

POWERING FORWARD: THE PHILIPPINES FULLY OPENS ITS RENEWABLE ENERGY SECTOR TO FOREIGN INVESTMENTS

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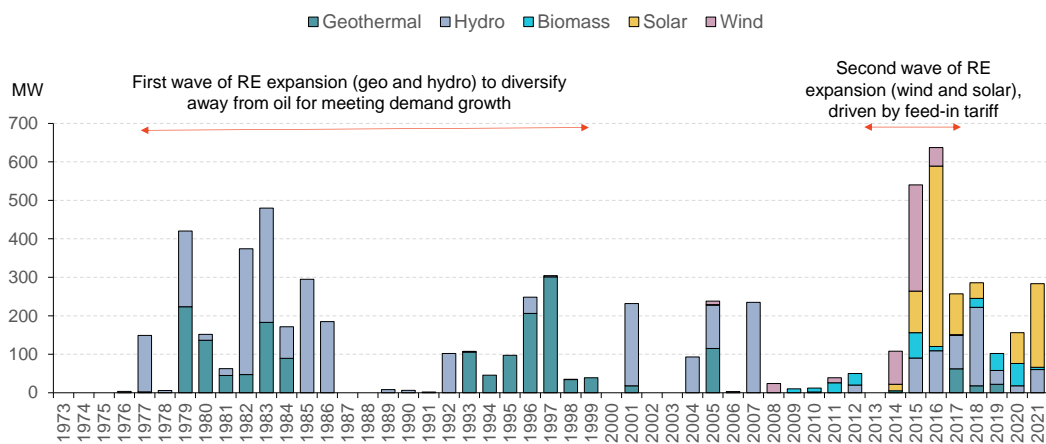
WaterRock Energy Economics

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HISTORY OF RENEWABLE INVESTMENT IN THE PHILIPPINES

The Philippines has abundant geothermal, hydro, solar and wind resources, and it is one of Asia's early adopters and success stories for renewable energy. It has two waves of renewable capacity expansion in the past: the first wave was the large geothermal and hydro capacity expansion in 1975-2000 and the second wave was the feed-in tariff wind and solar capacity expansion in 2014-2016.

Figure 1: Annual Renewable Capacity Addition in 1973-2021



Source: DOE, WaterRock Energy Research

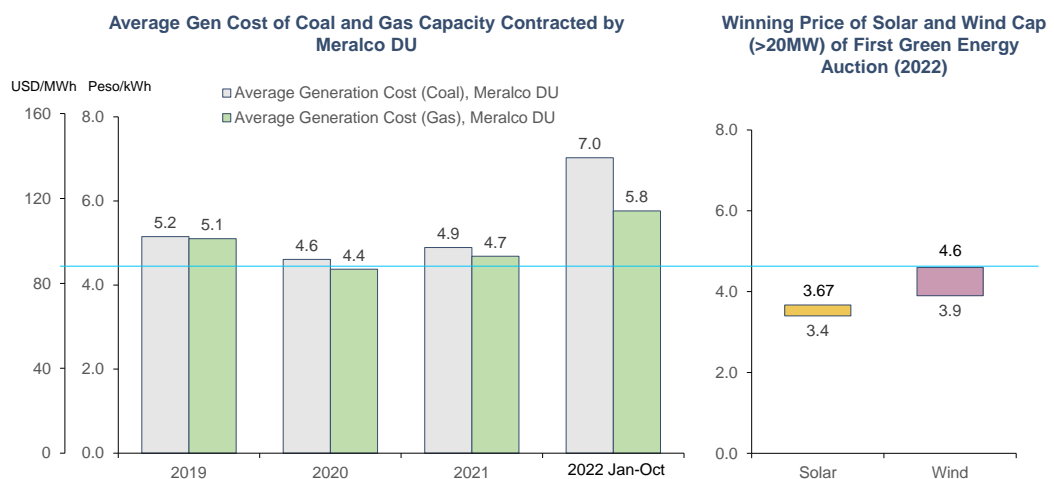
The second major global oil shock in 1979 caused spike in oil prices, leading many countries to evaluate their dependency on oil-fired generation. **In 1975-2000, similar to other Asian countries, the Philippines decided to move away from oil and diversify its energy mix by tapping into its local resources of geothermal and hydro to meet its rapid demand growth.** The bulk of the existing 1.8 GW of geothermal and 3.6 GW hydro capacity were built in 1975-2000.

