行动计划)" issued by the State Council on 27 June 2018. Source: http://www.gov.cn/xinwen/2020-12/27/content_5573659.htm

4 Source: http://www.nea.gov.cn/2017-01/17/c_135989417.htm

5 Policy planning in the PRC is driven by five-year plans. Once a plan is issued, the competent agencies will issue sectorial development plans.

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

7 Source: <https://www.cec.org.cn/detail/index.html?3-292820>

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

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 (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.

Regulatory bodies

National Energy Commission

- > 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.⁹
- > 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

- > 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

- > The NEA was established in 2013 as a vice-ministerial level agency under the NDRC.¹⁰ 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 Department¹¹ 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,¹² 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.

⁹ Source: <http://www.nea.gov.cn/gjnyw/>

¹⁰ Source: <http://www.nea.gov.cn/gjnyj/index.htm>

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

¹² Source: <http://djfi.renewable.org.cn/default/coframe/auth/login/login.jsp>



Renewable Energy in Mainland China.

Feed-in tariffs

The PRC has implemented power purchase prices akin to feed-in tariffs for an expanding scope of renewable electricity sources since 2009. The NDRC determines and publishes feed-in tariffs for each energy source based on its evaluation of the cost of electricity generation using that source. From 1 July 2019, tariffs for all wind projects (onshore and offshore) and concentrated solar projects have been determined through a competitive bidding process, subject to caps set by the applicable guideline feed-in tariffs published by the NDRC. The tariffs for biomass and hydropower power plants are set out in notices issued by the NDRC from time to time. We set out below a summary of the currently applicable feed-in tariffs (as of 24 March 2021).



Source	Feed-in tariff (yuan/kWh)	Applicable notice
Solar	0.35 to 0.49 ¹³ (excluding poverty alleviation power plants)	Notice of the NDRC on the Feed-in Tariff Mechanism for Solar Photovoltaic Projects (2020) (《国家发展改革委关于2020年光伏发电上网电价政策有关事项的通知》)
Wind – onshore wind power	0.29 to 0.47 in 2020 (or the applicable feed-in tariffs for coal power projects, if lower) ¹⁴	Notice of the NDRC on the Improvement of Policy relating to Feed-in Tariffs for Wind Power (2019) (《国家发展改革委关于完善风电上网电价政策的通知(2019)》)
Wind – offshore wind power	0.75 in 2020	Notice of the NDRC on the Improvement of Policy relating to Feed-in Tariffs for Wind Power (2019) (《国家发展改革委关于完善风电上网电价政策的通知(2019)》)
Hydropower	In most cases, as set out in notices issued by the provincial NDRC from time to time ¹⁵	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	0.65 to 0.75 ¹⁶	Notice of the NDRC on Improvement of Policy relating to the Tariff for Agricultural and Forest Biomass Power Projects (2010) (《国家发展改革委关于完善农林生物质发电价格政策的通知(2010)》)

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.

¹³ This price range applies to solar power plants that are synchronised to the grid after 1 June 2020. The guideline feed-in tariff for solar power varies among three regions determined by the NDRC based on the respective solar resources and relevant costs, specifically being 0.35 yuan/kWh, 0.4 yuan/kWh and 0.49 yuan/kWh respectively.

¹⁴ This price range applies to wind projects approved after 1 January 2019. The guideline feed-in tariff for onshore wind power varies among four regions determined by the NDRC based on the respective wind resources and relevant costs, specifically being 0.34 yuan/kWh, 0.39 yuan/kWh, 0.43 yuan/kWh and 0.52 yuan/kWh in 2019, and 0.29 yuan/kWh, 0.34 yuan/kWh, 0.38 yuan/kWh and 0.47 yuan/kWh in 2020. The guideline feed-in tariff for all offshore wind power projects is 0.75 yuan/kWh for the year 2020.

¹⁵ The feed-in tariff differs 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-province 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.

¹⁶ 0.75 yuan/kWh for agricultural and forest biomass; 0.65 yuan/kWh for waste incineration biomass; the feed-in tariff for other types of biomass varies among provinces.

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.

Echoing the above directive, various ministerial level authorities issued guidance in October 2020 to promote investment and financing to address climate change, setting targets for 2022 and 2025 respectively. On 22 February 2021,¹⁷ the NDRC laid out the State Council’s plans for China’s carbon targets - these plans include stepping up the country’s push for research into large-scale power storage technology, and highlighting wind and solar, geothermal, hydrogen, biomass, tidal energy and hydropower as priority renewable sectors. On 5 January 2021, the environmental authority published pilot rules for the management of carbon emissions trading, which aims to regulate the carbon trade and related activities within China.¹⁸ On 28 January 2021, the Goldwind Technology Yizhuang smart park in Beijing was certified as the first renewable energy carbon-neutral smart park in mainland China.¹⁹

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.²⁰

These policies and developments signal support for foreign investment in these industries, including the development of innovative investment structures. We therefore anticipate further regulatory and industry movements in 2021 and are starting to see concrete actions in response to these targets.

Competitive bidding and decreasing production costs

Since 1 July 2019, tariffs for all wind projects (onshore and offshore) and concentrated solar projects have been 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. Compared to the previous rules and policies, where the feed-in tariff for solar and wind power was set at a fixed rate with subsidies from

the Renewable Energy Development Fund, the latest pricing mechanism of competitive bidding reflects the trend towards full price marketisation and the expectation that government subsidies and other protections (for newly-constructed plants) will gradually decrease. On 26 February 2021, the NEA published a draft notice for comments on the development plan of wind and solar projects in 2021 (the “**2021 Wind and Solar Development Draft**”). According to this draft, competitive bidding of grid price will be further encouraged, and provinces will distribute the grid capacity to new wind and solar projects through a competitive bidding process.

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%,²¹ with the cost estimated to be 3.5 RMB/W in 2020.²² For wind energy, 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 2028,²³ while the LCOE for offshore wind will decrease from 472 RMB/MWh in 2020 to 258 RMB/MWh in 2029.²⁴

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 8 July 2020, the NDRC published for consultation a draft list of projects supported by green bonds, which includes 21 projects in four renewable energy sectors. 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 2020 was RMB 11.95tn (an increase of 20.3% year-on-year), and the balance of green loans for infrastructure upgrades and for clean energy industries were RMB 5.76tn and RMB 3.2tn respectively (an increase of 21.3% and 13.4%, respectively, from the beginning of the year).²⁵



17 Source: http://www.gov.cn/zhengce/content/2021-02/22/content_5588274.htm

18 Source: http://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202101/t20210105_816131.html. According to the pilot rules, local authorities will allocate carbon emission quotas to certain companies by local authorities, which can then offset the quotas by purchasing CCER (China Certified Emission Reduction). CCER is mainly produced by the hydropower, photovoltaic, wind energy and biomass sectors.

19 Source: <https://www.chinanews.com/business/2021/01-28/9398917.shtml>

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

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

22 Source: <http://www.nengyuanjie.net/article/41102.html>

23 Source: See “China Offshore Wind Power Market Outlook 2019” by Wood Mackenzie

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

25 Source: <http://www.pbc.gov.cn/goutongjiaoliu/113456/113469/4180902/index.html>

Renewable Energy in Mainland China.

On 12 March 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 and solar projects. In addition, the relevant authorities will study the feasibility of issuing green certificates 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.²⁶

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 wind and solar projects. Any offshore wind project approved before the end of 2019 will not receive national-level subsidies unless it is synchronised to the grid before the end of 2021. Also, from 1 January 2021, central government subsidies are no longer available for offshore wind projects. Further, the 2021 Wind and Solar Development Draft provides that, subject to detailed implementation rules set by every province, at least one third of the grid capacity of each province should be assigned to wind and solar developers who give up unpaid subsidies in exchange for such grid capacity. Though this document remains a draft, it manifests the policy trend of further subsidy haircut even for subsidies granted but unpaid. That said, while official reports have circulated from the NEA that emphasise the general phasing-out of the national-level government subsidies, especially for wind projects, in the coming few years, there will remain an expectation for local governments to continue to support projects in their locality on a case-by-case basis.

On the other hand, Qinghai Province recently announced a subsidy for “new energy plus energy storage” projects. Qinghai is the first to provide subsidy to energy storage projects, which might be used as a guidance by other provinces.

Curtailement 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. While the PRC has been actively developing its regional grids and ultrahigh-voltage (or UHV) cross-province distribution lines, and there has been significant and steady reduction of curtailment over the years, the issue remains an important one for renewable power producers.

According to public reports, 4% of wind energy was curtailed in 2019 (a significant improvement from 14.1% in 2016), with a number of installed wind turbines not being connected to the grid. However, the curtailment rate varies significantly between different regions. In 2018, the curtailment rates for wind projects in Xinjiang and Gansu provinces were 23% and 19%,²⁷ respectively, dropping to 10.3% and 6.4% respectively, in 2020, while the average national curtailment rate for wind projects in 2020 was about 3%.²⁸

Curtailement has developed mainly due to a shortage of grid capacity, despite statutory provisions²⁹ and a series of policy documents mandating the offtake and dispatch of renewable energy.

To remedy the issue, 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.



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

27 Source: http://www.nea.gov.cn/2020-02/28/c_138827910.htm

28 Source: <https://www.cctd.com.cn/show-16-210618-1.html>

29 Source: Original Renewable Energy Law in 2005, Air Law

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On 2 April 2018, the NEA issued to local governments the Notice on Easing the Burden on Renewables Sector Enterprises,³⁰ 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 2020.³¹

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 companies and other power purchasers offtake a minimum amount of renewable energy (which cannot be limited to hydropower only). According to updated data for 2019, the minimum consumption percentage for renewable energy (all sources) for each province varied from 11.6% (Shandong Province) to 88.7% (Xizang Province), and the minimum consumption percentage (all sources excluding hydropower) varied from 4% (Chongqing Province) to 21.3% (Ningxia Province).³² To better support renewable energy producers, the NEA issued a draft document for comments on the minimum consumption target for renewable energy from 2022 to 2030.³³ This draft sets the 2030 target for national-level renewable energy consumption to be 40% of all energy sources and 25.9% of all sources excluding hydropower which, though regarded as over-ambitious by some commentators, signals a policy trend of further guaranteeing the consumption of renewable energy.

Furthermore, the PRC government is ramping up support for companies to use green power certificates. Whereas these certificates were previously only traded on the market on a voluntary basis, on 20 January 2020, the PRC government announced that green power certificates are to be traded according to a quota system from 1 January 2021.³⁴ We anticipate this will eventually become a supplementary method for corporations to comply with the mandated minimum renewable energy consumption requirements.

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 October 2020, the second phase of 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 construction, with operations expected to commence in 2021.³⁵

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.

April 2021

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.

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

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

32 Source: http://zfxgk.nea.gov.cn/2020-05/06/c_139059627.htm

33 Source: <http://cnste.org/html/zixun/2021/0210/7551.html>

34 Source: http://jjs.mof.gov.cn/zhengcefaui/202010/t20201015_3604104.htm

35 Source: <http://www.sasac.gov.cn/n2588025/n2588124/c15749693/content.html>



Regulatory framework for renewable energy in India

The renewable energy sector in India has witnessed significant growth as well as foreign and domestic interest in the last few years. As of 28 February 2021 the total renewable power installed capacity (excluding hydro power projects with capacity above 25MW) in the country was almost 92.97GW, and as of 31 October 2020 the total installed capacity in the country of hydro power projects with capacity above 25MW was about 45GW. The Indian government's ambitious target to reach 175GW of renewable energy capacity by 2022 (of which, about 100GW is planned for solar power, and 60GW for wind power) and its commitment to promote clean energy initiatives has encouraged project sponsors to participate in the Indian renewable sector. In this section, we briefly discuss the regulatory regime and key policy initiatives applicable to renewable energy, including the key regulators and administrative authorities involved. We also highlight key topical issues that investors consider while doing renewable energy transactions in India.

Key sectoral issues

Financing and investment

Rapidly declining tariffs influenced by competitive bidding processes have raised concerns on the sustainability and commercial viability of projects.

Inherent seasonality of power generation adversely impacts cash flows of the renewable energy project during the non-productive season. However, combinations of solar, wind and energy storage are being explored to address such seasonality as seen from the 400MW round-the-clock renewable energy tender that took place in 2020.

Depending on the type of renewable technology, capital expenditure and project costs are significantly higher when compared to conventional power projects.

Cost of project financing through facilities availed from domestic financial institutions is expensive with sponsors having to bear higher interest rates.

Regulatory and other infrastructure related issues

Considerable delay in providing grid connectivity except for projects that fall in the dedicated transmission green corridor where access to grid infrastructure is swift and efficient.

Complexity of subsidy structure and no uniform practice followed by state agencies while formulating subsidy guidelines.

