ENERGY

I. MARKET OVERVIEW

The Philippine energy sector is comprised mainly of conventional fossil fuel (coal, diesel, and natural gas) and renewable energy (geothermal, hydro, biomass, solar, and wind). Power generation contributes up to 7% of the country's GDP growth.

The energy consumption recorded for 2014 was 77 261 GWh with a 2,65% increase as compared to 2013.

The Philippines has been recognized as having one of the highest electricity prices in the Asia Pacific region. 68,44% of the total sales (43 351 GWh) were contributed by the private sector utilities, while the remaining 24,22% (15 340 GWh) were from electric cooperatives.

The installed and dependable energy capacities of the country as of 2015 are shown in the tables below, by fuel type and by the three major island grids.

FUEL TYPE	Philippines			
	Capacity (MW)		Perecent Share (%)	
	Installed	Dependable	Installed	Dependable
Coal	5 893	5 632	31,5	34,2
Oil-based	3 610	2 734	19,3	16,6
Natural Gas	2 862	2 759	15,3	16,8
Geothermal	1 917	1 601	10,3	9,7
Hydro	3 600	3 073	19,3	18,7
Wind	427	379	2,3	2,3
Solar	165	125	0,9	0,8
Biomass	221	146	1,2	0,9
TOTAL	**18,695**	**16,451**	**100**	**100**

GRID	Capacity (MW)		Percent Share (%)	
	Installed	Dependable	Installed	Dependable
LUZON	13 598	12 179	72,7	74
VISAYAS	2 683	2 228	14,4	13,5
MINDANAO	2 414	2 044	12,9	12,4
TOTAL	**18 695**	**16 451**	**100**	**100**

II. MAIN LEGISLATIVE AND REGULATORY FRAMEWORK

By law, the businesses of power generation, electricity distribution and supply are fully privatized. Electricity transmission on the other hand is a regulated monopoly under the National Grid Corporation of the Philippines. The Energy Regulatory Commission is the government agency that regulates the industry.

Republic Act No. 9513 or the Renewable Energy Act of 2008 institutionalized the renewable portfolio standard (RPS), which requires electricity suppliers to source an agreed portion of their power supply from eligible green technologies such as wind, solar, run-of-river hydroelectric, biomass, and hybrid systems. The RPS rules mandate priority purchase, grid connection and transmission of electricity generated from these emerging RE technologies. Complementing the RPS is the feed-in-tariff (FiT) system, which guarantees payment on a fixed rate per kilowatt hour for electricity generated from the emerging RE technologies.

The Department of Energy (DOE) also launched the National Renewable Energy Plan (NREP) which has set targets for generation for each renewable energy source, including biomass, geothermal, hydro, solar

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ENERGY

and wind. Its target is to more than double the country's renewable energy installed capacity to 9 525 MW by 2030 from its 2010 level.

III. MAJOR OPPORTUNITIES FOR EU BUSINESSES

Geothermal Energy. According to the DOE, the country is the world's second largest generator of geothermal energy, next to the US. About 2 000 MW are produced in 7 plants; European companies can respond to the stated goals of the state to develop additional 35 plants.

Hydrothermal Energy. The Philippines produced at least 3 600MW of hydrothermal energy in 2015, having a 19,3% contribution to the country's total energy production. This gives foreign electro-mechanical manufacturers an opportunity to export electro-mechanical equipment and set-up facilities here in the country. Under the NREP, plans are to increase the production of hydropower to 5 400 MW by 2023 since there is an estimated 13 000 MW of untapped hydrothermal energy potential in 88 large hydro potential sites and 888 mini-hydro potential sites.

Biomass or Biogas. The Philippines produces a good amount of biomass energy that is sourced from sugarcane, rice hull, coconut residues, fuelwood, and even animal wastes. Sugar cane production is one of the major industries in the Philippines with an average annual production of 2,2 million tons. Almost all wastes from the refining process (e.g. bagasse) can be utilized as fuel, wastewater can be treated by an anaerobic system that produces biogas, and molasses can be used for ethanol production. European technology providers can help realise the potential of this energy sub-sector.

Wind Energy. The Philippines is the first among ASEAN members to invest in large-scale wind technologies, having a potential production of 7 412 MW covering 1 038 wind sites. The roadmap of NREP also targets to add 2 345 MW wind power capacity by 2030.

Solar Energy. As solar energy can be used anywhere in the country, it is being favored by large-scale power plants. Photovoltaic power, for power and non-power application, is used in rural areas such as individual solar home systems and community-based lighting applications (e.g. streetlights, village centers, schools).

Ocean Energy. There is still a need for foreign trainers and researchers to come in and conduct further case studies regarding this sector, and to bring in appropriate technologies for transfer and investments for the necessary infrastructures.

Clean Coal. Key investments include the setting-up of coal preparation plants to upgrade the quality of Philippine coals and make them acceptable to current coal users; the expansion of production volumes of higher-rank coal; the introduction of clean coal technologies (i.e. circulating fluidized bed combustion); and the putting-up of mine-mouth power plants designed to utilize the abundant low-rank coal that have no alternative markets.

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