As the easily exploitable geothermal and hydro resources were tapped in the 1975-2000, the renewable capacity expansion slowed down materially until early 2010s. **Driven by the declining technological cost of building wind and solar capacity and the supportive mechanism of first-come first serve Feed-in-Tariff (FIT) regime for solar and wind, 740 MW of solar and 430 MW of wind were added in a short span of time in 2014-2016.** After the quota for FIT solar and wind were filled in 2016, renewable capacity expansion has slowed down again.

In the past 2-3 years, grid-parity solar and wind capacity expansion has picked up materially in some Asian countries. **Is the Philippines poised to have the third wave of renewable capacity expansion in the coming years?**

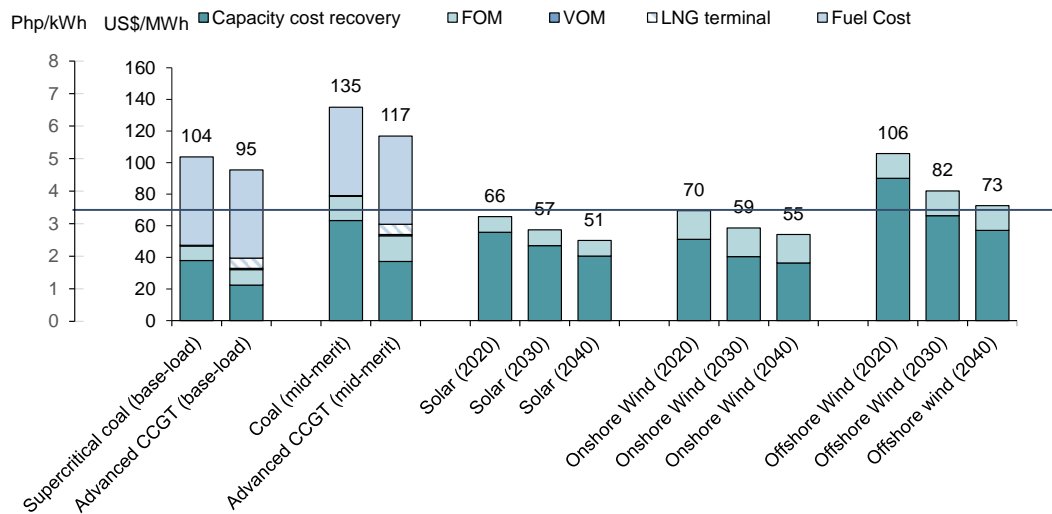
Simply based on total cost of power supply, solar and wind projects are competitive against coal and gas projects based on actual contractual and auction data (Figure 2). Based on our internal detailed evaluation of levelized cost of energy (LCOE) for coal, gas, solar and wind in the medium- and long-term, the same conclusion can be made. As the solar and wind penetration increases, battery energy storage capacity will need to be built. The increasing price differential between solar and thermal capacity can justify the expansion of solar and wind capacity bundling with 10-25% of 1–4-hour duration battery energy storage capacity.

Figure 2: Comparison of Total Cost of Thermal vs Solar and Wind



Source: Meralco Archive Rates, DOE, WaterRock Energy Research

Figure 3: Total Levelized Cost of Energy for New Coal, Gas, Solar and Wind



Note: Brent price is assumed to be USD 80/barrel and delivered LNG price to the LNG terminal is USD 9.6/MMBtu. LNG terminal fee is USD 1/MMBtu. Newcastle FOB coal price is USD 130/tonne, and delivered coal price to the power plant is USD 6.1/MMBtu. CAPEX of coal is assumed to be USD 2000/kW and CAPEX of gas is assumed to be 1300/kW. For base-load application, capacity factor is assumed to be 75% for coal and gas capacity; for mid-merit application, capacity factor of gas is assumed to be 45%. Average capacity factor of solar is assumed to be 17%, onshore wind 31% and offshore wind 40%. Post-tax real-term WACC is assumed to be 7.7%. Cost of equity is 13.8%, pre-tax cost of debt is 7.2%, gearing rate is 45%.

Source: WaterRock Energy Research and Analysis

As solar and wind capacities are economical to be built, their expansion should be much faster than what we have seen in the past 5 years. **The relatively slow expansion of solar and wind capacity is due to multiple barriers; and the existing 40:60 rule, which cap the foreign equity share for wind and solar at 40%, is one of the key barriers for foreign investment in the solar and wind sectors in the Philippines.**

REMOVING THE 40% FOREIGN EQUITY LIMIT FOR SOLAR AND WIND INVESTMENTS

On 15 November 2022, the Department of Energy issued Department Circular DC 2022-11-0034 which amended the Implementing Rules and Regulations (IRR) of the Renewable Energy Act of 2008. **The circular effectively lifts the foreign ownership limitations in the exploitation, development, and utilization (EDU) of renewable energy resources in the Philippines.** The lifting of the foreign equity limit will likely help to attract more foreign investors for solar and wind capacity expansions in the Philippines.