Availability of sufficient contiguous land at competitive prices that is required for installation of project facilities, delays in land acquisition and limited state support in the land acquisition process.

Overview of the applicable legal framework and government policies

The power sector was liberalised in the 1990s and private sector participation was allowed in power generation, distribution and transmission. India follows a federal system of governance with the central government and the state governments each being entitled to legislate on matters related to electricity and power, including incentives.

Electricity Act, 2003

The (Indian) Electricity Act, 2003 (the "**Electricity Act**") is the primary Indian legislation that regulates the power sector including aspects such as generation, distribution and sale of renewable energy. A licence is required to transmit, distribute or trade in electricity. The Electricity Act contemplates two types of power producers: (a) independent power producers, which are entities that generate electricity for commercial third party or open market sale; or (b) captive power producers¹, which are entities that generate electricity for their own use or captive consumption of an industry (or group of industries).

The regulatory and administrative responsibilities under the Electricity Act are bifurcated between various central and state level entities or agencies. The Central Electricity Regulatory Commission ("**CERC**") is the central regulator that is responsible, among other things, for inter-state related electricity issues while the respective State Electricity Regulatory Commissions ("**SERCs**") are the state regulators that are responsible for intra-state related electricity issues. This is described in greater detail on [page 24](#).

The Electricity Act recognises multi-year tariff principles, lists factors that should be considered by the relevant regulatory commission while determining tariffs and provides for rationalisation of tariffs by allowing cross-subsidisation. These measures ensure transparency and predictability in the tariff structure. The Electricity Act has also introduced provisions relating to mandatory open access of transmission and distribution systems (i.e. non-discriminatory provision for the use of transmission lines or distribution systems and associated facilities). Detailed regulations have been prescribed by the CERC and SERC on the renewable energy certificate mechanism. These regulations aim at the development of the

¹ 26% of the power producer must be owned by the captive users and 51% of the aggregate electricity produced must be consumed by the captive users. On 22 May 2018, the Ministry of Power circulated the draft Electricity (Amendment) Rules 2018 ("**Draft Rules**") which aim to amend the Electricity Rules, 2005, by setting out further terms as well as clarifications regarding captive generating plants, inter alia, introducing the definition of group captive generating plants and clarifying how aggregate electricity generated is to be computed. The Draft Rules have been sent to various Authorities such as the Central Electricity Authority, the Central Electricity Regulatory Commission and distribution companies ("**DISCOMs**"), among others, inviting their comments. These Rules were to come into effect on 1 April 2019, however they are currently still in draft form and it is difficult to ascertain the time period within which these Rules will be passed.



power market from non-conventional energy sources through the issuance of transferrable and saleable credit certificates, which helps facilitate inter-state transactions involving renewable energy with the least cost and technology involved.

The Ministry of Power released the draft Electricity (Amendment) Bill, 2020 (“**Draft Electricity Bill**”) on 17 April 2020, seeking to amend the Electricity Act. Some of the key changes proposed to be introduced by the Draft Electricity Bill are the introduction of a clear definition of renewable energy, reduction of cross-subsidies in the manner prescribed in the National Tariff Policy, creation of Electricity Contract Enforcement Authority and proposal to formulate the National Renewable Energy Policy. Under the Draft Electricity Bill, the Government may provide subsidies only through direct benefit transfer. It is difficult to ascertain a timeline within which this Draft Electricity Bill will become a statute.

On 31 December 2020, the Electricity (Rights to Consumers) Rules 2020 (“**2020 Electricity Consumer Rules**”) were notified to empower consumers of electricity and confer rights upon the consumers to be entitled to reliable services and quality electricity. The 2020 Electricity Consumer Rules have introduced, inter alia, installation of smart or pre-payment meter and a robust consumer grievance redressal mechanism to be established by the distribution licensees.²

On 22 February 2021, the Electricity (Late Payment Surcharge) Rules 2021 were notified to ensure that late payment surcharge was payable by power distribution companies and power transmission licensees to generating companies and power transmission licensors on account of delay in payment of monthly charges.

National Electricity Policy (“NEP”)

The Indian government has developed the NEP to encourage development of the power sector by laying emphasis on the need for optimum utilisation of non-conventional energy resources such as solar, hydro, wind and bio-mass. The NEP provides that SERCs should specify appropriate tariffs to promote renewable energy.

National Tariff Policy (“NTP”)

The NTP was notified by the Indian government to ensure financial viability of the power sector and promote transparency, consistency and predictability in regulatory approaches across jurisdictions. The NTP was amended in 2016 and several reforms were introduced to promote renewable energy and the sourcing of power through competitive bidding, outline various parameters (such as return on investment, cost of debt and rate of depreciation on assets) and set out general principles that must be followed by the relevant commission while determining tariffs for renewable energy projects. On 30 May 2018, further draft amendments were circulated for comments, proposing changes such as liability on open access (customer to pay cross subsidy surcharge for a maximum period of one year from the date of opting for open access) and further terms and conditions in relation to standby charges. It is difficult to ascertain a timeline within which the draft amendments will be finalized.

National Solar Mission (“NSM”)

NSM was launched by the Indian government in 2010 and intends to achieve solar generation capacity of 100GW by 2022. NSM aims to create conditions for rapid scale-up of capacity and technological innovation to drive down costs towards grid parity. Solar generation has been promoted through scale-up in grid connected solar projects, development of large solar power parks and rapid installation of grid connected solar roof-top projects. The government has also implemented a viability gap funding scheme wherein funding is provided to sponsors selected through a transparent bidding process, to procure solar power at a pre-determined fixed tariff.

National Policy on Biofuels (“NPB”)

The Union cabinet approved the NPB on May 2018 with an aim to increase usage of biofuels in the energy and transportation sectors of India during the coming decade. The NPB further aims to utilise, develop and promote domestic feedstock, including the production and consumption of biofuels as a substitute to fossil fuels, while also contributing to national energy security, climate change mitigation and providing new employment opportunities.

National Wind-Solar Hybrid Policy (“NWSP”)

The Ministry of New and Renewable Energy released the NWSP on 14 May 2018 (as amended on 13 August 2018) with the objective of providing a framework for the promotion of large grid connected wind-solar photovoltaic (“**PV**”) hybrid systems for optimal and efficient utilisation of transmission infrastructure and land, reducing the variability in renewable power generation and achieving better grid stability, as well as encouraging new technologies and methods involving the combined operation of wind and solar PV plants.

Foreign Investment in Renewable Energy

As per the prevailing foreign investment policy, 100% foreign investment is allowed in entities engaged in the renewable energy sector subject to the provisions of the Electricity Act and other relevant state renewable energy policies.

Union Budget 2021 -Key updates in the Renewable Energy sector

The Union Budget for the financial year 2021-22 (“**2021 Budget**”) has laid down significant changes for the renewable energy sector in India, inter alia, allocation of additional funds to the renewable energy sector and proposal to launch a Hydrogen Energy Mission.

In order to encourage domestic production, the 2021 Budget has laid down a 15% and a 10% hike in customs duty applicable to solar inverters and solar lanterns respectively, and a proposal for a phased local manufacturing plan for solar cells and solar panels. Further, exemptions on custom duty applicable to all items of machinery, instruments, appliances, components or auxiliary equipment for setting up of solar power generating projects will be revoked. The impact of these changes is expected to be negative and include higher costs for producers. It remains to be seen if this will materially slow the growth in renewable energy that is anticipated.

² The consumer grievance redressal mechanism was previously governed under the Electricity Rules 2005. On 31 December 2020, the Electricity Rules 2005 were amended to exclude the provisions in relation to consumer grievance redressal mechanism.



Key regulators and other administrative agencies

CERC and SERCs

As discussed above, the Electricity Act provides for the constitution of a CERC and, for each state, a SERC. Among other things, the CERC and the SERCs are responsible for regulating tariffs in relation to generation, transmission, supply and distribution of electricity, issuance of licences and fixing trading margins (if found necessary).

The CERC and SERCs also act as quasi-judicial bodies. The CERC is responsible for adjudicating upon disputes involving generating companies or transmission licensees in regard to any inter-state activities. The respective SERCs are responsible for adjudicating upon disputes between licensees and generating companies within their jurisdiction, and also to refer any disputes to arbitration.

Ministry of New and Renewable Energy (“MNRE”)

MNRE is the main administrative body that is responsible for formulating schemes and policies in relation to the development and commercialisation of renewable energy. State level nodal agencies have also been set up for the effective implementation of central and state schemes in relation to the promotion of renewable energy.

State Energy Development Agencies

The State Energy Development Agencies (“SEDA”) are the state government authorities which are responsible for formulating and implementing renewable energy policies that will attract private participation in developing projects. The renewable energy policies of most states contemplate SEDA to be the main authority responsible for granting project approvals. SEDAs also assist sponsors in procuring other permits and consents (such as pollution control clearances) required for establishing and operating renewable energy projects.

Transmission utilities

Under the Electricity Act, the central government may nominate any government company to be a central transmission utility (“CTU”), and the various state governments may nominate the state electricity board (“Board”) or any government company to be the state-specific transmission utilities (“STUs”). Amongst others, the function of the transmission utilities is to undertake transmission of electricity with the CTU being responsible for inter-state transmission and the STUs being responsible for intra-state transmission activities.

Power Grid Corporation of India Limited (“PGCIL”) is the only nation-wide transmission licensee along with a few private transmission companies who have asset-specific licences. Each state has an intra-state transmission licensee in the form of a state government promoted company or the Board. Press reports state that the Ministry of Power, in June 2020, has directed PGCIL to set up a CTU as a wholly -owned subsidiary of PGCIL (“New CTU”) with a separate account and board structure, which shall carry out all functions of a CTU that were previously carried out by PGCIL. The New CTU shall cease to be a subsidiary of PGCIL, within 6 months or till the

completion of relevant formalities, and shall function as an independent company wholly owned by the government of India. The Ministry of Power, via notification dated 9 March 2021, has announced Central Transmission Utility of India Limited as the New CTU which will start operations from 1 April 2021. Additionally, PGCIL will continue to be a deemed transmission licensee under the Electricity Act, and will discharge incidental functions and undertake directions prescribed by the government of India.

Indian Renewable Energy Development Agency (“IREDA”)

IREDA is a government company established to promote, develop and extend financial assistance for setting up projects relating to renewable energy in India. IREDA has prescribed detailed norms that set out the terms on which financing facilities are offered to renewable energy project developers. IREDA also plays a key role as a program administrator in respect of certain incentive schemes that have been formulated by the MNRE for solar and wind power projects.

Tariff Issues – renegotiation of power purchase agreements (“PPAs”)

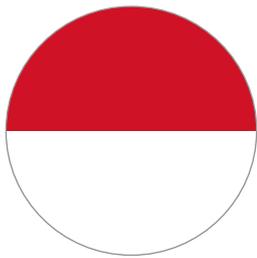
There are a number of Indian states where there have been challenges to renewable energy tariffs, including in executed PPAs. While legal challenges in states such as Gujarat have failed so far, the most recent, and most serious challenge has been in Andhra Pradesh. Pursuant to an order dated 1 July 2019, the Andhra Pradesh Government had constituted the High Level Negotiation Committee for PPAs to review and renegotiate PPAs already in force in order to bring down the high wind and solar energy prices in Andhra Pradesh. Aggrieved by this order, numerous renewable energy companies mounted legal challenges against the State Government’s renegotiation bid, claiming that the Andhra Pradesh Government had no say in the contracts which were signed between the distribution companies and the developer. Press reports state that the Andhra Pradesh High Court, while setting aside the Government order, requested the renewable power companies to raise their objections before the Andhra Pradesh Electricity Regulatory Commission (“APERC”) for which a timeline of six months (from 24 September 2019) was set to resolve the issues, and directed Andhra DISCOMs to pay a tariff of INR 2.43 and INR 2.44 per unit till the matter is settled (which reflect the tariffs outlined in the executed PPAs currently in force pending resolution of the dispute) (“APHC Order”). Meanwhile, various renewable energy companies have again approached the Andhra Pradesh High Court against the APHC Order. The APERC has deferred the proceedings until the final adjudication of the APHC Order. No final decision seems to have been reached on this matter as of yet.

March 2021

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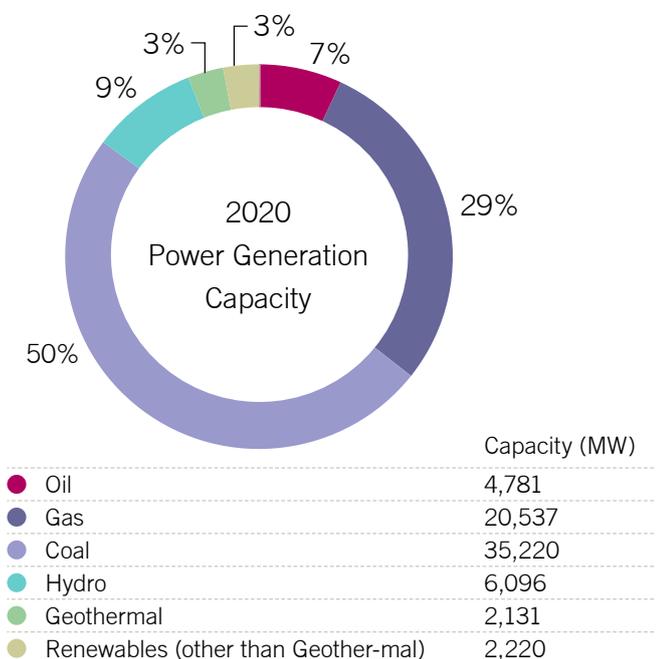


Renewable Energy in Indonesia.



Which sectors are active?

As of June 2020, installed capacity in Indonesia is approximately 71GW. 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 June 2020, is as follows:



Coal remains as the main resource for power plants. This is so 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") 2019-2028 for PT Perusahaan Listrik Negara ("PLN") under Decree No. 39K/20/MEM/2019. 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: 56.395GW by 2028;
- > Targeted energy mix in 2025:
 - Renewables remains the same (23%)
 - Coal will stay around the same (54.6%)
 - Gas will slightly reduce to 22% (from 22.2%)
 - Oil remains the same (0.4%)
- > The new RUPTL aims to achieve an electrification ratio for Indonesia of 100% by 2020. Based on the RUPTL, to achieve this level of electrification, power plants for a capacity of at least 56.395GW will need to be constructed by 2028, and 5.827GW is expected in operation by 2019. The electrification ratio at the end of 2020 was at 99.2% and is targeted to achieve 100% in 2021.

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

	Potential Capacity ¹	Installed Capacity (MW) ²	Exploited (%)
Geothermal	29,554MWe	1,814.30	6.10
Hydro	79,091MW	4,938.64	5.40
Solar	207,898MW (4.8kWh/m ² /day)	25.19	0.04

PLN's plan for the development of renewable energy under the RUPTL 2019-2028 (in MW/MWe) can be summarised as follows:

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Geothermal (PLTP)	190	151	147	455	245	415	2,759	45	145	55
Hydro (PLTA)	154	326	755	-	182	1,484	3,047	129	466	1,467
Mini-hydro (PLTMH)	140	238	479	200	168	232	27	20	20	10
Solar (PLTS)	63	78	219	129	160	4	250	-	2	2
Wind (PLTB)	-	-	30	360	260	50	150	-	-	5
Biomass	12	139	60	357	50	103	19	5	15	35
Wave and tidal (PLT Kelautan)	-	-	7	-	-	-	-	-	-	-

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 2019-2028.

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 May 2020, total installed power generation capacity in Indonesia had the following breakdown of ownership:

- > PLN (state-owned operator) – 42,995MW (60.6%)
- > IPPs – 18,815MW (26.5%)
- > Captive Power – 5,465MW (7.7%)
- > Private Power Utility – 3,582MW (5.1%)
- > Government – 55MW (0.1%)

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 2019-2028 RUPTL stated a 23% renewables target by 2025. However, despite the increased number of PPAs signed by PLN this target is unlikely to be achieved by the Government.

From 2014 to 2016, tariff regulations were issued for geothermal, mini-hydro, solar, waste to energy, biomass and biogas IPPs. Wind only became subject to a regulated tariff regime in 2017 (see right column). Progress has been sluggish due to resistance from PLN owing to the subsidy required to support these tariff regimes. In December 2016, the Indonesian Parliament rejected a proposed renewable energy subsidy to PLN. In 2017, new regulations were released, capping renewables tariffs by reference to PLN generation costs (see right column); this was designed to avoid a subsidy to PLN from renewables development.

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).

New 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 took effect on 8 August 2017 and revoked the previous MEMR Regulations No. 12 of 2017 and No. 43 of 2017. This regime applies 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 (i.e. solar PV, wind, hydro, biomass, biogas, wave & 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.

The latest amendment to Regulation 50/2017 re-introduces 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:

- > shortage of electricity in the local system;
- > excess power from the IPPs including purchase of electricity from the holder of business area (i.e 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.

Renewable Energy in Indonesia.

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 also issued a new 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 (i.e. the BPP for 2019 will be applied for procurement from April 2019 to March 2020). 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 2019, which is valid from 1 April 2019 until 30 March 2020, that was used as the reference in procurement documents during that period. The national BPP is set at US\$7.86/kWh, and there are separate local BPP for different regions in Indonesia. For 2020, MEMR has not issued a new stipulation on the national BPP for the period after 30 March 2020, 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 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 ("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 liberalizes 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.



Renewable Energy in Indonesia.

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 year. 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 utilization and management of renewable energy in all sectors (and not just for 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 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.



Renewable Energy in Indonesia.

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 Law No. 7 of 2011 on Currency, together with the implementing regulations issued by Bank Indonesia, imposes certain currency restrictions, including that Rupiah must be used to settle financial obligations within the territory of Indonesia.

PBI 17/3/2015 also provides that business entities must state the price for goods and/or services only in IDR. It is further clarified by SEBI 17/11 that business entities are prohibited from stating the price for goods and/or services simultaneously in both IDR and foreign currency (dual quotation).

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 recent 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.

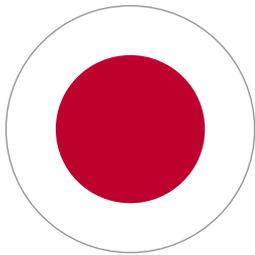
Nevertheless, only time will tell if these changes will in practice accelerate the process of land acquisition that have been held up due to misalignment between the national and regional spatial layout plans.

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Renewable Energy in Japan.



Prime Minister Suga announced Japan's net zero carbon emissions commitment by 2050 in his inauguration address on October 21, 2020, promptly followed by the policy package called "Green Growth Strategy for 2050 Carbon Neutral" referring to the renewables energies as one of the core drivers. 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 to 45GW by 2040. This has been received positively as an ambitious but achievable target.

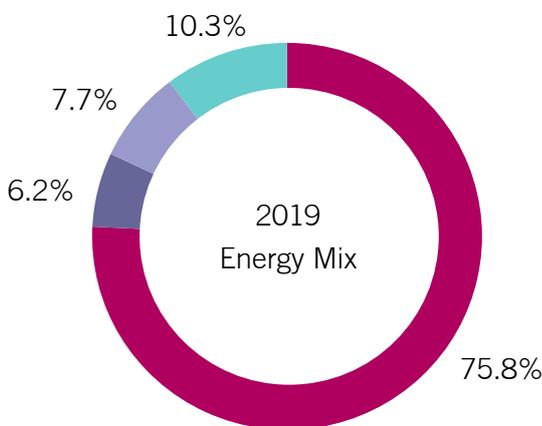
We set out below a brief summary of the regulatory regime for the renewable sector in Japan and some topical issues relating to the renewables sector.

Which sectors are active?

Current Energy Mix

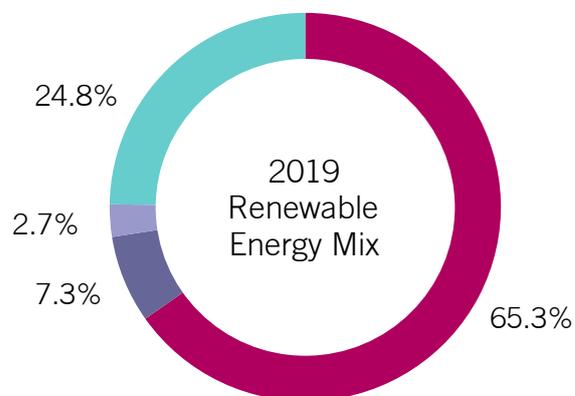
Japan's main source of energy is thermal power with coal and LNG representing the most prominent source of electricity generated in its current energy mix. Renewable energy (excluding hydro power) has increased from 2.2% in FY2010 to 10.3% in FY2019.

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



	(%)
● Thermal	75.8
● Nuclear	6.2
● Hydro	7.7
● Renewables	10.3

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



	(%)
● PV	65.3
● Wind	7.3
● Geothermal	2.7
● Biomass	24.8

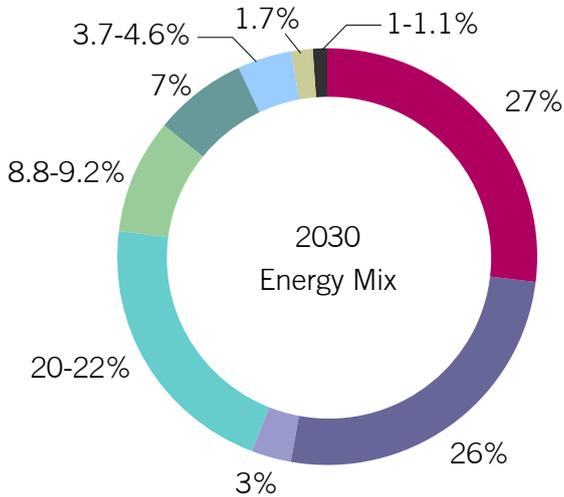
Source: Comprehensive Energy Statistics, Agency for Natural Resources and Energy

Renewable Energy in Japan.

Switching to renewable energy

Renewable energy consists of 22-24% of the Government's 2030 Energy Mix plan.

While the certified capacity of solar power already exceeds the target amount in the 2030 Energy Mix, wind and biomass energy will need significant investments in order to achieve the respective targets.



	(%)
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, 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 spinned 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

Renewable Energy in Japan.

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 pro forma power purchase and interconnection agreement prepared by METI with little/no scope for additional risk transfer and no capacity payment (i.e. 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 2020 is specified by METI and we set out below the current tariff table.

Type of Renewable Energy	Feed-In Tariff (JPY/kWh)		
	FY2018	FY2019	FY2020
Solar			
<10kW	25-28	24 / 26	21
10-50kW	25-28	24 / 26	12
50-250kW	18	14	13
250-500kW	18	14	Reverse Auction
500-2,000kW	18	Reverse Auction	Reverse Auction
>2,000kW	Reverse Auction		
Wind			
Onshore	20	19	19
Offshore *	36	36	36
Offshore **	36	36	Reverse Auction

*Fixed Bottom **Floating



Renewable Energy in Japan.

Reverse auction for solar power

As referred to in the previous table, a competitive reverse auction process was introduced from 1 April 2017 onwards for solar projects with capacity greater than 2MW.

Developers who meet certain criteria and pay the required deposit will have the opportunity to submit a bid and compete for the right to supply a fixed amount of power to the utilities at auctions which are expected to be held between one and three times per year. Bids in the auction will be accepted starting from the lowest until the capacity available at the relevant auction is fully allocated.

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

*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).

As of March 2021 the public auctions are under progress in four areas: (i) Akita, Noshiro-shi, Mitane-cho and Ojika-shi offshore area, (ii) Akita, Yurihonjo-shi offshore area, (iii) Chiba, Choshi offshore area (each fixed bottom) and (iv) Nagasaki, Goto-shi offshore area (floating). The successful bidder will be announced in or around June 2021 for (iv) Nagasaki, Goto-shi offshore area, and in or around October or November 2021 for the other three fixed bottom areas.

A press release was published on 3 July 2020 by METI and MLIT listing 10 areas as “areas at a certain preparatory stage” and among those areas specified 4 “promising areas”, being (i) Aomori, Japan Sea (North), (ii) Aomori, Japan Sea (South), (iii) Akita, Happo-cho and Noshiro-shi and (iv) Nagasaki, Saikai-shi, Ejima offshore area.

Post-FIT Framework

The Partial Revision Act will establish a Feed-in-Premium (“**FIP**”) regime where renewable power generators receive a certain level of premium based on the market price 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 details of the reference price eg the frequency of the adjustment to the reference prices has not yet been fixed and is to be determined in consideration of the recommendation from the Calculation Committee for Procurement Price, etc.

The Partial Revision Act envisages that the FIT regime is to be ultimately replaced with the FIP scheme. However, the timing of transition has not yet been fixed and will be determined for each category of renewable energies (solar, wind power, biomass etc.). According to the recent materials published by the Calculation Committee for Procurement Price, etc., the FIP regime will not be a sole option for the offshore wind power generation projects at least until 2023 to secure predictability for return to investments by power generators.

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. Curtailment of electricity generation will be applied in the order indicated by the enforcement regulations of the Renewable Energy Act and the guidelines for operation of power transmissions and distributions, etc. by Organization for Cross-regional Coordination of Transmission Operators, JAPAN.