Furthermore, the Philippines has liberalized laws relating to foreign investments, such as the amended Foreign Investments Act of 2022, which allows, for the first time, international investors to set up and fully own domestic enterprises. Meanwhile, the Board of Investments (BOI) has been active in promoting the Corporate Recovery and Tax Incentives for Enterprises Act (CREATE) Law of 2020. CREATE has added incentives in the form of enhanced deductions for power generation, storage, and energy efficiency projects.

ENERGY TECHNOCRATS LEADING THE WAY

The newly appointed energy secretary, Raphael Lotilla, led the DOE during the administration of Gloria Macapagal Arroyo from 2005 to 2007. He was instrumental in the passage of the Electric Power Industry Reform Act of 2001 (EPIRA) as a legislative adviser before becoming the energy secretary. He was also the deputy director general of the National Economic Development Authority (NEDA) where he pushed measures that support clean energy technologies. Lotilla was also the president and CEO of the Power Sector Assets and Liabilities Management Corp. (PSALM).

Monalisa Dimalanta, the new chairperson of the Energy Regulatory Commission (ERC) was the chief legal counsel and compliance officer of Aboitiz Power Corp. She was previously the chairperson of the National Renewable Energy Board (NREB), where she helped pave the way for the Green Energy Auction Program (GEAP).

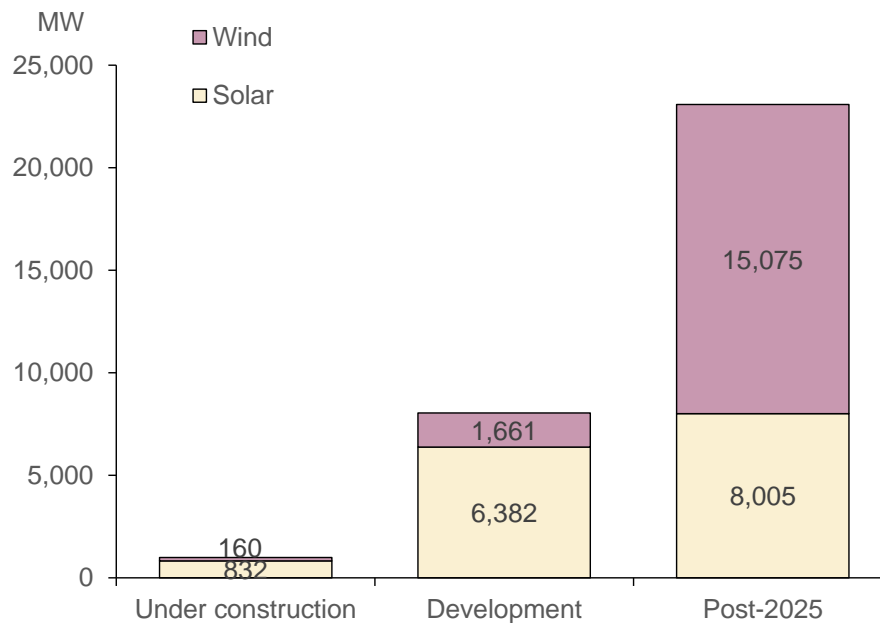
Thus, **we see better clarity in the leadership of the DOE and ERC now as Mr. Lotilla and Ms. Dimalanta are seasoned officials within the energy sector.** Furthermore, the continuation of the previous administration's moratorium on coal development signals the favorability of renewable energy development, as well as the DOE's aim for consistency in terms of core policies. Recent regulatory circulars and memoranda issued during the first 100 days of the new administration also show the high degree of activity from the government in terms of encouraging private sector investments in energy.

WHAT ARE THE NEAR-TERM OPPORTUNITIES

Under DOE DC 2022-11-0034, foreign energy developers will be treated essentially the same as their local counterparts in terms of technical, financial and regulatory obligations. For prospective RE contracts, foreign entities can opt to directly perform the Exploration, Development and Utilization (EDU) of renewable energy sources and they will be governed directly by the existing 2019 Omnibus Guidelines on the application and administration of RE contracts and registration of RE developers.