While “designated utilities” can impose unlimited curtailment without financial compensation, there are usually caps on permitted curtailment before utilities must pay compensation:

- > 30 days p.a. (if interconnection application was accepted before 26 January 2015); and
- > 360 hours p.a. (for photovoltaic renewables energies) and 720 hours p.a. (for wind renewables energies) (if interconnection application has been accepted on or after 26 January 2015).

It has been reported that following the 26th meeting of the Grid Connection Working Group under METI, the “designated utilities” system will be abolished and curtailment without any financial compensation will be applied.

Measures for Prompt Commencement of Operation

The Partial Revision Act provides for introduction of 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. This intends 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. However, some financial institutions considered that this expiration regime will lead to extra risks to the renewable energy projects because the commencement of operation may be delayed by various reasons such as delays in construction. This resulted in suspension or delay in origination of financing for certain projects.

In response to the market concerns around the additional risks to renewable energy projects, METI has clarified that for solar projects above 2MW, if the notification for construction plans under the Electricity Business Act has been duly received by the effective date of the Partial Revision Act (namely 1 April 2022), the expiration is not applicable.

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.

Introduction of Power Producer's Basic Charge

The 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 once under discussion. However, 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). Facing strong oppositions, the Minister of METI made instructions to re-examine the introduction of the power producer's basic charges in July 2020.

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.

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Renewable Energy in South Korea.



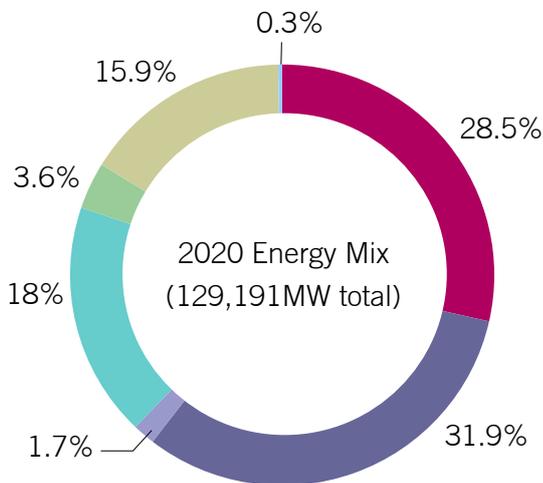
Overview

Renewable energy is becoming increasingly more important to the energy mix in the Republic of Korea (“**South Korea**”). Although South Korea’s current electricity generation is dominated by nuclear, coal and gas, growing concerns about air quality issues and its commitment to the international community to reduce carbon emission have sparked a strong interest in developing renewable and other lower carbon solutions to electricity generation in the country. Indeed, the South Korean government (the “**Government**”) led by President Moon Jae-in has introduced a series of policies in recent years that focus on reducing energy generated from coal and nuclear and transitioning into new renewable and other clean energy.

Which sectors are active?

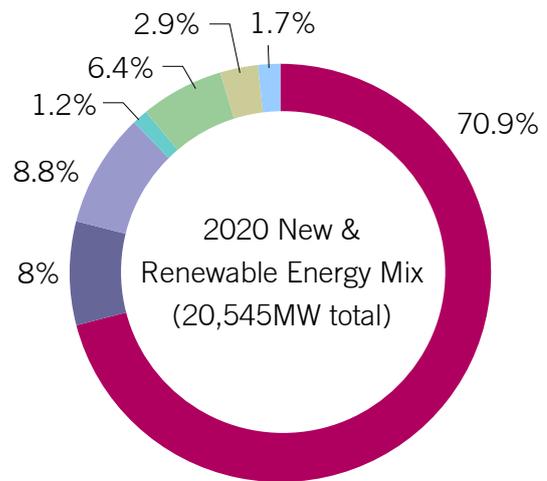
South Korea’s energy market is currently dominated by coal, nuclear and LNG; new & renewable energy represented 15.9% of the total power generation capacity in 2020.¹

The country’s annual power generation capacity by fuel, as of 2020, was as follows:



	Capacity (MW)
Coal	36,853
LNG	41,170
Oil	2,247
Nuclear	23,250
Pumped Storage	4,700
New & Renewables	20,545
Others	426 ²

The chart below sets out the annual power generation capacity by fuel per each renewable source as of 2020.



	Capacity (MW)
Solar	14,575
Wind	1,636
Hydro	1,806
Marine	255
Bio Energy	1,323
Fuel Cell	604
Integrated Gasification Combined Cycle	346 ³

¹ Based on information available on the Korea Power Exchange website (as of March 2021)

² Ibid.

³ Ibid.



Renewable Energy in South Korea.

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 replaces the Kyoto Protocol from 2011, whereby South Korea has committed to reducing its projected greenhouse gas emission level by 37% from the business-as-usual level (BAU, 850.6MtCO₂eq) by 2030.

As part of well publicised policy initiatives, the Government led by President Moon Jae-in has been increasing its efforts to lower the country's heavy reliance on coal and nuclear in electricity generation by raising power production from renewables and LNG.

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 more long-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 details 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 total installed capacity of 65.1GW. It is expected that the implementation of these energy plans will open up investment opportunities for both Korean and international sponsors, investors and financiers. In particular, South Korea, together with Japan and Taiwan, is seen as a possible growth market for the global offshore wind sector and is currently 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 in the country.

Green new deal

In July 2020, the Government introduced the Green New Deal as one of two components of the Korean New Deal (the other being the Digital New Deal). The Government announced that it will invest KRW 73.4tn in the Green New Deal which aims to lay the foundation for sustainable economic growth that takes into consideration environmental and ecological protection. Through the Green New Deal, the Government plans to achieve net-zero emissions, accelerate the transition towards a green economy and create 659,000 jobs in the process.

A summary of the Green New Deal’s main initiatives is set out below.⁴

Main Initiative	Specific Target
Green transition of infrastructures	Turning public facilities into zero-energy buildings
	Restoring the terrestrial, ma-rine, and urban ecosystems
	Building a management sys-tem for clean and safe water
Low-carbon and decentralised energy	Building a smart grid for more efficient energy management
	Promoting renewable energy use and supporting a fair transition
	Expanding the supply of electric and hydrogen vehicles
Innovation in the green industry	Promoting prospective busi-nesses to lead the green industry and establishing low-carbon and green indus-trial complexes
	Laying the foundation for green innovation via the R&D and financial sectors



Further development

In February 2021, South Korea has revealed plans to build an 8.2GW offshore wind power project, worth KRW 48tn (US\$43bn), in Sinan, South Jeolla Province, about 400 kilometers south of Seoul. The local utility and engineering companies plan to provide KRW 47.6tn of the required funding and the Government the remaining KRW 0.9tn. This project is a major component of the Green New Deal.⁵

Furthermore, MOTIE announced in March 2021 that five major Korean conglomerates will invest KRW 43.4tn (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 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 2025.⁶

4 “Korean New Deal (July 2020)”, Government of the Republic of Korea

5 Link to source: <https://www.reuters.com/article/southkorea-energy-windfarm-idCNL4N2KB2TK>

6 Link to source: <https://www.bloomberg.com/news/articles/2021-03-18/hydrogen-rivalry-intensifies-with-south-korea-challenging-europe>; <https://en.yna.co.kr/view/AEN20210302006351320>

Renewable Energy in South Korea.

How does the system work?

Regulatory bodies

KEPCO: The majority state-owned Korea Electric Power Corporation (“**KEPCO**”) 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 them. Apart from KEPCO, a small number of independent power producers (“**IPPs**”) participate in the South Korean electricity market. KEPCO and the GenCos produce about 65% of all generation and IPPs produce the remaining 35% as of January 2021.⁷

KPX: The Korea Electric Power Exchange (“**KPX**”), also established in 2001 as part of 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.

MOTIE: Under the Electricity Business Act (also known as the Electric Utility Act) (the “**EB Act**”), 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 Korea. The Korea Energy Agency is responsible for systematic optimisation of energy consumption pattern, 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 (“**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 (“**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 Development, Use and Diffusion of New and Renewable Energy (also known as the Act on the Promotion of the Development, Use and Diffusion of New and Renewable Energy) (the “**Renewable Energy Act**”). 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, constitution and responsibilities of the electricity regulatory body; and (v) safety management relating to electricity 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 38](#).

Grid allocation and connection

KEPCO presently holds a monopoly over the transmission, distribution and retail sales 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.

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.



⁷ Link to source: <http://epsis.kpx.or.kr/epsisnew/selectEkpoBcpGrid.do?menuId=030400>

Renewable Energy in South Korea.

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 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 member of the KPX;
- > business commencement reporting; and
- > facility certification.

Government incentive programmes

RPS System

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) which have power generating facilities with installed capacity over 500MW to produce a minimum proportion of their power using new and renewable energy sources (the “**Required Generators**”). The minimum proportion is 7% as at 2020 with annual increases to 10% by 2023 (although these targets are subject to review and adjustment every three years). There are currently 23 generators which are designated as Required Generators. 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 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.⁸

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 covers 610 of the country’s largest greenhouse gas emitters or about 70% of national greenhouse gas emissions and 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.⁹

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 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 Law (also known as the Foreign Investment Promotion Act) (“**FIPL**”). All other minority stake investments are subject to the Financial Investment Services and Capital Markets Act and the Foreign Exchange Transaction Law (also known as the Financial Investment Services and Capital Markets Act and the Foreign Exchange Transactions Act) (“**FETL**”). However, regulatory requirements pursuant to FIPL and FETL 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.

March 2021

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.



⁸ Link to source: https://www.knrec.or.kr/business/rps_guide.aspx

⁹ “Korea Emissions Trading Scheme (January 2021)”, International Carbon Action Partnership.

Renewable Energy in Malaysia.



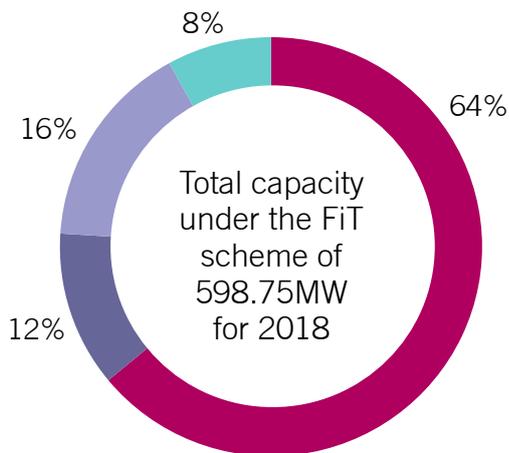
Overview

The Malaysian government remains steadfast in its ambition to increase the generation of renewable energy. In reinforcing the government’s commitment made at the 21st Conference of Parties (COP21), the government has recently revised the national renewable energy capacity mix target from 20% to 31% by 2025 to meet the rise in the use of renewable energy due to the increased awareness of climate change.¹ In achieving the 31% renewable energy capacity mix target for Malaysia by 2025, a total of 1,178MW of new renewable energy capacities (consisting 1,098MW of solar and 80MW of non-solar) will be developed in Peninsular Malaysia from 2021 onward. The grid infrastructure would also be further strengthened and enhanced with the much-needed technical enablers such as energy storage systems to increase solar penetration. This is to support the strategic intent and the country’s long-term national commitment of increasing its renewable energy capacity mix to the level of 40% by 2035.²

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 3.0.³

Which sectors are active?

Malaysia’s total installed electricity capacity is approximately 34GW.⁴ In 2018, installed renewable generation capacity under the feed-in tariff scheme was at 598.75MW.⁵ Malaysia has implemented a set of policies to make the most of the country’s renewable resources.



	Capacity (MW)
● Solar PV	382.96
● Biogas	69.94
● Biomass	95.55
● Small hydro	50.3

Source: "SEDA Annual Report 2018"

Hydro

Hydropower potential in Malaysia is assessed at 29,000MW,⁶ with 85% of potential sites being located in East Malaysia.⁷ To date, Malaysia has utilised its hydro potential mainly through the construction of large hydropower facilities, with about 6,128.1MW installed.⁸ As of 2017, Malaysia had a renewable capacity (inclusive of large hydropower plants) of 7.3GW, of which hydropower contributed 82%.⁹

The Malaysian government has expressed a goal that energy provided by small hydro schemes be increased to 490MW by 2020.¹⁰ Small hydropower development (*in Malaysia, small hydropower refers to run-of-river schemes up to 30MW in capacity*) is in line with the Small Renewable Energy Power Programme which was introduced between 2001 and 2005 under the 8th Malaysia Plan and the FiT (as defined on [page 41](#)) system. In 2018, installed capacity of small hydropower under the FiT scheme was approximately 50MW,¹¹ with plants in progress up to 2023 representing approximately 296.59MW,¹² the largest share of all renewables under the FiT scheme. TNB (as defined below) has a target of achieving renewable energy capabilities of 1,700MW by 2025.¹³

- 1 Source: "Energy Malaysia", Energy Commission at https://www.st.gov.my/en/contents/files/download/112/Energy_Malaysia_Volume_201.pdf
- 2 Source: "Report on Peninsular Malaysia Generation Development Plan 2019 (2020 – 2030)", Energy Commission at [https://www.st.gov.my/ms/contents/files/download/169/REPORT_ON_PENINSULAR_MALAYSIA_GENERATION_DEVELOPMENT_PLAN_2019_\(2020_-_2030\).pdf](https://www.st.gov.my/ms/contents/files/download/169/REPORT_ON_PENINSULAR_MALAYSIA_GENERATION_DEVELOPMENT_PLAN_2019_(2020_-_2030).pdf)
- 3 GTFS is a special financing scheme introduced by the government to support the development of green technology in Malaysia.
- 4 Source: "National Energy Balance 2018", Energy Commission at <https://meih.st.gov.my/documents/10620/f2f4c39b-4748-4c5d-b90a-fc36ba880264>
- 5 Source: "SEDA Annual Report 2018" at <http://www.seda.gov.my/download/seda-annual-report/>
- 6 Source: Malaysia Energy Policy, Laws and Regulations Handbook 2015, Volume 1 Strategic Information and Basic Laws by International Business Publications, USA, page 39
- 7 Ibid.
- 8 Source: "Malaysia Energy Statistics Handbook 2019", page 11 at <https://meih.st.gov.my/documents/10620/c7e69704-6f80-40ae-a764-ad0acf4a844d>
- 9 According to Research firm Protege Associates which was quoted in "Championing renewable energy", reported by The Star, 3 December 2018, at <https://www.thestar.com.my/business/smebiz/2018/12/03/championing-renewable-energy>
- 10 Source: "Renewable Energy Development in Malaysia: Overview of Renewable Energy Policy: Are we on the right track?", Sustainable Energy Development Authority Malaysia, 15 November 2011, at <http://ensearch.org/wp-content/uploads/2011/11/HERE1.pdf>
- 11 Source: SEDA Annual Report 2018
- 12 Source: Sustainable Energy Development Authority, at <http://www.seda.gov.my/statistics-monitoring/re-generation/>
- 13 Source: "Another TNB Commitment towards Renewable Energy", Tenaga Nasional Berhad, 1 April 2019, at <https://www.tnb.com.my/announcements/another-tnb-commitment-towards-renewable-energy>



Renewable Energy in Malaysia.

Solar

Solar PV potential in Malaysia is estimated at 6,500MW.¹⁴ As solar has consistently outperformed other green technologies in Malaysia, the government expected that most new renewable intakes will come from solar farms. To realise this expectation, the government has pushed several rounds of public auctions for solar projects (as noted below), with installed capacity of Solar PV under the FiT scheme reaching approximately 383MW in 2018.¹⁵

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.¹⁶

Biomass / biogas

In 2018, installed combined capacity of biomass and biogas under the FiT scheme was approximately 145MW.¹⁷ Being a major agricultural commodity producer in the South East Asian region, Malaysia is seen to be well positioned to promote the use of biomass as a renewable energy source. Biomass resources are abundant, especially in the palm oil plantation industry. The oil palm milling industry has the potential to fuel power generation facilities from solid biomass, palm shell and fruit fibres.

How does the system work?

Offtakers / Generators

Tenaga Nasional Berhad (“**TNB**”), Syarikat SESCO Berhad (“**SESCO**”)¹⁸, and Sabah Energy Corporation 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. SESCO was fully privatised whilst SESB is owned by both TNB and the state government of Sabah. In Peninsular Malaysia, Sarawak and Sabah, TNB, SESCO and SESB respectively dominate the electricity supply value chain, namely the electricity generation, transmission, distribution and retail sectors. The electricity generation sector in Peninsular Malaysia and Sabah were partially liberalised when licenses to build, operate and own power plants were issued to independent power producers in the early 1990s after the nationwide power blackout as a measure to overcome power outages and introduce competition in the power generation sector. However, the government has stated an intent to carry out structural reform of the market to add competition across the electricity supply value chain through the Malaysia Electricity Supply Industry 2.0 (“**MESI 2.0**”) but this initiative is currently subject to further review by the current new Perikatan government due to the potential hefty financial implication of implementing such initiative on the government.¹⁹

Policy Makers

Energy Division of the Economic Planning Unit, Prime Minister's Department (the “Energy Division”) aims, in general, to plan and develop the energy sector in Malaysia.²⁰

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 which is expected to be launched in the second half of 2021, 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. It was previously under the Ministry of Science, Technology, Environment & Climate Change which has been restructured after the new Perikatan Nasional Government came to power in February 2020. 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 20% 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 (the “EC”) is a statutory body established under the Energy Commission Act 2001 and is responsible for regulating the energy sector.

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 (the “**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.



14 Source: “Current perspective of the renewable energy development in Malaysia. *Renew. Sustain. Energy Rev*” (2011), Ahmad, S.; Kadir, M.Z.A.A.; Shafie, S., page 897–904.

15 Source: “SEDA Annual Report 2018”

16 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>

17 Source: “SEDA Annual Report 2018”

18 SESCO is a subsidiary of Sarawak Energy Berhad, an energy development company and a vertically integrated power utility in Sarawak

19 Source: “Putrajaya to review MESI 2.0 power sector reform”, *The Edge Markets*, 22 July 2020, at <https://www.theedgemarkets.com/article/govt-review-mesi-20-power-sector-reform>

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

Government incentives and tax breaks

Feed-in Tariff (“FiT”)

The FiT was introduced in 2011 by the Renewable Energy Act and was designed to increase electricity generation from renewable sources. The FiT system obliges entities licensed to distribute electricity (“**Distribution Licensees**”) to buy from certain companies/individuals²¹ who hold a feed-in approval certificate issued by SEDA, at a set FiT rate (fixed annually). The Distribution Licensees will 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 bills from consumers who utilise more than a set amount of electricity (300kWh). The collected fund is then used to pay for renewable energy generated through the FiT 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.²²

The FiT scheme applies to biogas, biomass, geothermal and small hydro. The FiT scheme used to apply to solar, however given the good uptake of solar projects by developers, solar projects are now being tendered out by the Energy Commission under the large scale solar scheme. Due to the maturity of solar technology, the costs have become increasingly competitive (eg solar PV panel prices have fallen 80% since 2009).²³

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. MYR 2bn has been allocated to the scheme until 2022 under the 2021 budget.²⁴ As at the date of writing, details of the latest GTFS 3.0 scheme have yet to be published. Under the previous GTFS 2.0, the fund under the scheme were used to finance investment for the production of green products, utilization of green technology and finance the investment or assets related to energy efficient project and/or energy performance contracting. The government will bear 2% of the total interest rate (limited to the first 7 years only) and guarantee 60% of the total debt financing amount via the Credit Guarantee Corporation Malaysia Berhad (with the remaining 40% of the total debt financing amount risk to be borne by participating financial institutions).

The scheme applies to financing amounts of up to MYR 100m for producers of green technology (\leq 15-year tenure), MYR 50m for users of green technology (\leq 10-year tenure), and MYR 25m for energy services companies (\leq 5-year

tenure). Applicants must be Malaysian-owned (\geq 51%) companies. Participating financial institutions include all commercial financial institutions, Islamic financial institutions and development financial institutions in Malaysia and the GTFS is limited to new/retrofitting/expansion projects and energy performance contracting that incorporate green technology elements in Malaysia that have not yet been funded.

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:

Investment Tax Allowance (“ITA”): The Malaysian government provides incentives in the form of an investment tax allowance for the purchase of green technology and green technology assets. The ITAs allow 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.²⁵ ITAs apply to:

Green Technology Projects (“GTPs”): These are projects related to renewable energy, energy efficiency, green buildings, green data centres and waste management. Note that projects which have been approved with FiT for solar by SEDA are not eligible for the ITA.

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

Income Tax Exemption (“ITE”) for Green Technology

Services (“GTSs”): There is an ITE of 70% of statutory income for 3 years starting from assessment year of the first invoice issued for qualifying GTSs relating to renewable energy, energy efficiency, electric vehicles, green buildings, green data centres, green certification and verification and green townships. There is also an ITE 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.²⁶



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

22 Source: “RM 325m 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>

23 According to the former Ministry of Energy, Science, Technology, Environment and Climate Change, Minister Yeo Bee Yin who was quoted in “Beginning 2019, no price difference between solar generation and consumption tariff”, reported by The Edge Markets, 22 October 2018, at <https://www.theedgemarkets.com/article/beginning-2019-no-price-difference-between-solar-generation-and-consumption-tariff>

24 Source: Ministry of Finance’s Budget 2021 parliamentary speech, at: <http://belanjawan2021.treasury.gov.my/pdf/speech/2021/bs21.pdf>

25 Source: “Guideline on Application for Incentive and/or Expatriate Posts for Green Technology”, at <https://mida.gov.my/wp-content/uploads/2020/11/GUIDELINES-Extension-of-Investment-Tax-Allowance.pdf>

26 Ibid.

Renewable Energy in Malaysia.

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, 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.

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 is 1000MW by 2020, with additional capacity capped annually at 200MW for Peninsular Malaysia and 50MW for Sabah/Labuan. The first round of bidding took place in 2016 with a tender for 250MW worth of LSS plants, which was followed in 2017 by the second round of bidding (with an aggregate capacity of 460MW). The third bidding round ended on 19 August 2019 with the following bidders being shortlisted by the EC to develop LSS Photovoltaic plants ("LSS3") which are scheduled for commercial operation in 2021: (i) ib vogt GmbH and Coara Solar Sdn. Bhd. (100MWac in Marang, Terengganu); (ii) Cypark Resources Berhad and Impian Bumiria Sdn. Bhd. (100MWac in Marang, Terengganu); (iii) JKH Renewables Sdn. Bhd. and Solarpack Asia Sdn. Bhd. (90.88MWac in Kuala Muda, Kedah); (iv) ENGIE Energie Services S.A. and TTL Energy Sdn. Bhd. (100MWac in Kerian, Perak); and (v) Konsortium Beseri Jaya Sdn. Bhd. and Hanwha Energy Corporation Singapore Ltd. (100MWac

in Pekan, Pahang).²⁷ The average offer prices in the third round bidding have dropped substantially with the lowest offer price submitted at MYR 0.17777/kWh as compared to MYR 0.3398/kWh being the lowest offer price submitted at the second round of bidding under category P3 (10.00MW to 30.00MW) in Peninsular Malaysia.²⁸

The fourth bidding round named LSS@MEnTARI was called by the government in 2020 offering a total capacity of 1,000MW for bidding.²⁹ 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 2022/2023.³⁰ 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' (i.e. 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 2020.³¹

27 Source: "Request For Proposal ("RFP") for the Development of Large Scale Solar Photovoltaic ("LSSPV") Plants in Peninsular Malaysia for Commercial Operation In 2021 - Announcement Of Shortlisted Bidders", Energy Commission, at <https://www.st.gov.my/contents/2019/LSS/Announcement%20of%20Shortlisted%20Bidder%20for%20the%20Development%20of%20Large%20Scale%20So....pdf>

28 Source: "Large Scale Solar Photovoltaic Plant", Energy Commission, at <https://www.st.gov.my/web/industry/details/2/3>

29 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>

30 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>

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



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NEM 3.0 with a total quota allocation of up to 500MW is to be in effect from 2021 to 2023 to provide more opportunities to electricity consumers to install solar PV systems on the roofs of their premises to save on electricity bills. The quota was open for bidding from February 2021 onwards.³²

Feasibility studies for Malaysian hydropower projects

In 2017, Multiconsult, a Norwegian engineering and design firm, was awarded contracts to perform feasibility studies for five hydropower projects in Malaysia. The proposed sites are on the Padas, Liwagu and Tuaran rivers in the northern part of Borneo. In July 2019, SESB announced that it had identified hydropower sites with 200MW to be potentially developed in the next 10 years.

The Eleventh Malaysia Plan (2016 – 2020)

The government of Malaysia publishes a blueprint for the allocation of the national budget for five-year periods at a time. The Eleventh Malaysian Plan is the latest plan to be published and covers the period from 2016 to 2020 and charts a shift towards green growth. Increasing the share of renewables in the energy sector forms a key part of this strategy.

Renewable energy capacity is expected to reach 2,080MW by 2020, contributing to 7.8% of total installed capacity in Peninsular Malaysia and Sabah.³³ Steps to achieve this include exploring new renewable energy sources such as wind, geothermal, and ocean energy, enhancing the capacity of personnel by providing training through SEDA and implementing net energy metering.

The Twelfth Malaysia Plan aims to accelerate the transition to green economy to support the sustainable development agenda and make Malaysia a low-carbon country. The tabling of the Twelfth Malaysia Plan was interrupted due to the proclamation of Emergency throughout Malaysia from 12 January to 1 August 2021 by His Majesty the Yang di-Pertuan Agong.