For existing RE service and operating contracts, there is no need for DOE to issue a separate process for increasing the equity participation of foreigners. The terms of binding agreements are between the foreign investor and the local partner. As of August 2022, there are a total of 15.3 GW solar and 17.5 GW wind energy contracts in various development stages. **367 MW of “merchant” solar assets (i.e. uncontracted solar plants which sell to the WESM spot market) may be interested to divest their assets; many early- to late-stage energy contract owners are keen to attract foreign capital infusion for their projects to move forward.** Development premiums charged by local project proponents vary hugely. The prospective foreign investor should consider these premiums in computing their rate of return.

Figure 4: DOE’s List of Solar and Wind Projects

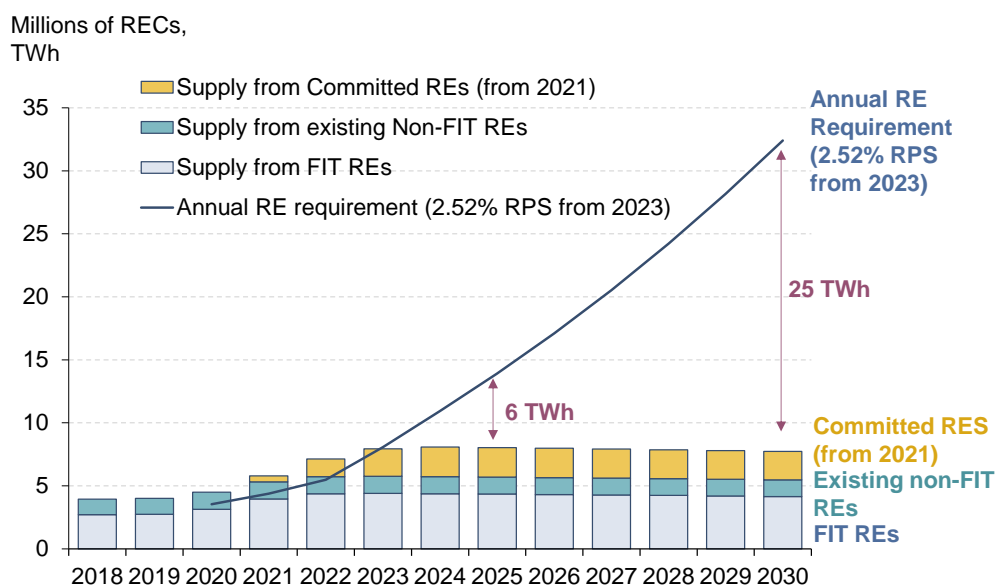


Note: Projects under developments have secured most of the permits and many are waiting to get capital injection to help them move forward the projects. Post-2025 projects are those with Energy Contracts from the DOE but are in very early stage of development.

Source: Committed and Indicative List of DOE solar and wind projects as of Sep 2022

Furthermore, the Department of Energy (DOE) has implemented the Renewable Portfolio Standard (RPS) since 2019. Obligation on the load serving entities (i.e. distribution utilities and private retailers) is to increase RE share by 1% each year in 2019-2022. The latest DOE circular issued in September 2022 increased the annual obligation to 2.52% from 2023 onwards. In order to meet the latest RPS requirement, about 25 TWh of additional renewable generation is required by 2030, translating to an annual average of 2.4 GW of solar or 1.3 GW of wind capacity in 2024-2030. This is a sizeable increase from the past 5 years. The Philippines is also about to start the trading of renewable certificates in the RE market, the price of RE certificates will likely be able to provide upside for both existing and new wind and solar capacity.

Figure 5: Supply and Demand of RECs, 2018-2030



Source: Committed and Indicative List of DOE solar and wind projects as of Sep 2022

GLOBAL TECHNOLOGIES, LOCAL KNOWLEDGE

The costs of solar panels and inverters are projected to become cheaper in the long term. However, local cost components such as land, construction, development, and insurance still largely influence the cost differential for different RE projects like solar PV in the Philippines. **It is therefore crucial that international energy developers hire experienced local professionals to help them navigate the intricacies of Philippine energy development**, particularly in securing permits, certifications and endorsements from national and local government units and regulators. Local hires with on-the-ground energy development experience can manage site- and project-specific issues such as varying interpretation of rules at different administrative levels, policy and

guideline changes upon assumption of new leadership, compliance to obligations, and eligibility for incentives.

The DOE circular does not address land ownership of foreign corporations and rightly so, as the rules shall only cover exploitation, development, and utilization of renewable resources. A separate law, the Investors' Lease Act of 1993, allows the long-term lease of private lands to foreign investors under certain conditions. **Land acquisition is a lengthy process** which entails the services of highly skilled land specialists who can negotiate with local landowners on behalf of the foreign energy developers. Land suitable for solar power generation is typically situated in rural areas. Thus, land conversion, reclassification, aggregation, and other related activities may be required before construction could begin.