Although His Majesty the Yang di-Pertuan Agong has subsequently decreed on 24 February 2021 that Parliament could reconvene even during the Emergency period upon the advice by the Prime Minister, there was no specific timing scheduled for the reconvening of the Parliament and the tabling of the Twelfth Malaysia Plan to date.

Renewable Energy Transition Roadmap 2035 (the “Roadmap”)

The Roadmap is being developed (targeted to be tabled together with the Twelfth Malaysia Plan) to explore possible strategies and an action plan to realise the government’s target of 20% of electricity being generated by renewable sources

by 2025. The Roadmap will explore: (i) the cost, benefits and effectiveness of establishing a mandatory renewable energy certificates (“REC”) market; (ii) the possibility of a peer to peer energy trading platform where solar producers can sell their excess electricity to consumers who have rooftop constraints, thus enabling the possibility of a virtual net metering system; and (iii) the option to purchase 100% renewable energy from power utility companies.

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 sukuk³⁴ and local bank loans, the Green SRI Sukuk is a possible financing method.

It has the potential to channel the US\$2tn³⁵ 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 2018.³⁶

Major benefits of financing by Green SRI Sukuk 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 sukuk and bond 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 sukuk and bonds which meets the ASEAN Green, Social and Sustainability Bond Standards approved by the Securities Commission Malaysia until 2025.³⁷ 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.³⁸

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.



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

33 Source: “Eleventh Malaysia Plan 2016-2020”, Director General, Economic Planning Unit, Prime Minister Department, 21 May 2015, Part 6-17, 6-18, at <https://policy.asiapacificenergy.org/sites/default/files/11th%20Malaysia%20plan.pdf>

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

35 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>

36 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>

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

38 Source: Ministry of Finance’s Budget 2021 parliamentary speech at page 87, at <http://belanjawan2021.treasury.gov.my/pdf/bajet/ucapan/ub21.pdf>



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 standardize the land categorization 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.³⁹ 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.⁴⁰ 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.

The closing date for submission of proposal in response to the RFP is 4 June 2021, 3pm (Singapore time) with the result targeted to be announced by 29 October 2021.

If such 2 year trial is successful and proven to be viable, this will open up opportunities for the development of more renewable energy plants in Peninsular Malaysia for the purpose of renewable energy generation for export to Singapore.

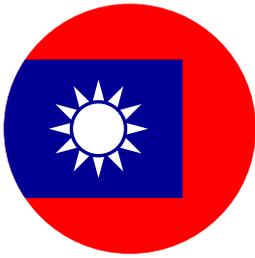
March 2021

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.

³⁹ Source: “EMA to Trial Electricity Imports”, EMA, 26 October 2020, at https://www.ema.gov.sg/media_release.aspx?news_sid=20201025mSZFbaqw5Sj7

⁴⁰ 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, a <https://www.ema.gov.sg/cmsmedia/Electricity/Imports/EMA-RFP-Electricity-Imports-20210305.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 introduction of feed-in tariffs, a model form of PPA, priority of despatch and other incentives.

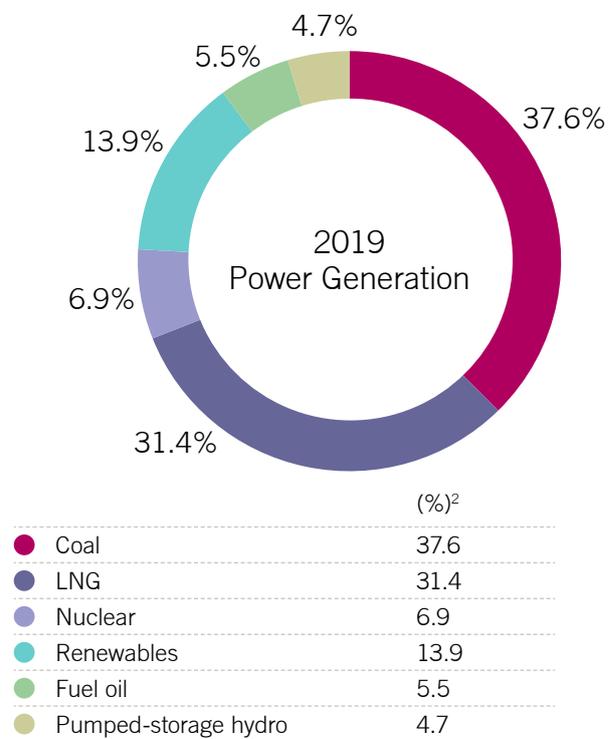
Taiwan’s geographical characteristics and relatively friendly investment environment also make it a particularly attractive target for inbound investment from foreign investors.

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 10GW of capacity to come on line between 2026 and 2035. To date, four offshore wind projects have been successfully project financed - the 128MW Formosa 1 project in 2018, Taiwan’s first utility-scale offshore wind farm, the 640MW Yunlin offshore wind farm and the 378MW Formosa 2 offshore wind farm in 2019, and the 600MW Changfang and Xidao projects in 2020 – and further 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 roles on all of the Taiwan offshore wind projects in the market.

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 supply chain issues.

Which sectors are active?

Taiwan’s gross energy production was 274,058.7GWh in 2019.¹ 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 2019 is as follows:



¹ Source: Energy Supply and Demand Situation of Taiwan in 2019 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) (2019) https://www.moeaboe.gov.tw/ecw/english/content/SubMenu.aspx?menu_id=1996



Renewable Energy in Taiwan.

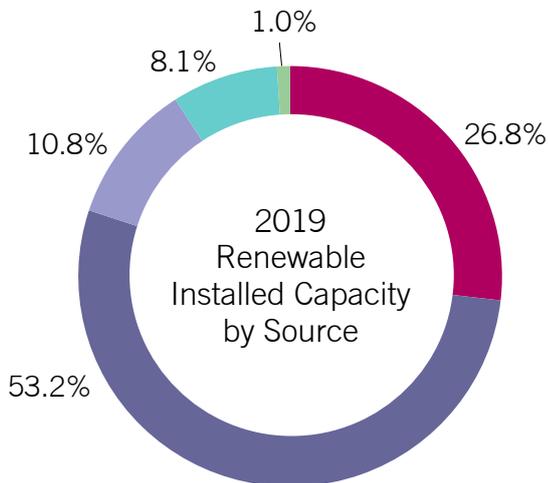
In 2016, the government announced that, by 2025, it would phase out nuclear power generation. To plug this energy gap, the government announced ambitious targets to increase the amount of electricity generated from renewable sources to 20% of the island's energy supply.³

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 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

The composition of Taiwan's renewable energy generation capacity as of [2019] is as follows:



	(%) ⁵
Conventional Hydro	26.8
Solar	53.2
Wind	10.8
Waste	8.1
Biomass	1.0

The government aims to achieve the increase in renewable generation, including through achieving 20GW of solar capacity by 2025 and 15.7GW of offshore wind capacity by 2035.

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 REDA was amended in May 2019 to include provisions that will amend the way in which subsidies for renewable energy electricity tariffs will be funded.

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.



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

⁴ Source: “Renewable Energy Week 2020” showcases the achievements in renewable energy and R&D innovations (MOEA news) https://www.moeaboe.gov.tw/ECW/english/news/News.aspx?kind=6&menu_id=958&news_id=17729

⁵ Source: Structure of Installed Capacity and Structure of Electricity Generation (by Fuel) (2019) https://www.moeaboe.gov.tw/ecw/english/content/SubMenu.aspx?menu_id=1996

Renewable Energy in Taiwan.

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 Ministry of Economic Affairs of Taiwan (“**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 power purchase agreement (“**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;
- > 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.

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.⁶ The MOEA’s energy-related functions are delegated to the Bureau of Energy (“**BOE**”).⁷
- > **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 administering electricity enterprises and the electricity market, approving applications for the set-up of electricity enterprises, predicting and planning power supply and demand, supervising and administering 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 [page 49](#));
- > 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 48](#)). 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.



⁶ Source: Article 3 of the EB Act

⁷ Source: Act on the Organization of the Bureau of Energy (經濟部能源局組織條例 - 中華民國093年01月20日)

Renewable Energy in Taiwan.

Feed-in tariffs

Feed-in tariffs (“FiTs”) for wind, solar, hydropower, biomass and waste 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 2021 is set out below.⁸

Type of Renewable Energy	FiT (NTD / kWh)
Onshore wind	2.2721 to 2.3041 (depending on capacity)
Offshore wind	4.6568 for 20 years (or 5.3064 for the first period of 10 years and 3.5206 for the second period of 10 years)
Solar photovoltaic	3.7994 to 5.6707 for First Phase FiT (depending on technology, capacity and location)
	3.7236 to 5.6281 for Second Phase FiT (depending on technology, capacity and location)
Run-of-the-river Hydroelectricity	2.8599
Geothermal Energy	5.1956 (or 6.1710 for the first period of 10 years and 3.5685 for the second period of 10 years)
Biomass Energy	2.6884 to 5.1176 (depending on technology)
Waste	3.9482

*Tiered production caps apply such that the FiT will reduce to 75% of the applicable rate for generation from 4,200 annual full load hours and less than 4,500 annual full load hours, and to 50% of the applicable rate for generation of 4,500 or more annual full load hours.

Funding of the FiT

The ‘RED Fund’ was established 2009 to support renewable power generation, including by subsidising renewable energy tariffs. This is funded by conventional power producers, government treasury contributions and other sources. However, the primary obligation for payment of the FiT sits with Taipower. There is no government guarantee or backstop for Taipower’s payment obligations.

Amendments to the REDA in May 2019 introduced changes which provided that conventional power producers are no longer required to contribute to the RED Fund and Taipower will instead be allowed to pass on the cost of renewable energy to end-users.

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

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 2017.⁹

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.

⁸ Source: https://www.moeaboe.gov.tw/ECW/populace/news/News.aspx?kind=1&menu_id=41&news_id=18752

⁹ 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.



Renewable Energy in Taiwan.

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. A full list of the projects that were allocated capacity in the selection process and the bidding process can be found on the MOEA website.¹⁰

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).

Upcoming capacity allocation

The MOEA released draft rules in June 2020 for the allocation of a further 10GW of capacity, or 1GW of capacity per year, from 2026 to 2035. The final allocation rules were originally expected to be released at end 2020 but have since been delayed and remain under development at the time of writing.

Unlike previous rounds, sites for the upcoming allocation round are selected by developers, rather than picking from options designated by Government.

It is expected that this will be 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 and financial capabilities, (ii) local content commitment, and (iii) other areas.
- > **Pricing Stage:** where bids are selected based on price.

Grid Contract

All 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.

Offshore wind PPA

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 Industrial Development Bureau (“**IDB**”) – breaches by the generator will trigger penalties under the Grid Contract;
- > localisation commitments included in bid documents becoming binding on a project; and
- > regulations requiring the prioritisation of Taiwan vessels for offshore wind projects.

Projects are also required to make contributions (based on electricity generated) to a ‘Power 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.

¹⁰ Projects awarded capacity through the selection process were listed at: https://www.moeaboe.gov.tw/ECW/populace/news/News.aspx?kind=1&menu_id=41&news_id=15003

Projects awarded capacity through the bidding process are listed at: https://www.moeaboe.gov.tw/ECW/populace/news/News.aspx?kind=1&menu_id=41&news_id=15061



Hot topics – solar power

The government intends to achieve 20GW of solar PV installed capacity by 2025 through the development of both rooftop and ground-mounted systems, which are expected to respectively account for 3GW and 17GW.¹¹ There have also been examples of floating solar technology uses.

With the completion of the Solar PV Two-year Promotion Plan, Taiwan installed 1.7GW of solar power capacity between July 2016 and December 2018, 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; and
- > enhancing the distribution and transmission infrastructure for solar energy hotspots.

April 2021

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.



¹¹ Source: "Solar PV Two-Year Promotion Project", major policies report by Executive Yuan <https://www.ey.gov.tw/Goals/E8BA2FC96898A19>

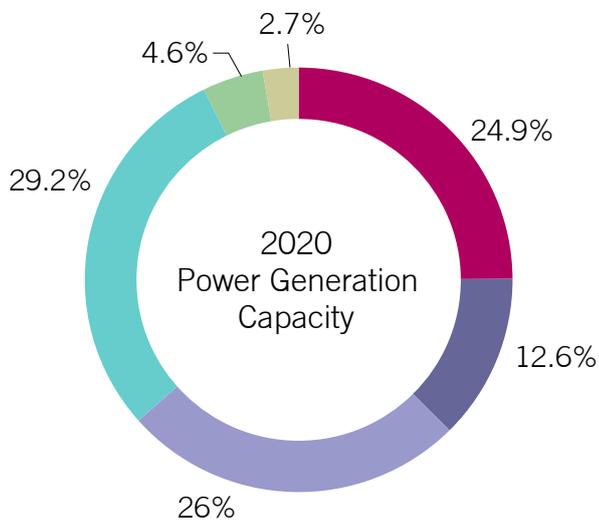
¹² Source: "Promotion of Solar Energy", major policies report by Executive Yuan, 29 October 2019, <https://english.ey.gov.tw/News/3/9E5540D592A5F5CD/777fcee7-90db-4b72-9927-573eef9ea9e> (Chinese version: <https://www.ey.gov.tw/Page/5A8A0CB5B41DA11E/4413b416-5f1e-419b-9a39-5a02c8a3ba8c>)

Renewable Energy in Thailand.



Which sectors are active?

As of October 2020, Thailand's existing generation capacity was 55,360.2MW, with a total generating capacity of renewable projects of 11,972.65MW (21.63% of Thailand's total power generating capacity). The country's renewable power generation capacity composition, as of October 2020, was as follows:



	(%)
Solar	24.9
Wind	12.6
Hydro	26
Biomass	29.2
Biogas	4.6
Waste	2.7

Source: Energy Development and Efficiency, the Ministry of Energy



Renewable Energy in Thailand.

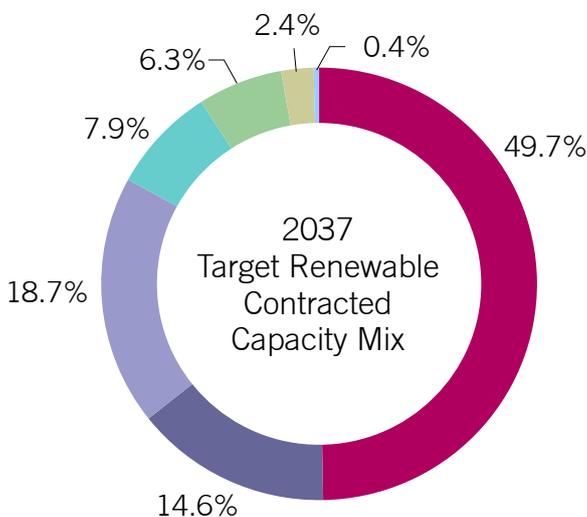
Renewable Energy Generation Plan

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 20,766MW or 37%.

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.

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



	(%)
● Solar	49.7
● Hydro-floating solar hybrid	14.6
● Biomass	18.7
● Wind	7.9
● Biogas (waste water/ waste/ energy crop)	6.3
● Waste (municipal / industrial)	2.4
● Small hydro	0.4

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 NEPC (as defined on [page 53](#)) 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, i.e. 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.



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;
- > 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
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 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

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 will develop a 2,725MW hydro floating solar project across nine dams in Thailand and opened an international bidding process for the first project (i.e. a 45MW floating solar project at Sirindhorn dam in Ubon Ratchathani) in June 2019.

Bidding on this project closed on 20 August 2019, with the announcement of the successful bidder in November 2019. The commercial operation date (“**COD**”) of this project was originally scheduled for operation in December 2020 but has been postponed to June 2021 due to the pandemic. As of January 2021, around 82% of this project has been completed.

EGAT is now working on the terms of reference for the second project, a floating solar project with generating capacity of 24MW at Ubolratana dam in Khon Kaen, which is expected to be ready in 2021. The project is expected to be opened for bidding in 2021. Bidding plans must be proposed to the Ministry of Energy before they are presented to the Cabinet for approval. The COD for the project is scheduled to be 2023.

Community-based power plant

On 4 December 2019, the NEPC approved the framework of the community-based power plant project. The main responsible authority for bidding of this project is the Department of Alternative Energy Development and Efficiency.

The community-based power plant project will apply a FiT scheme for purchase of 700MW electricity from a non-firm VSPP power plant formed as a joint investment between (i) the project owner (i.e. private operator and government authority) of 60-90% shareholding and (ii) community enterprise (set up with members of at least 200 households) of 10-40% preference shareholding. The community enterprise will share the gross revenue with the community fund in the developing local area in which the power plant is located. The project commenced between March and April 2020. The applicable FiT rate will be around THB 2.9 – 5.4 per unit. The additional FiT premium of THB 0.5 per unit will be obtained in special areas being Yala, Pattani Province, Narathiwat Province and four districts of Songkhla Province. The sources of energy are agricultural waste used for biomass and biogas and the installation of solar panels.

The project is divided into two phases being “Quick Win” project (not more than 100MW for the power plants of which the construction has been completed or almost completed) with commercial operation within year 2020 and general project with commercial operation starting from 2021 onwards.

In late 2020, the NEPC has approved the purchase of electricity from the community-based power plant project with total capacity of 150MW. The bidders can submit bidding application from 19 to 23 April 2021. The result is scheduled to be announced around mid-July 2021. The capacity of 150MW consists of 75MW of power produced from biomass and the other 75MW from biogas (generated from energy crop combined with up to 25% of waste or waste-water). The capacity per project is capped at 6MW for project using biomass and 3MW for project using biogas. The COD is within 36 months from the execution date of PPA with a term of 20 years. The FiT rate under this scheme for biomass project will be THB 4.26/unit and 4.48/unit for project with capacity over 3MW and below 3MW, respectively. The FiT rate for biogas project is THB 4.72/unit.

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.



Renewable Energy in Thailand.

A public hearing of the drafted plan will be held in March 2021 and a preliminary strategy will be drawn up in April 2021. The plan is expected to be proposed to the NEPC for approval in June 2021. Once approved, the plan will be the scope for the action plan for a period of 10 – 15 years in relation to electricity, oil, natural gas, alternative energy and energy conservation. The plan will also provide flexibility to allow the Ministry of Energy to adjust to reflect the dynamic of economic and technology development.

SPP hybrid firm bidding process

On 17 February 2017, the NEPC approved a competitive bidding process for the generation of 300MW of electricity capacity by renewable SPPs (i.e. a power producer with a capacity of more than 10MW but not exceeding 50MW). The process has been led by the ERC. The capacity has been allocated to different geographical areas in Thailand eg Bangkok, central, west, east, south (excluding Phuket and Samui Island), northeastern, Phuket and Samui Island. The source of energy can be one type of renewables or more (proportion is not restricted), but fossil fuels must not be used. The project will be under the “firm” PPA (i.e. generating capacity at 100% during peak period and not more than 65% during the off-peak period) with the feed-in tariff rate at THB 3.66 for the supporting period of 20 years. The scheduled COD will be prior to 31 December 2021. The application period was between 16-20 October 2017 and the list of awarded bidders was announced on 14 December 2017.

The Committee on Energy Policy Administration (“CEPA”) has approved to postpone the scheduled COD to 2023 to accommodate the business operators suffering from the delay of environmental impact assessment process.

Solar Plant Venture with the Royal Thai Army

On 28 January 2021, EGAT has signed a memorandum of understanding with the Royal Thai Army to conduct a joint feasibility study on the construction of a solar farm on military land of 300,000 rai in Kanchanaburi province. The total capacity of the project is anticipated to be 30,000MW which covers all demands of the whole country during peak period. However, the first phase will only cover an area of 3,000 rai and portfolio of solar farms with the total capacity of 300MW.

Given the size of the project, a partnership with private sector would be required. The feasibility study will provide details of the solar power business model and its long-term direction as well as information regarding the partnership and benefit-sharing issues.

Waste-to-energy project

In November 2020, the NEPC plans to invite investors to develop new municipal waste-to-energy projects to reach the target of 400MW in 2021 with the COD within year 2023 pursuant to the PDP 2018 Rev. 1 and the AEDP 2018. Currently, there have been waste-to-energy plants which are already granted licences having combined capacity of around 300MW.

The NEPC also plans to purchase electricity from industrial waste-to-energy project with the total capacity of 44MW.

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 promotion, 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.

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%.

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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.





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 2019, 2020 and the start of 2021 have continued to witness significant developments for renewables. The interest gradually shifted from solar to wind power for the most part of 2020 before solar started to attract attention again in late 2020 and early 2021. On the regulatory front, after issuing the long-awaited regulatory framework for solar power, the Government remains busy dealing with other issues including master planning, transmission infrastructure and wind power.

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 gradually, but 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 will account for 15% to 20% of the total capacity of all primary sources by 2030 and 25% to 30% by 2045.¹

In order to meet these targets, the Government has rolled out a series of regulations aimed at clarifying the legal framework and incentives for the development of renewable energy projects. These policy developments, combined with an overall decline in global manufacturing costs for the technology necessary to leverage renewable energy sources, have generated a wave of investment in recent years.

In terms of approved capacity, it is reported that as at the end of December 2020 a total of approximately 13GW of solar capacity and 11.8GW of wind capacity had been approved for inclusion in the master plans. Out of the total approved capacity, approximately 9GW of solar capacity and 0.6GW of wind capacity have already achieved commercial operation, respectively.

Foreign 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.

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 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 is unlikely that domestic Vietnamese banks alone will be able to provide sufficient funds to finance projects to meet the Government targets. However, international financiers are facing 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 a project's viability and bankability, including:

- > the tariff levels (see "Feed-in Tariff" on [page 58](#));
- > 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 "EVN and Government guarantees and incentives" on [page 59](#));
- > the form of the statutorily mandated power purchase agreements, which contain some core, non-negotiable terms that allocate significant risk to investors (see "Power purchase agreement" on [page 59](#)); and
- > the 2021 deadline to secure the premium feed-in tariff for wind projects, and uncertainties surrounding new policies for solar projects after 31 December 2020 (see "Feed-in Tariff" on [page 58](#) and "Hot topics" on [page 60](#)).

¹ Resolution 55-NQ/TW dated 11 February 2020 of the Political Bureau and Resolution 140/NQ-CP dated 2 October 2020 of the Government



Renewable Energy in Vietnam.

Sale of electricity

Currently, EVN and its subsidiaries have the monopoly over the transmission and distribution of electricity in Vietnam, and act as the only wholesale purchasers of electricity from generators. The Government has set out its vision for a competitive power market, which is slated to undergo full implementation at the wholesale level by 2021 and at the retail level by 2023.

The current regulations provide that EVN will be the sole buyer responsible for purchasing all power generated from renewable sources. However, the Ministry of Industry and Trade (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 60](#)).

Electricity Vietnam

Market observers have expressed concerns about EVN's creditworthiness, 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 stable outlook by Fitch for the last three years. This is consistent with Vietnam's sovereign rating of 'BB'.

Feed-in Tariff

EVN is currently required to purchase the power generated by renewable energy projects at the feed-in tariff set by law (“**FiT**”) set out as follows:

Solar FiT1 ^(a)	9.35 US cents/kWh
Solar FiT2 ^(b)	Ground mounted: 7.09 US cents/kWh
	Floating: 7.69 US cents/kWh
	Rooftop: 8.38 US cents/kWh
Wind FiT ^(c)	Offshore: 9.8 US cents/kWh
	Onshore: 8.5 US cents/kWh
Biomass FiT ^(d)	Combined heat and power: 7.03 US cents/kWh
	Others: 8.47 US cents/kWh
Solid Domestic Waste FiT ^(e)	Waste incineration: 10.05 US cents/kWh
	Combustion of landfill gas: 7.28 US cents/kWh

- (a) Solar power projects achieving commercial operation date (“**COD**”) (i) on or before 1 January 2021 in Ninh Thuan province and within a 2GW capacity pool only, or (ii) before 30 June 2019 in other provinces.
- (b) Grid connected solar power projects which have been issued investment policy decisions before 23 November 2019 and achieve COD from 1 July 2019 to 31 December 2020 (except for Solar FiT1 projects in Ninh Thuan as mentioned above); and rooftop solar projects selling power to EVN and commencing operation and settling meter reading from 1 July 2019 to 31 December 2020.
- (c) Wind power projects already in operation before 10 September 2018 or new wind projects achieving COD before 1 November 2021. The Government is in the process of considering proposals for a further extension of this Wind FiT (see potential FiT extension for wind power in "Hot topics" on [page 60](#)).
- (d) and (e) All biomass and solid domestic waste projects respectively. The COD is the day on which a part or the entire grid-connected solar power plant is ready to sell power to the power purchaser and satisfies the following conditions: (i) initial testing has been completed for a part or the entire grid-connected solar power plant and interconnection facilities, (ii) the plant has a power operation licence in the power generation sector, and (iii) the seller and the purchaser have settled the meter reading to commence payment.



Competitive bidding

The Government is considering the adoption of competitive bidding models for new solar and wind power projects which are not eligible to enjoy the above FiTs (see "Competitive bidding" on [page 61](#)).