Furthermore, **compliance with regulations at the sub-national and local government levels is important, as these complement the national level policies.** For example, securing development rights for floating solar PV can differ from one waterbody regulatory agency to another. Local government units (LGUs) that host these projects may have their own policies and development plans which support renewable energy development, and there may be additional technical, financial, and legal obligations present.

The influx of renewable energy projects has also pressured the National Grid Corporation of the Philippines (NGCP) to build more transmission lines and upgrade existing ones, subject to the ERC's approval. **Transmission capacity connection is a crucial issue that needs to be addressed during the development phase**, or else the power projects will be delayed for a long time or highly likely to be curtailed. A system impact study (SIS) is required by the NGCP during the development phase, which can be commissioned by NGCP or through an accredited third-party SIS preparer.

COMMERCIAL ROUTES TO MARKET

The Philippine power market has been deregulated since the passage of EPIRA. It has a competitive wholesale electricity spot market (WESM) which operates in the Luzon and Visayas grids, which are interconnected. Renewable developers in Luzon and Visayas always have the option to sell to the spot market. Nonetheless, as the spot prices in WESM are volatile and event driven, it is very challenging to get financing if the projects are 100% merchant; many RE developers typically seek to cover more than 50% of their expected power generation with power contracts. Several contracting routes are available:

1. **Competitive Selection Process (CSP).** Since 2016, Distribution Utilities and Electric Cooperatives (DUs/ECs) are required to publicly tender their power supply via CSP. Renewable developers can participate in the CSP to win 20-year long term contracts with the utilities. For the large DUs (like Meralco), their CSP usually attracts attention, and they must make it “fair”. For the small DUs and ECs, it is necessary to have good local connections to understand the background and nuances of their procurement needs.
2. **Green Energy Auction Program (GEAP).** Renewable developers can participate in future GEAP tenders, which offers 20-year long term contracts. The DOE is planning to roll out the second GEAP in 2023 after its first GEAP done in H1 2022 which awarded 2 GW of renewable capacity in solar, wind, hydro and biomass.
3. **Green Energy Option Program (GEOP) or Retailers.** Renewable developers can sign up long-term contracts with existing retailers or Green Energy Option Program (GEOP) operators.
 - An example for this option is Nexif Energy’s PSA with SN Aboitiz Power to retail electricity from the former’s 75 MW Calabanga Solar Power Project via a 10-year contract.
4. **Renewable developers can directly set up a retail arm and sell to contestable customers.** As solar and wind have specific generation profiles, they need to bundle with other generation sources to sell to the large end-users. There are still no financial derivatives in the power market, so pure solar and wind developers have challenges to manage their merchant exposure risk if they decide to use the WESM as a source to bundle with their solar and wind generation to sell to end-users.

INNOVATIONS IN FINANCING

In addition to traditional corporate, project financing can be achieved via bond issuance, initial public offerings (IPOs) and real estate investment trusts (REITs). Green bonds have become popular in recent years and have been raised by local banks to finance and re-finance eligible energy projects. An IPO and an energy REIT have been offered to the public due to the favorable perception on renewable energy projects, particularly for solar photovoltaic. These instruments were used to purchase properties for solar project development and for construction activities.

For solar projects planning to sell to the spot market, the Development Bank of the Philippines (DBP) has a Solar Merchant Power Plant Financing Program (SMPP) to finance 50-60% of the project capital cost with a tenor of 12 years and a one-year grace period on principal payment. DBP is planning to finance a total of at least 262 MW of solar projects in Luzon and Visayas in its initial run. Projects of 10 MW and above are eligible to apply in the SMPP.

CONCLUSION

The foreign equity restriction on renewable energy technologies has been eased recently. This shows that the Philippines is once again open for business in attracting foreign direct investments. Foreign energy investors will be treated just like their local counterparts, in terms of compliance with obligations and the enjoyment of incentives.

Opportunities abound in existing energy projects and those under different stages of development, through acquisition, or through direct energy contract application to the DOE. On the policy front, the increase in the annual incremental RPS requirement from 1% to 2.52% translates to a need of a sizeable annual solar and wind capacity expansion to meet the new RPS.

The introduction of foreign technology and capital will be a welcome relief when the Philippine economy rebounds from the effects of the Covid-19 pandemic and help its energy mix gradually shift towards renewables. However, these investments should be coupled with the knowledge of local expertise who can help the foreign investors succeed in their venture into the Philippine power market.