The FiT is denominated in Vietnamese dong (and electricity purchased by EVN will be paid for in Vietnamese dong) and 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 applied for 20 years. Neither the law nor the template power purchase agreements contain any adjustment mechanism for inflation or rising production costs, meaning there is no guarantee of a FiT increase during the investment term (other than as adjusted for foreign exchange).

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. 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 in Hot topics" on [page 61](#));
- > 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.

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.

(a) Counting from the first year of generating taxable income or from the fourth project year, whichever comes first; new projects only.

(b) Counting from the first year of generating income; new projects only. Normal, non-preferred, tax rate is 20%.

(c) Newly provided under the new Law on Investment 2020 with effect from 1 January 2021. This awaits further detailed guidance for implementation.



Hot topics

Resolution 55 and National Power Development Master Plan

Resolution 55-NQ/TW issued by the Political Bureau (“**Resolution 55**”) has been the highlight of 2020 in terms of Government policy in relation to renewables, providing strategic guidance on the development of power sector, including renewables, in Vietnam towards 2030 with a view to 2045. Since then, the Government has issued Resolution 140/NQ-CP setting out a detailed action plan to implement Resolution 55. Generally, these documents emphasise the role of renewables in this coming period to replace as much as possible fossil fuel energy, with priority given to solar and wind power. In addition, they also discuss the development of a Law on Renewable Energy and development of a number of renewable hubs in certain regions with renewable development incentives to order to promote development in these hubs.

Separately, the Government is working on the draft national power development plan for the period from 2021 to 2030 with a view to 2045 (“**PDP VIII**”) 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; and
- > to limit development of coal-fired power plants after 2030.

According to public sources, 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 a draft of PDP VIII for consultation and is in the process of finalising it for submission to the Prime Minister.

Solar power developments

New PPA template for grid-connected solar power

In July 2020, the MOIT issued a new template solar PPA to formalise the new FiT applicable to solar power projects (see “Feed-in Tariff” on [page 58](#)). Although adopting some changes (including a more favourable compensation provision in case the seller terminates the PPA following a breach by the purchaser), the new template basically maintains the key terms and conditions in the previous template and generally adopts a more buyer (ie. EVN)-friendly position than the previous one.

Potential new pilot scheme for solar power

As a transition from a fixed FiT to bidding mechanism, the MOIT is proposing a pilot scheme applicable to solar power projects which have been approved for inclusion in the master plan but are not eligible to enjoy the solar FiT2. Accordingly, investors may propose the tariff to be applied to their project subject to a cap which is currently proposed by the MOIT to be the FiT2. Once approved, the successful bidders will enjoy the proposed tariff for 20 years. This scheme is projected to apply until June 2021. It is suggested that the total capacity selected for the pilot scheme until June 2021 will be a maximum of 60% of the total capacity applying for the scheme. The proposed timeline for project selection is between November 2020 and May 2021 with the selected projects required to complete all necessary procedures by 30 June 2022.

New developments for rooftop solar

Rooftop solar projects are now allowed to sell all or part of the generated power to EVN or directly to other purchasers who are not connected to EVN's grid. A rooftop solar system is defined to comprise solar panels installed on the rooftop of a construction work and has a capacity of no more than 1MW, connected directly or indirectly to EVN's transmission line from 35kV and below. If the purchaser is EVN or its delegated entities, eligible generators can enjoy a statutory FiT and must sign a PPA following the template PPA. Otherwise, the tariff and the PPA will be agreed by the seller and purchaser in accordance with applicable Vietnamese law.

Potential FiT extension for wind power

Currently, the MOIT is proposing to extend the wind FiT scheme for an additional two years to the end of December 2023. The underlying reasons include the need to ensure sufficient electricity supply due to the delay of thermal power plants coming into operation, uncertainties and difficulties in the regulatory mechanism applicable to wind power as well as the impact of COVID-19 on supply of wind power equipment and construction schedule. This proposal is still subject to approval of the Prime Minister. In the meantime, after obtaining the Prime Minister's approval for adding 7GW more (91 projects) into the master plan and proposing to add a further 6.4GW (74 projects), the MOIT has decided to cease evaluating any other wind power projects proposed to be included in the current master plan, pending the submission of the draft PDP VIII.

Specifically regarding offshore wind power, in line with the policies in Resolution 55, the MOIT has been working with the World Bank and the Danish Energy Agency to study and develop a roadmap and potential areas for offshore wind power. The outcomes of such study will be integrated into the PDP VIII. In addition, the Government has recently issued a new decree to replace Decree 51 on sea area allocation with effect from end of March 2021 under which the authority to grant offshore site survey rights lies with the Prime Minister, the Minister of Natural Resources and Environment or the local People's Committees, depending on a range of factors such as the relevant authority to issue an investment policy decision for the project (if required), the location of the sea area, and whether the sea area subject to the survey is proposed by a foreign investor or a foreign-invested enterprise.



Direct PPA

In January 2020, the MOIT put forward a proposal for a pilot program permitting direct PPAs between private renewable power generators and corporate customers to the Prime Minister for approval. The program was proposed for implementation from 2020 to 30 June 2022. 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 currently plans to complete the relevant legal framework (including the wholesale electricity market operation regulations) to implement this programme by the end of 2021.

Curtailment risk and private investment in transmission

The surge of 4GW of solar capacity connected to the national grid in 2019, the size of which was not foreseen, and the concentration of new projects in a few provinces, created enormous pressure on the power 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).

Resolution 55 discusses development of a mechanism to attract non-State capital for investment in construction of the national power transmission system. During the past year, there have been indications that the Government is considering engaging private investors to assist with power transmission investments. 2020 also witnessed the completion of the first ever privately built transmission project in Vietnam within the framework of a project comprising of a 450MW solar plant and a transmission system invested by Trung Nam Construction Investment JSC. While this sets a positive example in the market, the possibility of private investment in this area appears to be limited. 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 due to the reduced demand for power during the prolonged Covid-time in Vietnam.

Competitive bidding

At the request of the Prime Minister, the MOIT has been collaborating with other ministries to develop comprehensive competitive bidding mechanisms to apply to solar and wind power. There are two options which have been proposed so far for competitive bidding, depending on the project capacity:

- > bidding by substation will apply to solar power projects having capacity from 10MW to 100MW. Potential investors will propose projects (and applicable tariffs to such projects) to be connected to the substations and transmission lines within the list issued by the MOIT and based on the information on areas having solar potential in the national power master plan. Bidding proposals with the best tariff which will be subject to a cap will be selected until the load capacity of such substation is full.
- > bidding by project will apply to solar power projects having capacity above 100MW. Potential investors will bid on a specific project location as announced by the authority including the project name, location, coordinates, capacity and grid connection plan. EVN and the relevant People's Committee will be in charge of site preparation, transmission line direction, grid connection infrastructure, and infrastructure to access the site. Due to the involvement required from the State, it is projected that this will apply to large floating solar projects to save the costs required from the State budget at the local level for site preparation.

It is planned that based on the analysis of the impact and outcomes of the new pilot scheme for solar power mentioned above, the MOIT will complete the competitive bidding mechanisms to be applicable to renewable energy as well as the implementation roadmap to propose to the Prime Minister for application nation-wide.

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Renewable Energy in Philippines.



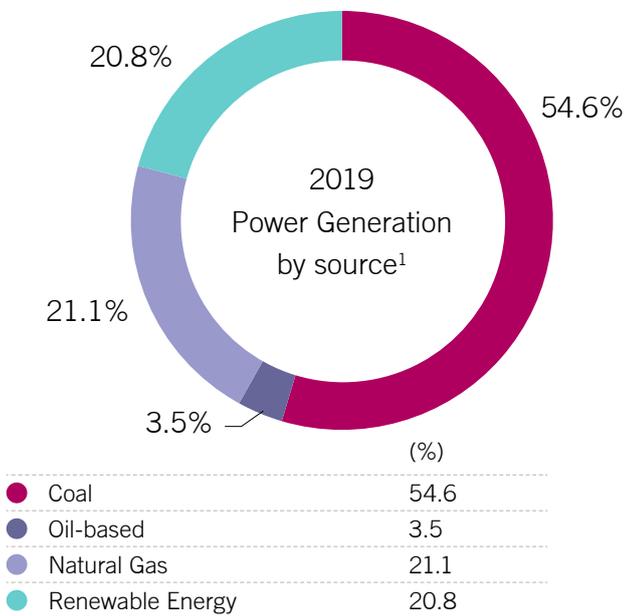
The Philippines, like many countries in the region, is tackling the challenge of increasing power demands due to a growing population, economic growth fuelled in part by a recent infrastructure boom, and depleting local sources of conventional fuels. It relies on imports for a significant portion of 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.



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

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 contains a roadmap that provides for a 15.3GW capacity target to be reached by 2030. This general capacity target is split across the various sectors as follows:⁴



In January 2021, the DOE (as defined [on page 63](#)) launched the third Open and Competitive Selection Process ("OCSP3") for renewable energy projects, comprising 22 pre-determined areas covering 17 potential hydro projects and five geothermal projects with total potential capacity of about 150MW,⁵ with bidding held in February 2021.⁶

1 Source: "2019 Power Statistics as at 31 December 2019, Summary", released 8 May 2020, published by the DOE at https://www.doe.gov.ph/sites/default/files/pdf/energy_statistics/2019_power_statistic_01_summary.pdf.

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>.

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: "National Renewable Energy Program, Executive Summary", published by the DOE at <https://www.doe.gov.ph/national-renewable-energy-program>.

5 Source: "DOE Launches 3rd Open and Competitive Selection Process for Renewable Energy Projects" press release by the DOE, 7 January 2021 at <https://www.doe.gov.ph/press-releases/doe-launches-3rd-open-and-competitive-selection-process-renewable-energy-projects>.

6 Source: "DOE Opens Bid Applications for Renewable Energy Projects under OCSP3" press release by the DOE, 16 February 2021 at <https://www.doe.gov.ph/press-releases/doe-opens-bid-applications-renewable-energy-projects-under-ocsp3>.



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 Electricity 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 (“NCGP”)**, **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 NCGP, 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.

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 2019.⁷ 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. PSALM still owns some generating assets,⁸ including the Malaya thermal power plant which is currently being tendered out to private investors.⁹



7 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.

8 Source: “Remaining Power Assets - Remaining Owned Power Plants (as of 30 December 2020) - Generating Assets - Indicative Privatisation Schedule for Generation Assets”, PSALM at <https://www.psal.gov.ph/rpa/rop>.

9 Source: “Privatisation Update: Invitation to Bid”, PSALM at <https://www.psal.gov.ph/privatization/invitationtobid>.

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”, i.e. automatic reduction after a period of time (determined by the ERC) has passed after a tariff has been adopted.¹⁰ 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.¹¹ The completion of an installation target may also trigger the review of the relevant feed-in tariff.

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 2020:¹²

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.¹³

The proposed 12th Regular Foreign Investment Negative List is also expected to be presented to the President in the second half of 2021.¹⁴



¹⁰ Source: ERC Resolution 16 of 2010, section 2.11.

¹¹ Source: ERC Resolution 16 of 2010, section 2.10.

¹² 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.

¹³ Source: Republic of the Philippines, House of Representatives, Committee Report no. 735 at https://www.congress.gov.ph/legisdocs/first_18/CR00735.pdf.

¹⁴ Source: “NEDA to complete draft negative list by second half”, Business World, 19 January 2021 at <https://www.bworldonline.com/neda-to-complete-draft-negative-list-by-second-half/>.

Other topical issues

Various policy and regulatory mechanisms under the Renewable Energy Act are expected to be 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%.¹⁵

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 are expected to commence in June 2021. Trading of RECs will form part of mandated participants’ compliance with the RPS policy.

Green Energy Auctions

The ERC is currently firming up the pricing formula for the tariff ceiling for the 2,000MW renewable energy capacity auction targeted for June 2021 under the Green Energy Auction Program to be held annually. Guidelines for this auction program were issued by the DOE in July 2020.¹⁶ The Guidelines set out the auction 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.

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

Energy Virtual One-Stop Shop

It is also worth noting that the DOE indicated in January 2021 that the interface of the electronic platform for permitting of energy projects under the Energy Virtual One-Stop Shop is targeted for completion this year which is expected to streamline and facilitate tracking of permitting processes of power generation, transmission and distribution projects.¹⁹

March 2021

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.



¹⁵ Source: RPS On-Grid Rules (Circular No. DC2017-12-0015), section 8; RPS Off-Grid Rules (Circular No. DC2018-08-0024).

¹⁶ 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>.

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>.

¹⁹ Source: “Interface of IT platform for energy projects’ permitting targeted this year”, Manila Bulletin, 15 January 2021 at <https://mb.com.ph/2021/01/15/interface-of-it-platform-for-energy-projects-permitting-targeted-this-year/>.

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